

ASPECTS OF INDUSTRIAL DEVELOPMENT IN MODERN THAILAND:  
A GEOGRAPHICAL STUDY OF RECENT CHANGES

by

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ABSTRACT

Raising the standard of living of the population in the less developed countries is a subject of international interest. Rapidly increasing population and stagnation in the traditional sectors of the developing countries have prompted the idea that industrialization can be the panacea of poverty. Thus, over the past few decades, industrial development has been receiving a great deal of attention from the government of these countries as well as the developed countries and international agencies. However, the effectiveness of industrialization as a solution to the problems of employment and unfavourable terms of trade is still debatable. Thailand, a predominantly agricultural country with a high rate of population growth, is no exception to the general rule. The country has made some significant progress in industrialization since the beginning of the 1960s. Along with the building up of the basic infrastructure, various incentive measures were introduced to encourage industrial development. However, as old problems were solved, new ones have emerged. At the same time, there has been a growing realization that the process of industrialization is becoming more complex. As an example of a late-comer in industrialization, a detailed study of the case of Thailand could reveal some of the problems shared by other developing countries.

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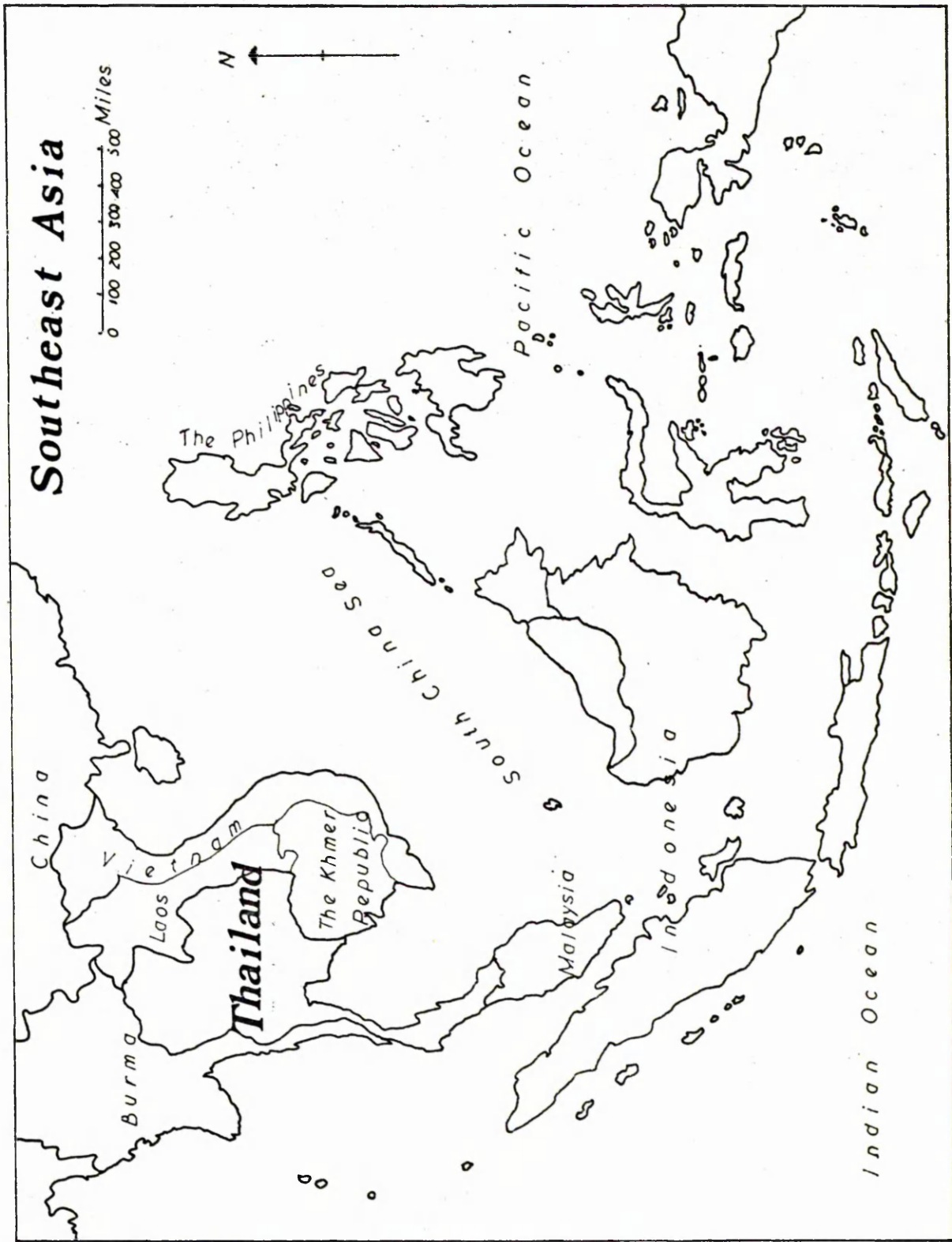
GLOSSARY

1 rai = 0.4 acre

160 sq. metres

0.16 hectar

50 baht = 1 pound Sterling



## CHAPTER ONE

## INTRODUCTION

One of the most significant modern economic phenomena is that the gap between the standard of living of the rich and poor countries has been constantly widening for over a century. Economic progress which began in Europe and then spread to North America and Australasia in the past centuries has separated these areas from the rest of the world, namely Latin America, Asia and Africa with a few exceptions. "Under-development," as defined by Bauer, simply refers to a low level of economic and technical achievement, it does not refer to other achievements or quality.<sup>1</sup> The countries in which the levels of real income and capital per head of population are low by the standards of the economically advanced countries are referred to in the economic and geographical literature as poor, developing, under-developed, backward and third-world countries.

General Introduction

The economic structure of developing countries is generally dominated by the agricultural sectors: manufacturing industry is comparatively unimportant. However, their stage of economy varies, ranging from almost complete dependence upon subsistence with a limited application of technology to

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1. Bauer and Yamey, The Economics of Under-developed Countries (Cambridge: James Nisbet and Co. Ltd. 1957), pp. 3-5.

specialization on agricultural exports. Unlike the economically advanced countries, the major proportion of labour force of developing countries are engaged in primary activities of agriculture and mining, and thus those in the industrial sector are insignificant.

These countries are also varied in terms of their demographic background. They differ in their population density: some are relatively thinly settled but others are densely populated in relation to the land and natural resources available. Certain areas, as in Latin America and Africa, tend to be under-populated whereas some Asian countries are considered as over-populated. Furthermore, the size of total population varies greatly from country to country. The population growth rate is of great significance. Generally, the population of developing countries increases more rapidly than that of developed areas, at about 3% a year. The "Public health revolution" is considered to be responsible for the reduction of death rate while the birth rate remains high.<sup>1</sup>

- 
1. Myint comments on the phenomenon of "population explosion" in developing countries. He states that before contact with the West these areas had an equally high birth rate of 4% per annum. The introduction of a modern administration, public health measure and individual medical attention reduced the death rate from 4% to 1%. He concludes that thus the minimum possible rate of population growth will approach 3% per annum if the birth rate remains the same at 4% and the death rate is reduced to 1%.

H. Myint, The Economics of Developing Countries (London: Hutchinson, 1967), p. 29.



The excessive population increase in relation to the development of resources is an obstacle to economic growth of developing countries in which the rate of capital formation tends to be low. Capital accumulated has to be spent on the increasing population without actually raising the per-capita productivity by any appreciable degree. Mountjoy remarks that, if the rate of population growth is 2% to 2.5% per annum, it requires a capital investment of 10-12% of the national income only to maintain the present low living standards.<sup>1</sup> In countries where the population density is already high, the problem is generally more severe because of the often quoted phenomenon of "disguised unemployment."<sup>2</sup> Myint suggests that the trade contact between developing and developed areas induced the former's economy to shift at least partially from subsistence to specialization. Moreover modern medical services also introduced a high population growth rate without a corresponding economic growth.<sup>3</sup>

Poverty is a striking characteristic of these countries, but there is a considerable range in degree.

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1. A.B. Mountjoy, Industrialization and Under-developed Countries (London: Hutchinson 1966), p.33.
  2. Disguised unemployment has several connotations according to different authors, but in general it describes what has happened in over-populated areas where the growing labour force adds itself to the already densely populated rural area without any productivity contribution.
  3. Myint, op.cit., pp. 23-7.

The economic variation amongst them are widely observable.

Gill for example states:

Even when we limit our attention to the definitely poor countries of the world, we still find a great variety of conditions. Some are much poorer than others. Some are growing; some are not. ....  
 ..... In some countries, such as Ceylon, Colombia, Peru and Indonesia, there is a relatively rich endowment of natural resources; in other such as Jordan and Yemen, the poverty of resources may be a major deterrent to development. <sup>1</sup>

### The development motivation

There has been considerable debate concerning the disadvantages of an agricultural economy which contributes a high percentage to the gross national product, employment and export earnings of developing countries. Being highly dependent on a few primary commodities exported, the economy is affected by the fluctuation of world market prices. Yields of crops varies from year to year owing to the natural environmental factors which are beyond human control. The ability to respond rapidly to demand situation of such commodities is low. Some countries in which population growth is increasingly rapidly, the exportable products may be domestically consumed instead of gaining export earnings especially if the products are predominantly food crops.

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1. R.T. Gill, Economic Development: Past and Present (New Jersey: Prentice Hall, 1963), p. 80. Other similar statement is given by Bauer and Yamey, op.cit., pp. 4-7.

Primary products exported from developing countries are always adversely affected by demand and price in the world market. The elasticity of world demand for agricultural goods is low: relatively extra little volume of such goods is bought if prices fall and, when income rises, a less than proportionate extra amount is spent on them. Moreover it seems that the population growth rate of developed areas which constitute the major market is low. It is therefore difficult to expect export expansion from developing countries. Not only do food products display an unpromising trend, but agricultural raw materials are also affected by technological advance in importing countries which produce substitutes for natural products, such as synthetic rubber and yarn. In addition, technological progress has proved that natural raw materials can be utilized more efficiently and economically. Even though minerals are considered as having better prospects than other categories of primary commodities, they are exhaustible. The possession of valuable mineral deposits such as petroleum, coal and iron ore do not ensure the eternal prosperity of the possessing countries. The aforementioned situation brings about uncertainties of the living standard and level of consumption of people in developing countries and create formidable difficulties for maintaining a steady flow of investment in long term economic development.<sup>1</sup>

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1. Myint, op.cit., p. 26.

The topic of the terms of trade turning against the primary commodities has often been discussed from different points of view. Some writers, such as Bauer, do not accept the idea of long-term decline of primary commodities trade. On the other hand, some authorities support the view that the terms of trade at which developing countries exchange their product for imports of manufactured goods from developed countries have declined. The underlying conception of the United Nations Conference on Trade and Development (UNCTAD) is also based on this contention.<sup>1</sup>

Unfavourable economic trends compared with advanced areas and the population pressure are noticeable features prevailing in the developing countries. It becomes apparent that the gap between these two areas cannot easily be bridged. Recently, aspiration for improvement in the standard of living have become widespread in most developing countries. However, it is difficult for them simply to adopt the process which operated during the last century in the Western world. Even though modern technology can be

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1. A well-known concept on this subject is the "Prebisch Theory" which presents the viewpoint that many developing countries have had difficulties in the deterioration of the terms of trade which seems to continue in the long run. Industrialization is strongly suggested as a way to improve the situation. This theory has been both supported and refuted by many writers; for examples of the discussion on this theory see W. Baer, "The Economics of Prebisch and the ECLA," and P.T. Ellsworth, "The Terms of Trade between Primary Producing and Industrial Countries," I. Livingstone (ed.), Economic Policy for Development (Middlesex: Penguin Books, 1971).

transferred to stimulate economic growth, it is not so easy to apply such advanced innovation efficiently to an area with a different social and cultural background. Moreover, some countries are hindered by the added obstacle of mounting population pressure which slows down the desired pace of economic development. However, rapid economic advance is necessary to raise the standard of living of the existing population as well as to cater for the continuing population increase. Two approaches are suggested: the first is the endeavour to reduce the rate of population increase and the second is to increase productivity at a rate greater than the rate of population growth.

The first suggestion is concerned with family planning and population control programmes. However, it is considered that such programmes take a long time to become appreciably effective. This is because of the inadequacy of education and public expense involved. In addition, in some communities this scheme is objected to on the grounds of prevalent social attitudes.<sup>1</sup>

Accelerated economic growth with increased per capita productivity are generally regarded as primary aims of national development. In the strategy of promoting such development, developing countries are faced with some

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1. B.W. Hodder, Economic Development in the Tropics (London: Methuen, 1968), p. 90, explains the difficulty in the birth control scheme.

very difficult problems of selecting priorities. Some favour accelerating the development of agriculture through such schemes as introducing high yielding crop varieties, construction of irrigation facilities, production of farm chemicals and development of agricultural educational services; other, however, devote their sole attention to developing their industrial sector, many of this latter group disregarding their lack of natural resources and industrial experience as significant obstacles. Industrialization has its obvious advantages but it could obviously not be the panacea for problems of mounting population pressure and low standard of living for all developing countries.

The limitations imposed by the resource base of developing countries has led to contrasting views of the appropriateness of the agricultural and industrial sectors as leading sectors in the development process. Each authority raises many criteria to support his point of view.<sup>1</sup> The school of thought which supports agricultural priority could be presented as the following statement:

The agricultural sector serves in various roles, It provides a large part of the subtenance of the growing urban population. It also supplies a market for manufactured goods bought out of higher real incomes, a source of capital for industry, and a source of foreign income to pay for imported capital goods for industry.<sup>2</sup>

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1. There are many discussions on priority question. For examples see Sutcliffe, Industry and Underdevelopment (London: Addison-Westley, 1971), Chapter Three; Hodder, op.cit., pp. 158-66; Livingstone (ed.), op.cit., "Agriculture versus Industry in Economic Development."
  2. Bauer and Yamey, op.cit., p. 235.

The opposite view could be summarized as:

(It is) much better to develop a strong industrial sector within the country. Instead of spreading her efforts thin; the country must concentrate her all on this critical task. In time, these efforts will produce a nucleus of skilled, energetic, growth-minded people and, through them, a spark will be kindled which will ignite the rest of the population.<sup>1</sup>

The recommendation for industrial priority may come from the obvious disabilities of agriculture and may also be influenced by the evidence that economic structure of advanced countries are dominated by industrial activities in terms of employment, national output and export value.

A compromising approach is advanced by those who support the balanced growth theory which confirms that there is a fundamental inter-dependence between the different sectors of an economy. As the following typical statements illustrate:

There is no simple choice between developing either industry or agriculture, the two sectors are intimately related.<sup>2</sup>

and

Industrial and agricultural development are not alternatives but complementary and mutually supporting with respect to both inputs and outputs.<sup>3</sup>

No country can completely concentrate on one single sector. The inter-dependence of agriculture and industry

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1. Gill, op.cit., p. 94.

2. Mountjoy, op.cit., p. 78.

3. G.M. Meier, Leading Issues in Developing Economics (New York: Oxford University Press, 1964), p. 194.

are acknowledged as development plans are formulated. Also, the emphasis on any particular sector may be changed as the development process progresses. Agriculture, usually, receives more attention at least in the early stage of development. India is an example often quoted to illustrate the dangers of heavy investments made in the industrial sector at the expense of agriculture. However, industrial development schemes are prominently featured in many national economic development plans for developing countries. Industrialization is regarded as a means of economic structural diversification, reducing over-dependence on a single, usually agricultural, sector. It is also expected to relieve the balance of payments difficulties by increasing the value of the exported primary commodities, by some form of processing and at the same time by reducing imports by producing locally some of the previously imported products. Significantly, it is also considered useful as a measure to create employment in order to absorb surplus labour from agricultural activity.

Of course, it must be borne in mind that industrialization without corresponding development in agriculture would create problems of sectional imbalance. Furthermore, in countries experiencing rapid population growth, economic development efforts will be doomed if population control programmes are not undertaken simultaneously. Nevertheless, industrial development which involves fundamental structural



changes in the economy requires proportionately more attention from the government.

Developing countries have a great variety of experience in industrialization.<sup>1</sup> Some countries have good prospects for further industrial expansion, but with others the industrial potential is not so promising. Predominantly, they are restricted by such major obstacles as a small domestic market, lack of skilled, managerial and entrepreneurial personnel, inadequate capital supply and infrastructure. Each country attempts to remove these deterrents and to improve the industrial investment atmosphere. Most industrial development programme is aimed at the replacement of formerly manufactures imported. This policy is known as import substitution which is a means of industrialization through the establishment of consumer goods industries to supply the local, controllable and often protected, market. Developing countries have been involved in this type of development strategy to a greater

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1. According to the classification of the World Bank on the level of industrialization of developing countries, the countries are divided into four groups. It regards one with less than 20% manufacturing in total commodity production as "non-industrial," one with 20% to 40% as "industrializing," one with 40% to 60% as "semi-industrialized," and one with more than 60% as "industrialized developing countries.

World Bank, Industry, Sector Working Paper, April 1 1972.

or lesser degree. Some have passed the first or the second decades, some may have started only recently. At present, it has become clear that an import-substitution policy can not achieve the expected goal. Usually the desirable increase of employment is not attained. Many writers suggest that an infant manufacturing sector would not provide much employment.<sup>1</sup> The import composition has been changed from consumer goods to intermediate and capital goods, but the value of import has not been reduced. This is a result of the fact that most developing countries cannot produce capital and intermediate products required by growing industrial and other activities. Thus at the initial stage of industrialization, these types of products have to be supplied externally. Industrial products usually have export problem owing to high costs of production. Accordingly, the balance of payments difficulty of such countries still continues and sometimes even deteriorates.

Recently, a shift in policy towards export-oriented industry has been widely advocated. The world market is considered as an increasingly important outlet for manufactures of developing countries. However, it is difficult

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1. See for examples: G. Myrdal, Asian Drama (Middlesex: Penguin Books), 1968, Chapter Twenty Four; Sutcliffe, op.cit., pp. 88-9; Asian Development Bank (ed.), Southeast Asia's Economy in the 1970s (London: Longman, 1971), p.227; Sear, "The Role of Industry in Development," Livingstone (ed.), op.cit.

to ensure the success of export schemes because advanced countries may also protect their market from developing countries' exports. It may be said that so far industrialization programmes in developing countries are still at the stage of trial and error. Even though the governments of these countries have offered much promotional effort to encourage industrial growth, it does not seem likely that industrial activity can become the leading sector in the near future. There are only a few exceptions such as Singapore and Hongkong, in which industry has grown satisfactorily.<sup>1</sup> Most of the developing countries still need more time and experience to create a strong industrial sector.

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1. These two examples have a different background from general developing countries in that they are highly urbanized, and the people concentrate mostly on secondary and tertiary activities.

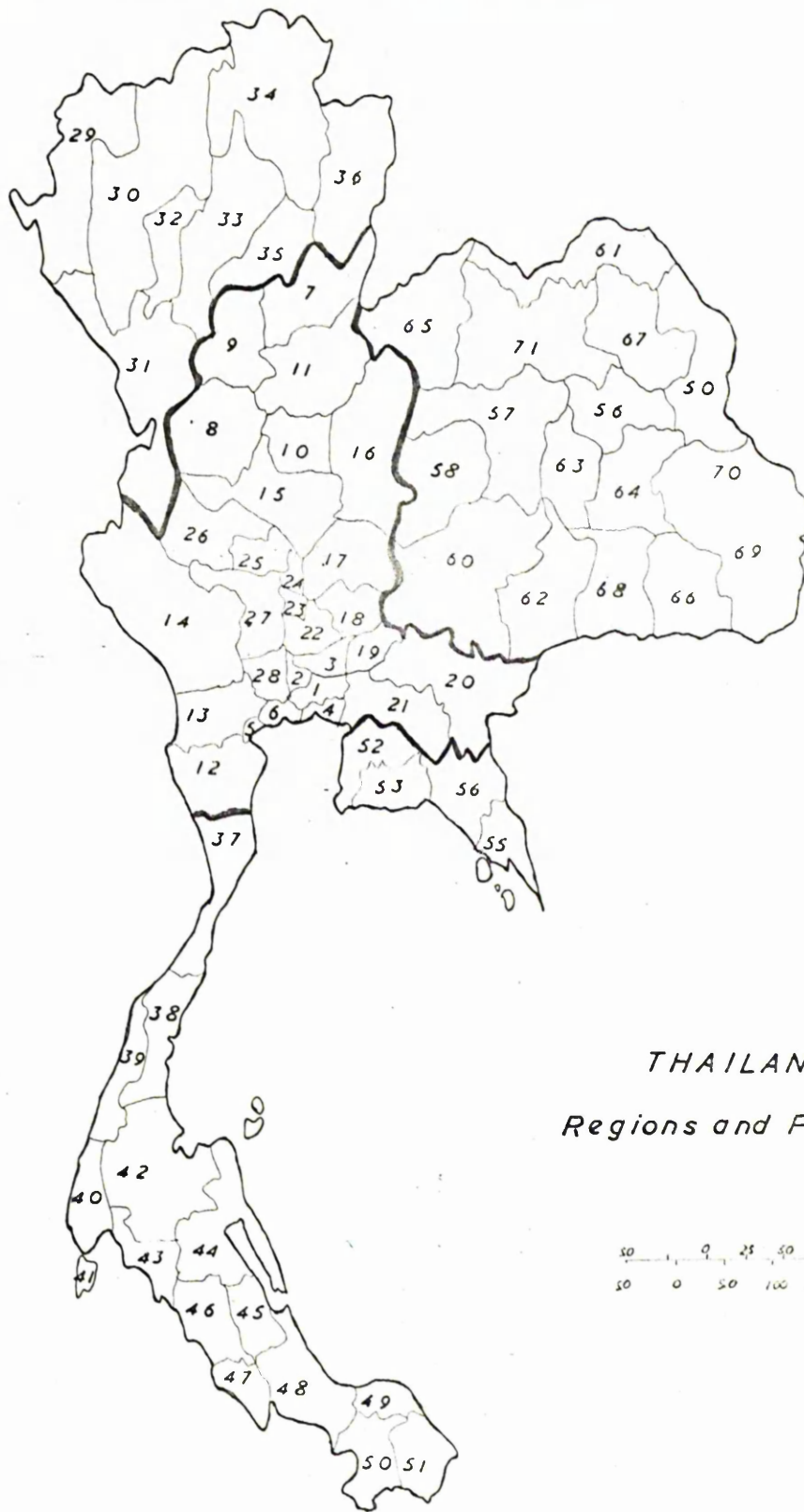


Fig. 1.1 For key of provinces see overleaf

Key to the provinces

The Central Plain: 1. Bangkok-Thon Buri, 2. Nonthaburi, 3. Pathum Thani, 4. Samut Prakarn, 5. Samut Songkharn, <sup>6. Samut Sakhon</sup> 7. Uttaradit, 8. Kam Phaeng Phet, 9. Sukhothai, 10. Phitchit, 11. Phitsanulok, 12. Phetchaburi, 13. Ratchaburi, 14. Kanchanaburi, 15. Nakhon Sawan, 16. Phetchabun, 17. Lop Buri, 18. Saraburi, 19. Nakhon Nayok, 20. Prachin Buri, 21. Chachoengsao, 22. Ayutthaya, 23. Ang Thong, 24. Sing Buri, 25. Chai Nat, 26. Uthai Thani, 27. Suphan Buri, 28. Nakhon Pathom, The North: 29. Mae Hong Son, 30. Chiangmai, 31. Tak, 32. Lamphun, 33. Lampang, 34. Chiang Rai, 35. Phrae, 36. Nan, The South: 37. Prachuap Khiri Khan, 38. Chumphon, 39. Ranong, 40. Phangnga, 41. Phuket, 42. Surat Thani, 43. Krabi, 44. Nakhon Si Thammarat, 45. Phatthalung, 46. Trang, 47. Satun, 48. Songkhla, 49. Pattani, 50. Yala, 51. Narathiwat, The Southeast: 52. Chon Buri, 53. Rayong, 54. Chanthaburi, 55. Trat, The Northeast: 56. Kalasin, 57. Khon Kaen, 58. Chaiyaphum, 59. Nakhon Phanom, 60. Nakhon Ratchasima, 61. Nong Khai, 62. Buri Ram, 63. Maha Sarakham, 64. Roi Et, 65. Loei, 66. Si Saket, 67. Sakhon Nakhon, 68. Surin, 69. Ubon Ratchathani, 70. Yasothon, 71. Udorn Thani.

Economic development programme in Thailand

Thailand, basically an agricultural country, has been trying for some time to strengthen the role of industry in her economy. The country has faced problems in both natural and human resources. Agriculture occupies the most important place in the Thai economy because of the suitability of geographical environment and the Thai people's attitude in favouring agriculture above other activities. The geographical and human conditions that have traditionally supported the growth of agriculture are responsible for the slow rate of industrial growth, in spite of the immense efforts exerted by the government.

During the past century Thailand has become specialized in the production of a few primary commodities whilst manufactured products are supplied externally. For a hundred years after 1850, besides the expansion in the production of rice, rubber, tin and teak, no significant other products or techniques of production emerged. Economic change consisted of an increase in volume of production which derived from the exploitation of natural resources without any change in the existing technology. The reason for the standstill in the Thai economic structure lies partially in the absence of strong incentives to stimulate further economic growth.<sup>1</sup> Population was

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1. Thailand may be compared with Japan in that these two countries were opened to modernization at the same time. Japan has developed from an agricultural to an industrial economy with accompanying technological progress whereas Thailand has not progressed in the sense of increase in

contd...

sparse relative to the available natural resources. The demand for agricultural exports was sufficiently strong to enable the country to maintain the way of living it considered desirable. The country maintained a favourable balance of trade until 1953. Ever since then a trade deficit has grown increasingly owing partly to the poor market for traditional Thai exports. Another recent phenomenon is the rapidly increasing population during the last two decades, the result of a high population growth rate of at least 3% per annum.

The aims of economic and social development were first enunciated in the late 1950s.<sup>1</sup> Three successive Economic and Social Development Plans have been formulated with the basic objective of attaining the maximum increase in the standard of living. The government considers agriculture the key sector from which growth will flow to

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Footnote 1 continued from page 15.

per capita income, utilisation of more capital relative to labour and the application of modern techniques. Ingram, Economic Change in Thailand Since 1850-1970 (Stanford: Stanford University Press, 1971), p.6; Muscat, Development Strategy in Thailand (New York: Frederick A. Preager Publisher, 1966), pp. 29-30 have the same view on this subject. Ayal indicates that social and religious values in Japan have played a significant role in economic growth stimulation. See E.B. Ayal, "Value Systems and Economic Development in Japan and Thailand," R.O. Tilman (ed.), Man, State and Society in Contemporary Southeast Asia (New York: Preager Publisher, 1969), pp. 535-49.

1. The desire for rapid economic growth is underlined by many factors such as emulation of other countries, the political instability in Indochina, the deteriorating balance of trade and the rapidly increasing population.

other activities. Policies aiming at the public and private sectors have been designed as complementary elements in the development process. The government has concentrated mainly on the provision of infrastructure with the aim of supporting further investment in the private sector in agriculture, industry and service activities.<sup>1</sup> The economic growth rate increased at the rate of 7.3% annually during the First Plan period (1961-66). The Gross Domestic Product (GDP) increased from 50,000 million baht to 87,000 million baht in 1966. During the Second Plan period, the annual growth rate was 7.2% and it is projected at a rate of 7% during the Third Plan period (1972-76). The average per capita income rose from 3,165 baht in 1967 to 3,840 baht in 1971, increasing at the rate of 4.6% per annum.<sup>2</sup>

1. The proportional distribution of public development expenditures to various sectors during the First and Second Plans is as the following:

Sectors	Estimated actual expenditure 1961-66	Planned expenditure 1967-71
Agriculture	13.9%	19.8%
Industry and mining	8.3	1.6
Transport and communications	26.1	29.7
Energy	16.8	8.6
Commerce	---	0.3
Community facilities	19.7	17.8
Public health	3.8	4.5
Education	7.4	11.5
Unallocated	4.0	6.2

Source: Thailand, The Second National Economic and Social Development Plan, p. 39.

2. The Third Plan, p. 169.



Economic diversification is an important aim of these plans. The effort to reduce the predominance of a few primary commodities has got under way. The contribution of agriculture to the GDP has fallen from 36.7% in 1960 to 31.6% in 1966 and 29.5% in 1971. The contribution of industry has not shown an equivalent increase since it has risen only from 10.4% in 1960 to 12.2% in 1967 and 16.9% in 1971. The contribution of construction, power, transport and communications and other service activities has increased considerably.<sup>1</sup> The trend of increase and decline of each sector in the proportion of the GDP, can be observed from Table 1.1.

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1. The terms "services-led growth" is used by a Thai economist to label the economic development pattern of Thailand between 1956-65. He argues that the high economic growth rate was achieved by the rapid growth of service sector at the expense of stagnation of other sectors. Nevertheless, he divides service sector into two groups namely infrastructure and non-infrastructure which cover widely the economic activities besides agriculture and industry. According to his study, infrastructure comprises transport and communications, public administration, construction, education, health and welfare; non-infrastructure includes trading, banking, ownership of dwelling and other services.  
C. Nartsupha, The Economic Development of Thailand 1956-65 (Bangkok: Prae Pittaya, 1968).

Table 1.1The GDP. between 1960 and 1971 and the target of 1976

Economic activities	Percentage distribution				Average annual growth rate		
	1960	1966	1971	1976	1961-66	67-71	72-76
Agriculture	36.7	31.6	29.5	26.8	4.6	4.1	5.1
Mining and quarrying	1.8	2.2	2.5	1.6	10.9	8.3	6.0
Manufacturing	10.4	12.2	16.9	17.6	10.2	9.2	8.0
Construction	3.9	5.1	6.6	6.6	12.3	8.4	6.5
Electricity and water supply	.5	.8	1.5	2.2	18.2	19.0	15.6
Transport and communications	7.0	7.7	6.8	6.5	9.0	7.5	6.0
Wholesale and Retail trade	17.8	18.6	16.2	16.4	8.0	7.7	7.0
Banking, Insurance and Real Estate	2.4	3.9	4.1	6.2	16.6	14.4	15.0
Ownership of Dwellings	5.0	4.1	1.9	1.5	3.7	4.1	2.5
Public Administration and Defence	5.1	5.1	4.5	4.3	7.2	10.0	6.0
Services	9.4	8.7	10.3	10.3	6.0	8.8	7.0
GDP.	100	100	100	100	7.3	7.2	7.0

Sources: The Second Plan, p. 28; The Third Plan, p. 33.

The Third Plan still emphasizes the diversification of the economy by projecting that the contribution of agriculture to the GDP. will be reduced from 29% in 1971 to 22% in 1981. Industrial and service activities are expected to achieve a rapid growth with an increasing share of national output. A family planning programme has been initiated to reduce the high population growth rate from 3.2% to 2.5% at the end of the plan period. The prospect of exports has been

receiving increasing attention since the evidence appeared in the last decade that primary commodities exported have had difficulties as a result of declining demand and value. The government is attempting to increase the range of primary products exported as well as the contribution of industrial products which contributed only about 2% of export earning in the 1960s.

Industry has been expected to increase its role as a consumer of local raw materials, an absorber of the increasing labour force and an earner of foreign exchange. The government has provided infrastructure facilities and offered various incentive measures to create a favourable investment atmosphere. However the industrial development process is still hindered by many obstacles such as the lack of capital and qualified personnel, urban concentration and export difficulty. Many measures have been introduced to overcome these hindrances. As the industrialization potential is fundamentally influenced by natural resources endowment, the natural environment is to be examined in some detail in the next section to provide the background for understanding the evolution of the dominant economic activities in Thailand.

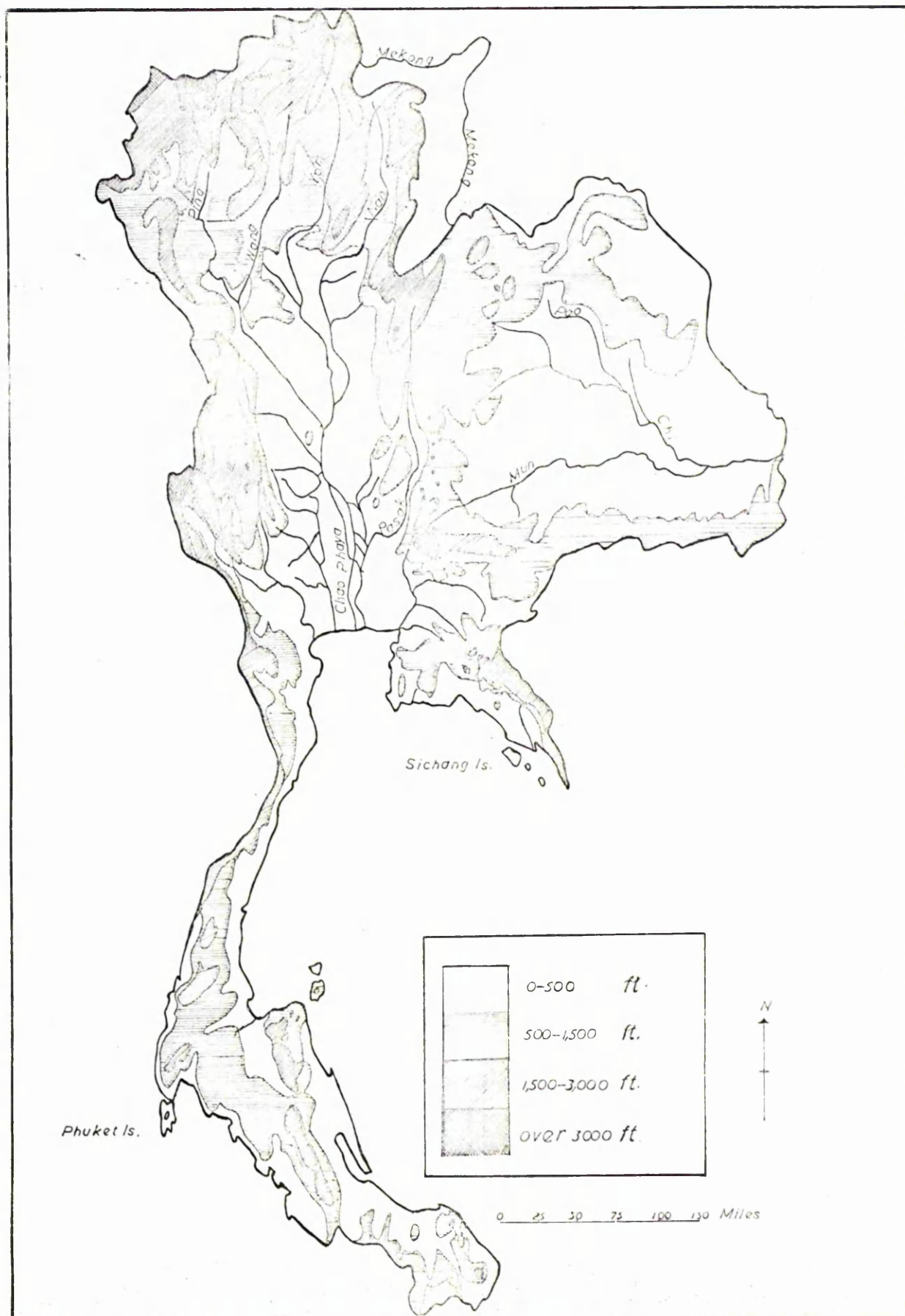


FIG.1.2 PHYSICAL FEATURES OF THAILAND

### Geographical Environment of Thailand

Thailand, situated in continental Southeast Asia, is bordered by Burma in the west and north, Laos in the north and east, the Khmer Republic in the east and Malaysia in the south. The country is in the tropical zone between latitude  $5^{\circ} 37' - 20^{\circ} 28' N$  and longitude  $93^{\circ} 22' - 105^{\circ} 37' E$ . The area is 198,455 sq. miles (514,000 sq. kilometres) with a land boundary of 3,200 kilometres and 2,625 kilometres of coast.

The climate is influenced by the southwest and northeast monsoon winds. During November and January the northeast monsoon blowing from the high pressure area in Siberia brings along with it low temperature and dryness. Most areas in Thailand do not receive any rainfall during this cool season with an exception of the peninsular east coast. Between May and October, the southwest monsoon blowing from the Indian Ocean brings rain to the whole country. The amount of rainfall depends on local relief and the distance from the sea. A transitional period between the two monsoons during February and April is characterized by dry and hot weather. Thus three distinct seasons can be observed in Thailand namely the long rainy period, the cool-dry season and the hot-dry summer.

The temperature is rather high all year round. The average in summer is between  $33^{\circ} - 38^{\circ} C$ . It is still warm even in the cool season when the temperature of the North

and Northeast average about  $16^{\circ}\text{C}$ . whereas the Central Plain and the South are about  $20^{\circ}\text{C}$ . The North has a more continental climate than the Central Plain, prevailing with hot season and considerably lower temperature in the cool season. The difference of temperature between seasons is greater in the Northeast. The South has no clear distinction between hot and cool season; the temperature averages about  $26^{\circ}\text{C}$ . in cool season and  $27^{\circ}\text{C}$ . in summer.<sup>1</sup>

The average annual rainfall in Thailand is about 60 inches. Nevertheless, there are some parts where rainfall is much lower than average, namely the Central Plain which is surrounded on three sides by the mountain ranges, and some isolated areas in the Northeast which lies in the rain shadow of the inland mountain chains. An average 50" of rainfall prevails in the Central Plain Basin. In the west of the basin, a narrow belt northwards from the Gulf of Thailand, lies in the rain shadow of the Western mountains and the amount of rainfall is generally lower than 50". To the east of the basin, on the other hand, is a mountain range which faces the moisture-laden southwest wind and hence having a rainfall which is above the average. Rainfall in the Northeast is

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1. Senanarong, Geography of Thailand (Bangkok: The Association of Social Sciences of Thailand, 1969), pp. 32-3.

low as it is in rain-shadow areas. It rises to 80" or more in Khon Kaen province by convectional thunderstorm and cyclonic influence. Actually, this region is not much drier than other parts of the country. Agriculturally, the difficulty is inability to use efficiently the water available. In the rainy season, the low gradient and the slope of valleys lead to water-logging. The valleys and the flat plains receive too much water in a short period to grow any crops, even wet rice. The Northeast, on the other hand, suffers in the dry season from the high evaporation and characteristics of soils which are sandy and have poor water retention.<sup>1</sup>

The areas with high rainfall are the windward slopes of mountains in the passage of the rain-bearing wind, such as the western mountains, the west coast of the peninsula and the Southeast. Rainfall occurs here throughout year with an annual average of over 80". In the South, the east and west coasts are different in terms of rainy period; the west coast receives high rainfall

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1. The soils of the Northeast are low in their content of plant nutrients, and mostly saline. Pendleton explains that the high salt content of soils is derived from the rising ground water in the hot rainy season which dissolves salt and brings it up into the superficial layers. In the dry season, an accumulation of salt develops at the surface of the soil through evaporation and capillary rise of moisture from the deeper layers. Thus crusts of salt develop on the surface in many locations.  
R.L. Pendleton, Thailand: Aspects of Landscape and Life (New York: Dull Sloan and Pearce, 1962), p.44.

during the southwest monsoon season whereas the east coast gets its rainfall from the northeast monsoon. The Southeast, similar to the west coast of the peninsula, gets more than 80" from the southwest monsoon.

### Regional differences

Thailand can be divided into five major geographical regions: the North, the Central Plain, the South, the Southeast and the Northeast.

The North is mountainous and has the highest general elevation of the country.<sup>1</sup> Granitic folded mountains lie parallel to each other and between them are the narrow basins of the four main tributaries of the Chao Phaya River.<sup>2</sup> These mountains are the major forest land of the country whereas the fertile alluvial valleys yield good crops. With the introduction of irrigation, crops such as rice, tobacco and vegetable can be grown all year round. The North also possesses a variety of mineral deposits including fluorite, tin, lignite, petroleum, wolfram and many others. The potential of this region lies in diversification in agriculture and

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1. The highest summit is in Chiangmai at a level of 8,450 feet.
  2. These four tributaries, the Ping (590 km.), the Wang (355 km.), the Yom (555 km.), and the Nan (627 km.) flow rapidly through narrow steep gorges before converging at Nakorn Sawan and becoming the Chao Phaya River.



other activities as well. Crops such as maize, soybean, cotton, groundnut are encouraged as well as inland fisheries and livestock. As far as secondary activities are concerned, processing of timber, vegetable oils, fruits are important. Production of simple tools and machinery has good prospects. Handicrafts have long been established and can be expanded to earn income for the region.

The Central Plain extends for 300 miles northward from the Gulf of Thailand and at its widest, measures some 150 miles.<sup>1</sup> The fertility of the Plain is maintained by the annual floods, occurring in the wet season between June and December. Despite the fact that the area lies in a rain shadow where rainfall is slightly above 50", it has become the major rice growing region owing to the suitability of alluvial soils and annual flooding.<sup>2</sup> In

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1. The Plain used to be a low basin. Its low level can be observed from the fact that Bangkok, 21 kilometres from the mouth of the Chao Phaya River is 3 metres above sea level; Ayutthaya, 96 km. farther north, is 5 metres above sea level; Nakorn Sawan, 240 km. farther, is 30 metres above sea level. It is drained by river systems comprising the Chao Phaya, the Ta Chin, the Pasak, the Meklong and the Bang Pakong Rivers. Senanarong, op.cit., p.22.
  2. E.H.G. Dobby, (Southeast Asia (London: University of London Press, 1967, pp. 270-76) gives details of rice cultivation in the Central Plain.

the northern part of the Plain "upland crops" such as cotton, maize, groundnuts are occupying an increasing share of the cultivated area.<sup>1</sup> Shrimp culture has been expanded along the coast for this product has an increasing local and external market. Processing industries spread throughout the region with high concentration of modern industries at and around the capital, Bangkok. The region is the centre of the transport system connecting it with all other parts of the country. Inland waterways are traditionally significant routes linking the North and the Central Plain. Highways and railways radiate from the capital city to other regions. Bangkok Airport and the Port of Bangkok, situated near the mouth of the Chao Phaya River, are the major foci of international traffic.

Some of the northern ranges extend southwards to form the western mountains which continue further to become the ranges of the Peninsula Thailand. This region can be divided topographically into two parts. The northern peninsula from Petchaburi down to Chumporn province is occupied in the west by high mountain ranges; but in the east there are narrow coastal plain. Short and fast running rivers flow from the western ranges directly to east coast. The southern peninsula is opened to the sea at both sides. Along the coasts, two ranges lie parallel

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1. The term "upland crops" defines the crops besides the wet rice cultivation in flood areas in Thailand.

from where streams flow down to the sea. The western coastline is a submerged indented shoreline whereas the east coast has an uplifted shoreline with a broader coastal plain. Along the west coast are many islands, the most important of them is the Phuket which possesses major tin deposits. The economy of this region highly depends on rubber and tin. Receiving high rainfall throughout the year and having well drained soils, the South is suitable for rubber growing.<sup>1</sup> Besides, other crops such as rice, coconut, fruits, vegetables and oil palm can be grown well. The economic potential of this region is associated with the increase in productivity of rubber processing, with the discovery of new deposits of tin and other minerals. Marine fisheries are another promising resource. Coastal transport connects the South with other regions and other countries as well. The construction of a deep sea port project at Phuket is under way. This port will serve as an export processing zone.

The Southeast has a rolling landscape with mountains in the east. The Cardamom range forms the border between Thailand and the Khmer Republic. Small alluvial deltas, built up by streams flowing from the interior highlands southwards to the sea, can be used for rice cultivation. The

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1. The four southernmost provinces, Narathiwat, Yala, Songkhla and Pattani, account for over 60% of total output.

higher well-drained slopes with deep red soils are used for fruit orchards, rubber, coconut, sugar cane and cassava plantations.<sup>1</sup> There are several islands situated off the coast, of which Sichang is the most important as it provides shelter for large liners which cannot navigate on the Chao Phaya River. Accessibility to the sea makes marine fisheries an important occupation. Shrimp culture has also been encouraged recently. Deposits of minerals including gemstone have been exploited. Beautiful scenery provides much attractions to domestic and international tourists.

This region is rich in natural resources which constitute a good basis for further development of secondary and tertiary activities. A rail line from Bangkok to link the Southeast with the Central Plain and the Northeast is being considered. The Southeast is presently connected with the capital by modern highway routes. Coastal shipping is another significant means of transport. A naval sea port has been constructed, and a commercial deep sea port project has been initiated. With locational advantages, this region could provide the site for processing and modern industries. There is a possibility that the region will be developed to an industrial complex.

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1. This area is facing soil-erosion problems caused by high rainfall and the fact that crops grown here, such as sugar cane and cassava, do not help much in soil protection.

The Northeast or Korat Plateau covering nearly one-third of the total area is separated from the rest of the country by mountain ranges in the west and south, the Petchaburn and the Phanom Dongrak respectively. It is bordered by the Mekong River and the mountains in the north and east. The plateau is undulating with scattered low hills and shallow lakes. The drainage system is poor owing to the low gradient.<sup>1</sup> Rivers have built up scattered alluvial patches which should have been good cultivable areas<sup>2</sup>, but agriculture has been hampered by severe floods in the wet season and drought in the dry season. Broad, flat and shallow river valleys, aggravated by low relief of the plateau induce the sudden floods when the water rises quickly from the downpour in the catchment area; sometimes flooding is augmented by the rising level of the Mekong. Even though the natural environments of the region is poor, the Northeast has few alternatives to farming. Rice is extensively grown but the yields are the lowest in the country.<sup>3</sup> Recently, crop diversification has made some

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1. Pendleton notes that the gradients of Korat's rivers are extraordinarily low; the Mun River falls only 300 ft. in 250 miles. Pendleton, op.cit., p. 132.
  2. The rivers, tributaries of the Mekong, are the Chi River (422 km.), the Mun River (172 km.) which flow from the western mountains eastward and converge to a single river in Ubon Ratchathani before uniting with the Mekong.
  3. Yield variation of each region in 1966 was as following:
 

The Central Plain	....	320	kilogrammes	per	rai
The Northeast	....	204	...		
The North	....	405	...		
The South	....	292	...		

 Senanarong, op.cit., pp. 83-4.

progress; maize and kenaf have become important cash crops. The Northeast possesses good potentials for livestock raising because of the availability of pasture which can be supplemented by feed grains and protein meals. At present it supplies cattle and water buffaloes to the Central Plain farmers. Agricultural processing industry utilizing local raw materials such as sugar cane, tobacco, cotton and kenaf are being encouraged by the government. Highways, irrigation and power supply projects in the region will contribute much to the further economic growth of the area.

#### Major economic products

The availability and characteristics of the natural resources are responsible for the specialization of Thai people in agriculture, particularly in rice growing. The cultivated area contributes about 22% of total land area of the country. The population is mainly concentrated on alluvial plains along the rivers in the Central Plain, the North and the Northeast. Considerable numbers of people in the South and around the Gulf of Thailand engage in marine fishing and other connected activities such as boat-building and salt panning. The North possesses valuable forests and the South has rich reserves of minerals and an environment suitable for rubber cultivation. These activities have long sustained the growing population by providing foodstuff as well as foreign exchange earnings.

The commodities which have played a vital role in export earnings such as rice, rubber, tin, teak, maize, kenaf and cassava are examined briefly in the following paragraphs.

Rice: The climate of Thailand is suitable for rice cultivation, as the low precipitation is compensated mostly by annual floods. It accounts for 70% of cultivated land and the output contributes nearly 10% of GDP. The Central Plain is the largest rice area and accounts for about 50% of rice production. The Northeast has nearly the same area as the Central Plain. The North, where rice is double-cropped or grown with other crops, has a smaller acreage but it gives the highest average yield of the country. The rice cultivated area of the South is also limited and the yield is moderate.<sup>1</sup>

Rice, grown previously for domestic consumption has become the single most important export since the last century because of the continued increase in external demand and improvement of transport facilities. However, it is now facing difficulties associated with both demand and supply.

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1. The rice cultivated area is 45.60 rai. The following figures show the distribution of the regions.

The Central Plain ...	20.27 million rai	(44%)
The Northeast ...	19.27 ...	(42%)
The North ...	2.27 ...	(4%)
The South ...	3.38 ...	(6%)

Senanarong, op.cit., pp. 83-4.

Owing to the limitation of suitable cultivable land, the farmers have expanded the paddy area into marginal areas with a subsequent decline in yield.<sup>1</sup> Another problem is that the rapidly increasing population is leading to a reduction in the quantity of rice available for export. So far the percentage of rice exports compared to production have declined from 51% in the 1910s to 26% in the 1950s.<sup>2</sup> As far as the demand is concerned, the Thai rice market has become narrower since the former importers such as Japan, Malaysia and the Philippines have become self-sufficient. Some of them even have a surplus which competes with Thailand rice exports. The share of rice in total export earnings has declined from about 50% in the beginning of this century to 20% in the 1969. In 1970, despite the increase volume of rice export about 5.6% of the previous year, the total value went down by 10% due to the extremely poor price in the world market.<sup>3</sup>

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1. A FAO report notes that rice yields fell on average from 302 kg. per rai in the period of 1902-20 to 237 in 1937-42 and to 211 kg. per rai in 1947-50. P.B. Bell, "The Role of the Entrepreneur in Economic Development; a Case Study of Thailand," Ph.D. thesis, University of Wisconsin, 1968), p. 42.
  2. Ingram, op.cit., p. 53.
  3. The Investor, April 1971.



Rubber: Rubber has long been the second major export commodity, accounting for nearly one-third of the total earnings. The product is exposed to the fluctuation of world demand and prices. The natural rubber market has declined as a result of severe competition from synthetic products as well as a decrease in demand from industrial countries. Thailand's total exports of rubber in 1972 amounted to 320,600 metric tons, valued at 1,900.4 million baht compared with 307,900 metric tons value at 1,905 million baht in 1971, representing an increase of 4.1% in volume but a decrease of 0.24% in value.<sup>1</sup>

Attempts are being made in the producing countries to reduce the cost of production by replanting the old low-yielding varieties with high yielding ones, and applying modern technology in processing.<sup>2</sup> Thailand lags behind Malaysia, the primary producer, in its replanting scheme. Although the scheme has been in operation in Thailand since 1961, the replanted area was only 568,491 rai accounting

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1. Bank of Thailand Monthly Report Bulletin, Jan. 1972 Vol. xii, p.7. Even though Thailand has ranked as the third rubber producer, the production is far smaller than the first two producers. In 1970, Malaysia produced 1.27 million tons, Indonesia .77 million tons and Thailand .28 million tons. (Siam Rat, Dec., 1971.)
  2. Being stimulated by the high demand of the Korean War boom in the early 1950s, the growers haphazardly increase the planted area with unselected low yielding varieties. At present, most of them are of old age which yields of latex are declining steadily.

only 10% of total rubber areas.<sup>1</sup> The programme was impeded by the small average size of the holdings and insufficient subsidies.<sup>2</sup> The fact that most of the holding are under 10 acres makes the technological improvement in rubber processing rather difficult.<sup>3</sup> So far the situation of rubber in Thailand has been unsatisfactory. To maintain the value of this export, comprehensive improvement schemes must be undertaken, including acceleration in the replanting, improvement in processing techniques, transport facilities and the market system. Failure to meet these requirements would make it difficult for Thai rubber to compete with the natural rubber of other countries and the synthetic product.

Tin: Thailand is generally poor in mineral resources, but tin, the major mineral, contributes about 80% of the value of mineral product. Tin deposits are largely located in the peninsula, where tin ore has been washed away from the veins in the mountains and then

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1. Bank of Thailand, op.cit.
  2. The subsidy is financed by a "cess" which is collected from rubber exported at the rate of .50 baht per kg. is paid to growers at the rate of 1,800 baht a rai. The government can finance the growers at a limited number per year. In addition, it is considered that there is a chronic shortage of suitable planting clones.
  3. It is claimed that the government is responsible for the small rubber holding because it limits the size of holding to 10 acres.

deposits in the alluvial plains along the coasts. The rich sources extend from Ranong to the Phuket Island where tin can be exploited both on land and off-shore. The relative importance of tin which was the second most important export commodity before the Second World War has decreased. It accounted for only 9% of export value in 1966. Expansion of tin mining is difficult due to the exhaustion of easily accessible deposits. The off-shore activity needs higher investment and the period of operation is restricted by the strong winds during the monsoon season.

Teak: Forest land in Thailand is about 260,000 sq. kilometres, or 51.30% of total area.<sup>1</sup> They distribute throughout the country, but the mountains in the North are more densely forested. The country possesses several types of forests; ones which are economically valuable include tropical evergreen forests producing various timber in the Southeast and South and mixed deciduous forests producing teak. Teak is scattered in the Northern and Western provinces and some areas in the Northeast. It is estimated that teak accounts for 65,000 sq. kilometres.<sup>2</sup>

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1. The government intends that about 50% of area should be forest, but it is being afraid that such a proposed percentage cannot be achieved. The forests have been cleared for agricultural purposes, and more severely, illegal felling of various timbers has destroyed many valuable forest lands.
  2. Senanarong, op.cit., pp. 104-5.

Teak exports reached a peak, both in value and volume, in the early part of this century when they accounted for 11% of total export. Since the 1960s exports have fluctuated widely and the production has decreased owing to the exhaustion of resources and the recent policy of conservation. At present, teak constitutes only 2% of export earnings. The decline of teak production cannot be alleviated in the near future because of the long period required for teak maturation and the reforestation programme is lagging behind schedule.<sup>1</sup>

Recently, crops other than rice have emerged as important export earners. This is the result of government policy in inducing farming diversification and of the good response of Thai farmers to the increasing external demand. It is worth noting that the Northeast can benefit considerably from these new crops.

**Maize:** Maize was introduced to Thailand hundreds of years ago, but it remained insignificant until the last two decades. It can be grown on sandy soil, and with adequate water supply double cropping is possible. The main cultivated areas are some provinces in the Central

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1. Teak needs large quantity of water supply and deep well drained soils. It takes about 150 years in such suitable ecology to grow teak to a felling size.  
Pendleton, op.cit., p.223.

Plain and the Northeast. It has displaced tin as the third export item by value. In 1972, 1.7 million tons of maize was exported mainly to Japan, Taiwan and Singapore.

**Kenaf:** The Northeast is also noted for its increasing production of kenaf, a native crop of this region which had not had any economic significance before the 1950s. It can be grown in formerly unusable land and can stand drought which often occurs in the Northeast. About 70% of the kenaf production is exported, the rest is used in local gunny-bag industry. The demand of kenaf fluctuates highly from year to year depending to the physical and political factors in India and Bangladesh, the major jute producers. The unstable market of Thai kenaf can be observed in that the export value declined from 1,613 million baht in 1960 to 866 million baht in 1967.<sup>1</sup>

**Cassava:** Cassava is grown mainly in the Southeast and in the South to a lesser degree where sandy soils are predominated. The cultivated area increased from 24,000 acres to 707,000 acres during the period between 1957-62.<sup>2</sup> Rayong and Chon Buri provinces account for 70% of national output. Cassava is in great demand in the United States and Western Europe. The export value in 1970 was 1,223 million baht.

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1. Ingram, op.cit., p. 313.

2. Senanarong, op.cit., p. 94.

For a century, rice, rubber, tin and teak have dominated Thai export earnings. It becomes clear that their prospects are not promising. Diversification has succeeded in increasing the export of other crops which, however, are subject to the unstability of demand and price. To compensate for the decline of traditional exports, the government desires that industry should increase its role in replacing industrial products imported as well as in earning foreign exchange.

Industry is an activity which needs more complicated productive processes than agriculture. Vital factors for industrialization such as qualified personnel, capital, technology, infrastructure, and market are usually insufficient or even absent in developing countries. On the other hand, these countries are mostly abundant in unskilled labour and agricultural products. Some may be rich in minerals, but others may not.

Turning to industrialized countries, one finds that they are different in the factors of production. Some countries such as the United States, the Soviet Russia, have a wide range of natural resources whereas other countries as Switzerland and Japan are comparatively poorly endowed. This indicates that lack of certain resources does not imply the absence of industrialization. A country can utilize other factors she possesses as a base for industrial development. Japan and Singapore are examples of countries which industrialization can be successfully taken place by efficient human resources.

The natural environment of Thailand has several advantages for industrial development. The climate does not adversely affect the establishment of industries. Severe natural hazards rarely occur in Thailand. Labour is abundant. Raw materials are obtainable from agricultural products. A limitation is that the country is rather poor in minerals, including fuels, metals and non-metal. Tin is by far the most important. Recently, fluorite has increased its amount and value of production. In addition, wolfram, antimony, lead, manganese, gypsum have been exploited at a smaller scale. The country lacks key industrial minerals. Iron ore deposits are not large enough to supply large scale industry. A deposit of 7 million tons has been discovered at Lop Buri, and 30 million tons at Loei; the content at Lop Buri is 65%, at Loei is 59-88%. Iron ore from Lop Buri has supplied a local steel smelting plant at Sara Buri.

In accordance with fuel, only deposits of lignite have been discovered in some Northern and Southern provinces. A small oil field is in operation at Fang in Chiangmai.<sup>1</sup> Recently, hydro-electric power has gradually increased its contribution to the power supply.

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1. The country is expected to possess other oil deposits from the evidence that many oil companies, both Thai and foreign have requested oil exploration rights in the Northeast, the Gulf of Thailand and the Andaman Sea.

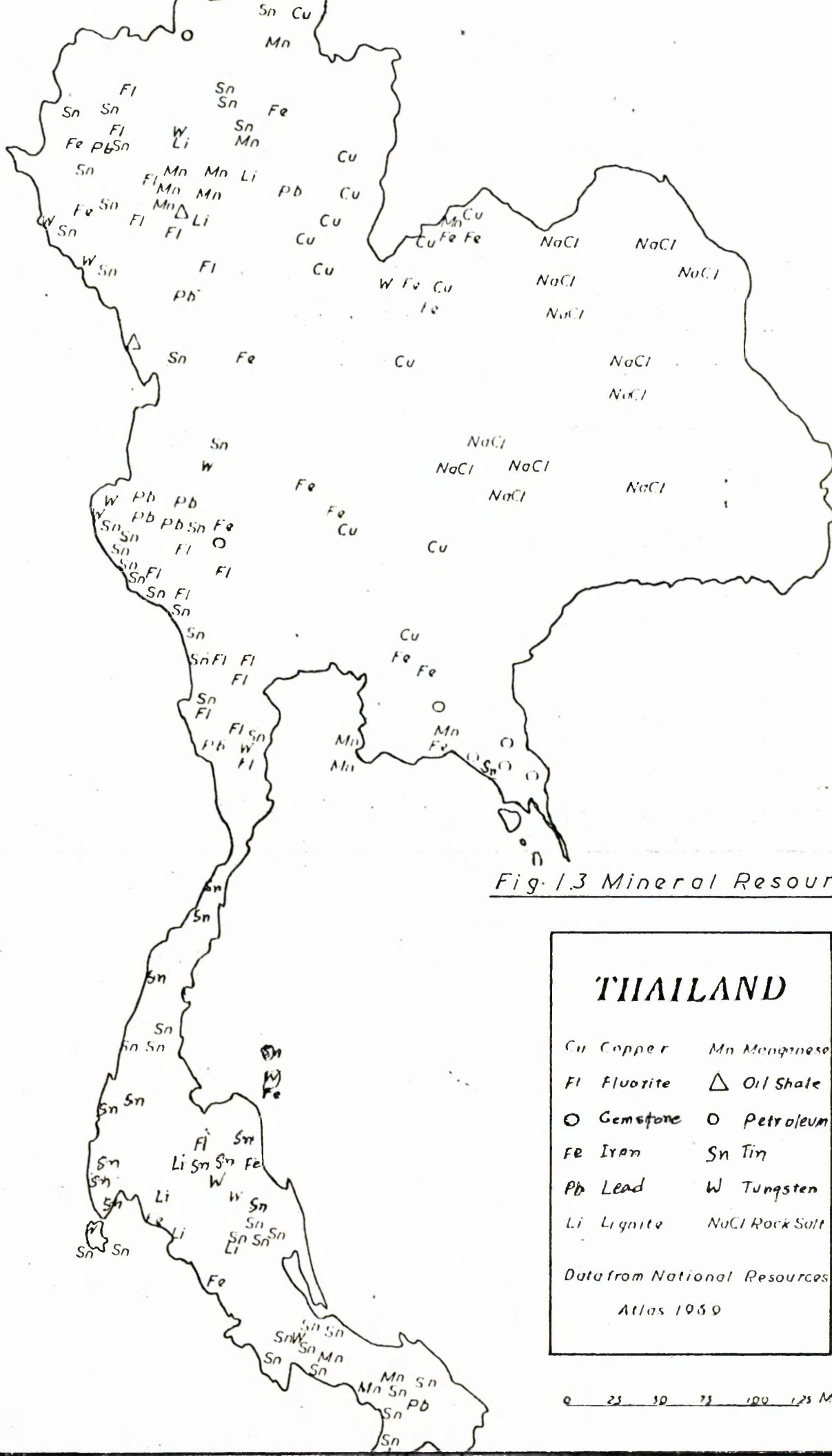


Fig. 1.3 Mineral Resources

### THAILAND

- |    |          |      |           |
|----|----------|------|-----------|
| Cu | Copper   | Mn   | Manganese |
| Fl | Fluorite | △    | Oil Shale |
| ○  | Gemstone | ○    | Petroleum |
| Fe | Iron     | Sn   | Tin       |
| Pb | Lead     | W    | Tungsten  |
| Li | Lignite  | NaCl | Rock Salt |

Data from National Resources Atlas 1969

0 25 50 75 100 125 Miles



The study of industrial development in Thailand is of much interest as it can be an example of a developing country which has attempted to achieve rapid economic growth by emphasizing the development of agriculture and infrastructure and leaving the industrial sector to private enterprise. Following the policy of import substitution to promote industrialization, modern industries have been established to supply consumer products to the small local market. In spite of the recent phenomena of increasing number of establishments, the emergence of more complex types of industry, and the industrial growth rate of 11% per annum, Thai industry is still deterred by unfavourable circumstances.

This study is a geographical assessment of the background and progress of industrial development in Thailand during the period of accelerated growth. The purpose is twofold. Firstly, it examines the cause and stagnation of the traditional industries and the lack of growth of the modern industrial sector in the past. The second and more important purpose is to discuss some of the obstacles and attempts to overcome them. The next chapter provides the background of early attempts at industrialization. Chapter Three is an analysis of the availability of raw materials and the recent expansion of infrastructure. In Chapter Four the human resources and capital are examined. Government policies to promote industry and

the effects are assessed in Chapter Five. Some aspects of the industrial development process such as location, composition and markets are examined in Chapter Six and Seven. The concluding chapter assesses the role and the prospects of industrialization in the Thai economic development process.

## CHAPTER TWO

## EVOLUTION OF THE THAI ECONOMY

Background of the Thai Economy

Thailand has traditionally been an agricultural country with most of her population producing one single crop - rice, the staple food. Until the introduction of a monetary economy in the middle of the nineteenth century, the economy was basically a subsistence one. The year 1855 was the great important for the Thai economy because it marked the beginning of international trade.

Prior to the 1850s, the population was self-sufficient with rice cultivation as the principal economic activity. There was very little domestic exchange and foreign trade appeared to be insignificant and limited to luxury items. According to Ingram, the amount of rice export was small and the volume was erratic, depending on conditions in Thailand as well as the nature of demand of neighbouring countries. Imports constituted only a small proportion of the total amount of goods consumed, comprising luxury articles and manufactured products.<sup>1</sup> A striking characteristic of foreign

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1. J.C. Ingram, Economic Change in Thailand 1850-1970 (Stanford: Stanford University Press, 1971), p.24. As far as the study of the Thai economy is concerned, this study of Ingram is considered as a basic source. Information used in this section is mainly based on his study.

trade was that it was monopolized by the King and court. Trade between Thailand and Asian countries as well as Western countries has been undertaken since the period when Ayutthaya was the capital of the country between the fourteenth and eighteenth century. During the seventeenth century, Thailand had close contacts with Western countries, such as England, France, the Netherlands and Portugal. Unfortunately, the cordial relationship with the Western countries was marred by an incident in King Narai's reign (1657-88) when a mission from France with King Narai's minister, Constantine Phaulkon were believed to be attempting to convert the King and his court to Catholicism.<sup>1</sup> This incident provoked a rebellion at the court and since then until the 1850s Thailand was reluctant to have any commercial and diplomatic contacts with the West. However, trade with Asian countries continued and even increased, especially with China. It is worth noting that the Chinese have played an important role in trading with Thailand since this time. Between the eighteenth and the first half of the nineteenth century, several trade negotiations were attempted by the Western countries but none had been met with any degree of success. The policy of isolation from Western influence was eventually changed by the policy of King Mongkut (1851-68) who

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1. Phaulkon was a Greek who came to Ayutthaya in 1678. He worked with Siamese government and became King Narai's favourite and one of the highest ranking ministers of the state. He succeeded in securing for King Narai the friendship and alliance of France, as evidenced by the famous exchange of ambassadors between the King and Louis XIV. Sitsayamkan, The Greek favourite of the King of Siam (Singapore: Donald Moore Press, 1967), pp. xiv-xv.

realized the political necessity to open the country to the outside world.<sup>1</sup> The trade treaty negotiation in 1855 with Sir John Bowring, a British representative, was much facilitated by the King's attitude.

#### Bowring Treaty 1855 and the exchange economy

There were three main points in the Bowring Treaty which was put into effect in 1856. Firstly, extra-territoriality was established; the British subjects in Thailand were agreed to be not under the jurisdiction of Thai law. Secondly, restriction on trade was removed; the treaty abolished the state trade monopoly and permitted a free trade so that the British merchants were able to buy and sell directly with individual Thai. Thirdly, import and export duties were fixed in monetary terms replacing the former system of proportional levy. The import duty was fixed at 3% of the value and articles of export were to<sup>be</sup> taxed just once.<sup>2</sup> The Bowring Treaty had much influence on the subsequent economic structure of Thailand. This schema remained effective for seventy years (1856-1926). Similar treaties were later concluded with several other countries.

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1. At that time Asian countries, such as China and Japan, were involved with Western powers. It is recognized by many writers, for examples Ingram and Skinner, that King Mongkut pursued a successful policy vis-a-vis the West, and that since that time Thailand has been particularly receptive to modernizing forces.
  2. See Ingram, op.cit., pp. 33-5 for details of the Treaty.

This was a watermark for Thai economic policy, causing fundamental changes from a self-sufficient economy to an exchange one which specializes in a few primary products with the increasing importance of foreign trade. Money came to play a much greater role in the economy than before. The Thai became increasingly involved in the cultivation of rice for exports. By 1870 rice had become the leading export, a position it has held ever since. Owing to external demand, tin, teak and rubber emerged as other major exports. Low import duties encouraged the import of manufactured goods which had a detrimental effect on the development of local industries.

The expansion of a few primary-commodity exports was a response to economic inducement. Rice production and export increased dramatically owing to external demand. Ingram notes that rice export increased from about 5% of total production in 1850 to 50% in 1907-9.<sup>1</sup> This phenomenon fits in with the schema of trade and development propounded by Myint:

The main function of international trade was to create effective demand: it linked up the world market demand for the type of things which the peasants could produce with the surplus production capacity the peasants had locked up in the subsistence economy. These are the existence of unused hinterland, the

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1. Ingram, op.cit., p. 52.

jungles which could be cleared to grow the export crops and the source of labour surplus. 1

At that time the Thai population was sparse relative to cultivable land. Thus the country could respond to increasing external demand of rice simply by utilizing unemployed land resources with constant technology.

Similarly, tin and rubber production increased largely because of the stimulus of a favourable market price. Tin emerged as an important export, more or less, at the same time as rice; rubber has become important only in the twentieth century. Due to the small local consumption demand, almost the entire production of tin and rubber had been exported. In terms of teak, the fact that substantial part of the product was used domestically meant that teak export commenced much later towards the end of the nineteenth century.

#### Division of labour along the ethnic line

According to a study by the United Nations Organization, in the transition between the subsistence and the exchange organization of society, there has usually been a stage in which groups of people have been engaged in both primary and commercial activities. By organizing a system

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1. Myint, op.cit., p.43. He considers that labour in subsistence economy remain underdeveloped because there was a lack of effective demand for its potential increase in output. Poor transport and communications, rudimentary exchange system are responsible for the inability of narrow and unorganized domestic market to absorb the potential surplus of agricultural output.

of exchange, the transition is marked by the emergence of certain specialized occupations, such as transport and commerce.<sup>1</sup> The economic changes in Thailand since the 1850s required groups of people to perform these new but vitally important economic functions. However, the new opportunities surprisingly did not induce the Thai to diversify their economic activities. They still devoted themselves almost exclusively to rice cultivation. Ingram records that in the case of tin, teak and to a lesser degree of rubber, all stages of processing and trade have been in foreign hands. Tin was explored by European and Chinese capital and Chinese labour. The teak forests were worked by European companies, the timber processing has been operated by European and Chinese mills using Chinese labour and exported by European companies. Rubber is cultivated by Chinese and Thai planters but the trade is in Chinese hand.<sup>2</sup> Even in rice enterprise, the Thai have only concentrated on cultivation; milling and marketing have been controlled by the Chinese.<sup>3</sup> With the expansion of the exchange economy, wage labour in various activities was increasingly required. Again, the Thai left all these

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1. UN, Processes and Problems of Industrialization in Under-developed Countries (New York: UN, 1955), p. 7.
  2. Many of these rubber planters may be ethnic Malays who form a Malay-speaking Moslem in the South of Thailand: in the four southernmost provinces of Thailand they are in fact the predominant ethnic group.
  3. Ingram, op.cit., p. 111.



new opportunities essential to the economic progress to the aliens, predominantly the Chinese.

The dominant role of the Chinese on the Thai economy is clearly noticeable. They had been involved in the Thai economy long before 1850, but dramatic growth of their influence accompanied the economic changes. The Thai's attitude of ignoring new economic functions, the factors stimulating Chinese migration and the characteristics of oversea Chinese in Thailand are all complementary factors influencing the subsequent economic pattern of Thailand.

A study of Chinese society in Thailand by Skinner revealed the circumstances which motivated Chinese migration to Thailand. According to his analysis, in the nineteenth century, China was in a period of foreign war and internal rebellions. South China, from where the majority of the Chinese emigrated, had been suffering from over-population whereas Thailand was still under populated and entering a period of peace and prosperity.<sup>1</sup> Internal trouble impelled a number of the Chinese to emigrate and some of them chose Thailand as their new home, a place where numerous opportunities awaited the new-comers. Skinner estimates that

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1. Formerly, Thailand often engaged in wars with Burma. The wars between these two countries ceased when Burma came under British control in the nineteenth century.

Chinese immigrants arrived at rate of slightly over 16,000 persons each year between 1882-92. Since then the number of immigrants increased considerably until the early twentieth century.<sup>1</sup> He concludes that the immigration rate was very responsive to specific changes in the prosperity of the emigrant areas in China and of Thailand. The state of the crops seemed to be the most important single factor in the emigrant areas while for Thailand, more generalized economic conditions, as reflected in the demand for labour, was of primary importance.<sup>2</sup>

Economic change in Thailand was followed by division of labour along ethnic lines. Restricting themselves to rice cultivation, the Thai offered the Chinese the vitally unopposed opportunity to monopolize nearly all non-agricultural economic activities: rice milling, saw milling, tin mining, foreign trade both wholesale and

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1. In 1947, the immigration quota permitted 10,000 persons of Chinese nationality to enter Thailand each year. In 1949, the number had been reduced to 200 persons annually. R.J. Coughlin, Double Identity: The Chinese in Modern Thailand (Hongkong: Hongkong University Press, 1960), p.12. The estimated number of Chinese in Thailand is greatly varied. See G.W. Skinner, Chinese Society in Thailand: An Analytical History (New York: Cornell University Press, 1957), pp. 68-80 for a discussion on this subject.

2. Skinner, op.cit., pp. 28-90.

retail, and wage labour.<sup>1</sup> Ingram notes that:

One of the outstanding features of the period since 1850 has been the general willingness of the Thai to leave the entrepreneurship function to foreigners. This was true not only in the case of middle man organization. In any new development which required the application of business methods and the use of individual initiative and entrepreneurship, the Thai were rarely to be found.<sup>2</sup>

As it will be seen in later chapters, this lack of indigenous inclination toward entrepreneurship and even more seriously, the lack of wage labouring tradition, have done more to impede industrial development than the inadequacy of natural mineral endowment discussed earlier. The decline of local handicraft industries under the impact of the voluminous import of manufactured substitutes financed by the export of agricultural produce such as surplus rice traded by most Thai peasants completes the basic rationale for slow development of modern industries in Thailand until the most recent period.

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1. The expansion of transport demanded labour. The Chinese contributed more than the Thai in work like canal digging, railway construction, and dock business. The economic activities of other aliens besides the Chinese was comparatively small. After 1855, the Westerners established export-import companies, wholesale trade, banking and shipping enterprises. However, they employed Chinese labour. They could not compete with the Chinese in some business like rice milling and retail trade which has been long in the Chinese hands.  
Ibid., pp. 99-108.
  2. Ingram, op.cit., p.37.  
The attitude of the Thai people towards occupations has not been changed until recently, They preferred the civil service and agriculture to other activities. The natural environment in those days allowed them to continue their traditional way of living without much difficulty. Land was easily available to increase products with traditional techniques. There were no pressures strong enough to push them to other activities.

### The decline of local industries

Along with the growth of exports, manufactured products imported have increased with the adverse consequence of the decline of local industries.<sup>1</sup> The level of decline was uneven, depending on the type and location: less accessible areas were effected less than more easily accessible ones. Ingram points out that two industries, textile and sugar-refining, suffered severely from the products imported.

Formerly, the cloth used was largely supplied by the local cotton and silk products. The industry spread widely throughout the country. With increasing imports of textiles, local industry declined gradually. Imported textiles first captured the market in the Central Plain where transportation by waterways was comparatively easy. Later, handicraft of the North and Northeast was replaced by imports which were facilitated by the expansion of transport in the early nineteenth century. However, this industry in the areas remote from the main lines of communications still survived.

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1. It is generally argued that low import duties of 3% encouraged the import increase and lowered the competitiveness of local production. The phenomenon is in accordance with what Myrdal defines as "backwash effects" that the industrial sector in developing countries had been adversely influenced by the industrial progress in economically advanced countries. G. Myrdal, Asian Drama (Middlesex: Penguin Books, 1968), Chapter twenty-four.

The sugar-refining industry was quite well developed in the 1870s. The industry not only supplied adequately the local market, but also produced some surplus for export. According to Ingram, this industry was later hampered by many factors, namely, the lower price of imports, heavy tax on local producers, and the better price of rice which induced the sugar cane growers to shift to rice cultivation.<sup>1</sup>

While certain industries declined, some handicrafts were able to survive; household industry was still important. Pendleton notes that manufacture of relatively high valued and extremely cheap commodities have survived quite well. The first type was originally designed for use by the Royal Family and high officials, later for the Western residents and more recently for tourists and the export market. Examples consist of fine silk cloth inter-woven with gold thread, luxury jewellery, ornamental metal wares and intricately carved wood. The second type can survive for the reason that imported products have not proved cheaper, such as simple wooden tools, tiles and bricks.<sup>2</sup>

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1. Ingram, op.cit., pp. 123-7.

2. Pendleton, op.cit., p. 264.

### Emergence of new industry

It is common that an agricultural economy commences its secondary activity with the processing of primary products intended for export. The exchange economy of Thailand has meant that some industries have come into existence owing to the growth of exports. Even though there are four major primary commodities exported, rice and timber were processed locally. Tin and rubber were exported as unprocessed commodities until recently.<sup>1</sup>

The rice milling industry, developing in connection with rice export, has become the most important agricultural-based industry of the country. Formerly, rice was exclusively milled by traditional methods. However, in 1859 the first steam rice mill was installed by an American company and in 1867 there were five steam mills in Thailand, all were Western owned. In 1912, the number increased to over 50 such, of which only three belonged to the Westerners.<sup>2</sup> At first, mills were concentrated along the Chao Phaya River, especially at the Port of Bangkok. Up-country rice was shipped here for processing and exporting. Later, mills were extended to other centres along waterways in the Central Plain and then dispersed further to the rice growing areas in the North and

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1. Tin mining was first operated by the Chinese with little capital and simple tools. Dredging techniques were introduced by Western companies. The output was mainly exported as tin ore until 1965 when tin has been locally smelted in a modern plant at the Phuket Island, the major tin deposit. Rubber production in Thailand mainly consists of small enterprises. The small holders sell raw rubber sheet to buyers who do the smoking on a large scale. The larger owners operate their own smoke houses. Grading, packing and exporting are undertaken by the merchants who buy the raw or smoked rubber sheets.
  2. Skinner, op.cit., pp. 104-5, explains the reason why Western mills were abandoned in favour of Chinese enterprises.

Northeast as a result of railway expansion. At present, mills are located widely in every important centre throughout the country.

Before the introduction of steam mills in the 1880s, timber was sawn by hand, utilizing mainly the Chinese labour. As in the case of rice milling, the European established steam mills in Bangkok to saw the logs floated down from the North. The example was followed by the Chinese who entered the business later. In 1908, there were seven European and four Chinese steam mills. However, hand mills were still widespread in the North and even in Bangkok.<sup>1</sup> Saw mills are located mainly along waterway and railway junctions. The main saw mills are at Bangkok where lumber is processed before supplying the domestic and export markets. Pendleton estimates that there were 1,736 saw mills in 1957.<sup>2</sup> This industry has been discouraged by the decrease of timber.<sup>3</sup> Owing to the shortage of logs, it is believed that most saw mills have operated lower than actual capacity.

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1. Ibid., p. 105.

2. Pendleton, op.cit., p. 230.

3. Many factors are responsible for the decrease of timber products, namely long period of exploitation without adequate replanting programme, illegal felling and the clearance of forest in order to expand agricultural land. Also the extensive shifting cultivation of the numerous hill tribes of the North of Thailand makes large areas unusable. It is reported that the serious shortage of timber production causing 34 out of the total of 125 saw mills in Bangkok and Thon Buri to shut down during 1956.

B. Kantabutra, The Economy and National Income of Thailand (Bangkok: Office of the NEEDB, 1959), p.13.

Besides processing industries, Thailand in the late nineteenth and early twentieth century did not have many large modern industries. There were plants producing light consumer goods such as, soap, cigarettes, matches, leather, salt, building materials and so on. Only the cement industry which was established then and has progressed quite well can be considered as a large and important enterprise.

A cement plant established in 1913 at Bangkok was the first modern industrial establishment. It is the Siam Cement Company, a private enterprise founded under the patronage of King Rama VI, which remained as the single cement producers until the 1950s. The plant commenced with a capacity of 20,000 tons in 1915; later the company increased its capacity to keep pace with the rising demand. The industry has the advantages that foreign competition is handicapped by high transport cost and that local plants are able to obtain raw materials locally. The location of plants is near the basic raw materials and tends to be adjacent to the rail and water routes.

At present, there are three companies producing cement. First, the Siam Cement Company comprising four plants: one at Bangkok, one at Saraburi - a province north of Bangkok<sup>1</sup>, one at Tungsong - a district in the South, and

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1. There are major limestone deposits in Saraburi province which provide a raw material for the cement industry.



the recently established one at Kangkhoi - a district in Saraburi.<sup>1</sup> The second company is Jalapathan Cement Company established in 1956 by the Irrigation Department of Thailand to supply cement for the Yanhee Dam construction. The plant started its operation with a capacity of 200,000 tons annually. This company possesses two plants; one at Nakhorn Sawan in the Central Plain and one at Phetchaburi in the South. The third company, Siam City Cement Co. Ltd., entered the business in the 1970s. Its plant is at Saraburi with a capacity estimated at 600,000 tons in 1970.

Cement manufacturing has been one of the most advanced industrial enterprises of the country. The production has been increased considerably to meet local demand and there is a surplus for export. It is estimated that total capacity of all plants is 4.2 million tons which is higher than present demand of 3.6 million tons a year.<sup>2</sup> External market is expected to ensure the further growth of this industry.<sup>3</sup> The prospect of export depends

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1. It is reported that the fourth plant went into operation in 1971. The plant with its annual capacity of 650,000 tons per annum is expected to raise Siam Cement's total capacity to 2.9 million tons a year. Far Eastern Economic Review 1972, p. 229.
  2. "Cement Industry," Bangkok Bank Monthly Review (July 1972), p. 334.
  3. The export goes to Laos, Vietnam and Indonesia. Export value increased from 18.9 million baht in 1968 to 38.4 million baht in 1969 and 83.4 million baht in 1980. Loc.cit.

on the ability of industry to compete with products of other countries in the region. The high transport costs of such bulky commodity does not encourage export. So far the government promotes the export of cement products through duty exemption.

#### Early Attempts at Industrialization

A second event of major economic importance occurred in 1926 when the Bowring Treaty and other similar ones which had been in effect for 70 years were revised. Since gaining full fiscal autonomy in 1926, Thailand has revised its tariff structure several times. Even though import duties were raised somewhat more for the purpose of revenue generation than of tariff protection, they encouraged the growth of domestic industries. When a high tariff was levied on imported products, domestic industries tended to be set up if the essential raw materials were available locally. Most of them were small enterprises producing consumer goods such as tobacco, drinks, matches, soap and sugar. Thus Thai industries which had stagnated for many decades recovered again as a response to economic inducement. Industrial growth before 1932 was mostly initiated by private enterprise, and the source of entrepreneurs and capital were mainly from the Chinese and other foreigners.

The expansion of public enterprise

In 1932, the absolute monarchy was abolished, and ever since then the country has been under a constitutional monarchy. Since that time many of the economic changes which were introduced by the subsequent governments were criticized for being too nationalistic. This is partly due to the fact that between the 1930s and the 1950s the government played a major role in various economic activities. The economic intervention of the Thai government during this period has been the subject of much speculation. It seems that most writers believe that the only main motivation inducing the government to take part in the economy was "nationalism" against the Chinese. As Muscat argues:

The real driving force behind the government's industrial program was the desire to prevent the Chinese community in Thailand from dominating industry. <sup>1</sup>

Ayal states:

(the control) that the non-ethnic Thai have had over important sectors of the economy led to direct government involvement in economic activities. Such government involvement appeared as the only way to achieve greater Thaification, so long as individual Thais did not show sufficient interest in, and ability at, business entrepreneurship. <sup>2</sup>

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1. R.J. Muscat, Development Strategy in Thailand (New York: Frederick A. Praeger Publisher, 1966), p. 193.
  2. E.B. Ayal, "Private Enterprise and Economic Progress in Thailand," Center for International Affairs, Harvard University, 1965, p. 12 (mimeograph).

And Ingram takes a more wide-ranging view:

It seems clear that Thailand badly needed to expand its tiny industrial sector, and equally clear that private Thai entrepreneurs were not likely to emerge. However the government believed that if it simply encouraged private industry, the result would be that Chinese and foreign entrepreneurs would control the new enterprises. <sup>1</sup>

The above points of view only lay an emphasis on the anti-Chinese attitude of the Thai government. This is probably because of the phenomenon of the government ownership in various economic activities. However, it was likely that factors other than anti-Chinese policy had also underlain such government involvement. An examination in greater detail of the complexities of the situation in the 1930s, sheds more light on this view.

Thailand's economic situation in the 1930s, and subsequent periods, was not favourable owing to the effect of world economic depression after the First and then the Second World War. A poor world market for Thai exports reduced the national income of the country as well as the revenue of the government. The civil service could not be expected to absorb the increasing number of people who wanted to be employed. Due to economic depression and an increasing amount of unemployment, the government was forced to attempt to improve the situation. The Thai began to engage in other activities besides agriculture and

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1. Ingram, op.cit., p. 229.

civil service. Requiring revenue as well as desiring to provide jobs for Thai nationals, the government was induced to intervene in the economy, since it appeared that the effort of private citizens could not break the economic monopoly of the non-Thai. As Skinner comments "they (the Thai) have tried to enter business and more often than not failed in the face of Chinese competition and restrictive practices."<sup>1</sup>

In connection with the criticism of Thai government's nationalism, it is unlikely that this attitude was directed only towards the Chinese. Actually, any regulations limiting alien economic activities were applied to other aliens as well as the Chinese. It can be said that extra-territorial privileges which were enjoyed by the aliens and their subjects for 70 years had been a factor encouraging nationalism against all aliens not particularly the Chinese.<sup>2</sup> Facing economic difficulties, the government's nationalistic attitude penetrated through the economic sectors. Inevitably, the Chinese were adversely affected since they constituted a large proportion of aliens and they occupied nearly all important occupations in which the government desired the Thai to

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1. Skinner, op.cit., p. 220.

2. Thai nationalism during this period was restricted to government circles; Thai people did not feel very strongly about it. Indeed, the assimilation of the Thai and the Chinese has been progressing quite well.

increase their participation.<sup>1</sup> As Coughlin expresses it:

...the Chinese are not singled out for discrimination in the strict legal sense. No law has ever been enacted specifically denying the Chinese in Thailand rights which are granted to other alien groups. On the contrary, the very laws which partisans of the Chinese regard as tantamount to persecution are applicable to all aliens without exception.<sup>2</sup>

The government made several attempts to help the Thai to enter occupations dominated by the non-Thai.<sup>3</sup> The following measures are examples of such attempts which were applied during the 1940s. The Thai Rice Company was established to compete with Chinese business in rice buying, milling and exporting, and a law was passed requiring rice mills to employ a 50% minimum of Thai workers.<sup>4</sup> The Salt and Tobacco Act in 1935 put these two industries under the government control. This Act affected the Chinese who were the majority of salt producers, and nationalized the tobacco manufacturing industry which also belonged to the Chinese and other aliens. The Liquid Fuels Act was passed which allowed the government to control

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1. Coughlin refers to the Census 1947 that there were 527,000 aliens of whom 476,582 were the Chinese. Coughlin, op.cit., p.136.
  2. Ibid., p. 135.
  3. See Coughlin, op.cit., pp. 127-35 for details of the government's endeavours to assist the Thai to diversify their economic activities. Information concerning this subject used here is mainly based on this study.
  4. Skinner, op.cit., p.219, quoting "Labour Conditions in Thailand" 1944, 1176; Thomson V. 1947, 240-2, Thomson V. 1941, 115.

the processing and marketing of petrol and oil throughout the country. This Act affected two foreign companies, Shell and Standard Oils. In 1942, a Royal Decree was passed specifying 27 different occupations and professions that were reserved for Thais. In 1956, under the "Vocational Assistance to Thai Act," industries, trade, and business with ten or more employees would be required to have a certain percentage of employees who were of Thai nationality.<sup>1</sup>

As far as industrial activity is concerned, the government attempted to lead the country towards greater industrialization. Desiring more Thai participation, it initiated direct investment programmes in industrial enterprises. This might be because not many Thai wanted to invest in industrial business, and even those who wanted to do so usually were handicapped by various difficulties such as lack of capital, and experience. Thus during this period the government established various industrial firms under its agencies. Several reasons have been given for establishing these enterprises, namely, that the revenue is needed, the products are required by the Armed Forces or the government departments, and certain

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1. However these measures did not work well to reduce the economic domination of the Chinese. Coughlin explains the reasons in pages 136-8.

products essential to the economy are unlikely to be undertaken by private entrepreneurs.

Starting with textiles, paper and sugar plants established before the Second World War, the number of government-owned firms increased rapidly in the 1940s and the 1950s. The import difficulties during the war had also helped to stimulate the growth of local production.<sup>1</sup> The years 1946 and 1947, noted by Silcock, were the years in which several economic and political factors contributed to the growth of state enterprises as sources of income for particular Ministries. Several of the present large-scale enterprises were operated under the general responsibility of various Ministries: Weaving Organization in the Ministry of Finance, Forest Industry Organization in the Forestry Department of the Ministry of Agriculture and many others.<sup>2</sup> Many factories were set up under the Ministry of Defence with the primary aim of supplying the Armed Forces, such as plants producing glass, batteries and pharmaceutical products. Besides, the government operated firms concerning cotton textiles, paper and plywood,

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1. A government office responsible for the industrial sector was first organized in 1936 as an Industrial Division in the Ministry of Economic Affairs to promote, support and conduct research concerning industrial activities. With the growth of industry, the Division became the Department of Industry in 1939 and in 1942 it was raised to the Ministry of Industry. U. Pasavanich, Industrial Development (n.p., n.d.), p.37 (mimeograph in Thai).
  2. T.H. Silcock, Thailand: Social and Economic Studies in Development (Canberra: Australian National University Press, 1967), pp. 260-261.



distillery, food refrigeration, canned foods, ceramic and glassware, tanning, chemicals, fertilizers, lacquerware, pins and paper clips.

It is argued that private industrial investment was much hampered by the impact of public enterprise policy and nationalization.<sup>1</sup> Although government interventions covered other economic activities, the industrial sector seemed to have been affected more than the others. This is because of the nature of industrial investment which is a long-term one and requires large initial capital. Muscat notes that both Chinese and other foreign entrepreneurs were reluctant to invest in industrial enterprise relative to other activities.<sup>2</sup> Nevertheless, it is unjustified to conclude that public enterprise policy was the only single hindrance underlining the slow growth of private sector. For during this period other essential facilities such as, skilled labour, technological advance, capital, transport, communications and power supply were other major obstacles.

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1. The government had nationalized some profitable enterprises such as the British-American Tobacco Company in 1941, petroleum marketing in 1938 and foreign teak concession in 1956. See F.H. Golay (et al.), Underdevelopment and Economic Nationalism in Southeast Asia (Ithaca: Cornell University Press, 1969), pp. 267-340.

2. Muscat, op.cit., pp. 187, 237-8.

Whatever were the motives behind public enterprise establishments, the result of their operation has been unsatisfactory. Most of them are under poor management and have a poor financial record, operate below capacity, and are inefficient. Instead of generating revenue, they have mostly become a burden on the government budget. The Mission of the International Bank for Reconstruction and Development (IBRD) reports that "all the state industries except the monopolies have proved unprofitable by commercial standards."<sup>1</sup> In the 1960s, the government is directly involved in 108 enterprises with a total capital of 9,000 million baht.<sup>2</sup> Some provide public utilities such as, transport, communications and energy. Others are engaged in agriculture, commercial and industrial sectors. Few of them run at a profit. So far, the industrial enterprise which has the best financial record has been the Thai Tobacco Monopoly which contributes about 400-500 million baht of revenue annually.

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1. The government has monopolized such enterprises as tobacco, lottery, playing card and distillery. The Mission concludes why most public enterprises run at a loss that the establishments were dominated by political influence. All the officials concerned with policy normally had little experience in running commercial business and had little knowledge of industry. The firms have been under poor management from the planning to operating stages. The excessive number of employees of all ranks is another reason for high production costs.

UN/IBRD, A Public Development Program for Thailand, report of a mission organized by IBRD (Baltimore: The John Hopkin Press, 1959), pp. 90-94.

2. The Second Plan, p. 75.

Recent policy of private enterprise

The unsatisfactory result of public enterprises up to the 1950s made the Thai authorities reconsider their industrial policy. It became apparent that the industrial sector could not work efficiently solely through government-owned operations. In 1954, the government's first new policy was reflected in the promulgation of the Act on Industrial Investment 1954, which indicated the government's attempt to stimulate more private investment. However, this Act did not encourage much investment because, it has been argued, of the impracticability of the Act. Moreover, the government still established new industrial firms. Therefore, even though the government demonstrated its endeavour to encourage private industry and to attract foreign capital, this aim was still impeded by the unimproved investment atmosphere.

The Act on Industrial Investment Promotion 1954 was the first legislation designed to stimulate private investment. The Act was characterized by many unfavourable features and was subsequently completely revised in 1958.<sup>1</sup> Bell reports that the Act outlined 29 types of industry to be promoted and offered assistance to Thai and foreign investors. The assistance and privileges granted were at the discretion of an Industrial Promotion Committee and were

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1. Owing to inability to obtain an original copy of this Act, information here refers to "The Role of Entrepreneur in Economic Development" by Bell.

not guaranteed by the law. The committee was, according to the Act, to advise the Council of Ministers as to the types of industry to be promoted, as to suitable tax exemption, duties and other regulations. Bell confirms the ineffectiveness of this Act by pointing out that of the 93 applications made in the period between 1954-8 only 11 enterprises were granted promotion privileges.<sup>1</sup> Thus it is considered that the Act of 1954 failed to produce any significant impact on private investment. The IBRD Mission noted that this Act seemed to restrict and control, rather than encourage, industrial investment. The Mission reports that:

The Act was confused in its wording, difficult to administer and gives the impression that applicants will be penalized rather than helped.<sup>2</sup>

The report of IBRD Mission in 1968 on the Thai economy provides some sound guidance on the subsequent Thai economic policy since its study was prepared as a part of the economic development plan. It strongly disagreed with the policy of stressing the establishment of public enterprise and the Act of 1954. This brought about a change of industrial policy. The Mission recommended the complete revision of the Act in order to offer more incentives to private investors. It argued that the government should shift from direct investment towards

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1. Bell, op.cit., p. 116, quoting from Osot Kosin, Thailand's New Law to Promote Industrial Development (Bangkok: BoI 1964), p.2.

2. UN/IBRD, op.cit., p. 98.

reliance upon the private sector, and should limit its activities to the provision of essential basic facilities which had not been receiving appropriate consideration. In the case of public enterprise, the Mission suggested that the government should not only refrain from seeking to increase its industrial participation, but should try to disengage from its present direct industrial commitments.<sup>1</sup>

Thus in the late 1950s, the private investment policy was initiated. In 1960, new legislation, the Promotion of Industrial Investment Act (PIIA), was passed to stimulate industrial investment, but this Act was repealed in 1962 in order to extend further and improve the benefits offered to industries.<sup>2</sup> Its successor, the Promotion of Industrial Investment Act 1962 (PIIA) embodies government measures to promote private industrial investment and has become the basis of government policy since then.

Many criteria were involved in the government's new policy. Thai authorities realized the failure of direct government intervention in industrial entrepreneurship. In addition, the government since the late 1950s has not had a strong nationalistic attitude towards foreigners, and Thai-Chinese assimilation has considerably progressed. The Thai have shown more interest in other occupations outside agriculture and the civil service. As a result, the

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1. Ibid., p. 96.

2. Details of the PIIA 1960 can be obtained in a thesis entitled "Possibilities of Industrialization in Thailand" by C. Kannawat, Ph.D. thesis, University of Wisconsin, 1962, pp. 40-48.

government has not been reluctant to hand over the entrepreneurship function to the private sector consisting of both local and foreign investors. The lack of nearly all basic facilities also reminded the government that the economy could not be developed satisfactorily without the improvement of these infrastructural facilities. Also, they realized that the country's limited resources should be more efficiently utilized in providing a firm foundation to support the private sector rather than being wasted in certain unsuccessful public enterprises. The impact of the Mission recommendations also reaffirmed the government's intention to concentrate its role only on the provision of basic facilities.

#### Summary of the past industrial growth

Industrial development in Thailand during the period between the middle of the nineteenth and of the twentieth century had not made much progress. Some existing traditional industry had declined as manufactured products could be imported with low import duty at 3%. After having stagnated for 70 years, the industrial sector revived again in the 1930s as a result of private initiative. The lack of indigenous entrepreneurs to undertake industrial activities led to government intervention. This policy, in turn, induced an unfavourable atmosphere for private investment. The favourable geographical circumstances in

Thailand of a relatively small population with ample agricultural land did not provide a stimulus for the Thai to move out of the agricultural sector; on the contrary it instilled in them a negative attitude towards entrepreneurial activities. This enabled aliens to gain control of the Thai economy. Had the natural resources not allowed the Thai to pursue this way of life based on rice cultivation, they would have diversified their occupational structure and the aliens would not have offered much economic opportunity; the lack of indigenous entrepreneurship might not have been serious and thus the government might not have had to adopt the entrepreneurial role itself. But as it was, land was easily available to increase the production; the Thai farmers were able to maintain their living by the same activity with unchanged technology.<sup>1</sup> The consequence was the stagnation of the economy and technology; and the economy was almost entirely in the hands of non-Thai. In the case of the industrial sector, the lack of Thai entrepreneurship was a factor inducing direct government participation with the result of the slow growth of industrial activity in the period before the 1950s.

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1. The innate conservatism of settled self-sufficient agriculturalists leading to reluctance to move from the land, which is their important capital resource, is a feature observable throughout the world.

Prior to the 1950s, industry was rather insignificant in terms of establishments, total output and number of workers employed. Most of them were light industries involving the processing of primary commodities such as rice milling, saw milling and production of consumer goods such as textiles and beverages. There were not many important modern industries. The IERD Mission reports that in 1957, of the 15,960 establishments only 306 (2%) could be classified as large scale industries, that is with more than 50 employees. The report also gives the following figures:

Table 2.1

Number of Industrial Establishments and Workers Employed, 1957		
	Establishments	Workers
Saw milling	1,736	130,154
Rice milling	4,921	58,459
Printing	484	17,288
Sugar mills	1,521	12,685
Weaving	469	12,470
Flour milling	1,336	11,982
Ceramics	90	11,694
Engine repair	528	7,219
Foundry and machine shops	810	6,931
Smithies	778	3,803
Ice factories	388	3,199
Aerate beverages	143	1,946
Others	2,816	38,108
<b>TOTAL</b>	<b>15,960</b>	<b>315,938</b>

Source: UN/IERD, op.cit., pp. 89-90.



Many other factors were responsible for the slow growth of Thai industry for the last hundred years. There was a lack of transport and communications. The cost of electricity was high and supply was unreliable. Poor transport was a hindrance for industrial investment. The railway was first constructed with the primary political motivation of national security, and road construction was delayed until the 1950s when the government started a programme on highway development. The Port of Bangkok was inconvenient in transshipment owing to a bar at the mouth of the Chao Phaya River. Undoubtedly, an insufficient transport network limited the exploitation of natural resources as well as the market potential. Electricity shortage has been a major deterrent to industrial enterprise until recently. The IBRD Mission estimates the generating capacity in Thailand after the Second World War to be about 40,000 kilowatts compared with 200,000 in 1958. About half of the 1958's capacity was located in Bangkok, and about half of the national capacity was privately owned by individual mining and manufacturing enterprises.<sup>1</sup>

There was a great shortage in skilled labour and managerial personnel. This increased the difficulties for investors interested in industrial investment in modern larger scale and more complicated operations. Lack

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1. Ibid., p. 114.

of technical knowledge and experience, as Aubrey comments, is responsible for the inability to recognize opportunities, for the failure to plan with sufficient accuracy, and for fear of not being able to execute plans properly.<sup>1</sup>

The other obstacle to industrial investment is an atmosphere of uncertainty over the security of capital and the risks which are usually considered in the expected return on investment before an industrial plan is commenced. Aubrey argues that inherent uncertainties cause the investor to consider industrial investment as more risky than other alternatives. Industrial investment is of long-term nature and seems to be less attractive than other short-term investments.<sup>2</sup> Government's intervention between the 1930s and the 1950s only helped to increase the investment uncertainties. The nationalization of some profitable industries also discouraged potential private investors. In such a situation as this, investment in traditional ventures such as real estate, and short-term commercial transaction were regarded as being more secure and liquid than long-term industrial investment. Lack of investment security not only hindered investors themselves, but also affected the sources of capital: banks were reluctant to give credit when the risk was high.

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1. H.G. Aubrey, "Investment Decision in Under-developed Countries," Capital Formation and Economic Growth. A report of the National Bureau of Economic Research (Princeton: Princeton University Press, 1955), p. 409.
  2. Loc. cit.

The size and stability of the market is another factor affecting investment decisions. The small size of the domestic market was an important constraint on industrial development. Imports which mostly consisted of a large number of very small items of industrial products prevented any local plants producing them from attaining economies of scale. Aubrey suggests that in a country which depends on the export of a few primary products for a large part of their national income, the economy is rather unstable. Reliance on the export of primary products may cause great fluctuations in income and consumption rates. Thus any long-term planning in a situation like this is difficult and risky.<sup>1</sup> As Ingram has shown, this was the situation of the Thai economy prior to the Second World War period. He shows that imports responded directly to exports. A decrease in exports is caused by natural events and external factors. Since exports comprised the largest source of money income, when exports fell the national money income was decreased by the same amount. Then imports which "depended on income from exports had to be dispensed with when income decreased."<sup>2</sup> Therefore the market for imports consisting of various manufactured products fluctuated from year to year, depending on the situation of primary-commodity exports. This was a factor which adversely affected the prospect of any investment in import replacement.

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1. Ibid., p. 410.

2. Ingram, op.cit., p. 206.

Clearly, by its very nature an industrial venture is considered to be at a disadvantage relative to other ventures which are more secure and liquid, and require less time to gain profit and require less specialized knowledge for development. In the Thai case, the situation was aggravated by prevailing difficulties which were the principal obstacles to industrial growth. In such an economy with an atmosphere uncondusive to industrialization, the cost of starting an industry might have been relatively high and strong incentives would be required. Since the 1960s, the government has tried to reduce the prevalent hindrances by eradicating risk and improving the essential infrastructure which had been previously neglected.

## CHAPTER THREE

## RAW MATERIALS AND INFRASTRUCTURAL FACILITIES

Various factors are involved in the industrialization process. These comprise the possession of raw materials and infrastructural facilities, including adequate transport facilities and power supply.

Primary Products as Industrial Raw Materials

The nature of the natural resource endowment has generally a determining influence on the industrial development potential of a country. Although many important modern examples can be quoted to prove the contrary, Mountjoy's succinct statement that "the resources pattern, while not determining whether or not industry shall exist, does exert influence upon the character and intensity of any development that may occur"<sup>1</sup> can be regarded as valid. This relationship between availability of natural resources and industrial development is particularly significant in the case of developing countries as late starters in the industrialization process.

On the other hand, many developing countries do possess various natural resources, both mineral and agriculture have yet been unable to industrialize. Instead these industrial raw materials are exported with the unimportant degree of processing. Thailand is an

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1. Mountjoy, op.cit., p. 109.

example of such developing countries. Although the mineral resources of the country, particularly in fuel supply, are rather scarce, Thailand has an impressive range of agricultural raw materials, the value of which could be substantially increased by simple mechanized processes. With the progress of the export economy, rice milling, saw milling and later tin smelting evolved. More recently, policy orientation towards import substitution to promote genuine industrialization to conserve valuable foreign exchange earned by the export of primary commodities and to create employment opportunities for an increasing number of non-farm population, has led to the emergence and evolution of such industries as paper making, sugar milling, gunny bag manufacturing, textile weaving, garment manufacturing, tobacco blending and cigarette rolling and petroleum refining. Though many of these industries, particularly oil refining, are dependent on imported raw materials, the share of local raw materials has been increasing. The manufacturing of gunny bags for the rice milling industry, for example, is now based almost entirely on locally grown kenaf.

The relationship between local raw materials and domestic industry is obvious. Industrial firms are good markets for them. Being processed before export lessens the dependence of primary commodity on the export market and, moreover, increases the value of export earnings. However, the degree to which local industry can gain benefit

from raw materials depends on the suitability of these raw materials for industrial requirements. Due to the fact that most of Thai raw materials are agricultural products, regularity, reliability and cost stability must be considered as vital factors. Many Thai industries which consume agricultural products have difficulties in obtaining the desirable quality and quantity of raw materials. Undoubtedly, the quality of raw materials supplied greatly affects the overall processing procedure and the quality of the final products. Supply shortages will cause an increase in the price of raw materials with the final consequence of high cost of production and problem of under-capacity operation. This affects the efficiency and competitiveness of industry. Even though the processing industry in Thailand has developed for many decades and apparently has the advantage of the ability to obtain raw materials locally, it has still encountered problems in the supply of appropriate raw materials.

Since the launching of promotion policy, it appears that the government has recognized the function of local raw materials in the industrial development process. Affirmations such as the following have been repeatedly announced:

The government will particularly encourage medium and small scale industries using domestic raw materials.....  
 .....to design other measures which will stimulate industries beneficial to national

economy, especially those utilizing domestic raw materials and labour and joint ventures with Thai interests.....<sup>1</sup>

High priority is given to industries which utilize local raw materials.<sup>2</sup>

The policy sounds reasonable and promises good prospects. It highlights the relationship between the agricultural and industrial sectors that the development of one should be accompanied by that of the other and vice versa. Apparently, since the early beginnings of economic development schemes, these two sectors have developed considerably, but it is doubtful whether this development has been adequately interrelated. Instead of recognizing the relationship between these two sectors and showing preference for promoting industry consuming local raw materials, the government has not yet carried out further measures to attain inter-dependence between agricultural inputs and industrial firms. In practical terms, raw materials have not been developed in accordance with industrial requisition. Most firms have been supplied by available existing raw materials. There is no definite complementary plan to prepare raw materials supplied to industry. As it is, many industries have continued to face the obstacle of unreliability of their quality and quantity.

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1. The Second Plan, pp. 6, 115.

2. Thailand, Investment Guide to Thailand (Bangkok: Bangkok First Investment and Trust Limited, 1971), p.15.



An example is the vegetable oil industry which is struggling with a serious shortage of raw materials, comprising rice bran and vegetable oil seeds such as soy bean, peanut, cotton seeds and kapok seeds.<sup>1</sup> Oil can be extracted from rice bran as a rice mill by-product. Rice bran oil must be extracted promptly after milling, otherwise the loss of extractable oil content becomes excessive and makes it impracticable to produce a satisfactory grade of edible oil.<sup>2</sup> It is difficult to extract rice bran immediately after milling because the sources of rice bran are scattered widely and it may need 5-6 days to collect a sufficient supply for a medium scale extract plant. A process immediately following milling in order to stabilize bran is required. This problem can be overcome by application of modern technology which is being studied by The Applied Scientific Research Corporation of Thailand (ASRCT). Besides, there is an additional obstacle in that the shortage of bran as a result of the preference of Thai pig raisers for unextracted bran rather

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1. At present there are twelve medium and large vegetable oil establishments with annual producing capacity 15,000 tons. The capacity is expected to increase to 47,000 tons in 1976.  
The Third Plan, p. 281.
  2. The rice bran contains lipase which when released by the milling process promotes the production of free fatty acids. Under prevalent condition of high humidity and temperature, this degradation of oil in the bran takes place very rapidly.  
Thailand, The Applied Scientific Research Corporation of Thailand (ASRCT), Annual Report 1969, p. 7.

than bran cake or meal. The price of bran is thus forced up at the same time making it difficult for mills to obtain sufficient quantities at desired intervals.<sup>1</sup>

Vegetable oil mills are also hampered increasingly by the raw material supply situation. As the vegetable oil industry has expanded, local demand of oil seeds is increasing. Oil mills have to compete also with exporters for the oil seeds. As a result, the efficiency of the mills has suffered. Mills with larger raw material requirement are working at less than full capacity.<sup>2</sup> Undoubtedly, the situation will be further aggravated unless certain modifications take place. Oil seeds production should be promoted by either the government or industrial firms themselves. Co-operation between firms and farmers may reduce the problem of oil seeds supply.<sup>3</sup>

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1. "Vegetable Oils: Search for Raw Materials," The Investor, January 1969.
  2. The seminar on "Industrial Plant" held by The Agricultural Sciences Association, The Thai Industry Association and The ASRCT in 1970 revealed that most of mills worked at 30-40% of actual full capacity. Only one firm which can work at 50% of capacity, owing to consuming additional cotton seeds which require special machine to separate seeds from yarns.
  3. The same seminar mentioned a firm which gained raw materials by providing credit and technology in order to promote the farmers to supply oil seeds to the plant. It is confirmed that the result was satisfactory.

Adjustments in the production of agricultural commodities which have become industrial inputs, are vital for achieving maximum efficiency in utilization. Certainly, there are differences in the desirable quality between products which are traditionally supplied directly to consumers and the same produce which are expected to be supplied to industry. There are cases where the quality of some indigenous raw materials is not suitable to the manufacturing process. An example is the canned pineapple industry which has been promoted since 1967. There are four plants producing 180,000 tons of canned pineapple. During the Third Plan period, four more plants will come into existence. The total capacity is expected to increase to 300,000 tons.<sup>1</sup> Pineapples intended for fresh fruit should be large-sized, yellow and ripe, but the canning industry requires the opposite: small-sized, white and raw. Large-sized is undesirable as it gives less quantity of usable pineapple because of the large core and thick peel.<sup>2</sup> Clearly, some alteration of the traditional pattern of cultivation is required. Steps should be taken to encourage farmers to grow new types which are suited to canning. As in the case of vegetable oil, canned-pineapple manufacturers may secure a supply of raw materials from their own plantations. Perhaps

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1. The Third Plan, p. 281.

2. According to the seminar on "Industrial Plant," only 30% of a traditional pineapple is usable while special type for canning can be used up to 70%.

the contracts with growers may ensure a regular supply of fruits and the desirable size of pineapple may be more easily achieved than purchasing from various sources of small growers.

Apparently, these examples of agro-industry confirm that even though the country can produce certain kinds of raw materials, the production must be accompanied by the necessary processes of adaptation, of improvement and of reorganization. Up-grading of quality and maintenance of a regular supply of raw materials according to industrial needs are the essential measures to enable local raw materials to contribute more to industrial growth.

Industries which are in a worse situation are the recently established modern ones, which have come into existence as a result of the promotion policy. Previously, most products, other than those from processing and some consumer goods, were mainly imported owing to several obstacles preventing their emergence one of which was lack of local raw materials. When the government strenuously inaugurated an industrial promotion policy to diversify the industrial structure, the establishment of modern industries was the primary concern. Realizing the dearth of local raw materials for modern industry, the government offered an incentive to promote industry in the form of exemption from import duty and business tax on raw materials. Since the introduction of the promotion policy, which affects mostly newly established modern industries, it has

been observed that local raw materials constitute only a small proportion of the industrial inputs. The production process often represents just the final touch of local assembly. Most of the promoted industries have a high import content. Chattip points out:

Direct foreign investment (which mostly flows to promoted modern industry) encounters the problem of immobility and inflexibility of domestic resources. The result is a high level of foreign requirements. Direct investment instead of reducing trade, increases imports of raw materials and intermediate products. The investment develops only the final assembly stage of production. Leaving the initial to be performed in the investing countries. <sup>1</sup>

The raw materials required for modern industries can be divided into two groups: those which may be developed domestically and those which may not be produced at present in the country. As a matter of fact, with the exception of tin, Thailand almost totally lacks mineral resource endowments whether fuel, metal or non-metal. At present, modern industries still depend on this type of imported raw materials. This dependence on imports might be reduced if there were discoveries of local new resources or application of substitute products. The prospect lies on survey and research programmes. Raw materials that can be mobilized locally have a greater potential. The desired purpose of local raw material utilization cannot be attained unless more emphasis is placed upon raw material development. The primary concern is that the mobilization and qualification

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1. Chattip, op.cit., pp. 122-3.

of local raw materials should be a response to the industrial progress. In fact, some modern industries have had to import inputs instead of producing them locally or using local products. What prevents them from being fully utilized is their unsuitable quality and insufficiency.

Cotton textile production is an industry of which three-quarters of cotton yarn has been imported, even though cotton has been grown in the country for a long time. In 1969, the import of raw cotton was 17,183 tons at the value of 199.4 million baht. The problem is that locally produced yarn is short staple and it is not appropriate for certain types of textile weaving. Besides, local yarn production is decreasing due to the inability of growers to control insects which has resulted in the reduction of cotton area. The cotton cultivated area was reduced from one million rai in 1968 to 700,000 rai in 1969.<sup>1</sup> Such a problem requires the co-operation of various sectors. Research on insect resistance as well as fibre improvement should be intensively carried out in order to increase local production and reduce import dependence.

The dairy industry, promoted for its import substitution content, is another example which illustrates that industry is promoted without adequate consideration of raw material supply. Since 1965, six dairy plants have been

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1. Bangkok Bank, Bangkok Bank Annual Report 1970, p.28.

established to process condensed milk from imported butter fat and skim milk powder. Increasing consumption of dairy products has led to rising import of powdered milk. This is because the supply of fresh milk from local farms is still very limited, and moreover the cost of processing from local fresh milk has proved to be higher than from imported powdered milk.<sup>1</sup> The argument is that there is not enough complementary promotion of dairy industry and milch cow raising. More attention should be paid to local milk production with regard to obtaining greater volume and lower price, otherwise this industry will be in trouble and put a burden on the consumers as happened in 1972. All dairy manufacturers asked the government for permission to increase the price of condensed milk by claiming that the cost of production was increased owing to the higher price of imported raw materials. Finally after considerable argument in terms of government and public, the firms were allowed to increase the price of dairy products to the price fixed by the government.

It is obvious that local raw materials must be simultaneously developed along with industrial promotion policy. Many of them exist in the country and there is

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1. Local manufacturers claimed that the cost of processing from fresh milk per unit of production was as high as 3 baht per kilogramme while from powdered milk was about 1 baht less. "The Dairy Industry," Bangkok Bank Monthly Review, Mar., 1971, pp. 73-4.

the possibility of their being better utilized if they are mobilized and up-graded appropriately. The advantages of using local raw materials over imported ones do not need stressing further. The point is that raw materials which can be acquired locally at present or have the potential to be so should be developed in terms of quality improvement and product expansion in order to substitute present imports.

It seems that there is now a greater recognition of the importance of agricultural products supplied to industry. At the beginning of 1972, the policy of promoting investment in plantations was announced.<sup>1</sup> The programme is intended to assist co-operation among farmers to produce certain type of agricultural products on condition that 60% of products must be supplied to industrial firms or exported. The aim of this policy is twofold: first is the intention to promote large amount of some agricultural products to supply industry; the second is to increase export earnings. There is a greater concern for improving the relationship between agricultural products and other sectors of the economy. The prospect of improving present conditions is related to the firmness of the policy, including co-operation from

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1. A plantation is defined that the area is not smaller than 1,000 rai and the investment capital is not less than 1 million baht. The promoted products are soy bean, maize and sericulture. Thailand, Bank of Thailand, Aug., 1972, p. 14.



various sectors of the government offices and the response of farmers. Actually, raw material product can be promoted by the incentive measures which have been offered to promoted industry. According to Section 4 of The Promotion of Industrial Investment Act (PIIA) 1962, the terms "industrial activity" mean industry, agriculture, animal husbandry, fishery, transportation...<sup>1</sup> Therefore, as an industry receives promotion benefits through the authority of the Board of Investment (BoI), it is possible to promote simultaneously its raw materials. Besides the appropriate promotion from the government, industrial firms are able to co-operate by preparing their own raw materials. There are some industries that have already started such programmes for the attainment of desirable quality and regular supply of raw materials.<sup>2</sup>

In view of the shortage of raw materials originating in Thailand, research is being conducted with a view to utilize the available raw materials to greater advantage and to develop possible alternatives. The current government sponsored research will provide the opportunity for reducing the dependence on some crucial raw materials and substitute some of them with more abundant local resources. A notable attempt in this direction includes

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1. Thailand, PIIA 1962, p.2.

2. The industries that have undertaken such programmes are tobacco, vegetable oil and sugar industries.

the Technical Research Institute (TRI) which has been given charge of co-ordination of the efforts in the research field.

TRI is one of research institutes within the ASRCT.<sup>1</sup> Much of the early work is involved with the utilization of natural resources and agricultural raw materials. In addition to work on tasks selected in the light of its own reviews of problem and those referred to it by the government, it offers consulting services to industry. Wherever possible it makes use of existing technology, adapting and modifying it to meet local requirements in production techniques and raw material supply. Programmes have been carried out through four groups which are responsible for particular works, namely, industrial chemistry group, minerals and metals group, materials of construction group, fibres and textiles group.<sup>2</sup>

An interesting research project, for example, is related to the manufacture of newsprint and the prospect of substituting domestically plentiful but wasted kenaf stalk, the outer parts of which were previously discarded.

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1. ASRCT was set up as a government organization in 1964 to undertake four main kinds of research, namely, research into utilization and up-grading of local raw materials, research into problem of existing industries, application of known technology to local conditions and research associated with feasibility studies on potential new industries.
  2. Thailand, ASRCT., Third Annual Report 1969, p.4.

As a result of TRI's research, a process for the production of chemical pulp from kenaf stalks was devised. Subsequent technical and feasibility studies led to a long-run experiment, underwritten by a commercial sponsor. This in turn led to the sponsor adopting the proposed 100 tons per-day mill. It is claimed that this new plant will be the first in the world to utilize kenaf stalk for pulp production.<sup>1</sup>

Research works associated with industry are also carried by two departments in the Ministry of Industry; the Department of Sciences and the Department of Industrial Promotion. The Department of Sciences undertakes research projects which are involved with the process of production. It is interested in the utilization of natural resources, industrial by-product and agricultural waste. The Department of Industrial Promotion is concerned with the knowledge of location, volume and type of natural resources. It attempts to bring available raw materials to be utilized beneficially.

However, the technological transfer programme from the government agencies to private sector is still at an initial step. Its impact on industrial growth is still comparatively small. At present, local entrepreneurs considerably gain the technological knowledge by

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1. "Starting the Technological Revolution in Thailand,"  
The Investor, Mar. 1972.

co-operating with foreign investor. The impact of joint venture may be regarded as a significant factor in overcoming the lack of technical know-how.

What should not be overlooked is the possibility of discovering new additional resources, especially minerals, natural assets, the development of which will benefit the country as a whole. Survey projects should be emphasized to assess the country's endowment which is the basic guideline of further development. The Department of Mineral Resources is responsible for comprehensive geological surveys. But, as is admitted by the government, the scope of work is limited owing to the insufficiency of technological knowledge, trained personnel and financial support. Moreover, research and survey projects are costly and time consuming and need co-ordination of all government offices concerned. The result of the study and survey has to be effectively communicated to the private sector. It may be optimistically hoped that it will be gradually expanded and contribute more to industrial growth. At present, adjustment and mobilization of existing available raw materials are the most significant requirements. Plans for more co-ordination between agriculture and industry are greatly needed to diminish the problems of quality and quantity of the available as well as potential raw materials.

### Recent expansion of infrastructure

Power supply and transport are major components in the industrial process which were previously insufficient to support the industrial growth. During the recent development period, they have been receiving prime attention from the government.

#### Power Supply

Being poorly endowed with sources of fuel, Thailand has been compelled to rely substantially on external sources of energy. Charcoal, wood, bagasse (residue of sugar cane), and paddy husk have been traditional fuels which in 1954 contributed 54% to total energy supply. Since the mid 1950s, the demand for energy has increased greatly due to economic expansion, especially in the transport and industrial sectors with the consequence that the indigenous sources of fuel supply could not keep pace with the growing demand. Ever since then, their contribution to the total energy supply has been decreased relatively to the import of refined oil. As the economy has expanded, the country has increasingly depended on an external supply of energy, mostly petroleum, which contributed 77.8% of total consumption in 1969. During the 15 year between 1954-69, 79.7% of energy supply consisted of petroleum and gas products, while the remainder came from hydro-electric power, lignite, charcoal, fuel wood, paddy husk and bagasse.<sup>1</sup>

1. In 1969, 30.2% of crude oil came from the emirates and kingdom of the Persian Gulf, 27.8% from Iraq, 17.3% from Great Britain, 14.1% from Saudi Arabia, 10.1% from Iran and 0.5% from Japan. Thailand, The Ministry of National Development, The Energy Solution in Thailand, 1969 (National Energy Authority 1971), pp. 20. 51.

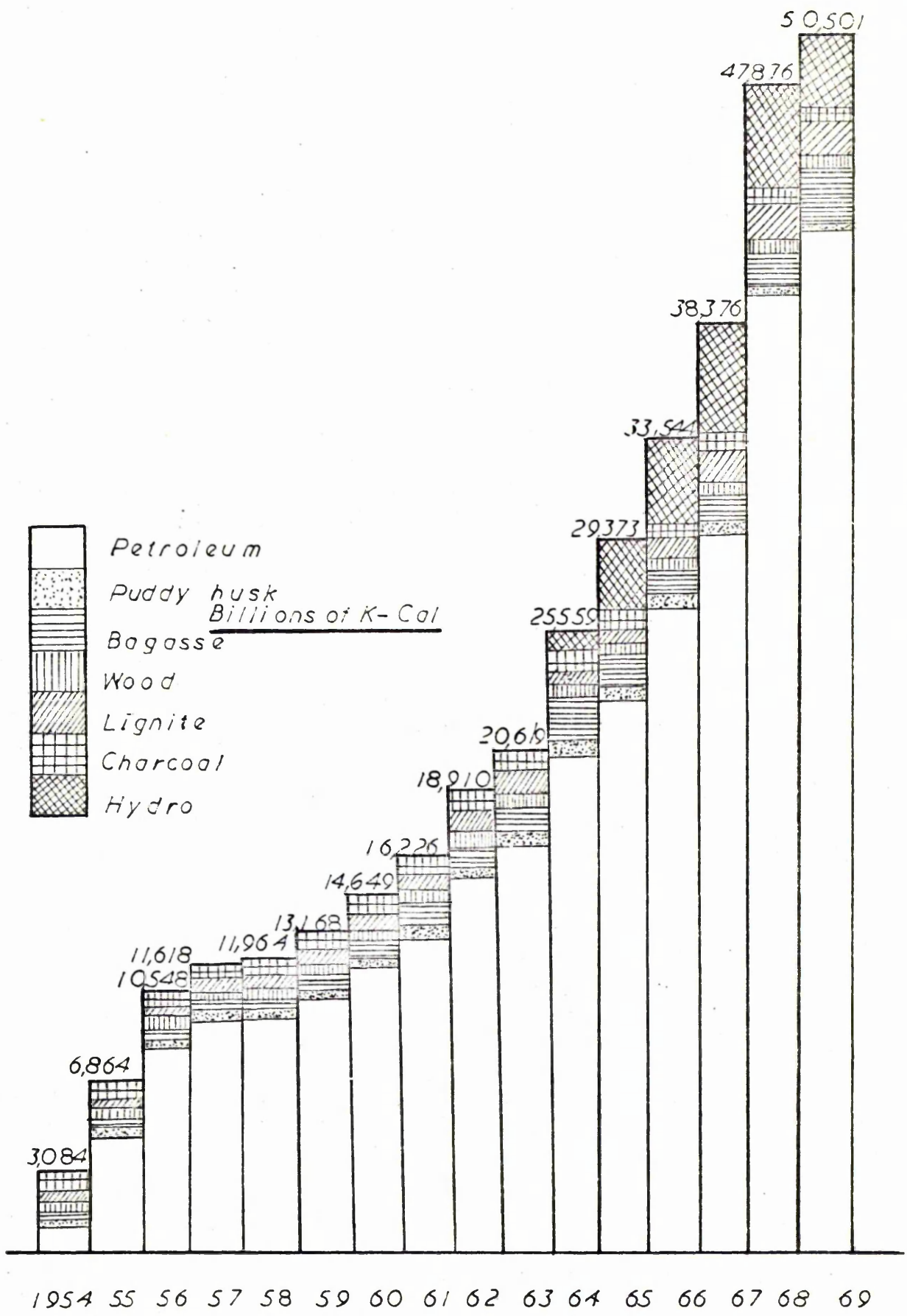


Fig. 3.1 Energy Consumption by type of Energy 1954-69.

Source: N.E.A.

The increasing role of petroleum is obvious from Figure 3.1 which represents the energy consumption according to type of use during the period 1954-69.

The stagnation of traditional fuel supply led the government to explore other local sources, but no significant fuel deposit has so far been discovered. During the mid-1950s only two sources of fuel have been developed, namely a small petroleum basin and two lignite deposits. The petroleum deposit, estimated to have capacity of 2.5 million barrels, has been discovered near the Burmese border at Fang in Chiang Mai province. A refining plant run by the government has been in operation since 1959 with a capacity of 1,000 barrels per day. Usually the plant has worked below actual capacity owing to the shortage of crude oil. From this deposit, 0.3 million barrels or 12% of the total reserves have been extracted. The production of this local source is so small that it does not contribute much to the economy.

The lignite is suitable for direct use in the thermal power stations, but not for metallurgical or domestic purposes without expensive treatment since it has a high water, sulphur and ash content with no coking properties.<sup>1</sup> One deposit is in Mae Moh district in Lampang province in the North, and the other is in Krabi, a southern province where a power plant came into operation in 1963. Total

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1. IBRD, op.cit., p. 107.

reserves at Mae Moh are estimated at about 120 million tons of which only 1.9 million tons or 1.6% was exploited during 1955-69. The reserves at Krabi are about 100 million tons and only 1% has been extracted.<sup>1</sup>

Since 1964 there have been two significant developments in the attempt to relieve the dependence on imported energy, that is, the beginning of local oil refinery and the first harnessing of hydro-electric power, a comparative new source of energy supply in Thailand.

The rapid growth of the oil industry which was established recently reflects the quickening progress of the economy, in particular the rapid expansion of all form of transport, industrialization and power generation. In the foreseeable future, the import of crude petroleum will continue to increase unless an oil deposit is found locally. The total capacity of three refining plants, all located near Bangkok, is in the order of 165,000 barrels a day in 1972.

#### Electricity and hydro-electric power

Electricity plays a very important role in the supply of power for domestic and industrial use. Even though electricity was first generated in Bangkok as far back as the nineteenth century, the progress of facility

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1. The Ministry of National Development, op.cit., p.13.



was very slow. The serious inadequacy of electric supply, even in Bangkok where 85% of total power was consumed, is illustrated by the IERD report as follows:

... a severe power shortage existed in Bangkok as early as 1950, and since then it has been getting worse. Between 1950 and 1956, the peak load grew by 16% a year on the average, but it has been impossible to meet demand despite restrictions on use. There is little doubt that this shortage has been a significant deterrent to the development of commercial and industrial activity in the Bangkok area during recent years. <sup>1</sup>

Between 1956 and 1969 electricity production dramatically rose by 21% annually from 361 to 3,728 million kilowatt-hours. Before 1960 about 50-60% of electric energy was generated from diesel plants and the rest was from steam plants. Since then the composition of diesel-electricity has lagged behind, the contribution of steam electricity has been increasing alongside the emergence of hydro-electric power in 1964. In 1969 the steam plants were the main suppliers of electrical energy, contributing 59%, while 29% came from hydro-electricity plants and 12% from diesel and gas turbine plants.<sup>2</sup> Figure 3.2 shows the changing composition of electricity generation in Thailand.

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1. IERD, op.cit., p. 114.

2. The figure of 1969 for the contribution of hydro-electric power may be misleading since in that year there was restriction on generation owing to water shortage in the reservoirs of hydro-electric dams. The Ministry of National Development, op.cit., p. 41.

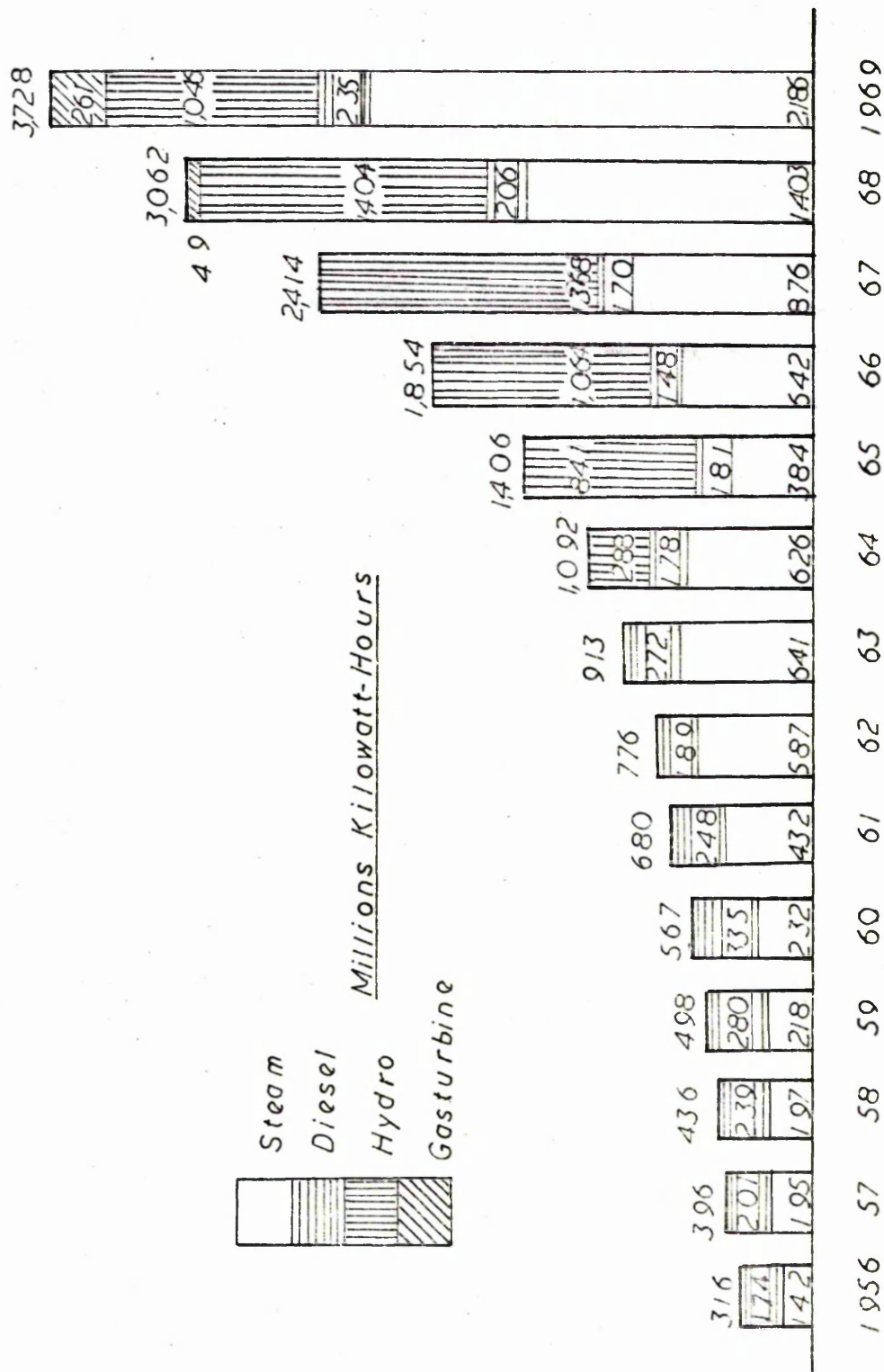


Fig. 3.2 Gross Electric Energy Generation Classified by type of plant

1956 - 69

Source: N.E.A.

Since 1964 the country has harnessed hydro-electric power from water resources, the extensive river system producing the major source of potential power. Referring to the Figure 3.2, hydro-electric power was increased annually from 288 kilowatt-hours in 1964 to 1,404 in 1968. In 1969, the production decreased to 1,046 as the result of shortage of water supply.

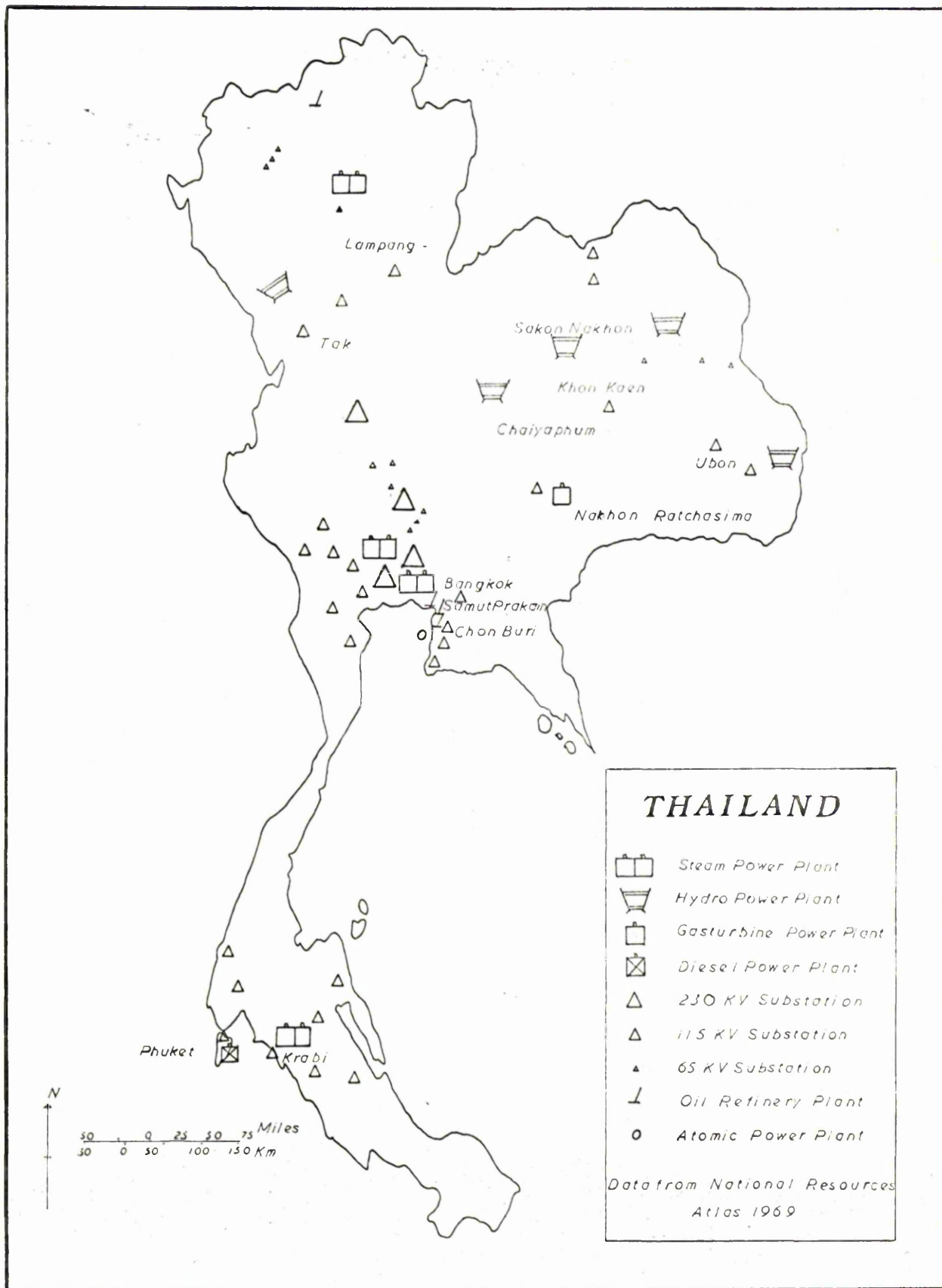
According to a survey of the government, the country has the potential for 46 hydro-electric projects with an installed capacity of about 9.3 million kilowatts.<sup>1</sup> In 1972, five projects were completed. Yan Hee is a major development project where it is expected that eight generators will be installed at the Bhumibol Dam in Tak province and it will eventually have a capacity of 560,000 kilowatts. It already had a capacity of 420,000 kilowatts in 1970. In the Northeast, hydro-electric power projects

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1. The projects are classified by regions and installed capacity as the following:

Regions	Number of projects	Estimated installed capacity kilowatts
1. The North	16	1,134,000
2. The Central	15	2,999,000
3. The Northeast	10	4,917,000
4. The South	5	225,000
TOTAL	46	9,269,000

Source: The Ministry of National Economic Development, op.cit., p. 8.



**Fig.3.3 Location of Electric Generators and other Energy Plants**

were completed at four locations. Hydro-electric generators have been installed at the Ubon Ratana Dam in Khon Kaen province with a capacity of 25,000 kw., at Nam Pung Dam in Sakhon Nakhon province with a capacity of 6,300 kw., at Sirinthorn Dam in Ubon province with a capacity of 36,000 kw., and at Nam Prom Dam in Chaiyaphum province with a capacity of 20,000 kw. So far the installed capacity of these projects is 507,300 kw. which is only 5% of the estimated capacity when all projects are completed.

Despite the great strides made in extending electricity services and the priority given to electricity development, the country still has not achieved a fully satisfactory position. Although the production has increased considerably, at a rate of 24.3% annually between 1967-69, the supply is still inadequate especially with regard to the provision of power up-country which is often unreliable and expensive.

A striking characteristic of electricity supply in Thailand is that only a relatively small number of the population is being served, moreover most of the supply is concentrated in the Metropolitan areas. In 1969 only 5.8 million people were served by electricity, accounting for only 16.76% of total population. Out of the total population served, 2.5 million were in Bangkok-Thon Buri; the other 3.3 million were scattered throughout the whole kingdom.<sup>1</sup>

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1. UN/ECAFE, Electric Power in Asia and the Far East 1969 (New York: UN, 1972), p. 18.

Furthermore, electricity rates are much higher up-country than in the Metropolitan areas.<sup>1</sup> Undoubtedly, the amount and condition of supply and the charge rate of electric power have been a major hindrance to the development of industry as well as of other economic activities. However, the government always indicates its intention to reduce the rate to consumers. For example the average rates in the Metropolitan areas were reduced from 0.73 baht per unit in 1962 to 0.42 baht in 1971, whereas that of up-country was reduced from 1.62 baht per unit in 1961 to 0.66 baht in 1971.<sup>2</sup>

Compared with other Asian countries, the amount of electricity consumed in Thailand is relatively small, and the charges are amongst the highest in the region.<sup>3</sup>

1. Electric rate difference between the Metropolitan areas and other provinces can be observed from the following figures

Metropolitan 1971	Up-country 1970	baht: unit
1. Household .59	1. Household	1.07, 1.47
2. Small business and industry .56	2. Business and industry at various size	.43
3. Middle and large business and industry more than 30 kw. .33	3. Mining industry	.40 , .50

Source: The Third Plan, p. 259.

2. Ibid., p. 356.
3. The average rate of .29, 0.32 baht per unit of Thailand are higher than 0.24 in Korea, 0.20 in Taiwan, 0.16 in the Philippines, 0.18 in Japan. Only Singapore which has a higher rate of 0.30 baht per unit. Thailand, Ministry of Industry, Seminar on Industrial Development 1970, p.85.

Industrial progress leads to rapid growth in demand since it is the main consumers of electric energy. The Third Plan estimates that electricity requirement of industry during the plan period will be 76% of the total requirement.<sup>1</sup> Certainly, one of the major cost components of industrial products is energy which should be available in sufficient quantity and at a lower price for the competitiveness of the products. At present, the government offers special rate reduction to certain types of industry, especially ones with export prospect.

The ability to provide sufficient energy supply is a major burden on the Thai economy, particularly as the rate of increase in population is 3.2% per annum and the economy is being expanded rapidly. The absence of fuel alternatives and the dependence on imports is a restraint on wider economic development. Certainly, the country has had to struggle continuously to overcome the poor endowment of local energy sources and it is likely that the rate of traditional fuel supply cannot be increased. Nuclear power is in its initial research and experimental stages, and so far there has been no discovery of any significant raw materials to supply a nuclear plant.<sup>2</sup>

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1. The Third Plan, p. 68.

2. A nuclear power plant is proposed to be constructed at Sriracha in Chonburi province. Work on this project which is expected to cost about 2,700 million baht and will take about 5 years to complete, is expected to start in 1973.

Far Eastern Economic Review, 1972, p. 328.

As the supply of local petroleum at present is insignificant, the dependence on imports will continue unless the companies presently drilling would strike oil. Even though a large proportion of energy will be supplied externally, the development of local sources must be given attention. The contribution of hydro-electric power will increase according to the development plan. Long term planning supply and demand of energy requires concentration on maintaining production at the level required by changing demands. An adequate supply of energy at a lower rate will affect considerably the growth of industry which will inevitably necessitate a substantial increase in the energy consumption.

#### Recent expansion of transport

The significance of transport for the growth of any community is universally realized. As Owen remarks:

The evidence in underdeveloped areas points to the fact that transportation inadequacies are a major factor retarding economic growth..... But even though transport alone will not achieve development, it can also be said that development will not be achieved without transportation.... Transport also plays the promotional role of making available resources that now lie idle because they are inaccessible. <sup>1</sup>

The necessity to improve and extend transport facilities is obvious from the fact that transport and communications account for a major portion of total public investment of

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1. W. Owen, "Transportation and Economic Development," American Economic Review (May 1959), p. 186.



developing countries. The purpose of constructing transport route vary from case to case, the main consideration may be either political or economic. However, once transport exists, the community will gain certain benefits from that transport system no matter what the primary aim of that project is. Nevertheless, negative effects may result as exemplified by the case of Thai industries which declined in the late nineteenth century. Transport is seen as a factor which through external economies stimulates industrial growth and has substantial influence on industrial location. There can be no doubt that investments in roads, railways, port facilities and so on will have important implications for the growth of all activities.

Transport in Thailand has expanded remarkably in the last two decades. The systems have grown up independently at different periods of Thailand's history. Inland waterways are the traditional mode of transporting both passenger and, to a great extent, cargoes. Railway construction began in the 1890s motivated by the political interests. Highways and ports have just gained more recognition since the 1950s. The transport sector has been accorded high priority and it has been allocated a significant share of development investment, accounting for about one-fifth of public development expenditure during the Second Plan and one-sixth during the Third Plan period.

### Railway transport

Railway construction, inaugurated in the 1890s, was at first more associated with political than economic consideration for the purpose of closer contact between Bangkok and the provinces.<sup>1</sup> The first rail line from Ayutthaya to Nakhon Ratchasima, opened to travel in 1901, was constructed for connecting the Central Plain to the Northeast with the desire of creating closer relations. Other lines linking the northern, southern, and Northeastern parts of the country to Bangkok were constructed successively until they reached the present terminals.

The centre of railway transport network of 4,178<sup>2</sup> kilometres has always been Bangkok-Thon Buri. From here the basic trunk routes emanate comprising: the northern line from Bangkok to Chiang Mai, the northeastern line from Bangkok to Nong Khai on the Mekong River, the international boundary between Thailand and Laos, and Ubon Ratchathani; the eastern line from Bangkok to Aranyaprathet on the border of the Khmer Republic; and the southern line from Thon Buri to two terminals on the border of Malaysia.

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1. Pendleton argues that at that time the French had pushed the boundary of Indochina to the Mekong and had set up a protectorate in Laos. Meanwhile, the British were showing much interest in the Shan States and in Northern Thailand and they also desired to expand northwards from Malaya. Pendleton, op.cit., pp. 288-9.
  2. Senanarong, op.cit., p. 183 quoting State Railway of Thailand, RSR Information Booklet, 1965.

The dominant role of Bangkok in the economy of the country has been noticeably strengthened by this railway network. The primary purpose of the construction of the railway system was a political rather than an economic one, but when the lines were built, they greatly stimulated the growth of the economy. Its commercial influence extends not only throughout the country, but also goes further into Laos as well.<sup>1</sup>

Pendleton notes that:

Modern means of transport have proved invaluable in strengthening economic, administrative, and cultural ties between Bangkok and the outlying sections of the country. It has been the railway system that has been principally responsible for drawing the nation together.<sup>2</sup>

Since the 1950s, the construction of railway lines has tapered off because of the dramatic expansion of highways, and the popularity of railways has decreased as highways have been developed. At present, the major projects consist of improving the efficiency of and extending the existing lines rather than opening new routes. Two interesting projects, being surveyed during the Third Plan period deserve mentioning. The first project is the Chachoengsao-Laem Chabang-Sattahip line which is expected to serve as an integral part of the economic

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1. Laos uses the northeastern line to connect with outside countries.
  2. Pendleton, op.cit., p. 293.

development of the Southeast. The proposed port at Laem Chabang will be the main beneficiary of this line when it is built. The second line between Klong Sip Kao-Ban Pha Chi, which is intended to connect the eastern line with northeastern and northern lines. After the construction of this project, the rail transport of Northern and Northeastern parts will go down directly to the proposed Laem Chabang port without having to go through Bangkok.<sup>1</sup>

It has been argued that little consideration is given to connections between the lines since most of the previous lines were constructed radiating outwards from Bangkok. These two projects show the trend of more emphasis on economic benefit and diversification of railway transport.

### Road transport

Thailand's progress in road construction was much slower. Modern highways have come into existence only since the Second World War. The government was criticized for paying little attention to road building for it owned the railways and was reluctant to encourage the growth of roads that might compete with the railway enterprise. Roads were built only in parts of the country not served

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1. "The State Railway to Expand," The Investor, (Dec. 1971), p. 35.

by railways or as feeder lines to the rail centres. The IBRD Mission reported, "before 1936, highways were negligible in quantity and poor in quality; during 1936-40 a five-year construction program gave the country 2,215 kilometres of roads of fair quality."<sup>1</sup>

The present highway programme began in the 1950s. Increasing realization of the economic and strategic necessity of an efficient highway system induced the government to inaugurate the improvement and new construction of roads. Originally 34 routes were proposed, but priority was given to eight major highways. Six routes started from Bangkok to various parts of the country, viz., to Chiang Saen on the border of Burma in the extreme north, to Nong Khai on the Mekong, to the Malaysian border along the east and west coast of the peninsula, to Trat along the southeast coast, and to Aranyapathet of the border of the Khmer Republic. The remaining two routes were from Nakhon Ratchasima eastwards to Ubon Ratchathani, and from Tak eastwards to Nakhon Phanom on the Mekong.<sup>2</sup>

The highway transport system increases the domination of Bangkok-Thon Buri just as the railways do. Of the 8 major highways constructed there were only two that started in provinces other than Bangkok. Even though political

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1. IBRD, op.cit., p. 129.

2. US. Foreign Area Studies, Area Handbook for Thailand (Washington D.C.: US. Government Printing Office, 1968), p. 395.

factors are still involved in the construction projects, the new routes have economic repercussions. An example is the "Friendship Highway" which was built first for administrative and military reasons from Saraburi to Nakorn Ratchasima and then furthered to Udon Thani and the Mekong at Nong Khai. Later, this road has played an important role in the big increase in production and export of maize and kenaf grown in the Northeast.<sup>1</sup>

In 1971 the national highway system consisted 11,300 kilometres of all weather roads. Moreover, provincial and feeder roads have been built in remote areas under the Second Plan. The objective, which has been repeated in the Third Plan was to construct a national highway system with linking trunk routes to accommodate the increasing movement of passenger and cargo, and to develop provincial and rural highways to spread the benefits into the remote areas.

#### Inland-water transport

This traditional mode of communications has contributed much to the transfer of raw materials and passengers. The most significant river system of the country is the Chao Phaya and its tributaries, which connect the North with the Central region. These rivers which flow southwards

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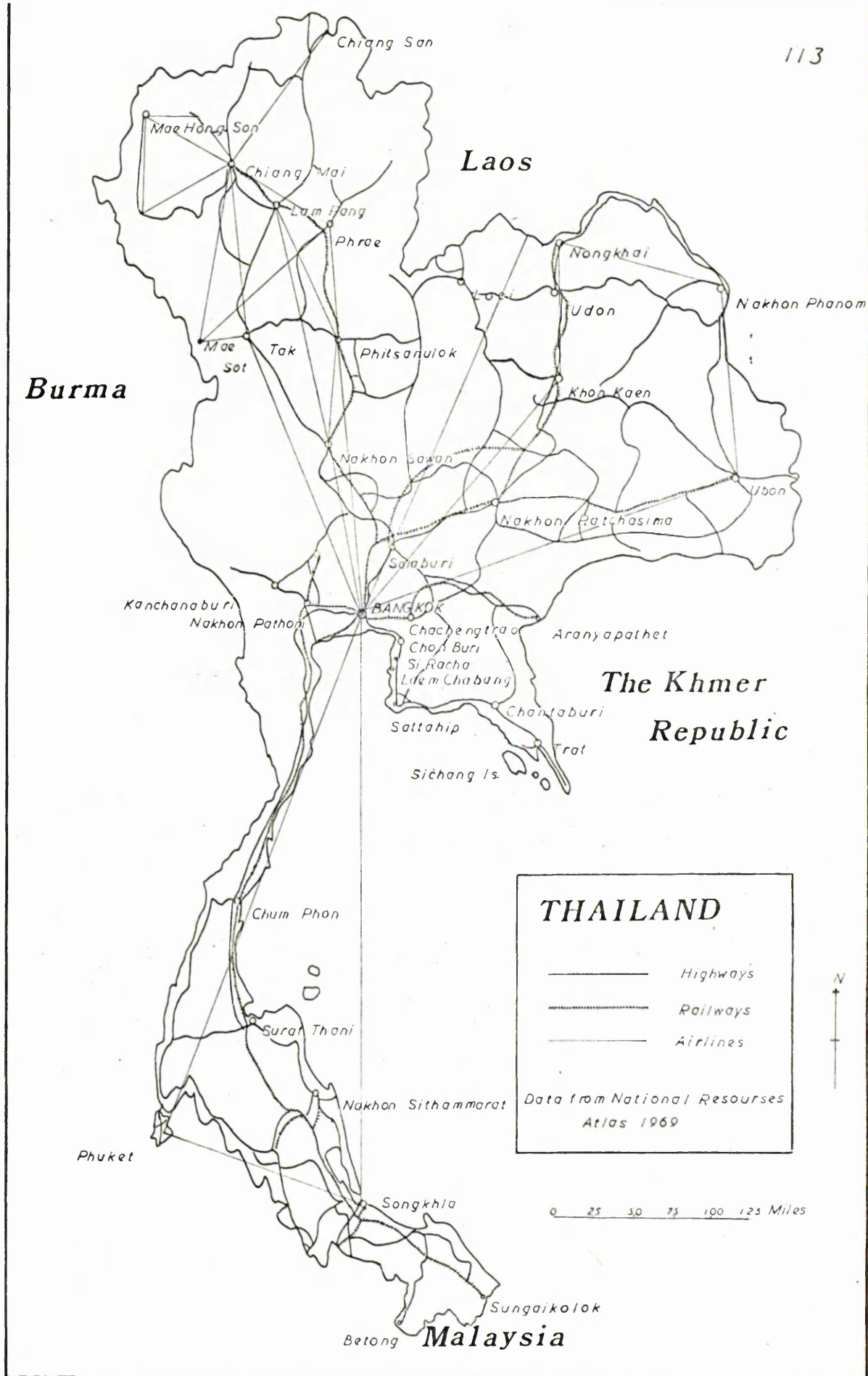
1. C. Onslow (ed.), Asian Economic Development (London: Weidenfeld and Nicolson), 1965, p.156.

through the Central Plain and finally reach the port of Bangkok. However, there is a characteristic difference between the river systems in the North and the Central Plain. In the northern region, river travel does not contribute much to the transport system, but the rivers are extensively used for floating timber down to Bangkok. Short boat trips are possible but they are limited only to the rainy season. Compared with other rivers in other parts of the country, rivers in the Central Region contribute more to the inland waterway transport. They concentrate mostly on the plains of the Chao Phaya lowland, north of Bangkok, and constitute an interconnected network of rivers, branch streams and canals. This network embraces no fewer than 27 provinces, comprise a total of approximately 2,000 kilometres in the wet season and 1,100 kilometres in the dry season.<sup>1</sup>

River travel in other parts of the country is not as important as it is in the Central Plain. On the Khorat Plateau, the Chi River and its tributaries may be used for transport only during the flood season. Rivers in the Southeast and the South are short and fast running and therefore do not contribute much to the transport system. In these regions, however, there is a greater reliance on coastal transport.

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1. "Thailand's Oldest Trade Channels," *The Investor* (Dec. 1971), pp. 16-20.



**Fig.3.4 Highways, Railways, and Domestic Airlines Network**



## The Port of Bangkok

The bulk of foreign trade passes through the Port of Bangkok which handles more than 95 percent of imports and 80 percent of exports.<sup>1</sup> The port facilities at Klong Toey on the Chao Phaya River were first developed between 1938-1954. Before that date, a sand bar at the mouth of the Chao Phaya River prevented ships of over 4,000 tons from entering the river and the normal practice was to discharge or take on cargo at the Sichang Island, 19 miles to the southeast of the bar. With the dredging of the bar channel, vessels of up to 10,000 tons can now proceed direct to Bangkok itself.

The site chosen for the port occupied an economically strategic position. It was located on the vast central alluvial plain which is the country's largest agricultural area. Topographically, however, Bangkok is not suited as a site for a deep sea port. It is located on the Chao Phaya River, some 17 miles upstream from its mouth on the Gulf of Thailand. The port has suffered seriously from siltation. The entrance channel has to be dredged annually, a procedure which has not been proved to be satisfactory. Large sums of money are spent in maintaining the channel each year. These circumstances affect the draft limitation on ships

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1. Some commodities produced in the southern part are exported through small southern ports. There are 11 commercial ports, of which only one, Phuket, where has its navigation channel dredged to increase its accessibility.

using the port. In 1970, the previous limit of 27 ft. was reduced to 26 ft.<sup>1</sup>

The tonnage of cargo through the port has increased at a rate of over 10 percent annually since the beginning of the 1960s. Critical congestion resulting from inadequate facilities has become a chronic problem. The port facilities cannot keep pace with the volume of goods and therefore ships must wait, causing the loss of both time and money. The lack of adequate port facilities was the subject of much discussion among shipping agents. Businessmen generally complain that the congestion in the port causes them much loss.<sup>2</sup> The location of the port has led to a problem of goods transport. At present, goods are transported principally by truck and rail from the port to warehouse in the centre of Bangkok. Goods passing through the port in million of tons each year add greatly to traffic congestion in the city.

There is clear awareness of the necessity for a deep sea port to replace the Port of Bangkok. Actually, construction of a deep sea port is not a new idea.

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1. The article entitled "The Growing Barrier to Klong Toey," (The Investor, Oct. 1970) explains that this new regulation has been introduced because of the increase of siltation which is a consequence of the construction of the Bhumibol Dam, some 400 kilometres up river. The current of the Chao Phaya River has slackened and silt builds at a faster rate in the river mouth. Dredging, undertaken by the Port Authority of Thailand is not sufficient to keep the silt at the 27 ft. draft level.
  2. US. Foreign Area Studies, op.cit., p. 390.

According to an article by a director general of the Port of Bangkok, the government has understood the poor potential of this port.<sup>1</sup> In 1953, planning on building a deep sea port at Si Racha commenced. Although the Royal Decree to expropriate land for the construction was promulgated in 1953, there has been no further significant progress. P. Suntrankoon pointed out that this was due to the report of the IBRD Mission that did not consider it was justified economically to build a deep sea port at Si Racha.<sup>2</sup> Besides, there were reports from other survey teams, namely United States Team (1959) and the Economic Commission for Asia and the Far East (ECAFE) team (1965) which were not in favour of building a deep sea port. Only one study, carried out by Netherlands Engineering Consultants (NEDECO) in 1965, recommended that, because of disadvantages and limitation of present river port, a new supplementary port should be built at Laem Chabang near Si Racha.

The underestimation of future port traffic is a factor that has significant bearing on the delay of port expansion. The phenomenon of high rate of increase of imports discharged at the port during 1951-66 was

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1. P. Suntrankook, "Development at the Port," Industrial Review of Thailand, 1967, pp. 46-9.

2. See IBRD, op.cit., p. 140.

described as abnormal. The rate of increase from 1951-62 was 5 percent, from 1962-65 was 12 percent and rose markedly to 22 percent in 1966.<sup>1</sup> At present three schemes have been undertaken in an attempt to solve the problem, viz., expansion of the Port of Bangkok, conversion of Sattahip, a naval deep sea port, into a commercial port and construction of a deep port at Laem Chabang.

The main achievements during the uncertain and indecisive period between 1960 and the present are the improvement and provision of port facilities and the enlargement of the port by adding new quays. In 1972, work on the East Quay Project commenced, after a delay of 6 years. The completion is scheduled for 1976. The project is regarded only as a stop-gap measure pending the construction of a deep sea port.

Great interest has been generated on the subject of a deep sea naval base at Sattahip, built for military purposes in 1966, and opened for commercial shipping since mid-May 1971.<sup>2</sup> Some sections of opinion consider that Sattahip can never compete with the Port of Bangkok, because it is 150 kilometres from the metropolis and transshipment is more expensive.<sup>3</sup> The potential of this

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1. Suntrankoon, op.cit.
  2. "Naval Port at Sattahip Opened for Commercial Shipping," Bangkok Bank Monthly Review (12 July, 1971), p. 209.
  3. "East Quay Project of Klong Toey," The Investor (March 1972).

port as a container and regional port for Laos, the Khmer Republic and South Vietnam, is presently under consideration.

The construction of a deep sea port is still a subject under serious consideration by the government. Si Racha, a little closer to Bangkok (120 km.) than Sattahip, is being reconsidered as a result of the feasibility report by NEDECO. Detailed planning of this port is now under way. In addition, there would be a need for at least one major new port on the peninsula. The project of cutting a canal through the Kra Isthmus which was approved in 1972 may influence the decision to construct a deep sea port in the South.

The transport pattern reflects the significance of Bangkok as the centre of system. A clear illustration of what Thai transport looks like is given by Thomlinson who states that:

The patterning of the nation's transportation routes both results from and perpetuates the dominance of Bangkok where primacy has lasted at least a century.....  
 Automobile, railroad, and airplane routes all tend to converge on the capital, making travel between regions both time-consuming and expensive.....<sup>1</sup>

Obviously, the characteristics of transport are related closely to the dominance of Bangkok, and vice versa. Bangkok is the place where nearly all commercial and

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1. Thomlinson, op.cit., pp. 59-60.

industrial activities are concentrated. The city has haphazardly expanded without any planning, leading to economic and social problems. Transport plans may lead to an amelioration of this situation and may be served as an integral part of regional development. If all the transport systems continue to focus on Bangkok, the decentralization of activities to the regions will hardly be achieved. Diverting transport outwards from Bangkok will reduce the aggravating congestion in Bangkok and at the same time will benefit the development of various activities in the provinces.

## CHAPTER FOUR

## HUMAN AND CAPITAL RESOURCES

Economic growth is predominantly associated with human characteristics. As other agricultural developing countries, Thailand possesses an abundant unskilled labour and lacks highly qualified personnel, nearly at every level. Undoubtedly, expanding industrial sector requires several types of manpower such as administrator, manager and entrepreneur which are nearly absent in the traditional agricultural society. Their attitude towards investment also plays a great role in industrial growth.

Human Resources

According to the National Census, the population of Thailand was 34.2 million in 1970. The average density is 170 people per square mile (66 per square kilometre). Although Thailand is regarded as a sparsely populated country relative to natural resources and is not yet suffering from problem of population pressure by conventional standard,<sup>1</sup> a growth rate about 3% per annum would double the size of her population in less than a generation.

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1. Myint, op.cit., p. 35.

Demographic background

High growth rate and age structure: During the late 1880s and the early 1900s, large numbers of immigrants, predominantly Chinese, contributed considerably to the population growth. Since the promulgation of Immigration Act in 1950, the annual number of immigrants has been restricted to 200 persons for each country. Ever since then the population increase has been mainly due to natural growth, as shown in Table 4.1.

Table 4.1

Census of population between 1911-70

Year	Total population	Annual percentage inter-census increase
April 1911	8,266,408	
April 1919	9,207,355	1.4
July 1929	11,506,207	2.3
May 1937	14,464,105	3.0
May 1947	17,442,689	1.9
April 1960	26,257,916	3.2
April 1970	34,152,000	2.7

Source: Thomlinson, op.cit., p. 23.

The table shows the population increasing from eight million since the beginning of this century to 34 million in 1970. The growth rate rose from 1.4% between 1911-19,



to 2.3% between 1919-29, to 3.0% between 1929-37 and dropped to 1.9% after the Second World War period, and then rose to 3.2% between 1947-60. The 1970 figures are based preliminarily on provisional figures released in November 1970, but the National Statistic Office reported later that the actual population number should be between 34.5 and 35.9 million and the growth rate should be between 2.85% - 3.15%.<sup>1</sup>

Recent high growth rate is largely the result of a declining mortality rate which has been reduced by the application of modern public health, new medical techniques and the eradication of some fatal diseases.<sup>2</sup> The infant mortality rate has been reduced by nearly 50% since the Second World War. The overall death rate was reduced from 30 per thousand in the first half of this century to 10-15 at the present whilst the birth rate remains at 45 per thousand giving natural growth rate of

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1. V. Prajuabmoh, "The Trend of Population Increase in Thailand," December 1972 (pamphlet). The annual growth rate of 3.2% of Thailand is quite high compared with other Southeast Asian countries in which a low rate is a result of a high mortality rate. The examples are that the rate was 2.5% in Indonesia, 2.2% in the Khmer Republic, 2.4% in Laos and 2.6% in the Republic of Vietnam between 1966-67. (Asian Development Bank (ed.), op.cit., p.520.)
  2. An example is the reduction of death rate of malaria from 300 per one hundred thousand people in 1947 to 14 in 1966. (Thomlinson op.cit., p. 65.)

over 30 per thousand. Life expectancy increased from about 35 years in 1937 to 55 years for men and 62 years for women in 1964-66.<sup>1</sup>

The recent high growth rate has produced a population structure in which children under 15 years of age make up almost half of the population. The percentage was 42.4 in 1947 and 43.1 in 1960. The number of dependents will certainly become a burden on both the private and public sectors. Additional education as well as employment opportunities have to be provided for the rapidly increasing population. A report of the National Economic Development Board (NEEDB) suggests that in 1990 the total population will be 66 million even if fertility declines to one-third; with constant fertility, the number will be 77 million.<sup>2</sup>

The idea of family planning has been officially adopted recently. It is considered that family planning is necessary as a complementary programme to maintain and accelerate the projected trend of economic growth. The government target is to lower the rate of annual population growth from about 3.2% in the 1960s to 2.5% in 1976. Nevertheless, family planning scheme is only in its initial stage. The success of the growth reduction depends on the efficiency of the plan implementation as well as the co-ordination of people. However, it is a long term

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1. S. Goldstein, The Demography of Bangkok (Bangkok: Institute of Population Studies, Chulalongkorn University, 1972), p.6.
  2. Asian Development Bank (ed.), p. 492 quoting Third Draft of Report from the NEEDB in 1969.

programme, any change of population number will take effect only after two or three decades. At present, high number of young dependent requires much national expenditure on education and on the creation of job opportunities when they reach the working age.

Urban growth and internal migration: Being predominant a rural agricultural country, the level of urbanization in Thailand is low. The urban population of the whole kingdom increased from 9.9% to 13.1% between 1947 and 1960. In 1967, it was about 14.1%.<sup>1</sup> These figures were quite low compared with 22.9% for the developing world as a whole and 17.8% for the Southeast Asia.<sup>2</sup> Nevertheless, the urban population growth rate is rather high averaging 5% between 1947-60 and 4.8% between 1960-67 whereas that of the rural area was only 3.0% and 3.1% during the same period. In 1967, 71.3% of urban population concentrated on the Central Plain, 9.3% in the Northeast, 9.8% in the North and 9.6% in the South.

The urbanized population of Thailand is highly concentrated. Bangkok-Thon Buri accounts for almost two-thirds of total urban population. In 1960, the metropolis had a population of 1.8 million and this increased to 2.6

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1. N. Debavalya, Demography (Bangkok: Thai Watana Panich, 1971), p. 56.

2. Goldstein, op.cit., p. 7.

million in 1967, making it almost 32 times the size of the next largest city, Chiangmai.

Table 4.2

The population of the ten largest cities in 1967

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1. Bangkok-Thon Buri	2,614,356
2. Chiangmai	81,579
3. Nakhom Ratchasima	73,030
4. Had Yai	49,327
5. Udorn	46,686
6. Nakorn Sawan	44,851
7. Chon Buri	41,141
8. Songkhla	40,682
9. Lampang	40,515
10. Nakhon Srithammarat	39,426

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Source: N. Debavalya, op.cit., p. 58.

Other large urban centres include Chiangmai, Nakhon Ratchasima and Had Yai which are located in each major geographical region outside the Central Plain. They possess a basis for further urban growth for those regions. However, the high concentration in the primate city tends to induce new economic activities to locate in Bangkok-Thon Buri which increases its attractiveness to potential migrants from other provinces. Goldstein, referring to a Survey of Population Change conducted in the mid-1960s, states that the level of births in municipal

areas was far below that in the non-municipal areas. He suggests that urbanization contributes significantly to a reduction of fertility levels.<sup>1</sup> This phenomenon implies that the urban growth has been characterized by increasing number of immigrants who expect the better economic opportunities in urban areas. The situation is exemplified by a report of the International Labour Office which indicates that only two-thirds of people in Bangkok-Thon Buri were born in the twin city; the remainder have moved from other provinces and abroad.<sup>2</sup>

So far internal migration in Thailand has not yet been a significant phenomenon in the changing demographic pattern. According to the 1960 National Census, 13% of the total population were residing in a province other than the one in which they were born, while about 4% had moved from one province to another during the five years prior to the census.<sup>3</sup>

The level and direction of migration are subjected to push and pull factors. In an agricultural country with rapid population growth and increasing pressure on suitable land resources as Thailand, the most important push factor is the stagnation of rural economy. A pull factor

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1. Goldstein, op.cit., p. 11.

2. ILO, Report to the Government of Thailand on Internal Migration (Geneva: ILO 1965), p. 38.

3. N. Debavalaya, op.cit., p. 223.

promoting movement is the existence of better economic opportunities in other rural areas and to a greater extent, in urban centres. Many studies confirm that in Thailand the prominent inducement to migrate is economic motivation.<sup>1</sup>

An analysis of internal movement in Thailand by Ng divides the population redistribution into intra-regional movement and interregional migration. The first which is local movement between rural areas within the same migration region is a more predominant feature than the second. It is strongly influenced by creation of new opportunities in agricultural economy, such as increasing irrigated areas and crop diversification, in other rural areas. The interregional migration comprises two different directions namely migration to the Metropolitan and rural areas. The former is encouraged by the dominance of Bangkok and the absence of other large urban centres. The latter is motivated by same factor as that of intra-regional movement, with the greater significance of crops other than rice.<sup>2</sup>

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1. The Report of the ILO 1965; Marian Richards Meinkoth, "Migration in Thailand with Reference to the Northeast," Economic and Business Bulletin, 13 June 1962.
  2. R. Ng, "Recent Internal Population Movement in Thailand," Reprinted from Annals of the Association of American Geographers, Vol. 59, No. 4, Dec. 1969, pp. 710-730.

Although the present level of internal movement is still at a low level, the increasing number of migrants moving to urban centres especially Bangkok-Thon Buri, has created serious problems in these urban areas. Bangkok-Thon Buri has a considerably higher level of unemployment than the rural agricultural areas. The percentage reported as unemployed is higher in Bangkok (3.4%) than those in the rural category (less than 1%).<sup>1</sup> The situation will certainly be aggravated provided the potential migrants are induced to remain in their areas or diverted to other urban centres. This means that economic growth should be generated on agriculture and other activities up-country. The ILO reports that "absence or the small number of industrial establishments, affording employment opportunities in rural areas is a factor of migration."<sup>2</sup>

The utilization of manpower is undoubtedly a vital component of economic development process. Limitation of suitable cultivated land implies that other economic activities besides agriculture should absorb the increasing labour, which secondary occupation is expected to play a major role. Inducing the manpower to contribute to industrial growth and planning for the industrial sector to absorb the increasing labour, though being an ideal target,

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1. Goldstein, op.cit., p. 26.

2. ILO, op.cit., p. 92.

cannot readily be achieved. What should not be neglected is the characteristics of human resources: the available unskilled and skilled labour, the supply of entrepreneur and managerial personnel.

### Labour force

The estimated size of the labour force is about 15 million, of which approximately three-quarters is engaged in agriculture.<sup>1</sup> Although Thai population is highly literate compared to that of other developing countries, literacy is only a crude measure of population quality.<sup>2</sup> It may be said that the quality of Thai labour force is rather low. Nearly 75% of the population has had only primary education. There are relatively few persons in the professional, technical and administrative categories. The labour force survey in 1967 reported that only 200,000 persons can be classified as

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1. The increase of labour force during last four decades was as follows:

1937	.....	6 million
1954	.....	10.0 ....
1960	.....	13.7 ....
1971	.....	15.0 ....

Source: N. Chandravithun, Thai Labour and Industry (Bangkok: Social Sciences Association of Thailand, 1972), p. 20.

2. Between 1947 and 1960, literacy rate increased from 53.7% to 76.8%.



professional and 1,000,000 as skilled workers. The shortages of middle and high level manpower is revealed by the 1,10<sup>4</sup> vacancies in scientific and technical field during the Second Plan period.<sup>1</sup>

Even though agricultural labour is still dominant at present, its contribution to the total labour force has declined owing to the diversification of the economy. The declining trend of agricultural labour and increasing of those in non-agricultural sectors can be seen from Figure 4.1. Non-agricultural labour has increased gradually from 11% in 1937 to 26.2% in 1967, when the number was 3.9 million. The employment trend shows that trade, commerce and service activities are growing rapidly in relation to other sectors. This trend will continue as the economy becomes more complex.

Growing diversification of industrial activity has led to an increasing demand for professional, technical and skilled workers. The contribution of industrial labour increased from 2.1% in 1947 to 3.6% in 1960 and 4.9% in 1967 when it was estimated that there were 750,000 persons working in industrial sector of which about 97,000 were in Bangkok-ThonBuri.

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1. The Third Plan, p. 205.

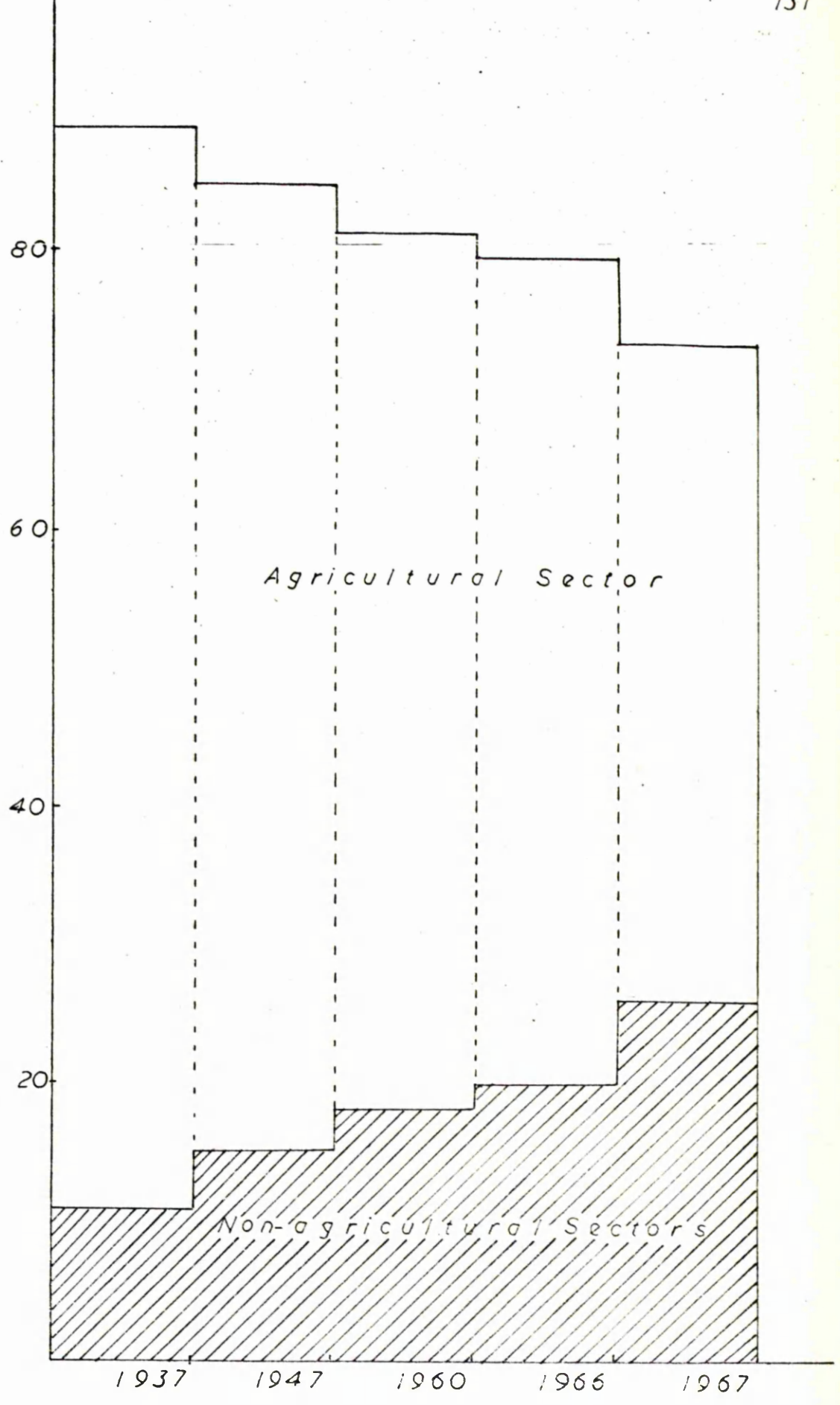


Fig. 4.1 Percentage of labour in the Agricultural and Non-agricultural Sectors 1937-67

Source: Chandravithun, Op.Cit.

### Availability of unskilled labour

Unskilled labour is and will become an even more significant component of manpower resources. Thai labour is generally regarded as abundant and cheap. Their wages are low compared with those of other countries including those in Asia. Only Indonesia which has minimum daily wages for unskilled men lower than Thailand.<sup>1</sup>

However, low wages are not the sole determinant of success in any enterprise. What also needs consideration is the efficiency of the labour force. An enterprise cannot derive benefit from unskilled workers with poor productivity, no matter how low the wages are. In Thailand there are many factors that hinder efficient labour utilization.

Based on the study of Thai industrial labour by N. Chandravithun examining the working conditions of industrial labour in general, and of textile, printing, metal, saw mill, construction and tin mining industries in detail, there is evidence that industrial workers do

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1. Wages in Southeast Asian countries.

Countries	Minimum daily wages for unskilled men	U.S. dollars
1. Cambodia	1.08	
2. Indonesia 1970	0.37-0.40	
3. Laos 1970	0.61-0.76	
4. Malaysia(West) 1969	1.08	
5. The Philippines 1968	1.00-1.30	
6. Singapore 1968	1.30	
7. Thailand	0.50	

Source: The Asian Development Bank (ed.), p.220 quoting ILO, Yearbook of Labour Statistics, 1969, for average earnings which cover men and women, and country data for wages for unskilled men.

not feel so committed to what has been called the "industrial order."<sup>1</sup> This agrees with the point mentioned in A Symposium on Skilled Manpower Requirements" that one problem of industrialists is the lack of discipline of the unskilled hands and the difficulty they had in adapting themselves to the factory routine.<sup>2</sup> Unskilled and inadequately experienced labourers migrate from rural areas to find jobs in towns. Few of them regard industrial employment as their permanent job. The turnover of labour is high due to the desire to seek more lucrative employment.

Adaptation of labour to industrial life is necessary. Most of them are accustomed to the agricultural environment. In the case of migrants from rural to urban areas, the labour also need to learn the urban way of living. Some incentives such as good working conditions and personal welfare are required to induce them to consider their work as a secure and permanent employment.

It is often said that working conditions are generally unfavourable. The employers do not pay appropriate attention to the worker's welfare. The situation is critical in the small-scale industry which contribute to more than 95% of industrial establishments, employing more

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1. N. Chandravithun, op.cit., pp. 50-119.
  2. The report of this symposium is referred to in an article entitled "Technicians for Thailand Industry," The Investor (March 1971), pp. 199-202.

than 83% of industrial labour. As the development of industry continues, the problems of labour welfare become increasingly important. In 1972, a labour Act was promulgated to fix the working hours, minimum wages, insurance and labour relations. This Act is recognized to offer certain benefits to labour. It is noteworthy that the Act allows the establishment of labour associations.

Trade unions in Thailand have been forbidden since 1959. It was argued that they did not progress much. The members were not interested in attending meetings and were reluctant to pay the fees. The traders and some government administrators considered them as an obstacle to industry and trade due to many strikes demanding higher wages. Permission of the Labour Act 1972 to establish labour associations indicates the government realization of increasing importance of labour in secondary and tertiary activities. However, the scope of these "associations" is not clear. They are likely the co-operation of workers by providing welfare to members and taking part in negotiation with employees. Co-operation amongst workers will certainly benefit their status, but it needs careful policy to ensure that unions will not turn against the economy.

Industrial training is an important measure for encouraging unskilled labour to acquaint themselves with the industrial environment and to improve their own prospects.

At present short courses are arranged for unskilled labour both in Bangkok and up-country. The three training centres operating in 1967 were located in Bangkok-Thon Buri. Over fifteen courses are offered, ranging from three months to one year in duration. For up-country, Mobile Trade Training Units are a successful and productive vocational training project. Services began in 1960 at Chumphon for the network in the South. Since then the services have expanded to other parts of the country, and 60,000 persons have been trained. The Units are designed to bring teachers and equipment to rural areas where adults and out-of-school youth can learn the basic skill required to enable them to get semi-skilled jobs. The course duration is 300 hours, on the basis of three hours a day for a period of five months. These services are a practical and economical way of extending vocational training to the country areas not served by existing facilities. In 1971, there were 36 units which is projected to increase to 45 during the Third Plan period. In addition, the Department of Industrial Promotion offers training in particular industry such as weaving and wood carving in the northern provinces. This programme, if it is operated strenuously, will offer much assistance as increasing the quality of rural labour in particular skills.

Training unskilled labour should receive more emphasis since they constitute the broad base of labour structure. They face difficulties in obtaining full-time

vocational training owing to insufficient elementary education and their necessity to earn a living instead of spending few years in formal vocational school. Present complaint about low quality and lack of industrial discipline will be reduced if certain training is provided as well as the appropriate working conditions. The government and employers are responsible for carefully regulating working conditions and welfare of unskilled workers with a desire to attain fairness, equity and cordial relations between employers and employees.

#### Skilled labour

Two points deserve mentioning in relation to skilled labour viz., the quantity and quality of skills. As the economy develops, the supply of skilled and high-level personnel rarely keep pace with the demand. Even in terms of existing skills, a problem of quality which does not meet industrial requirements still exists.

"The Symposium on Skilled Manpower Requirements" which was organized at Pak Nam, Bangkok's industrial suburb, by district officials and 59 senior representatives of local industry in 1971 reported that local industrialists faced the acute problems of shortage of skilled labour in all categories. They had to train their own technicians by recruiting unskilled hands and training them on the factory floor. Because of the shortage of qualified

technicians, many firms had had either to hire unskilled labour instead or to employ foreign experts. The annual turnout of skilled labour by the government and other vocational schools was far below the actual requirements.

The Department of Vocational Education in the Ministry of Education is responsible for the vocational training which falls under three headings: agriculture, commerce, and industrial crafts. Full-time training is made available in every province. The students are provided with both the theoretical and the practical knowledge in addition to some liberal education through their three-year courses. In addition, many private schools have been established, especially in Bangkok-Thon Buri. Therefore the recent number of students finishing such vocational courses has been increasing considerably. It is likely that the actual problem of skilled labour supply is really not so much the number, but the quality which may not meet what the factories require.

Indeed, the observation is often made that the qualifications of students are not related to the needs of industry. This is a universal problem which is related partly to national educational policy and partly to industrial establishments. The shortcomings of vocational education that do not fit industrial requirements have been summarized by the United Nations Industrial Development Organization (UNIDO) in "Manpower for Industry." It comments that training on the job and training at vocational schools are



alternatives. The former type of training is stressed as the more efficient method in many cases and should be more extensively used than it is at present. For a wide range of skills, training in industry or by industry itself has great advantages over training in the school system. Being trained by industry, workers are able to receive the specially needed skills, and the training is closely related to the technology and working practices actually prevailing in industry.<sup>1</sup> It is clear that industry should play a great role in this matter. One authority of vocational education of Thailand also noted that students who finish training from school are expected to acquire basic skills to serve as the firm foundation for short and intensive retraining schemes to be organized by their employers if there is any need for special techniques and skills.<sup>2</sup>

It is not correct to say that there is no training in Thai industrial establishments. Actually, in the small-scale enterprises, training is first provided to members of

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1. UN/UNIDO, Manpower for Industry, UNIDO Monographs on Industrial Development, No.14 (New York:1969), p.24. K.N. Raao in "The Influence of the Availability of Human Resources" expresses the same idea that co-operation of industry is needed to train the skills (H.E. Hoelscher, ed., Industrialization and Development, San Francisco: San Francisco Press, 1969, pp. 83-5).
  2. B. Varasundharosoth, "Vocational Education and Development," Industrial Review of Thailand (Bangkok Post, 1967), pp. 134-5.

the family, and outsiders are recruited when more labour is needed. The result is generally unsatisfactory. It is just a practical training depending on what work the worker is expected to do. There are no specific systems and no planning. Generally, employers do not regard training as a significant contribution to their enterprises.

Recently, the benefits and needs of on-the-job training have been better recognized in Thailand. People involved in vocational education and training have urged private enterprise to take the initiative in starting regular "apprenticeship schemes" in their own business.<sup>1</sup> Even though some large enterprises have started training programmes for new workers and begun to up-grade the existing work force, the scope of training is still only slight. This may be a result of the common opinion that it is either not necessary or too risky for an employer to train his own staff since a worker may resign soon after training. The government can reduce this reluctance by offering some incentive measures securing that after training the workers are bound with their employers for a certain period. Great potential lies in modern medium- and large-scale industries, especially ones which are joint ventures. These enterprises with their modern technology and experience are in good position to undertake on-the-job training programmes.

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1. The government has set up a "National Council for Skill Promotion" of which an important task is to prepare a draft plan for training skilled manpower. The draft has already been submitted to the NEDB. (The Investor, March 1971.)

The middle- and high-level industrial personnel

Middle-level industrial personnel consists of supervisors, technicians, and instructors who play an important role in the operation of the plants. The higher-level category includes engineers, technologists and managers. The latter type requires relatively broad knowledge, mastery of complex subject matter and capability to apply rather abstract ideas and principles. They require a good general education extending well into or through the university level, followed by specialized education that gives them a thorough grounding in fields in which they plan to work.<sup>1</sup>

Education at technical and university levels has been recently expanded. In 1967, there were three technical institutes in Bangkok-Thon Buri which were merged into a single unit in the last few years, and each in the other three regions. In 1971 there were 14,300 technical students and 2,500 technical training teachers. The Third Plan estimates that during the Plan period, there will be a surplus of technicians since the demand will be 7,600 whereas the technicians available will be 15,300.<sup>2</sup> If this estimation is near the actual situation, the previous shortage of technicians is overcome. Then arrives another burden, the provision of employment opportunities for this surplus.

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1. UNIDO, op.cit., p. 25.

2. The Third Plan, 203.

Attempts have been made to expand university education throughout the country by establishing new universities up-country as well as expanding the existing ones in Bangkok. In 1971, there were nine universities, six in Bangkok, three in the other regions. The student number at the end of the Third Plan period will increase from 45,100 to 63,750. In addition, an open university in Bangkok which was established in the last few years offers 40,000 places to students.

There used to be a severe shortage of personnel training in engineering, agriculture, natural and medical sciences. Until the last decade only single university produced engineers and scientists. Recently, these two subjects have been taught in other universities, in Bangkok and up-country. In the realm of international educational co-operation, a significant movement is the Asian Institute of Technology (AIT) which is supported and financed by the South East Asia Treaty Organization (SEATO) members. AIT awards a post-graduate degree in various fields of higher engineering studies to students who come from throughout Southeast Asia, Far East and Middle East.

At present, the gap of demand and supply of certain high-level manpower still exists. An example is the number of scientists which the Third Plan estimates that the shortage will be 5,100 during the Plan period. However, in some field there will be a surplus such as engineers

which at the end of the Third Plan is estimated to exceed demand by 7,700 persons.<sup>1</sup> However, the Plan notes that there will be the lack of "highly qualified engineer." This implies that at present the number of trained personnel in certain subjects which was previously insufficient is in excess of demand, but their quality is still in question.

Poor management has long been a hindrance of industrial operation. It is a major reason for failure of public enterprise. Even in the private sector, lack of qualified manager is a greater problem which is usually solved by hiring this sort of person from government offices or from other private enterprises or by employing foreigners.<sup>2</sup>

A national management centre has been established to relieve the lack of this type of manpower. The Thai Management Development and Productivity Centre came into existence by an arrangement between the government of Thailand, the ILO and the United Nations Special Fund in 1962. The Centre aims at raising the standard of management

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1. Loc. cit.

2. Insufficient high qualified man power is realized by the government. The Promotion of Industrial Investment Act (PIIA) 1962, section 19, permits the promoted industry to bring skilled workers who are aliens into the country, irrespective of whether it is in excess of the quotas provided by the immigration law. This short-term solution does not work well. Besides it is an expensive measure, the result is usually that technical know-how is seldom transferred to local personnel.

and productivity by training all levels of management in the use of effective management methods. It gives training which consists of both theory and practical projects covering all aspects of management skills including marketing, finance, personnel and general management.

This is the only way to meet the short-term objective. It is suggested that for long-term policy a start should be made in schools to prepare students from whom the future industrial managers and administrators will be drawn.<sup>1</sup> But in the light of present circumstances, this suggestion has not yet been followed for the country has only recently begun to attain any real pace of industrial development. However, special attention should be given to this problem. During 1972-76, the requirement of administrative and managerial personnel is 30,000 which the Third Plan indicates will not be supplied from any local education institution. Actually, the country is not much short of students training in economics or business administration, but their experience, a vital characteristic, is insufficient. This is why some persons already trained do not fit in certain vacant positions. This problem will certainly continue in the years to come, for management is a complex function to be learned from long and varied experience.

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1. UNIDO, op.cit., p. 21.

It can be concluded that unskilled labour is always superficially abundant and cheap resources. Nevertheless, they will not be fully utilized without any training scheme. Improved working conditions and welfare is also necessary to induce them feel commit to industrial works. Being the majority of industrial labour, unskilled labourers' quality deserves more attention from the government and private enterprise. Industry should take greater responsibility for the training and up-grading manpower than they have in the past. Manpower development policy should derive greater interest to unskilled and lower level workers. Otherwise the investment in human resources has impact only on pupils and students whereas the majority of labour force remains untouched. As far as the middle- and high-level personnel are concerned, it becomes the stage to lay more emphasis on their "quality" than "quantity". The surplus of some type of personnel has occurred which may create high job competition in the future if the demand and supply of each skills are not well planned. Severe shortage of administrative and managerial personnel will slowly reduce as the existing persons gradually gain more experiences. Indeed, planning and implementary of manpower is one of the most pivotal factors of development for it is human resources which are certainly the generator of growth.

1. Local entrepreneurs' attitude towards industrial investment

Traditionally, the social attitudes of the Thai people focussed interest on such occupations as the civil service and agriculture and limited the supply of indigenous entrepreneurs. As the economy began to become commercialized, the entrepreneurial classes were supplied by foreigners, the Chinese and other aliens. In the 1930s when a new tariff policy was formulated, foreign entrepreneurs started investing in industrial enterprises while the Thai made no response to the new opportunity. Generally, in conditions where the local supply of entrepreneurs is small, immigrants should contribute to economic growth. In the case of Thai industry in the past, immigrants provided less contribution in industry than in services and trade. The public enterprise and nationalization policy and lack of infrastructure were factors that turned investment of Chinese entrepreneurs to trading. Muscat argues that Chinese entrepreneurs were disinclined to put their assets into investments in manufacturing as compared with banking, insurances and other less risky forms. The small amount of investment in industry by the Chinese has gone mostly into rice milling, an activity satellite to the commercial and distributional functions which the Chinese perform in relation to agricultural products.<sup>1</sup> It may be said that until the last decade

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1. Muscat, op.cit., p. 237.



certain features of the economic and political environment discouraged private entrepreneurial activity in the industrial sector. Sutcliffe correctly argues that "the observed lack of entrepreneurship in backward countries could simply mean that not enough people can in fact see the possibilities of development which exist; on the other hand, it could mean that certain features of the economic and political environment of developing countries inhibit entrepreneurial activities..."<sup>1</sup>

Since the 1960s when the policy has been shifted to private enterprise, the government has tried to encourage industry by providing a basic infrastructure. The previous risk of industrial investment has been reduced and increasing entrepreneurs have turned to industrial activity. There has been a rising number of Thai into commerce and industry. A new Thai class has emerged, the people to whom Muscat refers as "the one important group of potential entrepreneurs, whose modernity is in contrast to traditional culture, complete identification with and commitment to Thai nationality and partial Chinese ancestry."<sup>2</sup>

A recent study of Thai entrepreneur appears in a thesis entitled "The Role of the Entrepreneur in Economic

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1. Sutcliffe, op.cit., p. 109.
2. Muscat, op.cit., p. 202.

Development; a case study of Thailand," of which the main purpose is to seek whether market forces affect the supply of entrepreneur in a developing country.<sup>1</sup> The study is based on questionnaires and interview of the decision-makers in 60 promoted enterprises in six broad categories of industry. The enterprises are domestically-owned firms which have received promotion privilege from the Board of Investment. About 80 percent of the firms were established in the years 1959-67.

The study reveals the ethnic background of entrepreneurs. Only ten out of sixty had been born outside Thailand, and expectedly eight of them migrated from China. More than half of the local-born are from Bangkok-Thon Buri area and 23 were born up-country. The ethnic background of the entrepreneurs are traced back to the grand-parents on both sides of the family. In Bell's sample, the further one goes back into the family history the more dominant do "pure" Thai become, as opposed to "pure" Chinese. The picture which emerges is one in which Thai appear to have an important role in the sample of the manufacturing firms under consideration out-numbering the Chinese at every generation. The study also suggests that the high degree of assimilation of the Chinese entrepreneurs be disclosed in the pattern

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1. P.B. Bell, "The Role of the Entrepreneur in Economic Development; a case study of Thailand" (Ph.D. thesis, University of Wisconsin, 1968).

of languages spoken at home. Thai is the dominant language. Thirty-eight respondents spoke only Thai at home although not all are of the Thai race. Nine of them spoke only Chinese and thirteen spoke more than one language, in some case including English.

This study is also concerned with the occupational background of the respondents. It was found that there is a predominance of a merchant background amongst the fathers of the entrepreneurs and of business amongst those now actively engaged in the manufacturing industry. Even amongst the grand-parents, the merchant background is predominant, with farming as the next most common origin. Noteworthy is the small number with civil service experience as a background, reflecting the still important distinction between those who enter government service, a socially prestigious and secure profession, and those who choose a business career. Only recently has the latter begun to attract Thai in any numbers.

Bell's thesis supports the observations of developing countries by many writers that the trading classes have produced the leading industrial entrepreneurs. An example is Habakkuk's explanation:

Most of the great industrial entrepreneurs of the Western world have had technical knowledge, and many of them have risen from among the skilled artisans. Where entrepreneurs have appeared among the indigenous population of under-developed areas they have

generally been recruited from among  
the commercial element.<sup>1</sup>

A study of entrepreneurial resources in Puerto Rico shows that entrepreneurs have been drawn from a group comprising importers, traders, contractors and the younger generation of industrialists.<sup>2</sup> Studies of entrepreneurial class in Turkey have been carried out by Alexander and in Pakistan by Papanek.<sup>3</sup> It can be concluded from the result of these studies that the potential entrepreneurs come largely from the groups that are in a better position to accumulate capital and possess knowledge about the market. This conclusion is relevant to the function of entrepreneurs. To set up an enterprise in Thailand, the initiating role of the entrepreneur is primarily of providing finance, of technical knowledge and of the original over-all conception of the firm.<sup>4</sup>

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1. J. Habakkuk, "The Entrepreneur and Economic Development," I. Livingstone (ed.), Economic Policy for Development (Middlesex: Penguin Books, 1971), p. 49.
  2. C. Kanawat, "Possibilities of Industrialization in Thailand" (Ph.D. thesis, University of Wisconsin, 1962).
  3. Ibid., pp. 179-80, quoting A.P. Alexander, "Industrial Entrepreneurship in Turkey: Origins and Growth," (Economic Development and Cultural Change, Vol. VIII, No. 4, Part I, July 1960), pp. 349-65; and quoting G.F. Papanek, "The Development of Entrepreneurship," American Economic Association, Proceeds and Papers, May 1962, pp. 46-58.
  4. Bell, op.cit., p. 176.

Bell's conclusion seems to refute the idea that alien Chinese are the only sources of entrepreneurial talent in Thailand. Indeed, this is a very controversial matter. It may be argued that only samples of promoted industrial entrepreneurs do not represent the whole feature of entrepreneurship in Thai industrial sector. This is because the number of promoted enterprise actually constitutes a very small portion of industrial establishments, even though they possess larger proportion of capital investment. Nevertheless, Bell's study is an important and a very useful insight into the background of Thai entrepreneurs in the modern time.

The definition of "Chinese" also seems to be arbitrary. The entrepreneurs in Bell's study might be more Thai, but in general larger numbers of entrepreneurs may be ethnic Chinese. However, assimilation of Thai-Chinese is believed to reduce the tension of Chinese domination in the Thai economy.<sup>1</sup> This assimilation which Silcock defines as "an assimilation which has at most times been rather easier in Thailand than in the rest of Southeast Asia."<sup>2</sup> Meanwhile the Thai traditional attitude to occupation is diverting to secondary and tertiary activities. Moreover, the anti-alien policy

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1. See Skinner, Leadership and Power in the Chinese Community of Thailand (New York: Cornell University Press, 1958), Chapter Seven "Assimilation and Leadership," pp. 227-39.

2. Silcock, op.cit., p. 219.

of the past which is considered as a deterrent to industrial growth has diminished since the last two decades.<sup>1</sup>

Since the present policy of the country relies upon private initiative, economic growth will depend critically on the quality and quantity of the entrepreneurship that emerges in the society. It is generally agreed that the relative success of an entrepreneur is determined to a considerable extent by the social and economic environment. Bell's study disclosed that entrepreneurs' awareness of a favourable state of the market is indicative of the role of market forces in inducing manufacturing activity and the emergence of entrepreneurs.

Ayal has noticed that there is already in Thailand a business community responding rationally to economic incentives:

A kind of a "pincer" movement has been taken place. On the one hand, more Thais have become attuned to business activities through contact with foreign firms, either as employees or as government officials; through exposure to foreign products, techniques, and mass media; through education and training abroad etc. On the other, a substantial number of people of Chinese origin have been integrating into Thai society while<sup>2</sup> still maintaining their business acumen,.....

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1. The policy of the government since 1958 directs to economic development of the country as a whole and political stability, and it nearly abandons the previous concern towards the Chinese as aliens.
  2. E.B. Ayal, Private Enterprise and Economic Progress in Thailand (Center of International Affairs, Harvard University 1965, mimeograph), p. 4.

Thus, one of the former discouragement of industrial growth has decreased. A number of vigorous local entrepreneurs are participating to a considerable extent in the development of Thai industry. However, compared with other economic activities, investment in industry still gains a minor proportion. Trade, land and money lending are spheres in which both custom and economic organization ensure the security and which quick and large profit are generally possible. Prevalence of such phenomenon is reflected by the difficulties of industrial entrepreneurs to mobilize capital for investment.

#### Limitation of Capital Supply

The most important source of capital supply in Thailand, where a private enterprise policy is followed, is the private sector. The dominance of private investment over that of public one can be observed from the projection figures given in the National Economic Development Plans. During the First Plan period, private investment was three times that of public investment, representing 15.5% of GDP. compared to 5.8% for the public sector. For the Second Plan, private investment was expected to be 16.6% and public investment 6.7% of GNP.

In connection with capital formation, the crucial factors are the extent of savings and the appropriate mechanism whereby potential savings can be transferred into productive investments. Capital formation in poor countries is generally difficult owing to low incomes which leave little to be saved. Moreover, there is the inability to channel the existing savings into productive ventures. As Cairncross explains about the shortage of capital in developing countries:

The shortage can be analysed in various ways. In terms of the first approach, the issue is one of the return to be expected from additional investment, the availability of domestic savings and their mobilization for specific productive purpose, and the terms on which funds can be obtained from domestic and foreign sources. <sup>1</sup>

In the case of Thailand, the remarkable national savings rate of 20% of GNP has been achieved in the 1960s. This, however, does not imply that the country's financial structure is well-developed. The economy is handicapped by insufficiency of investment capital, especially in the industrial area. Credits and loans are characteristically of short duration, low risk and high interest rates. This situation creates severe restriction on the quantity and capacity of private investments which, even at present, depend almost totally on the owner's capital. A large

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1. A.K. Cairncross, Factors on Economic Development (London: George Allen and Unwin, 1962), p. 51.



proportion of money supply is scattered in the unorganized-money market which has so far been the major source of private sector financing. Its influence may be cited as one reason for the high interest in the Thai economy. As far as organized financing institutes are concerned, only commercial banks are major sources of capital formation. However, their scope is very limited. By the law, they are allowed to undertake short-term financing and cannot provide longer-term funds such as those required by industrial investors.<sup>1</sup> Other institutions besides commercial banks do not participate much in the capital market.

The weakness of the financial system lies in the great influence of the unorganized-money market. At present, particular attention is being paid to the growing requirements for long-term funds with lower interest rates. From Table 4.3, it is noticeable how the contribution of institutionalized financing is limited. The figures show the expected private capital formation during the Third Plan period (1972-76).

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1. Bangkok Bank Annual Report 1971, p. 38.

Table 4.3

Sources of Private Capital Formation during the Third  
Plan Period

	million baht
Personal and Corporation Saving	96,700 (73.9%)
Foreign Investment	13,850 (10.5%)
Financial Institutions	20,450 (15.6%)
Commercial Bank	12,500 (61.1%)
Bank of Agriculture and Co-operative	3,250 (16.0%)
Industrial Finance Corporation of Thailand	1,700 ( 8.2%)
Office of Loans for Small Industry	300 ( 1.5%)
Insurance Company	200 ( 0.9%)
Capital & Money Market	2,500 (12.2%)
<b>TOTAL</b>	<b>131,000</b>

Source: The Third Plan, p. 142.

Non-institutional private funds are expected to finance 73.9% of the total private capital formation. Private foreign capital inflow will make up 10.5%. Domestic financial institutions will provide only 15.6%. In this, commercial banks are expected to contribute as much as 61.1%. The two institutions, the Industrial Corporation of Thailand (IFCT) and the Office of Loans for small industry (OLSI), provide special loans to industrial ventures amounting to only 9.7% of the total.

### Industrial investment funds

It is undeniable that capital is one of the most important factors of industrial establishment whether at the initial stage or during the process of production. Implementing of an investment project may be prevented by the inability to obtain sufficient finance. Because the private sector dominates the economy, the capital supply of industrial investment is expected to be generated mainly from private sources. The expenditure provided by the government for industrial development is a small amount compared with that of other sectors. It was only 8.3% of total expenditure during the first development period, and decreased to 1.6% during the second period. This government expenditure is concentrated only on services for promoting and assisting the private sector to develop industrial and mining opportunities.<sup>1</sup> Therefore, the capital supply of industrial investment depends totally on private financing. Normally, private funds for industrial investment are provided by the following sources: entrepreneurs' own funds, financial institutions and private foreign capital.

### Entrepreneurs' own funds

The major proportion of industrial finance is provided by entrepreneurs, for the characteristic of financial structure which depends heavily on non-institutional sources. The undeveloped financial system relies

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1. The Second Plan, p. 40.

almost entirely on personal capital. An entrepreneur without his own sources of finance faces a serious obstacle. This situation fits Sutcliffe's explanation that "in a capitalist economy, the type and number of entrepreneurs determine the demand for capital and especially where there are no financial institutions able to provide credit they influence also the supply of capital."<sup>1</sup>

Bell's study confirms this situation by reporting that in terms of industrial investment the major sources of capital are generated from private funds accumulated by entrepreneurs themselves, their close relations and friends. These sources of finance play a significant role in establishing an enterprise. But when the enterprise is expected to expand, self-financing is replaced to a considerable degree by the entrepreneurs' ability to borrow from the bank. Thus the bank loan is the expected potential source to finance the expansion of enterprises. Bell considers that problems connected with planned expansion are largely related to the difficulty in obtaining a bank loan or to the high rates of interest payable on it.<sup>2</sup> If the period of credit extends longer and interest rates are low, the burden of industrialists would be reduced.<sup>3</sup>

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1. Sutcliffe, op.cit., p. 132.

2. A discussion of high interest rates charged by Thai commercial banks is made by P. Sithi Amnuai, Finance and Banking in Thailand (Bangkok: Thai Watana Panieh, 1964), pp. 177-81.

3. Bell, op.cit., p. 46.

### Financial Institutions

At the moment, commercial banks, the only effective institution to mobilize savings and supplying investment funds are more concerned with commercial transactions for a number of reasons related to the considerations of security and profitability.<sup>1</sup> With the importance of the trade sector, their activities mainly centre around the movement and storage of export commodities and short-term finance of import trade. Capital provided for industry is comparatively very small.<sup>2</sup> Short-term credit and requirement of collateral considerably limit the number of industrialists who are able to raise a bank loan.<sup>3</sup>

1. There are altogether 16 locally incorporated commercial banks and 14 branches incorporated abroad, with 682 branch offices throughout the country. In 1971, 259 bank offices were in the Metropolitan areas. The legal maximum rate of interest is 15% per annum. (Thailand, BoI, Investment Guide to Thailand, 1971, p.27; Annual Economic Report 1971, Bank of Thailand, p.20.)
2. India has the similar experience that commercial banks have on the whole been of only very limited help to the financing of industrial development. For details see D.B.Singh, Economics of Development (Bombay: Asia Publishing House, 1966), p.218.
3. From the following breakdown of lending activities of the commercial banks, how small the proportion provided to industry is obvious.

<u>Economic Activities</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>%</u>
Agriculture	3.1	3.1	3.9	
Mining	0.7	1.4	1.2	
Industry	13.3	14.7	15.9	
Construction and Real Estate	7.8	13.1	13.3	
Importation and Exportation	40.7	38.2	32.9	
Wholesale and Retail Trade	15.2	13.9	14.9	
Public Utilities	1.0	2.4	2.4	
Others	18.2	13.2	15.5	
Total	100.0	100.0	100.0	

Source: Sithi-Amnuai, op.cit., pp. 172-3.

The government's recognition of this problem is apparent in the policies in the Second Plan. It confirms the attempts to create conditions which will permit the acceptance of long-term deposits and encourage long-term loan to industrial investment. Another policy is that the commercial law will be revised so that certain types of personal property, such as machinery and equipment will also be acceptable as collateral instead of requiring real property in the form of land deeds which restrict lending capacity.<sup>1</sup>

The difficulties of local entrepreneurs to mobilize capital to industrial investment and the inability of commercial banks to meet adequately the financial requirements of industry are factors that have necessitated the setting up of special financial agencies to provide long-term credit to industry. They are the Industrial Finance Corporation of Thailand (IFCT) and the Office of Loans for Small Industry (OLSI), both of which were established by the government.

The main purpose of establishing the IFCT in 1959 was to create a financial entity which would offer loans with more attractive terms and conditions than were available from existing institutions in the country and to assist in the establishment, expansion and modernization of private industrial enterprise and to encourage the participation of private capital from both internal and

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1. The Second Plan, pp. 46-7.

external sources. It is claimed that the IFCT fulfills the role of a development bank.<sup>1</sup> The IFCT provides medium- and long-term loans in both foreign and local currencies at an interest of between 8-10% per annum. The minimum loans were set at 500,000 baht, and later raised to 1,000,000 baht; the upper limit is 20 million baht. The IFCT not only stimulates private industry through loans but provide technical assistance and co-operation to the firms that it sponsors. The criteria employed by the IFCT in approving loans to prospective investors comprise the economic feasibility of the project, its efficiency and prospects and the benefits which will accrue to the national economy from the project. Although the government initiated the IFCT, it becomes a private institution in which foreign and domestic financial institutions hold shares. By 1972, the IFCT has made 220 loans accounting for 1,189 million baht.<sup>2</sup>

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1. "The Industrial Finance Corporation of Thailand," *The Investor*, Nov. 1971, p. 20. For details of the role, experience and sources of finance of development bank see A.K. Cairncross, *op.cit.*, pp. 169-72. Singh (*op.cit.*, pp. 220-23) gives the distinction between "finance corporations" and "development corporations" that whereas the former provide the mobilized funds as loans to the borrowers, the latter have more comprehensive functions. They are set up for the purpose of taking the initiation in the creation, direction or operation of individual enterprises. Such corporations supply part or all of the equity capital required for industrial enterprises rather than provide loan funds, and frequently assume responsibility for management and control.
  2. *Siam Rad*, 15 Feb., 1972.

However, it has been suggested that the progress of the IFCT has not been as it should. Its share in financing industrial investment is still small. It should be encouraged to assume a larger and more important role in the financial system by mobilizing additional private savings in addition to borrowing from external sources.<sup>1</sup> It could become a more important instrument in channeling private savings into long-term loans to industrial establishments.

The scope of the IFCT is rather restricted to medium and large enterprises. For small industry, there was no special financial assistance from the government until 1964 when a loan scheme for small industry began. The scheme is administered by the Office of Loans for Small Industry (OLSI) in the Department of Industrial Promotion. The main objectives of the OLSI are to provide financial assistance to small industrial enterprises including cottage and handicraft industries at a relatively low interest rate, and to provide technical assistance to small business. In 1972, the Office announced an increase on the maximum loans to industrial firms from 500,000 to 1,000,000 baht. The loans are offered to small industrial firms whose assets are not over

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2. The IFCT has obtained loans from various foreign monetary institutes, namely Kreditanstalt für Wiederaufbau of Germany, the World Bank and Asian Development Bank.



2 million baht. Since its establishment, the total applications approved by the Office are 678 loans valued at 183,289,000 baht.<sup>1</sup>

### Private foreign investment

Foreign investment is regarded as a means augmenting capital supply. The main consideration is how to devise a policy for both stimulating flow of private foreign investment and ensuring the maximum benefit contributing to the development targets.

Private foreign investment may initiate the participation of local capital in productive venture by stimulating the entrepreneurs' interest. Technical know-how is supposed to accompany the inflow of foreign capital. An opportunity of training local labour is possible. On the other hand, a careful policy is indispensable in order to minimize the costs such as a creation of dual economy or an over domination of investment from any particular country. There is also the danger that capital intensive technology may be introduced instead of intensive labour utilization. To attract foreign investment, developing countries may compete amongst themselves by over offering incentive measures.<sup>2</sup>

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1. Siam Rad, 6 Mar., 1973.

2. G.M. Meier, Leading Issues in Development Economics (New York: Oxford University Press, 1964).

Thailand has also declared her intention favouring foreign investment particularly since the early 1960s. Every incentive offered to local investors applies also to foreign investors. Security and fair treatment of enterprises owned or partially owned by foreign investors are guaranteed, and the terms and conditions under which profits and capital can be transferred abroad are also clarified. Section 19.5 of the Promotion of Industrial Investment Act 1962 (PIIA) states that "taking or remitting abroad of money in foreign currency will be permitted if it represents investment capital derived from a foreign country, foreign loans, profit derived from such investment capital, or interest on foreign loans....."<sup>1</sup>

The promotion policy has attracted quite a number of foreign investments. Significantly, the protection policy motivates the local establishment of branch factories which their products were previously imported. Foreign capital contributed about one-third of the total investment of promoted industries.<sup>2</sup> Table 4.4 indicates the relative percentage of Thai and foreign capital for 1970.

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1. The PIIA 1962, p. 5.

2. It is difficult to obtain the accurate number of private foreign investment in other economic activities or even in the industry not under promoted categories. But it is likely that large proportion of them go into promoted industries which are offered more benefit than other enterprises.

Table 4.4

Promoted Enterprises Classified in Accordance with  
Investors' Nationality 1970

Nationality	Percentage of invested capital
1. Thai	66.94
2. Japan	10.50
3. The U.S.A.	5.50
4. Taiwan	4.74
5. The U.K.	1.85
6. Malaysia	1.30
7. The Netherlands	0.77
8. Germany	0.71
9. Hongkong	0.57
10. Denmark	0.45
11. Other countries	6.69
TOTAL	100.00

Source: BoI, Annual Report 1969-70, pp. 93-4.

Private foreign capital has been invested in the form of either joint or entirely foreign ventures, but the number of the latter type is smaller than the former. In 1970, there were 632 promoted industries of which 267 were financed wholly by Thai capital, 339 were joint-venture, only 26 were financed by foreign capital.<sup>1</sup>

Joint venture reduces the foreign investor's feeling of holding the entire risk alone in recipient

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1. BoI, The Annual Report 1969-70, p. 92.

countries. On the other hand, the scepticism of foreign economic domination in developing countries is weakening. The foreign and local partners complementarily contribute factors of production; for example the foreign investors supply capital, machinery, skills, technical know-how and external market knowledge whereas the local investors prepare land, labour, raw materials and local contacts. In Thailand, the number of joint ventures in 1970 comprised 53% of total industrial establishments. The government shows implicit preference to co-operation between foreign and local entrepreneurs. An analysis of the progress of joint ventures compared with that of entire local and foreign enterprises will be very useful to clarify the controversial concept of costs and benefits to foreign investment. So far such analysis had seldom been undertaken in Thailand.

Three strategies are involved with the increase of capital supply in Thailand namely domestic savings, financial institutions to channel savings and investors' attitude in investment.

As far as capital supply is concerned, internal source is the most important in the long run development process. Private foreign investment is not a panacea to remedy the capital shortage, it is a short term solution. Domestic savings is expected to increase and replace external capital inflow to a possible degree. In a private

enterprise economy, personal savings is quite important. However, high potential savings of many people in urban areas find outlets in real estate, jewellery and other conspicuous consumption enterprises. In rural areas, on the other hand, people have low income, some may be even at the subsistence level. Unless disparity of income distribution is reduced, the majority of people will not be able to constitute to capital formation. High population growth rate certainly affects savings, this emphasizes the necessary population growth rate reduction. Besides personal savings, reinvestment of profits by firms, local and foreign, should be a useful source of capital. It is usually regarded that the actual problem of capital supply in Thailand is not the volume of capital, but how to channel them to productive private investment.<sup>1</sup> However, the vital role of savings should not be neglected.

The next important matter is the channeling savings through a financial and credit mechanism so that investible funds can be collected from various sources. The existing financial institutions such as banks, the IFCT and the OLSI which at present their supply to industrial sector is still in small volume should expand their scope of operation. In order to reduce dependence on unorganized money market, and to overcome the difficulty of providing

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1. Report of the seminar on "Obstacles and Solution of Industrial Development," 1970, pp. 113-30.

long term funds to industrial enterprises, the government hopes to encourage the growth of specialized financial institutions such as insurance companies, provident funds and trust funds. Because they have generally been ineffective in mobilizing savings for investment purpose.<sup>1</sup> For example, insurance business in spite of its great potential contributes only 0.95% of private capital formation during the Third Plan period. The expansion of such financial institutions will play a substantial role in the development of capital market which is vital for the supply of long-term credit. So far the capital market in Thailand has a short history and a modest beginning.

Co-operation amongst the industrialists' themselves is also necessary, since private firms rather restrict equity sales to insiders with the consequence that only a small number of securities pass through the public market. At the beginning of 1972, the government decided to promote the establishment of public companies by drafting a new act, "Public Company Act,"<sup>2</sup> Any success in channeling more savings to industrial enterprise needs complementary effort of both government and private sector

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1. "The Capital Market in Thailand," The Investor, Nov. 1971, p. 25. Cairncross, op.cit., pp. 156-72, comments that the dominance of commercial bank in developing countries is common. At the early stage of financial development, banks grow relatively fast, but at later stage they appear to shrink in relation to other agencies.

2. Bangkok Post, 14 Jan., 1972.

in strengthening the function of financial institution, developing the capital market and more selling shares in industrial enterprise to the public.

The last strategy is the act of investment which yields different results. Although it is noted that a number of entrepreneurs has increasingly been interested in industrial enterprises, their number is still small compared with those who invest in traditional activities such as land, real estates and trade. Moreover, considerable investment has gone to such enterprises as hotel, restaurants, night clubs during the rapid economic expansion period in the 1960s. Even though it has always been argued that they are necessary for attracting tourists, they also encourage extravagant expenditure of local people in few urban areas. Such investments should be restricted since it is clear that at present these enterprises are in excess of demand. Improving efficiency of the existing establishments is a more appropriate policy.

Although industrial investment is regarded as a more productive venture, it is less attractive to investors than consumption enterprises mentioned above. Inducement is essential in diverting potential investment from less productive enterprises to industry. To create a promising industrial investment atmosphere, other factors besides capital such as sufficient infrastructure, raw materials, and other incentive measures are essential to ensure the

owner of capital and investors the potential security and profitability of industrial investment. Unless these other factors of production show a good prospect, it is not easy to change the attitude of the investors. To create such security, incentive policy is usually adopted as an indispensable scheme in industrial development policy by the government of developing countries, including Thailand.



## CHAPTER FIVE

## PRESENT INDUSTRIAL PROMOTION POLICY

In the process of economic development, developing countries have to choose their priorities amongst various sectors. Recognizing the importance of agriculture as the traditional activity of the bulk of the population, they generally emphasize agricultural development and let the private sector take the leading role in industrial development. A substantial amount of public investment is provided for improving the basic facilities as the basis for further development of other sectors.<sup>1</sup> In terms of industrial promotion policy, additional incentive measures are provided to encourage domestic and foreign investors.

Promotion Objectives

The industrial promotion policy of Thailand has been formulated as an integral part of the National Economic Development Plans which indicate the government's intention to provide the basic infrastructural facilities, the absence of which has been recognized as an obstacle to industrial growth in the past. Private enterprises, both foreign and domestic, are encouraged to take over industrial development. As has been shown earlier, up to the beginning of the 1950s, the industrial investment climate was poor.

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1. See Sutcliffe, op.cit., p. 321. The figures of Table 8.3 indicate overwhelming preponderant investment in the provision of power, transport and communications of 23 countries.

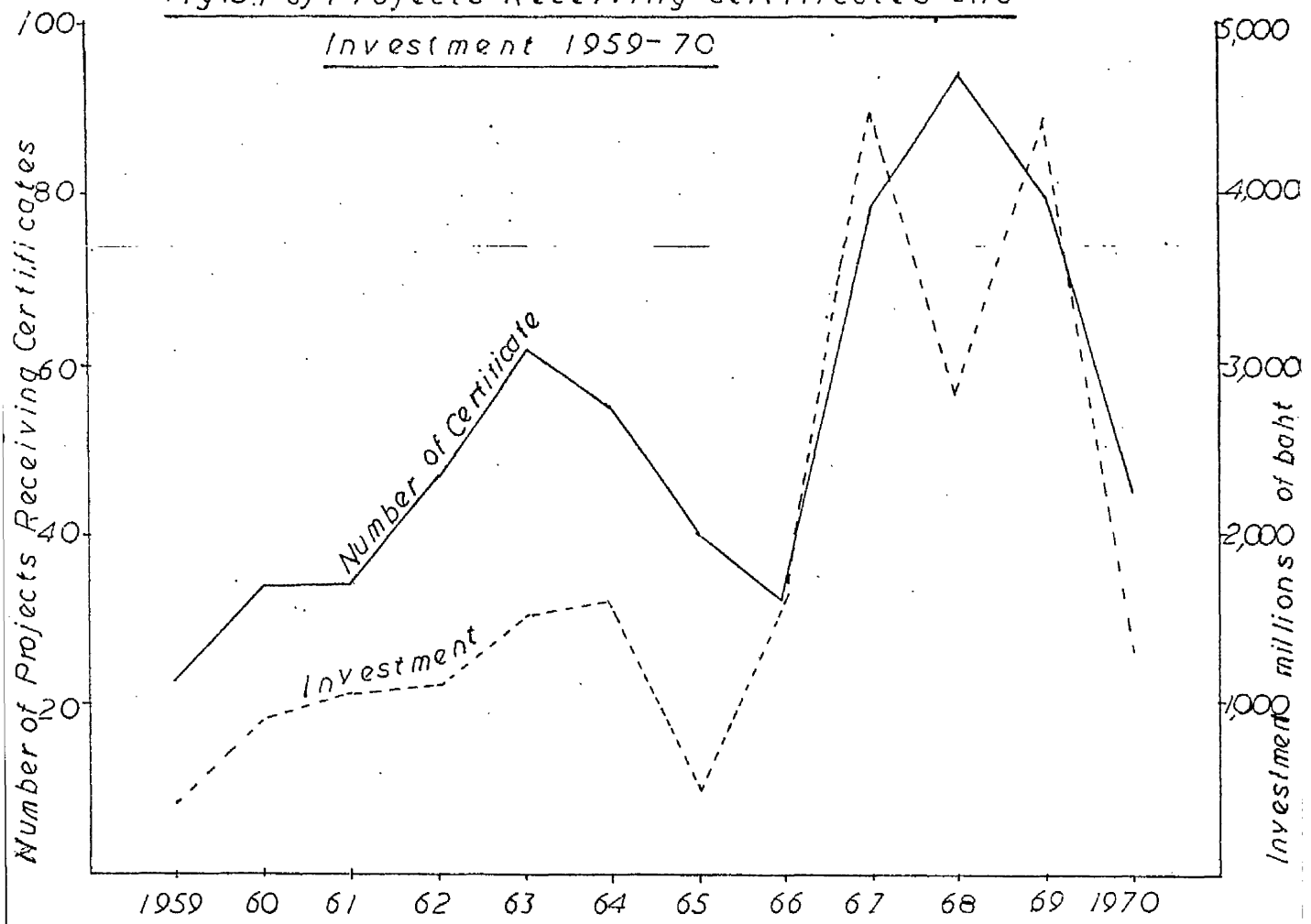
In order to create a more favourable climate, the government is trying to eradicate the difficulties previously encountered in industrial investment. As far as the policy is concerned, a guarantee that private industries will not be nationalized, is given. In addition, the government promises not to establish any new public enterprise to compete directly with the private establishments. It is also confirmed that even the industries which are at present operated by government agencies will be transferred to private ownership if and when possible.<sup>1</sup> This intention has been reaffirmed in the Promotion of Industrial Investment Act (PIIA) 1962. Section 18 of the Act states:

(that)... the state will not engage in any industrial activity in competition with that of the promoted person, and that the state will not nationalize any private industrial activity. 2

In connection with foreign investment, private investors have, through legislative or administrative measures, been invited to participate in Thai industrial development schemes. Since the introduction of the incentive policies, a considerable number of industries have come into existence to take advantage of the benefits offered. From April 1959 to August 1970, 632 enterprises received the promotion certificates.<sup>3</sup> It was expected that they would create employment for 97,000 people.

1. The Second Plan, p.115. The government follows this policy as the evidence that number of public enterprises reduced from 108 to 80 establishments during the Second Plan period. (The Third Plan, p.149..)
2. The PIIA 1962, p.5.
3. The number of promoted firms actually operating are lower than this figure due to the abandonment of some projects.

Fig.5.1 a) Projects Receiving Certificates and Investment 1959-70



b) Employment in the promoted Projects 1959-70



The promotion policy has, however, been criticized in respect of its inefficiency in encouraging the growth of some desirable industries. It is not easy to judge how far the incentive policies have achieved the objectives established. The Second Plan announces that "accelerated industrial development is an objective which has been adopted in order to realize a structural change in the economy, with the manufacturing growing, creating employment opportunities, and utilizing greater supplies of indigenous raw materials."<sup>1</sup> It may be said that during the 1960s, the first decade of industrial development, these objectives were rarely achieved. On the contrary, the promoted industries face public criticism because of the high import content of their products, of low employment creation, of being geographically concentrated in the Metropolitan areas<sup>2</sup>, and of being prevented from exporting owing to high cost of production.

Before discussing these criticisms in detail, the next section examines the policy of import substitution of the government in order to provide a background for further discussion.

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1. The Second Plan, p. 115.
  2. The Metropolitan areas include the former four provinces of Bangkok, Thon Buri, Nonthaburi and Samut Prakarn which are the centres of industrial activity.

The characteristics of import-substitution industry

Industrialization in some developing countries is typically characterized by import substitution with the product primarily intended for the home market. The growth of these industries has been ensured by tariffs which protect them from competition from imports, the volume of which could further be controlled by other regulations. Indeed, it is not unreasonable to expect that developing countries should follow this pattern in the initial stages in the process of industrial development. The bases of the new industries usually are weak in terms of supply factors and are in an unfavourable competitive position. As Mountjoy states:

They must train their labour,... may have to pay high rates for services and power. ... There will be few external economies. They may find difficulty in breaking into the market, probably supplied by imported goods. .... Cost of production are likely high during this initial period.....<sup>1</sup>

To encourage these infant industries, the governments usually provide both help and protection. Typically, import-substitution industries concentrate on manufacturing light consumer goods produced on the basis of borrowed technology. They import the necessary machinery and a large part of their semi-processed materials from abroad, and many of them are limited to assembling, packaging and giving the final touches to the final products with a very

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1. Mountjoy, op.cit., p. 137.

high import content.<sup>1</sup> Therefore, the economy must depend on external supply and seldom generate any linkage effects, in terms of value added and employment. This would not be a problem, if industry were competitive so that it is able to gain foreign exchange by exporting some of the products. Unfortunately, this is not the case. Protection is supposed to be a temporary valid measure supporting an industry that would eventually be able to compete with international products; but, generally, it restrains the protected industries from becoming efficient. The experiences of many developing countries testify that this policy has been successful in the initial stages, in attaining substantial import replacement, but at a high cost which has in turn limited both domestic and external markets. This affects the scale of production as that economies of scale cannot be achieved.<sup>2</sup>

The consequences, commented on by Helleiner, are that industries finally face difficulties caused by an inefficient industrial sector operating far below capacity and generating very little employment, very little foreign-exchange saving and little prospect for further growth in productivity.<sup>3</sup> Another criticism is that "the nascent

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1. Myint, op.cit., p. 156-7.

2. Little, Scitovsky, Scott, Industry and Trade in some Developing Countries (London: Oxford University Press, 1970).

3. G.K. Helleiner, International Trade and Economic Development (Middlesex: Penguin Books, 1972), p.106.

industries have come to depend for their profits on government decision, and so have formed the habit of devoting their efforts to obtaining privileges by pressure on the government rather than by cutting their costs."<sup>1</sup> The problem arises, as Meier remarks, in sustaining the industrialization momentum beyond the point of import replacement.<sup>2</sup> This inward-oriented industrialization leads to higher costs and balance of payments difficulties.

Thailand is not an exception in terms of industrial development strategy. Although the former major industries had been confined to processing of primary products, the emphasis since the beginning of the development period has been on import-substitution. The products are characteristically light consumer goods; mainly based on imported capital goods and raw materials. Thailand does not have much capacity to produce capital goods; thus a large part of the machinery and equipment must be imported. Development, generated mainly through the external resources, has induced an increase of imports, and import substitution has only changed the import structure. Total imports have risen sharply from 2.5 billion baht in 1950 to 26.9 billion baht in 1969. The composition of imports has continued to change towards a larger proportion of capital

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1. Little (et al.), op.cit., foreword xix.

2. Meier, op.cit.

goods, particularly machinery, and a smaller proportion of consumer goods.<sup>1</sup>

During the 1960s, the industrial sector grew with an average annual growth rate of over 10%. This high growth rate began to decline when the development process entered the second decade.<sup>2</sup> Many writers agree that Thailand had already gone through the easy phase of import substitution and that at present, industrial growth is slowing down.<sup>3</sup> It is a result of the common phenomenon that industrial growth, generated by import-substitution policy can be sustained only during the initial period when large ready-made local markets are taken over and diverted to local producers through import restrictions. For the following stages, problems arise from the size of market which is small in relation to the minimum efficient units of

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1. Ingram, op.cit., pp. 232, 280-1. Table xxxiv, p.282, shows the trend of changed composition of imports.

Year	1950	1955	1960	1965	1969
1. Consumer goods	59.0	48.8	39.2	31.1	25.8
2. Material chiefly for consumer goods	9.4	11.3	12.1	18.2	20.5
3. Material chiefly for capital goods	6.5	9.2	11.1	7.4	7.2
4. Capital goods	25.1	30.7	37.6	43.1	46.5
TOTAL	100.0	100.0	100.0	100.0	100.0

2. The Third Plan, p.33. The annual increase of value added of industrial sector during the Second Plan period was 11.5%. The Third Plan projects that it will reduce to 8% during 1972-6.

3. Myint and Helen Hughes, Asian Development Bank (ed.) pp. 19, 232.



production. The problem is aggravated even more by foreign exchange bottlenecks and the balance of payments problem due to high imports required by the new industries and the inability to exports.<sup>1</sup>

The small size of the domestic market has been a significant constraint on the development process.<sup>2</sup> Access to the international market is difficult because the industries are inefficient and uncompetitive. Ingram points out that Thailand is required to expand its capacity for export to sustaining its momentum of growth. This is due to the high import content of investments. Plans for continued growth in investment expenditures may have to be scaled down unless exports grow.<sup>3</sup>

Owing to the policy of supplying products previously imported to the local market, there are no special inducements encouraging promoted industries to export. Only section 23 (3 and 4) of the PIIA 1962 provides the right of exemption

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1. See Myint, *op.cit.*, pp. 156-7; Helleiner, *op.cit.*, pp. 101-6 for the explanation of two stages of import substitution.
  2. The small market has shrunk still further as a result of market fragmentation; a consequence of awarding several promotion certificates. This may be an unintentional result of the BoI policy to reduce monopolies resulting from protection policy.
  3. Ingram, *op.cit.*, pp. 297, 223.

from or reduction of export duty and business tax in the case of a promoted person exporting his own products for such a period as the BoI deems fit. There is one single promoted industry, the marble industry under group C, for which the PIIA 1962 ruled that it must produce mainly for overseas export. Undoubtedly, modern industrial products have not contributed much to export. Generally, producers prefer local market reserved by protection to external market with higher competitiveness. Concentration on a relative small home market for development causes some difficulties. Industries cannot achieve economies of scale, and the plants have to be under optimum size with the result of high cost of production.

Three different strategies are linked together in the process of industrial promotion policy. First, the country follows import substitution policy; second, such objectives such as employment creation and local raw material utilization are formulated; and finally the appropriate incentive measures are implemented. The first two strategies have already been mentioned and the next section is devoted to the argument of incentive measures which have been offered in accordance with the import substitution policy. However, in many respects they conflict with the objectives established.

The Argument of Incentive Measures

To encourage an adequate volume of private investment is the main role of incentive policies. They can help to remove the obstacle or disincentives to new investment and can also provide an additional stimulus for an enterprise to undertake a project in the industrial sector.<sup>1</sup> It is a common phenomenon that most developing countries which encourage private enterprise to develop industrial sector, provide special benefits for investors to establish particular types of industries.

The Thai government has formulated a specific incentive programme embodied in the PIIA 1962 which at present guides the promotion policy. The Board of Investment (BoI) has been established as a special agency to select industries and stimulate investment.<sup>2</sup> It is in charge of reviewing application for promotion and of evaluation the projects seeking investment incentives. It has undertaken detailed work in preparing prospectuses to attract particular industries which are considered "vital" to the economy. The promotion privileges do not apply to all industries. As the report of the UNIDO suggests "although incentive measures are expected to achieve

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1. UN/UNIDO, Incentive Policies for Industrial Development (New York: UN, 1970), pp. 17-8.
  2. The BoI., established in 1959 as a permanent agency in the Office of Priminister, consists of a chairman and other members, not exceeding fourteen in number, who are appointed by the Cabinet.

long term policy objectives, the incentive benefits granted are usually of a short-term nature, the PIIA 1962 limits the period of benefits offered to 5 years.

According to the BoI assessment of the roles the promoted industries would play in the economy, the industries were divided into categories A, B, and C.<sup>1</sup> The 39 promoted industries under group A consisted of a large number of smelting and machineries. The remaining were mainly chemical and electronic industries. The 18 industries, classified in Group B included pure assembling industries. Group C with 72 items comprised various industries such as oil refining, mineral producing and dressing textile, rubber, construction products, food processing, chemical industries and so on. The number of the promoted industries has been changed depending on the BoI consideration.

Observers have noted that the classification seemed to be arbitrary. Silcock argues that the basis for classification is clearly operationally meaningless. No clear rationale for the assignment of industries in these groups seemed to exist. He also comments that two kinds of industries are preferred for promotion: heavy industry involving large oversea investments in fixed capital and local assembly finishing industries or brand products seeking access to the Thai market.<sup>2</sup>

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1. According to the PIIA 1962, "industrial activity" means agriculture, animal husbandry, fishery, transportation, tourism.

2. Silcock, op.cit., pp. 269-71.

According to information available concerning industrial selection, there were no really clear and explicit criteria to indicate the basis for a decision to award promotion privileges to an industry. The PIIA 1962 states that industrial activities under category A were those considered "vital and necessary," category B were those "less vital and necessary" and category C comprised those other than under A and B. It is probable that the government desires to create a more balanced structure of Thai industry by promoting consumer, intermediate and capital industries. Owing to the inability to undertake the whole stage of capital goods production, this type of industry was promoted at the final stage of assembly. The evidence that most promoted industry considered necessary have difficulties in obtaining local raw materials, the government gave primary consideration to import duty concession of raw materials.

In practice, the exemption from import duties and business tax on raw materials for a five-year period differentiated groups of industry from one another.<sup>1</sup> The promoted industries usually do not include traditional processing industries such as rice milling and saw milling, but most of them were nearly absent in Thailand in the late 1950s. Some may exist but still at initial stage and receive promotion benefits due to their growth prospect.

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1. Group A was exempted 100%, Group B two-thirds, Group C one-third.

Industries such as sugar, gunny bag and cement which have operated before the promulgation of the PIIA 1962 are examples which are also able to apply for promotion.

The PIIA 1962 defines the size and condition of each promoted industry. This indicates an attempt to encourage a reasonable scale of technological application and modernization. The promoted industries are required to meet either minimum productivity capacity or minimum amount of capital investment which differs from industry to industry. In 1962, the minimum size limitation in 78 cases was based on capacity, in 40 on investment. For the remaining promoted industries, there was no fixed limitation of any kind. In addition, every enterprise promoted must use machinery and equipment approved by the BoI. This requirement, applied to all promoted industries,<sup>1</sup> indicates the government's intention of raising the quality of industrial products and of strengthening the efficiency of firms. For certain products it is required that their quality be in accordance with international standards. Industries subject to this requirement comprise various smelting, chemical and electrical machinery industries.

Besides the import duty concession on raw materials, the other major benefits provided consist of tax incentives, import duty concession on machinery and protection measures.

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1. Two industries are exempted from this requirement, namely, international sea transport and internal boat transport industries.

### Tax incentives

As far as tax incentives are concerned, a promoted person shall be exempted from taxes on income derived from industrial activity for five fiscal periods under the Revenue Code beginning with the tax paid in which such promoted person has either sold its products or gained an income.<sup>1</sup> The exemption does not include the expansion of established industries that apply for promotion privileges. The effectiveness of tax holidays, a common practice of developing countries to encourage investment, depends on the ability of the promoted enterprises to earn profits during the initial years of operation.

It is questionable whether this incentive is likely to induce an effective flow of investment. Many writers voice their disagreement with tax incentive measures. Helen Hughes in a study of manufacturing industry of the Southeast Asia countries comments that "tax concessions are most attractive to enterprises with low fixed investments which expect to make a quick profit, and least attractive to enterprises with large-scale, long-term investments which do not expect to make profits for the first few years."<sup>2</sup> Meier suggests that tax

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1. PIIA 1962, section 19.4.

2. Asian Development Bank (ed.), Southeast Asia's Economy in the 1970's (London: Longman 1971), p.201.

concessions are not likely to be most powerful inducements that can be offered to encourage a flow of investment. Foreign investors are likely to be less interested in receiving an exemption after a profit is made than they are being sure of a profit in the first instance.<sup>1</sup> Both of them have the same opinion that this measure means substantial losses of revenue. They suggest that instead of offering tax exemption, the tax foregone should be spent on provision of infrastructure facilities and of supply of trained labour which will be a better incentive to further investment. However, this measure is usually included in promotion policy of developing countries.

The UNIDO's report on a seminar on "Incentive Policies for Industrial Development" recommended that tax incentives can be applied as a tool to promote exports. It reported that a few developing countries had begun to offer strong tax incentives for export-oriented industries. The seminar suggested that this practice should be more widely accepted by developing countries in the future. At present, this idea has been recognized in Thailand. The government has planned to offer this benefit to industrial exports. However, so far there has not been any regulation announced officially concerning the implementation of this policy.

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1. G.M. Meier, Leading Issues in Development Economics (New York: Oxford University Press).



Import-duty concessions

According to section 19 (2 and 3) of the PIIA 1962, the machinery, component parts and accessories required by the industrial activity are exempted from duties and business tax. Section 20, 21, and 22 offer exemption from import duties and business tax on raw materials imported for use in industrial activity.

The concession offered to imported machinery is a capital cost-reducing incentive through lowering the total financial requirements. There may be a conflict that it may hamper the development of local industries producing the exempted products. If it is offered in an industrially more advanced developing country, this incentive perhaps will clash with the objective of developing a domestic machinery-building industry. In Thailand, this has not disturbed the industrial development process for the industrial structure consists mainly of agricultural processing products, light consumer goods and assembling output. The drawback is that exemption of duties on capital goods imported is likely to encourage capital intensive technology.

Because most promoted industries lack local raw materials, the PIIA 1962 offered import-duty concessions on raw materials for a period of five years. This incentive was the single criterion being considered in classifying promoted industries in different groups of A, B and C. An attempt to promote modern industries when there is a

scarcity in raw-material supply reduces possibility of local resource utilization. Certainly, a requirement of using local raw materials, in the PIIA 1962, can be applied only to a small number of industries that could be based on domestic materials. Out of 129 promoted industries in 1962, only 14 made a reference to using local raw materials or of prohibiting the use of foreign ones, if similar materials of suitable quality are available in the country.<sup>1</sup> These industries comprise the rubber products industry, chemical, food canning, wood shaving, and cement board, glazed ceramic, floor and wall ceramic tile, glass, pharmaceutical and tin smelting industries. There is no such requirement for the remaining industries. This leads to a high dependence on imported inputs in the majority of promoted industries. Chattip, referring to a report of the Secretary of the BoI 1965, states that 28 of 40 promoted firms which were investigated used only a small quantity of local raw materials and the rest, mainly motor vehicle assembling and certain metal industries, did not use any domestic raw materials at all.<sup>2</sup>

It is not easy to justify the application of this incentive as a means to induce investment. Even the UNIDO seminar admits that it is a controversial matter. The two main reasons are that such concessions are not equitably

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1. The PIIA 1962.

2. Chattip, op.cit., p. 122.

distributed, which put promoted enterprise in a more favourable position than other ones which do not benefit from them. It impairs the competitive position of firms that do not enjoy this benefit. The other reason is that, as has happened to Thai industries, it ignores the further step of local raw material development.<sup>1</sup>

The seminar notes that it is a common device to grant "import duty drawback privileges" for those items when they are included in manufactured goods subsequently exported to be competitive.<sup>2</sup> This incentive plays a significant role in promoting the export of manufactured products. It is confirmed that this privilege offered to products destined for the domestic market is much less common. In Thailand, this incentive has been already applied to manufactured exports. The government allows a firm to reclaim 7/8 of import on raw materials which were used to produce goods for export. It is now planning to offer a 100% drawback instead of 7/8.

It is believed that reliance on foreign supplies has made the cost of local products relatively high. General criticism of the high import content of promoted industries made the agencies involved within the industrial sector lay more emphasis on the production and utilization

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1. The UNIDO, op.cit., p. 39.

2. This "import duty drawback" is a scheme whereby a firm which produces industrial products for export may reclaim the import duty it originally paid on imported materials which were necessary for the manufacture of the final exported product.

of local raw materials. An example which shows this new intention is the policy towards automobile assembling industry.

The vehicle assembly, a promoted industry under group B, has grown rapidly over the past decade. In 1961, when the Ford Company started assembling locally, only 525 vehicles were produced. In 1972, there were ten assembling companies having a total operating capital of more than 1,000 million baht. Since the beginning of the 1960s, local production has increased as Table 5.1 shows:

Number of vehicles imported and locally produced between 1961-70

Year	Local production		Import		TOTAL
	No.	% of total	No.	% of total	
1961	525	3.84	13,137	96.16	13,662
1965	10,095	26.22	28,402	73.78	38,497
1968	13,639	16.35	69,784	83.65	83,423
1970	10,537	19.64	43,120	80.34	53,657

Source: Calculated from "The Automobile Assembling Industry," Bangkok Bank Monthly Review (July, 1972), pp. 243-5.

Vehicle products have an expanding market which stimulates local assembly. The consumption grew considerably during the last decade, from about 13,000 units in the beginning 1960s to 38,000 units in the mid-1960s and reached 80,000 units in 1968. Local assembly contribution to total number also increased from 3% in 1961 to 26% in 1965. In 1968, although local production was higher than previous years, the

percentage contribution dropped to sixteen percent. Sales of both imported and locally assembled cars decreased markedly in 1970. The sudden drop of total vehicle number was a result of imposition of 30% tax on locally assembled cars and a 110% tax on imported car.<sup>1</sup>

The dominant source of imported vehicles is Japan from where Thailand purchased 72.8% of 1970 total import. Since 1961, about 75% of imports have been brought in as completely built-up units and only 25% as completely knock-down units for local assembly. At present, assembling plants rely heavily on the import of car and truck parts; using less than 15% of locally made component in each assemblage. According to a rough estimate, a locally-assembled passenger car costs about 6,000 baht less than an equivalent imported version, and a locally-assembled truck costs about 12,000 baht less. It is argued that vehicles could be produced much more economically if more local components were used.<sup>2</sup>

More than 50% of the Thai assembling products is passenger cars which are durable consumer goods. Helen Hughes comments that the market for a product such as a car is limited to the relatively small wealthy middle-class groups. The demand is too small to enable one firm assembling imported components to produce efficiently. In terms of Thai market, there is a good prospect of the local product

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1. ASRCT, op.cit., p. 175.

2. "Build up or Knocked down?" The Investor, Sep. 1971, p.23.

expansion since at present local firms supply less than 25% of annual consumption. Nevertheless, locally assembled vehicles are less attractive and their prices are not much lower than imports. This is argued that it is a result of a high import component in assemblage with consequent high cost of production. Moreover, there are many plants assembling too many models and types of vehicles, thus reducing their production efficiency, raising costs and increasing the price of the finished product. Even though a very high tariff is imposed on imports, local products are not in a good competitive position.

The Thai authorities have considered a revision of policy. They no longer give strong support to plants purely assembling imported components. It is desirable that local industry utilize more local components in the assembling process.<sup>1</sup> This implies that the policy shifts its emphasis towards the initial stage of production which is expected to reduce the dependence on imports and finally may lower the cost of the finished vehicles. However, it should be remembered that local component parts could be produced at the comparative quality and price of imported products. If the promoted and protected local intermediate industry is not efficient enough, this policy will turn against the assembly industry.

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1. In Jan. 1969, the BoI temporarily dropped passenger car and truck producing or assembly from its list of promotable industries. The present preference is an encouragement to the manufacture of components. At present, there are 30 factories producing automobile parts.

In July 1971, the Ministry of Industry announced that local plants are required to use domestically manufactured components amounting to not less than 25% of the value of total parts used. For trucks, buses and other heavy duty vehicles, this 25% would not include the value of the body of the vehicles. Realizing the difficulties of component part manufactures to supply to several assembling plants producing diversified model of vehicles, the Ministry also announced a new regulation limiting the number of models which an assembling plant may produce.<sup>1</sup>

#### Tariff protection

Besides being a means of raising government revenue, and modifying the balance of payments problem, the tariff is used as an instrument to protect local industry. In Thailand, before the 1960s, the primary objective of the tariff was revenue, not protection. Nevertheless, as tariff rates steadily increased, the protections effect began to be felt. Since 1958, tariff policy has been directed towards protection. However, import duties still comprise the

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1. An existing passenger car assembling plant can produce not more than 3 models; new established plants are allowed only 2 models. An existing truck assembling plant is allowed not more than 5 models; new established plants are allowed 3 models.

largest source of government revenue.<sup>1</sup>

The protection which is provided to the promoted industry when the BoI considers that certain of its industrial products can adequately supply the local market, is in the form of: first, the prohibition of import of products of the same kind as those produced by the promoted person, second, increase of import duty which may be collected under the law on custom tariffs for products of the same kind as those produced by the promoted person. The period of protection depends on consideration of the BoI.<sup>2</sup>

To investors, it implies that the local market can be captured and thus reduce a great deal of risk. Tariff protection is recognised as a method to assist new establishments during the initial stage of production at the expense of consumers. The level of protection should be reduced after a reasonable period of time when the industries are already strong enough to stand competition without protection.

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1. Ingram, op.cit., p. 283. The rates of import duties to the government revenue was 29.7% in 1969. The figure has rather been stable during the past two decades, as the following:

1950	27%
1955	29.7%
1960	30.4%
1965	24.9%
1969	29.7%

2. The PIIA 1962, section 21.12.



In terms of Thai policy, protection of domestic industry does not automatically follow the initial approval of the promotion. The BoI decides later on an individual basis whether a particular industry can adequately supply domestic demands. The evidence suggests that protective measures by creating a captive market, usually prevent the protected enterprise from being efficient. There is a risk of setting up an establishment for which there is no guarantee of survival beyond the period when special privileges are finished. Furthermore, protected products are uncompetitive due to high cost of production which limits ability to export. If they are consumer goods, local consumers unavoidably bear the brunt of these high costs. But, even worse, some protected industries produce goods which are input of other industries and sectors of the economy. The adverse effect, therefore, penetrates throughout the economy. This has happened to the Thai industrial process. Two industries which have had adverse repercussions on consumers are the synthetic fibre industry and chemical fertilizer industry.

The synthetic fibre industry is comprised of one single plant. The firm was given protection after claiming that its production kept pace with local demand. Local weaving mills had to utilize yarn which price is higher than that in international market. In 1972, a problem arose because demand was higher than its ability to supply. After considering that insufficient supply of yarn would affect the

weaving mills' business, the government temporarily allowed the import of synthetic yarn to relieve local shortage.

The chemical fertilizer industry is the other example. The fundamental significance of fertilizer in increasing yield is undeniable and has particular importance to agricultural country like Thailand. Formerly chemical fertilizer was imported, but particular types of them have been prohibited since a local firm commenced operations in 1968. This single promoted chemical fertilizer plant, the Chemical Fertilizer Company, is located at Mae Moh near a deposit of lignite which is utilized in the production process.<sup>1</sup> The price of the product is higher than imported fertilizer. The company runs at a loss, even though the prices that farmers pay for their products are much higher than imports.<sup>2</sup> Certainly, expansion in the agricultural sector has been deterred by this situation. Any increase of fertilizer cost will decrease the quantity of fertilizer used.

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1. The plant accounts about 500 million baht which the government holds 49.9% of the company's stock.
  2. It is argued that poor management is responsible for the loss in this company. Other problems include the fact that raw materials for fertilizers are not produced or found in Thailand in sufficient quantity. They are potassium salts and either phosphate acid or some sort of phosphate both of which have to be imported at the rate of several thousand tons a year. ("Chemical Fertilizer Company," Siam Rat, 7th Sep. 1971; "Fertilizer Industry," The Investor, May 1972.)

Promoting this kind of industry by protection is likely to hamper the programme of raising agricultural productivity. Other forms of subsidy should be considered instead of continuing the protection measure.

These examples indicate that considerable care must be exercised when deciding to promote an industry which produces intermediate goods consumed by other enterprises. As far as tariff protection is concerned, the policy generally fails to establish internationally competitive industries to enhance the export prospects of the product or even to be able to compete with imports. The United Nations Industrial Development Organization (UNIDO) also admitted that this measure is very controversial. The difficulty is how to determine an appropriate level of protection for erecting an effective industry.<sup>1</sup>

#### Labour- and capital-intensive industries

There is a considerable divergence of opinion over the relative merits of capital-intensive and labour-intensive technologies. The type chosen obviously fundamentally affects the employment structure of the nation.<sup>2</sup> The proposal that developing countries should favour labour-intensive industries originated from a belief that most

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1. UN/UNIDO, Incentive Policies, op.cit., pp. 38-9.

2. For a discussion concerning labour or capital intensive technologies see: Mountjoy, op.cit., pp. 132-6 and Hodder, op.cit., pp. 170-71.

developing countries possess abundant labour supply but are likely to have a derth of available capital. Therefore, it is appropriate to utilize abundant labour whenever possible instead of spending scarce capital. Moreover, non-economic factors play a large role in favouring labour-intensive industries: social and political policies may be primarily considered, such as the need to maximize employment. Those who support capital-intensive industries argue that the labour intensive approach is static, negative, in the long run, inhibiting to economic advance.<sup>1</sup> Even though industries that require heavy capital investment give relatively little employment; it is argued that the output per worker is high and particularly beneficial to a very wide sector of the economy.

The Thai government has confirmed since the beginning of the development period that it emphasized labour intensive technology. However, as has been mentioned, most of the modern industries are criticized for being highly capital intensive. Silcock argues that:

It is apparent that in the sphere of industrial promotion policy, Thai administrators have not acted as if capital was a scarce resource in which economy was desirable. ....  
 .....  
 Thailand appears to be wasting its supplies of capital by its policy,. 2

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1. Hodder, op.cit., p. 170.

2. Silcock, op.cit., pp. 269-71.

He refers to a figure reported to the International Monetary Fund which stated that the average work force in a promoted firm up to that time (1965) was about 160 persons. He also claims that total investment of promoted firms in Thailand during the seven years between 1959 and 1966 was 125 billion baht which is well over half of the total investment of the private sector.<sup>1</sup>

There are some industries that confirm this argument. The first example consists of the ten automobile assembling plants which have between them more than 1,000 million baht capital and whose overall employment is about 1,750 persons; each factory employs between 50 to 400 workers.<sup>2</sup> Another example is an oil refining company, TORC at Si Racha, which employs only 330 workers to run a plant in which about 600 million baht is invested.<sup>3</sup>

For a decade, industry has grown rapidly, but in an unanticipated direction. The government has set targets for increasing employments, raw material utilization and import reduction without recognizing that these targets could not be achieved by import substitution policy. The incentive measures tend to conflict with targets established. However, it is rather unjustified to criticize that what have been done are failures, since it is likely that the country has few choices in industrialization process. It is

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1. Loc.cit.

2. "The Automobile Assembling Industry," Bangkok Monthly Review, July 1972, p.244.

3. "Oil: Industry's Elixer to Life," The Investor (Dec. 1972), p.19.

apparent that Thailand hardly produce capital and intermediate goods at the initial stage of industrial development because these products require high investment, technology and large market which are difficult to expect to be sufficient in Thailand. Therefore, it may be unavoidable that the early phase of industrialization is tempted by import-substitution industry producing consumer goods which need comparatively low investment and technology. Accompanied with protection, the industry easily access the local market.

Nevertheless, the next stage of industrial growth has proven that the policy and incentive measures should be revised if the objectives need to be attained. Such situation not only occurred in Thailand but in other developing countries as well. In Thailand, besides the phenomena of import increase, capital intensive industry, small employment creation, the promotion policy also affects location, structure and market of industry.

## CHAPTER SIX

## INDUSTRIAL LOCATION AND INDUSTRIAL ESTATES

Various factors are involved in the process of production, such as raw materials, market, transfer costs of raw materials and finished products, market, energy, capital, labour and so on which influence the locational choice of industries to a greater or lesser degree.<sup>1</sup> Location plays an important role in determining the costs of production. In attempting to find the location that gives lowest total costs, one has to balance the importance of various factors involved in production. Industries will be located in a place where it is considered that the plants gain the maximum locational advantages.

Location of Thai Industry

Primary consideration in locational choice are raw material availability, market prospects and transport convenience. The nature of raw materials and finished products may be considerably decisive in determining the location of a firm. The industrialists, in terms of locational choice, will consider the nature of raw materials

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1. R.C. Estall, R.O. Buchanan, Industrial Activity and Economic Geography (London: Hutchinson University Library, 1961), p.21. It is noted by these two writers that the term "location" is commonly used in two different senses, a narrower one which is equivalent to site and a wider one which indicates an area. The connotation with which this study is concerned is the latter one. The choice of a site, say Estall and Buchanan, within an area is normally a second stage and demands local study.

together with the costs of procuring them relative to the market. Some raw materials are bulky but lose weight in the production process or consume large amount of fuel or are perishable. Industries which utilize this kind of raw material are likely to be situated very close to their sources. This type of industry sometimes is defined as a "rooted industry."<sup>1</sup> Some industries are "tied" to their market owing to weight gain of finished products, and thus the necessity to be near to consumers or in cases where the movement of the products to the consumers is more costly than movement of the materials to the factory. Obviously, transport plays a great role in the mobility of raw materials and finished products. Location of a plant is also dependent on transport in terms of cost and facilities available.

Traditionally, Thai industries are mainly involved in the processing of primary commodities. Processing plants spread in the areas in which raw materials and other factors necessary to industry exist. An example is sugar industry which four sugar mills owned by the government are in Supan Buri, Chon Buri, Uttaradit and Lampang. Other private mills number about thirty are mainly situated in Kanchanaburi, Prachub Khiri Khan and especially in Southeast

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1. Sutcliffe, op.cit., p. 114. "Rooted industry" is an industry which has to be established near the sources of raw materials. Most of them are involved with the processing of primary products, mineral and agriculture.



provinces, Chon Buri and Rayong which are major sugar-cane growing areas. The tapioca industry also depends heavily on bulky and easily perishable raw materials. The mills are concentrated in the Southeast. The recently emerged modern fruit and vegetable processing factories are also situated near the sources of raw materials consisting of pineapple, bamboo shoots, asparagus and baby corn grown in Chon Buri, Lampang, and Prachuab Khiri Khan. The mineral processing industry is located where the few mineral deposits occurred but it is much less important than agricultural processing. The most important tin smelting plant is the Thai Smelting and Refining Co. which began operation at Phuket, the major tin deposit, in 1965. A small iron and steel manufacturing plant, the Siam Iron and Steel Co. is the only company in Thailand which has both iron and steel making capabilities. The plant operates at Ta Luang in Saraburi province. It utilizes the iron ore from deposits at Khao Thap Kwai, 70 kilometres north of the factory, an area which is estimated to have reserves of 7 million tons.<sup>1</sup>

Many consumer industries are tied to market comprising mainly the Metropolitan and other major urban areas which also serve as sources of labour and other production factors. These consist of industries on the categories of food,

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1. Thailand, ASRCT, Industrial Sector in Thailand, (Bangkok: Siam Communications, 1973), pp. 127-8. This is Appraisal Report No. 13 conducted by the ASRCT. It is proved as a useful study of various industries in Thailand.

beverage, tobacco, textile, printing and many others.

The distillery industry is located in Bangkok. Seventeen out of twenty-five soft drink bottling plants are also in the capital city. There are 110 mechanized shoe factories in Bangkok-Thon Buri. Of 1,227 printing shops registered with the Ministry of Industry, 943 are situated in Bangkok-Thon Buri. The manufacturing of paints, varnish and lacquers is almost entirely centralized within a radius of 40 kilometres from Bangkok which is the largest market. Even though tobacco is grown in the North and Northeast, the plants operated by government, as a monopoly, are in Bangkok. Saw mills exhibit an exceptional characteristic. Majority of logs from the forest in the North and, to a smaller extent, in the Northeast, are transported to mills in Bangkok-Thon Buri where 300 out of the total 500 large saw mills operate. This is because of the fact that the big market is in Bangkok and surrounding areas, and the large proportion of processed timber is exported through the Port of Bangkok. The same phenomenon characterizes the wood-work industry of which the factories are principally in Bangkok, few are in Chiang Mai and other provinces in the North.

The cost and convenience of transport are other vital factors influencing the location of industry. As have been discussed in Chapter Three, all transport routes converge on Bangkok. This connects Bangkok efficiently with all parts of the country whereas individual province is mainly pulled by the transport network to Bangkok with a few

connections amongst up-country provinces. Therefore, raw materials from other regions are easily shipped to Bangkok and similarly the finished products are distributed to other provinces from the producers in Bangkok. Besides dominating internal transport, Bangkok is also the centre of external connection. The evidence that most modern industries consumed imported raw materials, Bangkok demonstrates Hoover's view that the location of an industry which is highly dependent on imported raw materials is at the port of entry for raw materials. Port of entry may be the ideal location because it is transshipment and junction points and also universally the centres of important local markets.<sup>1</sup>

Besides the circumstances already mentioned, there are other factors of which the price paid for their utilization is included into the total costs of production; land, energy labour and capital. Land provides the actual site of industrial plants, and siting characteristics must be carefully studied in relation to the requirement of the project. Neither potential, nor developed sources of power are evenly distributed throughout the territory of a country. It is an important factor which influences the location of plants; especially of those industries that consume large amount of fuel and energy. Labour distribution may dominate locational choice if it accounts for a high proportion of total

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1. E.M. Hoover, The Location of Economic Activity (New York: McGraw-Hill Book Company, 1963), p.223. Bangkok occupies the large market in terms of population number of 2.6 million and of higher income per head than the average of the country as a whole.

costs. If other factors of production cannot be substituted for it to any great extent, and if its geographical mobility is low.<sup>1</sup> Labour may be a primary determinant of location of any industry that depend largely on it, particularly skilled labour which is scarce and tend to concentrate in certain places. In most countries, but especially in developing countries, entrepreneurial and managerial skills are geographically concentrated and may be relatively immobile without strong incentives. It is considered that capital is not perfectly mobile geographically. The UNIDO notes that the relative immobility of capital is shown by the fact that the commercial banks appear to favour regions with industrial traditions, and new projects in an existing industry may tend on this account to locate near existing producing facilities.<sup>2</sup>

Land price in the metropolitan areas is a great burden of the Thai industrialists. However, there are few alternatives since in addition to other advantages of Bangkok, basic facilities here are far better than those in the remote areas. Power supply is another factor which augments domination of Bangkok. Owing to the limitation of traditional fuels, most energy consumed has been imported through the Port of Bangkok. This recently induced the

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1. UN/UNIDO, Industrial Planning, Monograph No. 17 (New York: UN, 1969).
  2. Estall and Buchanan, op.cit., p. 95; UN/UNIDO Industrial Planning.

establishment of oil refining plants in the areas surrounding Bangkok.<sup>1</sup> As has been noted in Chapter Three, the supply and cost of electricity up-country is much less favourable than that in the Metropolitan. Even though local fuel deposits exist, they do not influence much on location of industry in those areas. Local oil reserve in the North is so small. The supply of electricity generated from lignite in the North and South only contributes to a small portion of consumption in those areas. Electricity generated from hydro-electric power plants in the upper Central Plain and the Northeast also mainly supply the capital city.

Labour distribution also confirms the role of Bangkok. Abundant unskilled labour are widespread throughout the country, who need to be trained before being able to participate

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1. The three oil refining plants are Thai Oil Refining Co. (TORC), Esso and Summit. The first two are located in Si Racha, south of Chon Buri, the Summit is at Bangchak, a suburb of Bangkok. TORC, a completely Thai owned company, began construction of the plant in 1962 at the cost of 685 million baht. The construction was completed and the refinery came on stream in 1964. In 1967, in order to keep pace with demand, the government approved the increase of capacity from 36,000 to 65,000 barrels a day. The new plant was in full operation in 1970. The second plant is the Esso Standard Thailand Ltd. which operated with a capacity of 35,000 barrels a day. The third is the Summit Industrial Co. operated a refinery with capacity which is expanded to 65,000 barrels a day.

effectively in any economic activities outside agriculture. On the contrary, skills and highly qualified personnel mostly concentrate in urban areas. However, certain incentives such as high wages may induce them to decentralize as the example of employees, both skilled and unskilled, from Bangkok and other provinces who work with military base in the Northeast during the past few years.

The lack of sufficient capital supply available to industry at up-country location is a reflection of other locational disadvantages. Handicaps in up-country areas make the entrepreneurs, local and foreign, remain in the capital city. Financial institutions traditionally prefer supplying capital for trade and services to industry and are unwilling to support the industries established in remote areas.

The agglomeration of industry also provides external economies deriving from inter-industry linkages. A site of an industry in a region may lead ultimately to the formation of a vertically or horizontally integrated industrial complex. This again puts Bangkok in an unchallenged position.

It is likely that Thailand shares the typical features of industrial concentration on few urban areas with other developing countries. In developed countries, industries are more scattered in different locations which may possess certain advantages, since industrially advanced countries have great varieties of industries, light, heavy,

consumer and capital. Thus, the pull influence of certain production factors in a particular place attracts variously to locational choice. This is different from what prevails in developing countries which their industries are mainly involved with processing and light consuming industries which scatter along the source of raw materials and few urban places especially the capital where the required facilities can be obtained more easily than elsewhere in the country.<sup>1</sup> Finally, industry, more or less, developed by strong promotion policy requires that manufacturers have convenient access to the government agencies which, again, centralize in the capital city. Estall and Buchanan state that:

The ideal location for any given enterprise probably does not exist, but the intelligent entrepreneur will seek, as far as possible, the particular combination of favourable features that most nearly meets his individual need. 2

This is generally true, but in Thai case, it applies only to those processing industries where raw materials influence the location. Other types of industries, whether they are market-oriented industry, light consumer goods, intermediate or capital products, are subjected to complex domination of Metropolitan areas.

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1. Developing countries are usually dominated to a considerable extent by one great city, the centre of wealth, power, political and social change, whilst in the rest of the country small market towns are the rule.
  2. Estall and Buchanan, op.cit., p. 80.

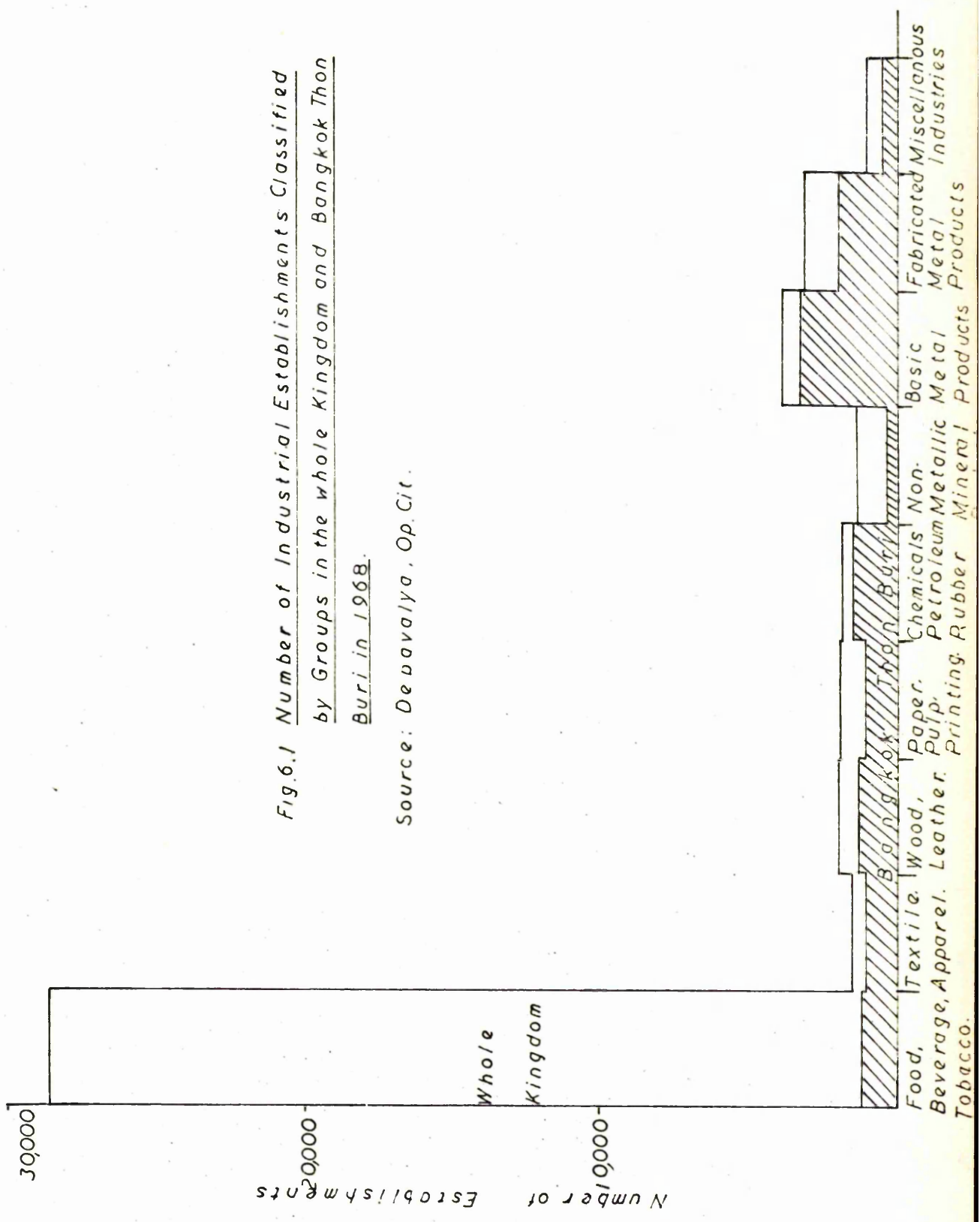
In 1968, there were 44,268 industrial establishments of which 12,001 (27%) were in Bangkok-Thon Buri and 32,257 (73%) were in other provinces. Industries which principally concentrated in Bangkok-Thon Buri include textile industry, paper and paper products, printing, publishing and allied industries. Besides, industries producing chemical and chemical products, basic metal, metal products, machinery, electrical machinery and supplies, transport equipment are remarkedly located in Bangkok-Thon Buri. These kinds of industries derive considerable advantages from a location in a capital city where technical progress, skilled labour, capital and even raw materials most of which are imported, are more readily available than in other provinces. Industries in up-country areas are the processing industries comprising mainly food processing, including rice milling, which constitutes more than half of total number of industrial establishments of the whole country. These industries are all low on requirements of modern technology, entrepreneurial skills and high on attraction of raw materials.

The tendency to locate industry in Bangkok-Thon Buri has been continuing for a considerable time. Moreover, since industry has been strongly promoted by government policy, it is apparent that new plants prefer to be located in the capital and neighbouring provinces, Samut Prakarn and Nonthaburi. Silcock suggests that this is due to the policy



*Fig.6.1 Number of Industrial Establishments Classified  
by Groups in the whole Kingdom and Bangkok Thon  
Buri in 1968.*

Source: Devavalya, Op.Cit.



being directed towards "international standard and modernization" that induce promoted firms to concentrate mainly in capital areas.<sup>1</sup> It is reported that of 2,177 new industrial establishments during 1968, 1,227, more than half, were in the Metropolitan area.<sup>2</sup>

### Bangkok-Thon Buri<sup>3</sup>

Bangkok, established as the capital in 1782, has been the largest and most densely populated city in Thailand. The city has expanded in both area and population.<sup>4</sup> In 1955, Thailand had the world's highest primacy rate.<sup>5</sup> The dominance of Bangkok-Thon Buri is more than in population alone. It is the centre of all non-agricultural economic activities, and is an irresistible magnet for new industrial establishments.

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1. Silcock, op.cit., p. 271.

2. Goldstein, op.cit., p. 11.

3. This twin city was merged in a single city, Greater Bangkok, in Dec. 1971.

4. L. Sternstein, Planning the Developing Primate City Bangkok 2000 (Department of Geography, School of General Studies, The Australian National University, 1971), p. 31. Population growth of Bangkok is rapid at a rate of 6.5% per annum, twice the average rate 3.2% of the country.

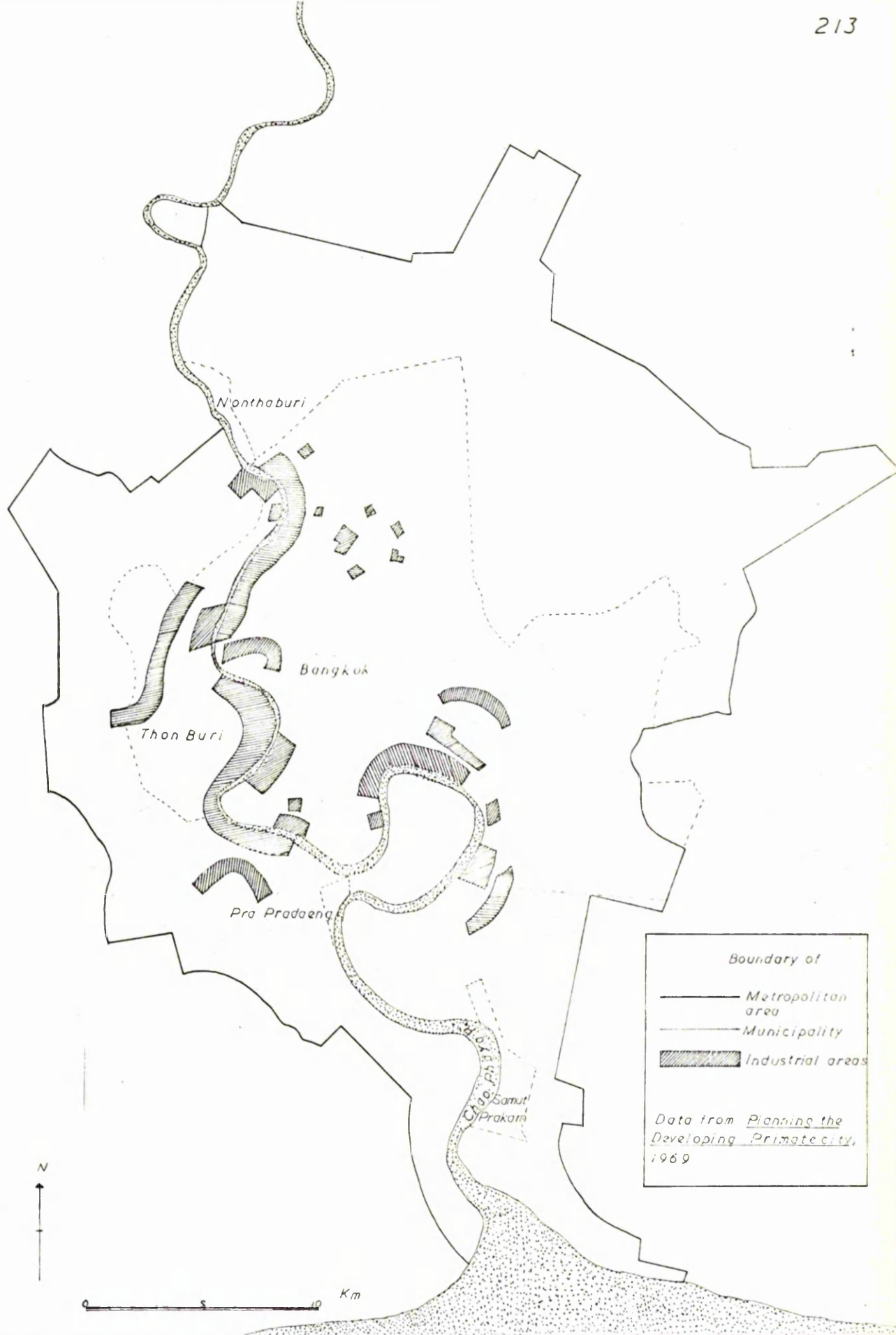
5. Thomlinson, op.cit., p. 59. The urban population in 1967 were 14.1% of total population. 56% of them live in Bangkok-Thon Buri.

Sternstein reports that the area used for industrial activity in Bangkok-Thon Buri was 3,746 rai in 1958 and 5,631 rai in 1969. During the past decade, industry has been located more and more in Samut Prakarn and Nonthaburi, provinces adjacent to Bangkok, where the area used for industry was 4,931 rai. The use of land for industrial purposes occurs mainly along the Chao Phaya River from north of Bangkok down the estuary to Samut Prakarn. Most areas used by light and services industries are intermixed with the commercial areas.<sup>1</sup> It has been generally argued that the city has expanded both its population and area without planning. There is no control of land use and no delineation of industrial areas.<sup>2</sup> At present, industries are facing the problem of obtaining suitable location at a reasonable price.

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1. Sternstein, op.cit., p. 31.

2. It is not uncommon to find an industrial plant situated in a residential area in this city. The fertile land suitable for agricultural purposes in Thon Buri and Nonthaburi are utilized as residential area, industrial site and commercial purpose.



**Fig. 6.2** *Principal Industrial Areas in the Metropolitan Area*

The social costs and benefits of industrialization, noted by Helen Hughes, are intimately bound up with the problems of urbanization. Although economies are gained from urbanization, urban concentration also causes diseconomies as is happening in Bangkok. Transport and other services have deteriorated, communication inefficiency and traffic congestion have increasingly become major impediments. Drainage facilities and sanitation systems have become inadequate. Thomlinson illustrates this:

The most distressing consequence of Bangkok-Thon Buri's rapid growth is the shortage that developed during the 1960's and seem destined to plague the metropolitan community in the 1970's until corrected by comprehensive planning. The water supply is insufficient, drainage is inadequate, traffic congestion is extreme,.....<sup>1</sup>

City planning in Bangkok is complicated because of its dynamic growth. Actually, a programme of city planning started in the 1960s. A first master plan for Bangkok, Greater Bangkok Plan was prepared by American consultants, Litchfield, Whiting, Bowne and Association, in 1960. However, no follow-up action was taken. It is claimed by the Department of Town and Country Planning, that the primary factor militating against implementation

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1. Thomlinson, op.cit., p. 63. See D.J. Dwyer in "The City in the Developing World and the Example of Southeast Asia," Mountjoy (ed.). He comments that Bangkok is in similar situation as other capital cities in neighbouring countries.

this Plan is the lack of city planning legislation. In the beginning of the 1970s, the Plan has been revised, and becomes a "First Revised Metropolitan Plan 1971-1990." The Department of Town and Country Planning has been waiting for approval of City Planning Law which will empower the Department to implement the Plan.<sup>1</sup>

The concentration of industry in Bangkok illustrates Mountjoy's view that dispersal of industry in rural areas with abundant labour supply, advantages in some respects, is often unpracticable, especially in the early stages of development. During these initial stages, industry is related to the urban centres where market, labour and a range of public utilities are available.<sup>2</sup> Recently, there have been worries in the government and amongst the public concerning the agglomeration of industry in these areas. The Third Plan includes the industrial decentralization as an objective in industrial policy, a new concept adopted as a result of previous industrial growth.

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1. Metropolitan Plan is aimed mainly at defining place for land use and for communications in the Metropolitan areas. The Plan devises the "optimum area of the metropolis" approximate to 732 square kilometres, embracing the provinces of Bangkok-Thon Buri, Nonthaburi and Samut Prakarn with population about 6.6 million (Sternstein, op.cit.).
  2. Mountjoy, op.cit., p.73.

### Decentralization policy

It is obvious that government actions have much influence on location of an industrial firm. In Thailand the policy of decentralization requires government initiative. As far as the recent policy is concerned, the government just states vaguely that the establishment of industries in the provinces is going to be specially encouraged. It has not designated any definite areas in each region of the country to be centres of development. An incentive programme has been proposed but no definite measures have yet been taken.<sup>1</sup>

There is a suggestion that selected "growth points" up-country accompanied with the provision of urban infrastructure should receive consideration rather than let the development be widely spread over large areas. Helen Hughes mentions that:

An alternative to both decentralization and urban sprawl which would minimize the social costs of industrialization and bring private costs and benefits closer together to social costs and benefits, lies in vigorous urban development not only in the capital cities, but where appropriate, in a limited number of urban development poles based on provincial centres or ports which are already developing rapidly. In Thailand, a second industrial centre on a deep-water port on the east coast of the

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1. So far the BoI proposed incentive measures, such as tax incentives, import duty and business tax concessions, reduction rate of services operated by the government organizations such as railway and highway transport, energy, infrastructural provision and industrial estate establishment.

Gulf of Thailand is urgently needed,.....<sup>1</sup>

According to the First Revised Metropolitan Plan, it was proposed the development of basic industries in the North at Chiang Mai and Lampang, in the Northeast at Khon Kaen and in the South at Had Yai, a district in Songkla.<sup>2</sup> The promising opportunities in those areas need the development of local resources, especially the stimulation of agricultural growth. The prospect of industrial promotion should be concerned mostly with agricultural processing of the region's products which are usually shipped to Bangkok and abroad. Strong incentive programmes are necessary, such as the establishment of industrial estates, low cost services and lower rates of electricity.<sup>3</sup> Financial institutions such as the

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1. Helen Hughes, "The Manufacturing Industry Sector," Asian Development Bank (ed.), pp. 229-30. The construction of a new port is believed to be necessary as a means of providing a basis for eventually moving traffic and encouraging urban growth away from Bangkok and the neighbouring provinces, and at the same time increasing port efficiency.
  2. Sternstein, op.cit., p. 89. Nevertheless, the term "basic industries" is rather unclear. It probably implies raw materials oriented industries rather than basic metal industries.
  3. Electric supply should be more reliable with lower price, since it has been a major obstacle of industrial activity in the provinces. A research in "Locational Choice of Industrial Plants in Thailand" reveals that 88% of the samples identify that one reason for choosing location in Bangkok areas is that energy supply is more abundant and cheaper in Bangkok than in other provinces.



IFCT and the OLSI can give much help to investors in terms of loans for investment up-country. As Estall and Buchanan suggest, in order to promote industrial growth, local bodies may provide information about their areas. The availability of such information saves industrialists from spending time and money in their own private search into a prospective location.<sup>1</sup>

Much remains to be done in the sphere of decentralization. How far this policy will be successful depends to a considerable extent on the strenuous efforts of the government, since it is clear that, at present, facilities in provinces are much more inferior than in the capital. Moreover, productive factors namely entrepreneur, skilled labour, capital supply and so on, are reluctant to invest in new areas. To provide an attractive atmosphere, incentive measures to reduce production costs should be stronger than those offered to industries in the capital city. The process, certainly, takes a considerable expenditure, time and effort.

At present there is an interest in industrial estates as a means to help industries by reducing the heavy fixed capital investment in land and by providing adequate basic facilities and extension services. It will remove the existing difficulties in obtaining a suitable location for new industries as well as the expansion of the existing ones. The UNIDO suggests industrial estate as an

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1. Estall and Buchanan, op.cit., p. 114.

incentive measure to encourage industrial development.<sup>1</sup> In Thailand, the government provides basic facilities necessary for economic growth, but it did not set aside special provisions for industry. An industrial estate programme, if operated effectively, will be a tool serving various purposes including location and decentralization policy.

Industrial Estate as an Incentive and  
Assistant Measure

The objectives of an industrial estate scheme are varied, depending on the situation and special requirement of each country. It serves the purpose of increasing employment in economically depressed areas in the United Kingdom, area planning and factory accommodation provision in the United States,<sup>2</sup> of development of small industries in India, and of area planning-cum-industrial development in Canada.<sup>3</sup> In developing countries, such as Singapore, Taiwan, South Korea and Puerto Rico, the industrial estate scheme is an effective tool for rapid industrial development.

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1. UN/UNIDO, *The Incentive Policies*, op.cit.
  2. "Industrial Park" is an alternative terms describing this type of provision in the United States.
  3. P.C. Alexander, Industrial Estates in India (New York: Asia Publishing House, 1963), pp. 9-13.

An industrial estate, defined by the UNIDO, comprises a planned clustering of industrial enterprises offering standard factory buildings and a variety of services and facilities, erected in advance of demand.<sup>1</sup> This will be sold or let to the industrialists. Besides an industrial estate, an "industrial area" is also provided, it is a tract of land divided into sites on which enterprises may construct factory buildings to their own design.<sup>2</sup> Industrial estate is mainly designated for small industry to encourage new establishments, modernize and expand the existing ones. Meanwhile, the purpose of an "industrial area" is to develop large and medium industries by facilitating the obtaining of land and basic facilities. In Thailand, it seems that the definition of industrial estate is different. According to Planning the Developing Primate City Bangkok 2000, an industrial estate is "an area developed for certain fixed industrial activity. The government owns the land, improves it, builds roads and provides drainage, water and electricity. The sites may

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1. UN/UNIDO, Industrial Estates in Europe and the Middle East (New York: UN 1968), p.6.

2. UN/UNIDO, Incentive Policies, op.cit., p.31.

be sold or rented at reasonable rates."<sup>1</sup> In fact, "industrial estate" in Thailand is the "industrial area" in an international sense. The terms "industrial estate" mentioned here is applied to the Thai definition, At present, there is one industrial estate owned by the government and two other projects of private enterprise which are schemes for land improvement for the location of factories which will be constructed later by the industrialists themselves.

#### The advantages of industrial estates in Thai situation

It becomes clear that industry in Bangkok is faced with increasing disadvantages such as difficulties in obtaining suitable land, sufficient water and electricity, convenient transport and communication services. Meanwhile the unplanned location of factories creates unfavourable circumstances for the community which is suffering from noise, smell and polluted water. Thus the industrial estate programme in Thailand will serve the two-fold purpose of assisting the industrialists and of being a part of city planning and decentralization.

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1. Sternstein, op.cit., p.48. In addition, "industrial zones" is another term used to describe an area fixed for industry according to a city plan. Types of industries may be defined in each industrial zone. The government does not own land and not have to invest in improvement of the area, but may help in providing electricity, water drainage and the main communication system.

Industrial development may be encouraged by the availability at reasonable cost of suitable sites with adequate provision of transport and public utilities. A report of the Ministry of Industry in 1967 estimated that investment in an industry goes to the following factors: 15% to land, 15% to facilities, 25% to factory, 30% to machinery and 15% is left for circulated capital. Much capital has therefore to be set aside for land and facilities. At present, land price in areas with good facilities are too high for the industrialists to acquire and it will be aggravated in the years to come. To locate factory in remote area with low price of land, industrialists need to invest much more in the basic facilities themselves. Thus, wherever they establish the factory, a large amount of capital is required. Even worse, in Bangkok there is no definite policy with regard to the location of industrial zones. Some industries which are public nuisances may have to be eventually relocated.<sup>1</sup> Besides problems of land acquisition, industrialists have usually been delayed in contacting with the government agencies and private companies in the process of establishing water, electricity and sewage disposal services. If these facilities are prepared in advance, it

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1. The Ministry of Industry stipulates that firms which wish to establish factories must be prepared to relocate if the factory site later becomes undesirable for the welfare of the community as a whole. (Report of the Seminar on Obstacles and Solution of Industrial Development, 1970, p.88.)

will save industrialists' time at the initial stage of operation. It will be more economical if these facilities are arranged on a larger scale. In the situation that an industrial estate is designated for a particular type of industry, external economies will be obtained. If any business fails, the land, factory and machinery will be handed over to other interested entrepreneurs more easily than the business which is located haphazardly and which invests heavily in land and facility improvement.

The industrial development scheme should be accompanied by urban planning to prevent economic disadvantages in certain areas of the country which possess the prospect for further development. Factories which disturb the public by their noxious odours, noise and polluted water and traffic congestion should be separated from the residential areas. This problem in Bangkok has been rather a topic of discussion and conversation than any actual implementation.<sup>1</sup> Indeed, to relocate the established factories in Bangkok is not easy and it seems to hamper the industrial enterprises. What can be done is to reduce the agglomeration of factories in Bangkok and

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1. In November 1967, P. Jarusathien, the Deputy Prime Minister of Thailand gave an interview that industrial zone is necessary for Thailand especially in Bangkok because of the fact that the people have been endangered by the side-effect of industrial expansion.

fix the areas with prospects for industrial growth as industrial zones where the industrial estates will be situated. Experience in Bangkok provides a salutary lesson for other areas of the country.

#### Undertakings to date in Thailand

Thailand is lagging behind in the development of industrial estates when compared with other Asian countries such as Singapore, South Korea and Taiwan. Actually, the need for industrial estate has been realized by the government since the last decade, and the first industrial estate programme was approved as far back as 1961. A piece of land about 2,500 rai was bought at Rang Sit, a district north of Bangkok, for this programme, but no significant progress was made. The government claims this is a result of the lack of finances. Finally, this land was used by other activities.<sup>1</sup> Subsequently, a small industrial estate, Bang Chan, has been developed in the late 1960s.

Bang Chan Industrial Estate at Min Buri, a district 30 kilometres east of Bangkok, is the first government owned estate. It is managed by the Department of Industrial Work of the Ministry of Industry. The area is 282 acres

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1. Even though the government abandoned the programme of industrial estate, many factories have been established scattered around this area.

and the investment is about 31 million baht. The estate is designated only for light, clean small and medium industries which create no nuisance and minimum pollution.<sup>1</sup> It is estimated that 127 factories will be located. So far all the available sites provided have been booked up. The land is rented by thirty-year lease contracts. The experience of Bang Chan indicates that industrialists prefer rent sites rather than to buy them outright. They consider that plant construction and expansion is more vital than land purchase.

Other estates in various areas with potential for industrial development are desirable. In 1969, the BoI added industrial estate investment to the list of industry eligible for promotion benefits. The private sector has shown much interest in this enterprise. In 1972, the BoI approved the promotion of two private industrial estate schemes which will develop the land at Rang Sit and Bang Poo,

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1. 51% of the total improved land is actual industrial sites, 20% roadways, 6% residential areas, 11% services and 11% green belt. Facilities provided in the estate are scaled-surfaced roads and controlled access to highway, industrial and domestic water supply, power, post and telephone connection with the capital, technical and consultancy services.



a district south of Bangkok.<sup>1</sup> Besides the already mentioned projects there are other survey programmes for sites of industrial estates. One is a joint venture project between local and Dutch investors who are interested in the area at Ang Sira, a district in Chon Buri, along the Gulf of Thailand. The other is a survey made by The National Energy Authority which has studied the prospect of the delta of the Chao Phaya River as a site for heavy industries and a deep sea port.

There is a question of who should run industrial estate enterprise, the government or the private sector. It is understandable that the government has other more urgent matter to undertake and the past programme indicated that this scheme has been delayed because of the lack of government finances and personnel. Moreover, industrial estates have become a promoted enterprise, the government should avoid the criticism that it would be competition with the private sector. It is likely that private investment supported by government incentive and assistance will be more promising than direct investment of the government. However, the government should carefully consider the plan of private estates in order to ensure that the industrialists who will build factories in

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1. The one at Bang Poo is a Thai-Chinese joint venture, with Thai holding 80% of the share. This project with registered capital of 20 million baht and 428 million baht of working capital will develop an area of 3,800 rai. The one at Rang Sit which is whole Thai enterprise will develop an area of 1,600 rai with working capital about 432 million baht.

those estates receive the appropriate facilities and benefits.

Since the last decade, several feasibility surveys have been carried out by groups of specialists from the United Kingdom, the United States, Japan and the World Bank to study the suitable sites for industrial estates. Their reports are characterized by a similar suggestion that industrial estates should be established around the Metropolitan areas and along the Gulf of Thailand.<sup>1</sup> In other regions, they suggest the prospect of Khon Kaen in the Northeast, Chiang Mai-Lam Pang-Lam Phun in the North and Songkhla-Had Yai in the South. These suggestions worth considering for these provinces have been developed recently to be centres of economic and education activities. However, a careful study is necessary before implementing the programmes. The potential of industrial growth is the fundamental factor to be considered when selecting a site for an industrial estate. The availability of production factors and proximity to major markets needs to be investigated, for they will

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1. Various suggestions have been made about the site prospects for industrial estates in and around Bangkok. The World Bank suggests estates at Klong Dan, 50 kilometres southeast of Bangkok, Prapadang in Samut Prakarn province. The Litchfield Plan which becomes the Metropolitan Plan recommends Chon Buri as location for heavy industry, Samut Prakarn and Nakorn Pathom for light industries. The Plan induces the idea of new towns by improving certain towns as industrial centres in terms of public utilities and communications.

affect the cost of production which is the main indication of industrial growth. The objective of each estate should be clear and the type of industries expected to be established should be in accordance with the local resources so that the initial stage of development may operate economically. As Alexander comments "the industrial estate can be a very effective tool for development, or it may prove to be a waste of the nation's scarce resources if proper attention is not given to its planning".<sup>1</sup>

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1. P.C. Alexander, op.cit., p.67. Industrial estate programmes in India are far advanced. There are about 500 establishments. Alexander and other Indian authorities as well point out that not all of them are successful. Only ones in the large cities have made much more progress than ones in the smaller cities and towns.

## CHAPTER SEVEN

## INDUSTRIAL COMPOSITION AND MARKET PROSPECT

The process of industrial development in Thailand fits a schema devised by the United Nations for describing the three stages of industrial growth of developing countries.<sup>1</sup> According to this schema, industries are usually connected with the processing of primary products, in the case of Thailand the bulk of which are for export. The scope of the activities thus depends directly on a country's resources endowment. The second stage generally consists of the transformation of materials such as the manufacturing of metal goods, cloth, furniture, paper and so on. Part of the raw materials may be imported, and the finished products mainly serve the local market. The third stage comprises the manufacture of machines and other capital equipment. This stage represents a considerably higher degree of industrial maturity.

Thai Industrial Composition

Before the middle of this century, most Thai industry was concerned mainly with the processing of primary commodities for the local consumption and export. In the last few decades, the output of consumer products such as textile, paper and others have increased proportionately. These two types of industry, primary commodity processing

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1. UN, Process and Problems of Industrialization in Under-Developed Countries (New York: UN 1955), p.8.

and consumer production, constituted by far the largest proportion of Thai industry. Capital products which are mostly chemical, non-metallic products and machinery have been comparatively less important. It is expected that the consumer and capital industries will increase their significance in the future with proportional decrease in processing products. According to the Second Plan, in 1966 food processing accounted for about 29.7% of total manufacturing value added, and it was estimated that in 1971 the share would decline to 23.4%. The principal industries to fill this gap would be paper, beverages, textiles, glass, steel, chemical and car assembly. This group of rapidly expanding industries contributed 24% to manufacturing value in 1966 and was expected to increase to 38% in 1971.<sup>1</sup> Some vital industries are going to be examined to present the composition of Thai industry.<sup>2</sup>

#### Grain mill products

Undoubtedly, rice milling is the most significant traditional processing industry. Even though the number of rice mills accounts for the majority of industrial

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1. The Second Plan, p.29. Because of the inability to get the more recent details, the above figure is used even though it may not be a good representation of each type of industry.
  2. "A Description of the Industrial Sector of Thailand" published by the ASRCT provides a good account of the various types of industries in Thailand. Information used here refers mainly to this report.

establishments, out of the 24,638 mills in 1971, only 85 were of the standard type with an individual output capacity of over 50 tons a day. The remainder consists of small mills or hulling plants. The latter have increasingly gained more popularity since they can run with lower operating and labour costs than the large enterprises. About 80% of the 3.5 million tons of rice consumed locally is processed by these small mills.

As a concomitant of crop diversification in agriculture, maize processing has become one of the big industries, its growth being largely a result of an expanding external market. In 1970, Thailand exported 1.3 million tons of maize with a value of 1,857 million baht. The major market at present is Japan. In addition, tapioca flour and pellets have gained markets in the Western European countries. Animal feed industry also depends on local raw materials as maize, tapioca, sorghum and rice bran. There are about 80 foodstuff mills. The industry has a promising prospect as the government's livestock promotion policy has been underway. At the same time product has also been exported. Some firms produce tapioca pellet solely for export the value of which was 976 million baht in 1971. These factories are mainly located near sources of raw materials in up-country areas.

#### Wood products

The export of teak logs, mainly to The United States, The United Kingdom and Italy, dropped from 64,528 cubic metres in 1961 to 28,763 in 1970. The export of

"yang", another wood of great commercial importance, is also declining due to high competition of timbers from other countries and more yang wood is used in local veneer and plywood manufactures.

Since the last two decades plywood and veneer have also become significant. Two plywood plants, one government owned and the other one private owned, are in operation. The government owned plant located in Bangkok accounts for 100 million baht of capital investment and employs 1,370 workers. Daily output is 12,000 sheets of plywood. The products have entered an expanding local market and surplus is exported, most of it going to Laos. The shortage of quality veneer logs influences the export of grade teak veneer and teak plywood. Exports dropped from 120 tons in 1965 to 15 tons in 1967. This firm gets raw materials from various sources, from its own forest concession in Uthai Thani province, from the Forest Industry Organization and from private timber merchants.

Other associated industries are the production of particle board, hard board and wood products which are processed by many firms which are largely located in Bangkok, Samut Prakarn, Chon Buri and Nakorn Pathom. In 1969, there were 1,200 mechanized wooden furnitures, most of them are small enterprises. The industry is naturally protected from the bulky nature of import. Cheap labour and abundant local raw materials also encourage the industry.

Furniture production has become a promoted industry since 1972. The product should be on completely knocked down furniture parts in order to reduce the bulky nature and transport cost. In addition, wood carving is another significant cottage industry, especially in the North. Half of the products are exported, at the value of 52 million baht in 1971, and some are taken out by tourists.

Wood processing industry will provide an alternative to the import of logs. The various wood products processed locally will gain more export value than wood logs and the industry will also provide job opportunities to abundant cheap local labour.

#### Mineral processing industry

This industry has developed slowly even though the processing of various minerals has been granted the promotional privileges. The ASRCT notes that few promotional certificates have been issued owing to the high standard demanded for eligible candidates.<sup>1</sup> The promotion policy towards this industry cannot overcome the major hindrance, the lack of local mineral resources. Therefore, most basic metal and non-ferrous metal products have had to be imported. The ASRCT reports that between

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1. ASRCT, op.cit., p. 13.



1970-71 import value was 102 million baht of unwrought aluminium, 112 million baht of unwrought zinc, 162 million baht of aluminium wrought and in various forms, and more of many other products.

The most important local mineral processing is tin. About 80-90% of tin product has been exported mainly to The United States and The Netherlands. The remaining is used in local tin cans. The large proportion of tin ore is smelted by the Thai Smelting and Refining Co. which began operation at Phuket in 1965. The expansion of food canning industry has induced the emergence of hot tin plate manufacture, an import substitution industry which is expected to save 200 million baht of annual import value.

Besides such processing industries stimulated mainly by the export growth, many consumer goods have come into existence since the last four decades. Examples in this category are tobacco, sugar and textile industries in which the products substitute previous imports to a greater or lesser degree.

#### Tobacco industry

This industry has been monopolized under the control and management of the Thailand Tobacco Monopoly under the Ministry of Finance since 1941 when the government purchased the properties of the British-American Tobacco Company. The local production substantially replaced the

previous import. The industry possesses certain advantages essential for development of a domestic industry namely local raw material availability, large domestic market and a high tariff on finished products imported. The Monopoly operates three factories with a total 10,000 employees.

Formerly, imported foreign leaf was used in the manufacturing process, but the import difficulty during the World War period encouraged local cultivation of foreign tobacco varieties in Thailand. It has been grown in various areas, principally in the light, rich alluvial soil on the banks of the Chao Phaya River and its tributaries in the North.<sup>1</sup> The benefit of monopoly privilege also contributes to the favourable situation of the industry since the sphere of the Monopoly covers all stages of production from cultivating tobacco leaf, manufacturing and selling the finished products.<sup>2</sup>

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1. The varieties grown are Burley, Oriental and Virginia which account for the largest proportion of the tobacco-cultivated areas. The factors favouring the Virginia variety appear to be the suitability of soil and climatic conditions prevailing in the tobacco growing region.
  2. Thailand, Department of Commercial Intelligence, Thai Export Bulletin No.5, p.14. The function of the Monopoly are: to raise the agricultural standards of Thai tobaccos; to undertake the sound and efficient production of high quality Virginia, Burley and Oriental tobaccos; and to manufacture and sell cigarettes and tobacco products as well as to export and import leaf tobaccos. The Monopoly owns and operates several curing stations in each province where tobacco is cultivated. Registered growers are supplied with seedling and fertilizer from the station, and receive technical advice on land preparation, planting and cultivation methods by field staff of each curing station.

Sugar and cotton textile industries

Until the 1930s, these two industries had been declining as a result of foreign competition. Private and government sugar mills had operated before the Second World War period. In the late 1930s, the government possessed two modern mills at Lampang and Uttaradit. Difficulty of import during the war encouraged the industrial expansion. Two more government mills were established: one at Chon Buri in 1956 and the other at Supan Buri in 1957. The daily capacity of these were 1,000 tons and 1,500-2,000 tons respectively.

Before 1958, part of the sugar consumed was imported, for the local annual production averaged between 40,000 and 45,000 tons whereas the consumption was estimated at 70,000 tons.<sup>1</sup> Since 1959 the local product has exceeded consumption. The production rose to 100,000 tons in 1960, 120,000 tons in 1966 and 319,970 tons in 1969. The surplus has been exported, 56,248 tons at the value of 93 million baht in 1970.

Sugar milling faces serious problems of competitiveness. It was first protected against imports by high tariff and later by import prohibition in 1961 by the Sugar Act. High costs of production is claimed as a deterrent to

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1. Pendleton, op.cit., pp. 274-76.

export. The government has applied various measures to increase export competitiveness, but so far it has not achieved the desired goal.<sup>1</sup>

High production costs of Thai sugar are the result of the poor quality of the cane and the low efficiency of mills which are mostly very small.<sup>2</sup> To increase productivity, technical assistance is necessary for both the sugar-cane growers and the millers. At present, the government policy is directed towards improving sugar-cane quality and increasing efficiency of existing mills than expanding growing areas and establishing new mills.

Even though cotton textile industry had a similar historical background to that of sugar industry, it is less fortunate than the latter. The industry has faced the formidable problems of insufficient raw materials supply and market accessibility. The quantity of yarn produced locally has been less than the demand with consequent large imports. In 1972, the number of weaving mills was estimated at 4,300 of which only 500 had modern machinery installed and only 100 could be classified as large scale operation.<sup>3</sup> Consumption of cotton fabric

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1. In 1962, by the Sugar Act, the government organized a system of subsidy of export through a Sugar Fund fed by a cess on sugar sold locally. The subsidy has been withdrawn since 1966 due to the phenomenon that it encouraged the mills to increase their production at higher costs.
  2. Thai sugar cane is noted as having a high water content.
  3. "Cotton VS Synthetic Textiles," Bangkok Bank Monthly Review 13 (May 1972), p. 165.

comprises both local product and import. The trend indicated that imports of cotton fabric have declined as local production has risen.

Table 7.1

Imported and Locally Produced Cloth Fabrics 1964-69

Year	Domestic production (1,000 yards)	Imports (1,000 yards)	Import as per- centage of pro- duction
1964	123,601	181,482	68
1965	105,390	227,921	46
1966	96,956	250,787	39
1967	98,356	277,040	36
1968	66,311	322,236	21
1969	48,672	343,698	14

Source: Report of Thai Farmer Bank.

The finished product has faced strong competition both in the local and external market. Each year large amounts of cotton products have been imported. In 1969, textile garments and raw materials of the industry were imported at the value of 1,510 million baht, or equivalent to 6.26% of the total import value of that year.<sup>1</sup> Local market expansion and external access require the Thai products to be more competitive. The industry needs encouragement at every stage; from the supply of adequate raw material and the efficiency of mills to quality and the

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1. "Blurred Design of Thai Textiles," The Investor, Sept. 1970, p. 920.

attractiveness of the products.

Crop diversification has led to a larger number of processing industries as exemplified by the recent growing manufactures of maize and tapioca. Kenaf is another upland crop which has become a major raw material for local industries, which are amongst those industries at present able to earn a large amount of foreign exchange.

#### Gunny bag industry

Formerly, bags for packing some primary commodities, such as the all important rice, were imported from India. The gunny bag industry was commenced with the government-owned mill at Nonthaburi established in the beginning of the 1950s. The mill utilizes locally grown kenaf as raw materials. Ever since then, private and government mills were set up to supply the increasing local demand. In 1970, there were ten mills; three were government owned and seven were in private hand. Six mills are located near the sources of raw materials in the Northeast, one at Ayutthaya and the rest are in Bangkok. The production has increased continually and eventually exceeded local consumption. The product was exported in large quantity for the first time in the mid-1960s, and has increased as the following figures show. However, the export was highly fluctuated by the production of other major bag producers.

Table 7.2

## Gunny Bag Production and Export 1961-71

Year	Production (million bags)	Export (million bags)	Export as percentage of production
1961	8.84	0.10	1.1
1962	10.82	0.05	0.4
1963	23.13	0.14	0.6
1964	33.51	0.03	insig.
1965	40.62	0.16	0.3
1966	45.56	5.97	13.1
1967	55.11	6.45	11.7
1968	54.84	17.27	31.4
1969	47.33	15.90	33.5
1970	52.73	12.12	22.9
1971	63.60	30.10	47.3

Source: ASRCT, op.cit., p. 38.

The major foreign market has been Indonesia which in 1967 imported 50.2% of Thai exports. Other countries which import gunny bags from Thailand include Singapore and Italy.

Gunny bags are an import-substitution product which enjoys the advantage of easily obtainable local raw materials and expanding local market, a result of the growth of agricultural products such as maize, sorghum and many others which require these bags for transportation. However, export has to compete with the products of India and Bangladesh, the major producers which manufacture bags from jute which is believed to be of better quality than

kenaf. Moreover, the growing importance of synthetic products which are good substitutes for natural yarn is another deterrent. The world market for gunny bags is likely to face increasingly severe competition from synthetic products. Lower costs of production may help to ensure export prospects for this industry.

The aforementioned industries consist largely of processing and consumer products which have the comparative advantages of local raw material availability and a protected local market. Although many of them were formerly characterized by the import-substitution nature, certain local advantages have been strong enough to support their growth and eventual export surplus. Nevertheless, some recently established industries have engaged more in the production of intermediate and durable consumer goods. The following section is going to examine tyre and chemical products.

#### Tyre industry

As has been mentioned, only a few modern industries are related to local raw materials. Tyre production is an example of such an industry which is being promoted and is able to take advantage of local resources.

Thailand has produced rubber and exported it as a primary commodity for a considerable time. Until 1964, all the tyres used were imported. Since then local firms have



produced certain types of tyre previously imported. Although it is a relative newcomer, the rubber tyre industry has developed quite rapidly. There were four main producers in 1972 consisting of Firestone, Bridgestone, Goodyear and Universal which were granted the promotion privileges. The production increased from 109,900 units in 1964 to 726,000 in 1970.<sup>1</sup> However, certain types of import such as radial and steel cord tyres still continue. Table 7.3 shows the tyre consumption consisting of local production and import.

Table 7.3

Consumption of automobile tyres between  
1968-70

	1968	1969	1970	units
Local output	296,279	506,610	725,925	
Actual sales	280,835	459,786	698,147	
Imported tyres	364,132	261,959	171,024	
Consumption	644,967	721,645	869,171	

Source: Commercial Intelligence Department,  
Economic Research Division Bangkok Bank.

1. The value of tyres imported decreased from 209 million baht in 1960 to 59 million baht in 1971.

Table 7.3 indicates that the local market did not absorb all of the local output. The surplus probably went to the external market. At present the export is still small. In 1969, the peak year of tyre export in the period between 1964-70, export was 10,870 units with a total value of 2.8 million baht.<sup>1</sup> All the export went to neighbouring countries. Expansion has been planned in terms of diversifying their products to motor-cycle tyres, bicycle tyres, tractor tyres and also aircraft tyres. One company, Goodyear, reported in 1971 that the plant has turned out the first aircraft tyre produced in Thailand. Commercial production of such tyres would start in 1972.<sup>2</sup>

This industry has grown satisfactorily as an import-substitution industry drawing benefits from local raw material supply.<sup>3</sup> Only a few modern promoted industries possess such advantage. Its potential is promising, since expansion in the transport sector leads to an enlarged market for the product. It is a complementary part of the vehicle assembling industry which is expected

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1. "Tyre Industry in Thailand," Bangkok Bank Monthly Review, Oct. 1971, pp. 368-9 quoting Commercial Intelligence Department, Economic Research Division Bangkok Bank.
  2. Far Eastern Economic Review 1972, p. 229.
  3. Local consumption of rubber is small compared with rubber exported. In 1969, rubber product was 281,000 tons of which 8,000 tons was used locally. ("How much Bounce in Thai Rubber?", The Investor, Feb. 1971.)

to use more local tyres than at present. A long-term programme for export is important because the product will face heavy competition in the external market.

### Chemical industry

The development of the chemical industry in Thailand is deterred by a lack of local raw materials and limitation of the local market. Chemical products have been imported at considerable costs each year; 2,288 million baht in 1971. The country lacks the necessary materials such as sulphur, bauxite, copper, zinc, phosphate and coking coal. Only salt, gypsum and limestone exist in large amounts, but their sources are far from the factories which concentrate mainly in or near Bangkok. The local market for heavy chemical products is still narrow since the industries which use chemical products as raw materials are not large enough to create demand which can be produced with economies of scale. However, at present, the country is self-sufficient in soap, paints, sulphuric acids, hydrochloric acid and alcohol.

The plastic industry is growing rapidly with the annual consumption growth rate of 31.8% between 1959-71. The industry relies heavily on import of plastic raw materials. This will continue for a few years to come until a petrochemical plant complex is brought into operation. The proposed 5,600 million baht petrochemical industry has been delayed owing to the lack of agreement between firms

responsible for the up-stream part of the project and those responsible for the down-stream part. If this agreement is achieved, the plants located at Si Racha will be able to supply raw materials to local chemical industries.

At present, Thailand still depends on the import of capital goods comprising non-electrical machinery, machine tools, agricultural machinery and equipment and electrical industrial machinery and apparatus. The local firms only assemble imported component parts of vehicle, machinery and electronic products.

#### Assembly industry

Besides the motor car assembly mentioned earlier, tractor assembly has had a similar development. The local industry assembles tractors from imported parts. The production is still small. The industry is likely to be a pure assembly industry in the years to come, since it is difficult to obtain economies of scale from the component part manufacture. There are four large firms engaged in assembling tractors as well as importing the already assembled ones.<sup>1</sup> The main sources of import are

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1. ASRCT, op.cit., p.153. Louis T. Leonowens (Tractor) Co., has been operating since 1965 with an annual capacity of 800 units. Ford Motor (Thailand) has assembled 1,000 units a year since 1961. Massey Ferguson assembles 650 units a year, followed by John Deere and International Harvester.

Japan, The United Kingdom, the United States and Italy. Import value was at 103 million baht in 1971.

The electric assembly industry is just at the initial stage. There are ten main assemblers of electric equipment and apparatus which employ 1,200 workers. The output was valued 600 million baht in 1970. In addition, there are other firms which assemble electric fans, motorcycles, bicycles and many other products. However, the government recently indicated its preference for local component part utilization. The local firms producing such components are receiving promotion as in the case of motor car assembly discussed in Chapter Five.

#### Scale of industrial plants

The fact that large proportion of Thai industry comprises processing and light consumer goods industries affects the size of the factory. In addition to small local market, the size of these types of industry are likely to be restricted by the nature of raw materials, which mainly are agricultural products. The raw materials supply is seasonal and fluctuates from year to year depending largely on natural circumstances. Therefore the small enterprise is more easily adaptable to the changing situation. An example is rice mill industry which the mills tend to be smaller owing to ability to locate near sources of raw materials.

In 1960, the number of registered establishments was 16,000 which increased to 41,212 in 1966 and 53,000 in 1971. This number did not include cottage and handicraft industries scattered throughout the rural areas which are not required to register. About 93% of industries established during 1967-71 were classified as small industry mainly consisting of rice mills, machinery repair shop, foundry, pharmaceutical, press and printing. The investment of this group of industries accounted for 25% of total industrial investment.<sup>1</sup> This indicates that the large number of recently established industries were small enterprises with low capital investment. The remainders, although few in number, accounted for three-quarter of total investment.<sup>2</sup>

The recent promotion policy stimulates large modern industry with capital intensive characteristics. As has been discussed, the type of industry has been criticized as having too high an import content, as facing too many export difficulties and as creating excessive urban concentration. It is likely that modern capital intensive industry will continue to receive promotional benefits during the years to come. Many present projects are large scale investment in intermediate and capital industries.<sup>2</sup> The intention to reduce undesirable features

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1. The Third Plan, p. 273.

2. Examples of such projects are steel mill, petro-chemical complex and chemical fertilizer.

cannot be achieved if the government only directs its main promotion policy towards modern industry which mostly requires imported raw materials, and a large investment in machinery. This in turn limits the employment. In addition, sufficient basic infra-structural facilities are available only in the Metropolitan areas on a satisfactory scale.

It could be suggested that small-scale and cottage industry could be well managed to serve the present policy of employment creation, decentralization, local raw material utilization and export possibility. Small industries located up-country should receive more attention and promotion for the benefits of industrialization should be also spread to those rural areas rather than only concentrated at a single place. At present, to induce large modern industry to locate up-country is not an easy task owing to the insufficient basic facilities.<sup>1</sup> Small-scale enterprises are more suitable for the situation in rural area and may be the base for further development of larger enterprises. The success of the policy and consequent benefits to the rural community depend on how the government capitalizes on the advantages of each area.

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1. It is noticeable that even in modern developed countries like The United Kingdom, France and West Germany industries are often reluctant to decentralize from large metropolitan areas or favoured established areas.

### Small industry

Many factors such as investment, workers employed and power utilization are used as criteria to classify the scale of industry. Small industry is defined variously from country to country.<sup>1</sup> Some countries may include cottage industry with small industry whereas others may not. In addition, other terms are also used for small industry namely small-scale industry, small business, small establishment and small enterprise. In Thailand, enterprises whose management function are controlled and exercised by one person, the owner or manager, and whose investment capital is usually less than 2,000,000 baht is included in the small industry category.<sup>2</sup> In terms of workers employed, it is generally understood that a small industrial enterprise is one that has less than 50 workers.

However, it seems that the number of workers used to define small industry of Thailand is not certain. The Industrial Census 1964 classified groups of industry as A, B, and C enterprises which engaged less than 10 persons and no paid employee; engaged less than 10 persons but at least one paid employee; and engaged 10 persons (paid and unpaid) or more respectively. According to this

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1. See R.K. Vepa, Small Industry in the Seventies (London: Vikas Publications, 1971), pp. 179-81 for the definition of small industry adopted by various countries.
  2. This definition is used by the OLSI and the Small Industries Service Institute (SISI).



census, in 1964 the total number of establishments were 164,000 with 481,213 persons engaged, averaging about three persons per unit. The production receipts were 12,988 million baht.<sup>1</sup> It is therefore likely that the above classification covered all activities including cottage establishments.<sup>2</sup> If it is considered that establishments with workers less than 50 is small industry, 99.4% of establishments in 1964 were small, employing 80.3% of workers with product value equivalent to only 37.0% of the total.

The classification of small industry made by Vepa can be in a general way applied to Thai case, in that the industries can be divided into 4 types.<sup>3</sup> First is the modern small industry which is largely urban located and differ from large industry only in size. The products are usually precision instruments, intermediate goods and consumer goods. This type of industry has mainly come into existence since the recent attempt of industrialization has been made. Second are the agro-based industries in semi-urban areas which utilize largely local agricultural raw materials. They have been encouraged by the growth

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1. NSO, Report of the 1964 Industrial Census, vol. I and ii.
  2. Characteristics of cottage industry defined by Clark are that it is performed in or near the home, it is a part-time job, there are no regular paid employees and there is either little or no capital equipment, and the capital investment is very small. According to the census 1964, industry under group A is rather cottage industry than small industry. (R.J. Clark, "Development of Cottage and Handicraft Industries," UN/ECAFE, Industry Bulletin for Asia and the Far East New York: UN 1972, p.95.)
  3. Vepa, op.cit., pp. 6-7.

of primary commodity products for the local and external markets since the middle of the last century. Third the services industry by rural artisans who are dispersed all over the country. The last one consists of rural handicrafts which still function in an out-moded framework and have little access to new techniques or devices. These last two types are industries which were not under the "backwash" effect of manufacture imported in the last century.<sup>1</sup>

Since small industry contributes an overwhelming proportion of number of establishments and employment, it ought to be considered as a significant component in the industrial development process. However, the argument concerning the role of small industry in economic development in terms of linkage, capital output ratio and rate of growth has not been settled.<sup>2</sup> Being restricted by scarcity of information of any analysis in these respects of small industries in Thailand, this study is unable to make any comment other than in general terms.

It is likely that small industries will respond well to the present industrial policy. First, being labour-oriented, they require less capital and provide more employment than large-scale industry. It is hoped that employment opportunities can be created up-country

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1. See Chapter Two.

2. See Myrdal, *op.cit.*, Chapter 25.

which will reduce the under-employment as well as offer new jobs. It may be a fact that productivity of small industry is probably lower than that of large industry, however in the circumstances of capital scarcity and skill shortage, the exploitation of available resources should be considered more important. Secondly, the encouragement of local raw material utilization in various parts of the country will be suitable for small industry established near the sources. This will benefit the agricultural sector, and vice versa. Thirdly, it is a suitable tool for decentralization in that the need for costly infrastructure is reduced. Small industry will make the policy easier for it requires less managerial and technical investment. The present availability of basic facilities, local entrepreneur and labour are more appropriate to small industry. In Thailand where nearly all activities are concentrated in a single area, certain disadvantages are increasing in Bangkok whereas the up-country areas are rarely touched by any significant growth.<sup>1</sup> Regional imbalance is already critical, and needs to be solved. The development programme of small industry, to some extent, will relieve this undesirable feature. This type of establishment will generate additional income and gradually induce an industrial atmosphere and provide experience to the people in the provinces.

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1. The Third Plan (p.180) reports that so far only 5 promoted industries have been located in the Northeast. Only one of them, the gunny bag mill, is a large-scale enterprise, the rest are small ones.

There are good prospects that local resources will be utilized by means of small industry for the advantage of industrialization and regional development. Nevertheless, to achieve the purpose the government has to devote more attention to this activity in rural areas. First of all the people, entrepreneur, skilled and unskilled labour should be motivated to participate in the programme. The next step involves assistance for factors of production namely raw material study, technological and financial support. Finally, the outlets for the products should be prepared, for small enterprises generally have difficulty in market accessibility especially the external one. The products will earn foreign exchange provided that an efficient marketing and distribution network are well arranged. As far as manufactures exported are concerned, they are the products of this type of industry that have been major earners, namely food processing, wood products and handicrafts.

The significance of small industry at present and in the future is obvious. Besides the encouragement for promoting new establishment up-country, interest is also concentrated on increasing the efficiency of the existing ones. Raising productivity is a necessary measure for strengthening them as a foundation of further growth.

Government schemes to assist small industry

At present there is no special programme for promoting small and cottage industries. Nevertheless, the government provides protection and promotion to enterprises which are small and not in the promoted industrial category. This is applied to individual cases. During the last decade the government attempted to stimulate small industry by establishing several agencies to assist this enterprise in terms of technology and finance.

The Small Industry Service Institute (SISI) was established in 1966 within the Department of Industrial Promotion of the Ministry of Industry whose overall responsibility is to develop the small industrial sector in Thailand. The initial aim has been to promote and assist small industry in the Bangkok-Thon Buri area primarily in the fields of textiles and metal working. This is the first stage of the overall programme to give technical and managerial assistance to develop medium and small industry throughout the country. It is planned that the SISI in Bangkok will be broadened and strengthened and the new SISI branch in the North will be established. In terms of financial assistance, the Office of Loans for Small Industry (OLSI) was established in 1964 to offer loans to small enterprise.<sup>1</sup> Recently, the OLSI has shown

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1. See Chapter Four.

an interest in offering loans to industries with export prospect or to ones which produce machinery required locally. At present the network of the OLSI covers the area of Bangkok-Thon Buri and other 20 provinces.<sup>1</sup> The Thai Management and Productivity Centre assists in terms of improving managerial skill and increasing productivity.<sup>2</sup> In addition, an industrial estate has been established recently for small and medium industries in Bangkok.<sup>3</sup>

The above mentioned government agencies have been established with the assistance of other agencies of the United Nations. However, what should be further considered is how far the private sector benefits from these offices. Another point is that the services provided are mainly limited to Bangkok-Thon Buri. Spread of services up-country is necessary for about two-thirds of small industries are located all over the country. Branches of these agencies should be established in each region. Small industries, in Bangkok as well as in other provinces, need encouragement and assistance to grow progressively. Unless there is an increase of productivity and efficiency, they may become stagnant rather than contributing to rapid growth of the industrial sector.

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1. Business News, 25 Aug. 1971.
  2. See Chapter Four.
  3. See Chapter Six.

## Handicrafts

Another particular activity worth mentioning here is handicrafts which are well developed all over the country. Each region has special skill in certain type of product. The important ones are Thai silk, metal products, electro-plating, wood carving, cotton textile, pottery, bronzeware, nielloware and so on. Some of them such as Thai silk and jewellery have already reached an external market, by being directly exported or being sold to the tourists in Thailand. It is likely that they will be able to earn increasing foreign exchange as new techniques and designs are adopted. It is noted by the Manager of the OLSI that the method and design of products are rather out of date. To maintain and raise the standard of products, the craftsmen need to adopt modern techniques. This does not mean a complete change to machines or major changes in the operational practice. Only improved tools and marginal technical change may be adequate to increase the efficiency and quality. Moreover, market accessibility, quality standardization and regularity of production should receive much interest. Thai silk is an example of handicraft which has become an important manufactured export of the country.

Silk worm can be raised in Thailand with locally grown mulberry. Being affected by imported textile, silk weaving did not progress other than as a household activity which was spread in the rural areas, with special

importance in the North and the Northeast. It is not until the post Second World War period that silk fabric began to earn foreign exchange for the country. The initiation came from a foreign entrepreneur who successfully put Thai silk on the world market by introducing some change in technique which enabled workers to increase their production with better quality, and by providing the external outlet for them.<sup>1</sup>

At present, silk fabric is produced by about 20 major silk manufacturers and by cottage establishments in the North and Northeast. In 1969, silk fabrics of a value of about 90 million baht were exported. Despite the promising market, the industry has not progressed well for the lack of local silk yarns.<sup>2</sup> In 1970, 25-30% of material producing fabrics were imported from Japan and

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1. It was Mr. J. Thompson who collected silk weavers together in a kind of loose cooperative. He established the Thai Silk Company which comprises groups of weavers who produced silk fabric as a cottage industry which has been noticeably more successful than other silk companies that have set up factories where workers come during working hours to sit at batteries of hand looms. ("The Human Factor," The Investor, July 1970.)
  2. J. Kam Poo, "Thailand," P.H.M. (ed.), Asian Textile Survey 1969-70 (Hongkong: Far Eastern Economic Review 1970), pp. 187-9. This article reports that some silk weaving factories have closed down recently owing to the high price of raw silk which shot up from 150 baht per kilogramme in 1960 to 320 in 1967.



South Korea since the local yarn production did not keep pace with rapidly increasing demand which estimated at about 450,000 kilogrammes a year. The government then considered sericulture as a promoted activity and encouraged the expansion of yarn product.<sup>1</sup> The establishment of Thai Silk Promotion Board as an agency to develop this industry has been underway. During the first half of the 1970s, the programme endeavours to double the annual yarn output from 350,000 to 700,000 kilogrammes, and silk fabric product from 3 million to 7 million square yards.<sup>2</sup>

Thai silk is an example of a traditional activity which with improvement can become a foreign exchange earner. Nevertheless, to cope with the growth of activity the supply factors should be mobilized as in the case of silk yarn. Handicrafts are activities based on traditions with which the local people are familiar. Stimulated by improved method and up-to-date design and sufficient market knowledge, the products will increase their economic significance at the local and national level.<sup>3</sup>

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1. The first large mulberry plantation was set up in Surin by the co-operation of government agencies and private enterprise to organize the villagers into co-operative for raw silk production. (Loc.cit.)
  2. Loc.cit.
  3. The increase in tourism should benefit many craft products. To promote the tourism, the government set up the Tourist Organization of Thailand in 1959. The number of visitors rose from 81,340 in 1960 to 244,000 in 1965, to 628,670 in 1970 and to 820,758 in 1972. (The Third Plan, p. 320; Siam Rad 3rd Mar. 1973.)

Another vital aspect of industrialization is market accessibility which certainly affects the growth or stagnation of any industry. The next section will outline certain points concerning market prospect of Thai industrial products.

On

### Market Prospect

The prospect for Thai industrial products mainly depends on their competitiveness with both imports in the local market and with products from other countries in the world market. A lower price and better quality are desirable but are not easy to achieve. There is considerable evidence indicating that with a lower price, exports will become more successful. Recently, a target towards cost reduction of Thai industrial products was announced by the government in the Third Plan for the first time.<sup>1</sup> The government and the public recognize the necessary to reduce production costs in order to increase competitiveness of Thai industry.

Various factors in the production process are involved in cost reduction. Industrialization accompanied by protection often enables inefficient industries to survive in a domestic market without regard to product cost effectiveness. Irregular or inadequate raw material supply induces the factories to operate below capacity and results in a high production cost and a low quality of

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1. The Third Plan, p. 13.

finished product. Power which is a significant factor of production is rather more expensive in Thailand than in other countries, even in Southeast Asia.<sup>1</sup> Investment in land and facilities for a factory is a great burden on Thai industrialists. The establishment of factories will be facilitated by any measure to reduce heavy investment in land and basic facilities. Economies of scale are difficult to attain for Thai industry owing to the smallness of the market which is a result of low industrial integration, market fragmentation through an excessive number of companies in certain types of industry.<sup>2</sup> Insufficient industrial experience is another excuse which has often been heard in Thai industrial business circles. The low productivity of labour, the inefficiency of management and the difficulty of exporters to sell products on the world market are associated matters. In addition, tax reform is another topic discussed among the Thai industrialists who want the government to improve the

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1. See Chapter Three. Thai industrialists ask the government to exempt them from duty and excise taxes collected from oil imported in order to reduce the price of oil which will finally affect the production cost. (Report of the Seminar on Obstacles and Solution of Industrial Development, p.33.)
  2. Marcia R. Brewster who interviewed sixty firms for a survey of the problem of export industries reports that over 40% of the companies interviewed are unable to operate their firms at full capacity, causing price per unit of output to be higher than anticipated.

tax collection method in such a way that local products are taxed only once at the wholesale level of finished products, not on imports of raw materials or at intermediate stage of production.<sup>1</sup>

All these factors which constitute production cost need to be analysed in order to appreciate the exact situation in each industry. So far such analysis is very rare in the case of Thai industries. The fact that most industries are small is one contributory factor. Research so far has only consisted of generalization that the costs of Thai products were higher than the international level. In some cases such as sugar, it is claimed that foreign products have been assisted by subsidies and other tax measures from their governments.<sup>2</sup>

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1. Industrialists complain that some imported raw materials and intermediate products are taxed at the same level or even higher than the same type of finished products imported. Moreover, the local products have to pay other type of taxes such as business tax. Thus the locally produced goods are subjected to higher tax than are the imports. In terms of export, business tax is only 2.2% on exports, whereas it is 7.7% on goods sold domestically. Some industrialists do not export by themselves, they sell the products to exporters. In such a case the tax on product exported is 9.9%. It is suggested that tax concession should be given to manufacturers who are exporting but who prefer to do through export house. (Report of the Seminar, op.cit., pp.28-37; Brewster, op.cit.)
  2. M. Brewster also comments that Thai products are not price competitive in the international market because of two factors, namely high cost of manufacturing in Thailand and the low, often subsidized, export prices prevailing in other countries. However, she does not go into details of the means of subsidy.

However, whatever the situation in other countries, Thai industries inevitably have to increase their efficiency with a more competitive price and quality since high production cost is a factor responsible for market limitation and vice versa.

### Market expansion

To produce goods at a competitive price, a firm has to achieve economies of scale and subsequent cost reduction. A minimum amount of demand at which production can be done economically is necessary for every enterprise. The size of an industry supplying mainly domestic requirements is determined by various factors, such as the size of population, purchasing power including tastes, marketing distribution, transport and degree of protection.<sup>1</sup>

A large population at least promises a large local market. However purchasing power is likely to be more significant in the market for manufactured goods. The priority in the thinking of the people is usually for their basic needs such as foods, sheltering and simple clothing. Only when there is a surplus of income available, may they then begin to acquire manufactured products. Thus local market expansion is eventually concerned with improving the productivity of other economic activities. This is why it is suggested that industry and agriculture should be developed simultaneously when the large market,

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1. Sutcliffe, op.cit., p. 198.

especially in developing countries, is generated from the primary activity. Besides, the complementarity amongst sectors, linkage of industries also provide the markets within the industrial sector itself. An industry with high forward and backward linkage will create a market for other products and be a supplier of products demanded by other industries. Enlargement of a market can be made through transport and marketing improvement. Also, protection schemes provide market to local products. Even though, it can be argued that this policy creates an obstacle to international trade and it generally protects the high-cost and inefficient industries, tariff protection has been widely practised by both developed and developing countries, albeit at different levels.

#### Local market for Thai industrial products

Market limitation was a deterrent in the past for Thai industrial growth and it is, to a lesser extent, still true today. Ingram remarks that in the period before the 1950s, the market for industrial products depended on previous import characteristics consisting of a large number of very small items, the market for which was too small to justify setting up domestic plants.<sup>1</sup> Such a situation has been slightly changed for the better. The present population numbers about 35 million with an

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1. Ingram, op.cit.

annual rate of increase of 3.2%. This implies that the size of market, in accordance with size of population, has enlarged and will continue to do so for the years to come. Growth of the agricultural sector certainly affects the opportunity for expanding industrial products. Recent expansion of the highway system in Thailand opens the market for crops in previously remote regions and increases the accessibility of manufactured products to rural areas.<sup>1</sup> Better education and increasing electricity supply also create new demands, such as for electrical goods. It is noted that once Bangkok accounted for 80% of the market for industrial goods, but in the 1960s it decreased to 40% with a corresponding expansion of up-country market.<sup>2</sup> The further prospect of up-country market depends on economic growth with the attendant higher standard of living. Economic disparity, still prominent in Thailand, is an obstacle which should be reduced. Production of simple and cheap goods for mass consumption market is appropriate. Besides production of final consumer goods, fertilizers, pesticides, and simple capital products such as hand tools, pumps, mechanical cultivators should be encouraged for the benefit they can render the agricultural sector.

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1. See D.A. Anderson, Marketing and Development (Michigan: The Board of Trustees of Michigan State University, 1970).

2. Davies, "The Battle of Boom," Industrial Review 1967.

The unfavourable attitude of Thai people towards local industries is generally noticeable. Muscat comments that in Thailand a strong prejudice against local industrial products is predominant. Brand preference of certain manufactures imported is a hindrance to domestic industry.<sup>1</sup> Anderson expresses a similar view that Thai people hold low opinion of locally-made and prefer imported goods.<sup>2</sup> Davies refers to the Readers' Digest Survey in the mid 1960s, saying that only 19% of Bangkok people think that Thai products are good quality, inexpensive, well designed and up-to-date. This is the lowest percentage compared to other countries in Asia which have a much higher opinion of their own products.<sup>3</sup> Nevertheless, this attitude is changing. During the past few years there has been much public interest in supporting Thai products. Many campaigns to encourage the use of Thai goods have been arranged by students as well as middle class people working in government offices and private sectors. If this intention is genuine and gains support, it will be an encouragement and will offer an opportunity to Thai industries.

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1. Muscat, op.cit., pp. 225-7. He also quotes a report of Ebasco Survey Incorporated on Feasibility of Manufacturing Electric Appliances in Thailand (1963) which states that a large local producer of electrical appliances would be handicapped in building market acceptance and sales other than by production of standard products of high quality.
  2. Anderson, op.cit., p. 52.
  3. Davies, loc.cit.



The government has been requested to buy local products which quality and price are at the same level as imports. The UNIDO recommends a government purchasing programme as an incentive to promote small and large industrial development in developing countries.<sup>1</sup> Actually, this programme has long been considered in Thailand, but the government agencies and public enterprises have not really patronised local product to any significant extent. Thai industrialists have asked the government to strengthen this policy of purchasing local products which are available at a competitive price and quality. Government purchase can be a positive measure for expanding the local market since the government offices are the largest buyers of several products which can be produced locally.

#### External market accessibility

Thai exports mainly consist of primary commodities. Industrial exports account for only a small portion of the total. In 1965, the share of manufactures and semi-manufacture was 1,145 million baht which was equivalent to 11.5% of the total export of the country.<sup>2</sup> Most of them are from primary processing industries such as unwrought tin,

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1. UN/UNIDO, Incentive Policies, op.cit., p. 43.
  2. The annual growth rate of manufactures and semi-manufactures during 1960-65 was 11.0% which was higher than 8% of primary commodity exports. (UN/ECAFE, Thailand, Short and Medium Term Prospects for exports of Manufactures from Selected Developing Countries, New York: UN, 1967).

processed timber, cement, tapioca flour and meal. Others comprise precious stones, silk fabric, and handicraft products.

Processed primary commodities constitute the major proportion of export earnings. The increasing importance of other crops such as maize, kenaf and tapioca also influences the processing industry and export. An example is animal feedstuffs which find markets in Western countries as West Germany, Belgium, Italy and the Netherlands. Canned pineapple is a new product orientated towards the export market. The export value was 55 million baht in 1971. The government intention to promote diversification of other commodities such as soy bean, ground nut, pineapple, shrimp, coconut and many others will certainly encourage the new local processing industries which are expected to earn foreign exchange. The market for products under this group consists mainly of the economically advanced countries of North America, Europe, Australia and Japan. Export to other Asian countries is comparatively insignificant since the neighbouring countries also engage in similar types of production.

Another group of export earners is the handicraft products. The major markets are also the same as those of processing industries. Thai silk is the notable export under this category. The product has promising market, therefore the main interest is to accelerate local production

efficiency. Precious and semi-precious stones are other exports which earned 254 million baht in 1971.<sup>1</sup> Most of them went to the United States, the United Kingdom, Japan, Switzerland, Hongkong, France, West Germany and India.

The two categories of industrial exports mentioned above have been stimulated, more or less, by the export motivation. Although part of production are consumed locally, the major proportion are exported. This is not the case of consumer goods industries, the primary intention of which is to supply local market. Tobacco, cement, sugar, textile, gunny bag, tyre and so on were at first intended only for local consumption. However, these industries need economies scale in operation process and the total capacity of firms is usually higher than local demand. Thus the surplus need to be exported. Many Thai consumer products such as sugar, gunny bag, cement, tyre and others, have already gained some ground in the external markets. However, they usually face difficulties in terms of competitive price. At present, the methods to increase their competitiveness are a main topic discussed amongst the government and Thai industrialists. Unlike the first two groups of exports, consumer products mainly go to neighbouring countries in Asia. This implies that Thailand has a chance to gain a market for such products in the Southeast Asian region since it is likely

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1. Seventy percent of gems come from Chantaburi, 5% from Kanchanaburi and the remainders are from various deposits throughout the country.

that the country started somewhat earlier in industrialization than such countries as Laos, The Khmer Republic, South Vietnam and Indonesia. Nevertheless, competition of products from Japan, Taiwan, and Singapore is rather strong.

Obviously, industrial export is still limited. Most manufactures exported do not have much connection with the promoted modern industry. As has been discussed, industries recently stimulated by the promotion policy mainly concentrate on local supply only. This undesirable state of affairs has resulted in more public attention being given to their export possibilities. Industrial investment for external market has recently been receiving more interest, for example the financial institutions, the IFCT and the OISI, emphasize the export prospect of any project seeking their loans.

Many schemes are provided to promote export. Subsidy was applied to the export of sugar during 1962-66. Some measures have been offered to reduce the cost of production such as drawback of 7/8 of duties collected on imported raw materials which are subsequently exported. In addition, export of products under promotion categories is exempted from export duty and business tax for a certain period approved by the BoI.<sup>1</sup> Government and commercial

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1. The writer is not sure whether this incentive is applied to general industrial products exported. But it is likely that industries not under promotion categories are able to ask for this exemption.

banks reduce interest rates for loans to exported industries. According to energy, electricity rate reduction has been offered as incentives to exports.<sup>1</sup> In terms of trade promotion, trade agreements have been concluded with various countries, and the government has attempted to arrange for or participate in trade fairs. In 1966 the First Asian International Trade Fair was held in Bangkok.

Thai Industrial Association confirms that the present incentive measures have proved inadequate to promote export. Many requests were made in a seminar in 1970, attended by representatives of agencies concerned and Thai industrialists. The first was concerned with raw materials. Whereas the government offers a "drawback" of seven-eighths of the duties on imported raw materials, there is no measure at present which applies to products consuming local raw materials. There have been two suggestions concerning this matter. The "drawback" has to be facilitated by speeding up and modifying the procedure to make it effective. In the Seminar, the Thai Industrial Association asked the government for 100% exemption of import duties instead of refunding it later. The government was also requested to exempt the industrialists from business tax on local raw materials for the

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1. The level of reduced rate is not definite, it varies from industry to industry. Also, a request was made to refund 100% of duty and excise tax collected on oil used in products exported.

manufacture of export items. The government promised to take these requests into consideration.<sup>1</sup> Moreover, Thai industrialists wanted a reduction of the charge rate of services operated by the government organization such as power, communications and transport. Handling facilities at and around the port of Bangkok need to be improved urgently. The Seminar also asked that the complicated administrative and custom requirement in export procedure be simplified. Besides, other suggestions were made during the Seminar such as the merging of exporters in order to obtain more bargaining power, quality control and standardization to gain or improve the lost good will. The government proposed the establishment of trade centres in foreign countries to hold trade exhibitions in order to put Thai exporters in touch with foreign importers.<sup>2</sup>

Besides the measures mentioned above, the experience of other countries should be considered, such as the export scheme of Singapore. It is reported that exporters in Singapore can obtain "drawback" of duties on imported raw materials without bureaucratic delay. Moreover, income tax concession is provided to exporters who develop new markets.<sup>3</sup> The export processing zone which has been operated

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1. It has not been heard yet whether these requests have been put into practice.
  2. The Report of the Seminar, op.cit., pp. 63-80.
  3. Asian Development Bank (ed.), op.cit., pp. 225-6.

successfully in Taiwan should be well adopted in Thailand to reduce present export difficulties and promote industrial investment as well. The requests for tax exemptions on raw materials, power and other factors of production utilized in export are difficult to put into practice because a firm may produce goods for both the local and export market. It is rather complicated to anticipate what is the real amount of raw materials or power utilized for export. Thus, if there is a definite programme that such firms produce only for the export market, the incentive measures will be directed more easily and efficiently to export industries. Export processing zones should be very useful to promote industrial exports.

#### Export processing zone

Taiwan started the programme in 1965 at Kaoshiung Export Processing Zone to promote industry for export as well as to provide employment and create a promising climate for industrial investment. The basic facilities were supplied. No tariffs or duties are levied on imports into the zone. Thus industrialists are exempted from duty on machinery and raw materials. By the end of 1969, Kaoshiung offered employment for 28,803 persons with about 161 firms operating in the zone.<sup>1</sup> The total investment was

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1. Ibid., pp. 306-7.

about 36 million American dollars, most of which came from Japan and the United States. Export exceeded 91 million dollars in the first eight months of 1971.<sup>1</sup> It is considered that the zone is successful in encouraging foreign investment and export. Other zones have been planned in Taiwan and in the Republic of Korea.

Even though there has been interest in promoting industry for export, no such special scheme has been formulated in Thailand. In 1971, a group of private investors approached the BoI, proposing to set up a zone. In 1972, the government announced that the construction of a zone was soon to commence in Phuket. Work would also start on a project for a deep sea port there which will be a complementary to the export processing zone. Improved road and railway lines would be undertaken to develop Phuket as an industrial centre.<sup>2</sup>

If the proposed project is put into action, the zone would serve as an incentive to investment and augment capability of Thai products. Any plan for the industry for export should be integrated with the export processing zones scheme. The industries eligible to be established in the zone may be any type of industry, processing or manufacture or assembly, with export potential to earn foreign exchange. The scheme would hold down the production

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1. Far Eastern Economic Review 1972, p. 325.

2. Bangkok Bank Monthly Review, July 1972, pp. 215-6.



costs of industries in the zone. Because of the fact that wages in advanced industrial countries have been rising, there is an opportunity that foreign investors may be interested in producing or assembling products in a low wages country such as Thailand. As in the case of industrial estate, co-operation between the government and private sector is necessary for this enterprise. A careful study of potential with effective plan and implementation are vital undertakings to ensure that the products manufactured in the zone are able to compete in the world market.

#### Regional Integration

Economies of scale can be derived from producing for large international markets. The local demand of each country which is too small to establish large scale enterprise could be overcome by economic integration of countries in the region. Even though certain benefits could be expected from regional integration,<sup>1</sup> the effort to create such co-operation has generally been hampered by different economic and political interests of the countries involved.

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1. UN/UNCTAD, Trade Expansion and Economic Integration among Developing Countries (New York: UN 1967), pp.6-10. The UNCTAD points out the advantages of integration as means of enabling developing countries to achieve economies of scale, of taking advantage of location and specialization, of enhancing efficiency in industry, of reducing the external vulnerability of the developing countries and of increasing the bargaining power of the developing countries.

In the post-Second World War period there have been activities amongst countries in Southeast Asia to advance mutual economic and regional security problems.<sup>1</sup> However, it is noted by the UNCTAD that by comparison with other developing areas, progress in economic co-operation in this region has been slow and very limited.<sup>2</sup> It seems that these attempts are unlikely to meet any success in the immediate future.<sup>3</sup> Trade between the countries in region is very small. Similar economic characteristics such as primary commodity exports and protected industrialization have militated against intra-regional trade and economic co-operation. However, the ECAFE is attempting to encourage regional co-operation in various forms such as the establishment of the Asian Development Bank, the work on Mekong Project and industrial co-operation programmes in order to get economies of scale of large industry which cannot be attained by individual country.

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1. An example is the Association of Southeast Asia (ASA) created in 1961 by the Philippines, Malaysia and Thailand. The aims of this association are co-operation in the economic, educational and scientific fields including joint industrial projects and a free trade area in selected products. However, the progress of such co-operation has been handicapped by political differences. Besides ASA, other organizations have been established with similar progress such as SEATO, ASEAN and ASPACT.
  2. UN/UNCTAD, op.cit., p. 18.
  3. See Wu Ta-Yeh, "Problems and Prospects of Economic Co-operation in Southeast Asia." T. Morgan and N. Spoelstra (ed.), Economic Interdependence in Southeast Asia (Madison: University of Wisconsin Press, 1969), pp. 15-36.

## CHAPTER EIGHT

## CONCLUSION

Recent population increase and agricultural stagnation, together with a declining market for traditional exports have compelled Thailand to explore new and more effective means of accelerating her economic growth. Industrial development is conceived as a vital strategy in economic development process. The government has abandoned the public enterprise policy and left the role of industrialization to the private sector. The primary aims of industrial development programme are employment creation and trade deficit reduction.

Following the import-substitution pattern, the recently established industries are rather capital intensive with subsequent small employment creation. Many of the infant industries rarely export or even compete efficiently with imports.

It is recognized by the Third Plan that industry has been haphazardly promoted without adequate consideration on integration, cost of production and export possibility. Policy towards production-cost reduction is currently emphasized. The revised policy has favoured an "outward looking" stance, concerning the export potential of industry.<sup>1</sup> In addition, the government has reaffirmed

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1. The balance of payments difficulty since 1969 has also stimulated the government to consider industry as a foreign exchange earner.

the local raw material utilization, labour intensive technology and industrial decentralization targets. The incentive measures have been rearranged to attain these objectives.

In 1969, the exemption of promoted industry from import duty and business tax on imported raw materials was abolished.<sup>1</sup> The local production and utilization of intermediate products, such as the component parts of machinery industry, have been stimulated. Tax incentives for certain new projects might be terminated, if the BoI considered that the market risk had been greatly minimized or removed. Duty concession on machinery and equipment would be more restricted, the benefits being offered only in the initial stage when the factory was being built, and not applicable to additional equipment brought in later as replacement.<sup>2</sup> For export promotion, the previous regulation of exemption from export duties and business taxes on goods exported for a suitable period would continue.

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1. The Annual Report 1970 of the BoI announced that in order to encourage the utilization of local raw materials, the BoI would no longer offer the exemption of import duty and business tax on imported raw materials of promoted industry. This new regulation would strictly affect industry that can obtain raw materials locally. Exception is only for particular industry of which raw materials do not exist in the country that can ask for exemption of not more than one-third of duty and tax.
  2. At the time of writing, the writer is not sure whether this new policy is already implemented.

With this revised policy, the prospects for both internal and external markets would be a significant consideration. The BoI would separate industries which aimed mainly at the local market from those which were expected to export. In terms of export industry, there would be no limit to the number of applicants who could obtain privileges. In connection with production for the local market, the BoI would limit the maximum number of producers relative to demand.<sup>1</sup>

Thus, the policy of the last decade has been revised through a rearrangement of incentive measures. It is clear that some previous measures appropriate for import-substitution industry conflicted with the objectives established. This phenomenon in Thailand, referring to the seminar of Incentive Policies held by the UNIDO, accords with the common pattern of industrial promotion policy of developing countries. The participants at this seminar noted that:

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1. This limitation reflects an attempt to avoid the creation of excess capacity in promoted firms. The BoI was accused of over-promoting some industries with consequent market fragmentation. The former Secretary General of the BoI, in 1970 accepted that past industrial promotion policies had been unsatisfactory. It was admitted that one of the major problems which stands in the way of efficiency is the market fragmentation caused primarily by allowing too many promoted producers in certain industrial fields. As a result, very few companies have been able to benefit from the economies of scale. (A. Viravan, "A Hard Look at Investment-1," The Investor, Nov. 1970, pp. 1127-30.)

At an early stage of industrial development, it was common practice for developing countries to offer generous incentives to most new industrial projects. However, once a substantial industrial structure had been established and new industrial investment had become more of a self-generating process, incentives were offered on a more selective basis with a view to achieve more specific objectives such as promoting investment in priority projects selected by the government, encouraging new industries to locate their plants outside existing urban areas, encouraging the establishment of export-oriented industries. 1

This statement indicates the similar situation in other developing countries. However, it fails to point out that the intention to revise incentive measures is caused by the nature of import substitution strategy which has not successfully directed the industrial growth to the desirable targets. Recently, the emphasis has been shifted to the export-oriented industry which has been expected to create more promising prospect.<sup>2</sup>

To give incentives only to the export industries seems to be a sounder strategy, since they do not need tariff protection and they can choose their scale of operation

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1. UN/UNIDO, Incentive Policies, op.cit., pp. 19-20.
  2. Meier comments that the rise of industry through import replacement with reserved market is not the only factor able to sustain industrial growth. What should be considered more are changes in supply conditions, such as growth in capital stock per worker and improvement in workers' skills. Import substitution policy accompanied by protection does not ensure these supply factors. He concludes that a policy of industrialization through import-substitution must also be compared with a policy of gradually inducing industrialization through agricultural improvement, or promoting industry through the production of manufactured exports. (Meier, Leading Issues in Development Economics (New York: Oxford University Press, 1964.)

without domestic market limitation. Nevertheless, it implies that industry should be strong enough in connection with their price and quality to compete with products in the international market. This is also not an easy undertaking since many Thai products have to face the difficulty of comparatively high production costs.

It is likely that in the last decade, industry has developed without adequate complementarity amongst sectors. Appropriate attention was not directed towards local resources. Most promoted enterprises rely on imported raw materials owing to a lack of domestic supply. Meanwhile the existing local resources were rarely developed in accordance with industrial requirement. More consideration should be directed to the relationship between agricultural and industrial sectors. The maximum contribution of local raw materials can be achieved in the case they are developed in connection with quantity and quality needed by industry. The significance of agriculture lies not only as the supplier of industrial input, but also in providing a larger domestic market. Certainly, productivity in agricultural sector influences the industrial growth.

Undoubtedly, human resources constitute the pivotal component of growth. With an increasing labour force and attendant difficulties in agricultural economy, industry is projected to provide more employment. As far as

the question of technology is concerned, the present evidence suggests that the country does not rely solely on labour-intensive industry. Capital-intensive technology is likely to continue. Processing and handicraft activities tend to absorb more labour than modern consumer and capital industries. Although the country has a plentiful supply of low-paid unskilled labour, the quality improvement should receive primary consideration. Labour adaptation to industrial life is also necessary. The quality and experience of middle- and high-level personnel should be considered as well as their quantity. Even though the number of entrepreneurs interesting in industrial enterprise is increasing, they are restricted by the shortage of capital supply. It is difficult to expect a rapid increase of industrial investment until the various factors comprising the investment atmosphere ensure good industrial prospects.

The basic infrastructural facilities recently provided by the government have reduced certain previous disadvantages. Inadequate local fossil fuel resources are compensated by the hydro-electric power harness which is expected to increase its participation in power supply. However, the country still continues to be dependent upon imported fuel unless some local deposits are found. Recent transport expansion benefits economic activities, but it also increases the domination of the capital city. The lop-sided growth concentrating mainly on Bangkok has induced



the idea of economic decentralization to reduce regional imbalance. Since many present industrial projects are large-scale industries, it seems that in the years to come industrial concentration in Metropolitan areas will still continue. Nevertheless, agricultural diversification projects will induce processing industries to be established up-country. The continuing transport and power development schemes in other regions will increase locational advantages in the provinces, provided that the government will supply those facilities to rural areas instead of directing them to the capital. The encouragement from the government is necessary to stimulate people's interest in investment outside Bangkok. However, even with strong government effort, it is difficult to expect any significant achievement in the decentralization policy in the near future.

Industrial development in the 1960s had been achieved with both local and external resources. Raw materials, intermediate and capital goods were mainly imported to produce consumer products locally. The shortage of domestic high-qualified personnel was relieved by importing foreigners. About thirty percent of capital investment in modern industries came from external sources. On the contrary, the products were mainly intended for the domestic market. At present, Thailand tries to reduce such dependence on external supply. Meanwhile, the products are expected to supply increasingly the external market. Of most interest is how far the targets established will be

achieved. Even though incentive measures have been revised, it is still doubtful whether industrial activity will turn to the desirable direction. The country possesses some favourable factors of production, but certain difficulties have still not been overcome. As has been pointed out, it seems that some targets may not be attained, although the government has shown strong intention towards them. The trend of further industrial development can be traced from the announcement of the Third National Economic Development Plan.

The Plan estimates that during the plan period capital investment in industry will be 25,000 million baht with employment increasing to 785,000. The average growth is projected at least 8% annually. In 1976, industrial contribution to the GDP will be 20% at the value of 31,370 million baht. The export value is expected to be 2,800 million baht. Industries which will be specially encouraged are mineral smelting and dressing; agro-industry such as canned food, vegetable oil, and animal meals; meat products; handicrafts; export oriented industries such as watch parts, sugar, gunny bag, rubber products, shoes, glass; and heavy industry such as steel and car assembly.<sup>1</sup>

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1. The Third Plan, pp. 287-90.

Processing industry still continues to play a major role in supplying the local market and earning foreign exchange.<sup>1</sup> The product such as smelted tin, processed timber, tapioca and maize flour are major goods under this category. The diversification of agricultural activity will produce more raw materials for processing. The government is also interested in processing existing local minerals other than tin, such as fluorite and zinc. The expansion of livestock industry will support slaughtering, preparing and preserving meat activities. Processing industry is the one which is much more concerned with local raw materials in various parts of the country. The growth of these industries needs the intensification of the complementary development of agriculture and industrial sectors.

Consumer goods are also stimulated with more emphasis on their export prospect. The World Bank makes a valid comment on "outward looking" strategy. It explains that outward looking policy is not synonymous with export orientation. In fact, it means paying attention to

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1. Myint, Asian Development Bank (ed.), p. 20, uses the term "export substitution" to define the processing industry. He comments that developing countries should try to substitute the existing exports of raw materials by the export of processed and semi-processed products. However, he admits that this policy may be obstructed by a "tariff escalation," the system of raising the rate of duty imposed on processed materials according to the stages of production which has been widely practised by developed countries.

comparative advantage, specialization and development of the appropriate structure and techniques of industry so that the sector can develop efficiently and in line with the outside world. Import substitution industry could be also characterized as outward looking if it is as efficient as similar enterprise elsewhere. Thus the products have the opportunity to export if it becomes efficient.<sup>1</sup> This situation is rather an ideal and difficult to achieve since much evidence suggests that import-substitution industry is usually inefficient. Nevertheless, in the case of Thai industry there are many products which develop from import substitutes to become export earners. As it is, not all of consumer import-substitution products can compete in the external market; even ones which can be exported like sugar, gunny bag, cement, plywood and veneer, tyre and canned food have faced export difficulties of varying degrees. In future, many consumer products require the external outlet in addition to local market in order to achieve economies of scale. Some consumer industries are able to use more domestic input. However, the past evidence confirms that they depend on a raw material development programme.

It is certain that further steps of industrial development will be more associated with intermediate and capital products. They are increasingly receiving

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1. World Bank, Industry, Sector Working Paper, 1972, p.17.

attention, and it seems that they will most likely obtain substantial promotion benefits. Wood, paper, chemical, basic metals, transport equipment, non-electric and electric machinery will increase their share in industrial output. This group of industry needs very careful planning since they may repeat the same pattern of consumer product developed in the 1960s. Intermediate and capital goods are undoubtedly produced mainly for local market which is too small to render economies of scale. They need high investment and also require sufficient basic facilities and high skills. Apparently, they will be concentrated in the Metropolitan areas. They depend mostly on the imported raw materials since the present local deposits of fuel and minerals are very limited. Therefore the growth of intermediate and capital industries seems to contradict with the targets established. The country has few alternatives. It is obvious that the government need a more balanced structure of industry. Consumer products development has been mainly stimulated during the last two decades. At the present stage of industrialization, capital industry is increasing its role. An external outlet should be planned at the initial stage of operation. The neighbouring countries probably provide the market of products under this category.

Products which do not directly compete with those produced by developed countries such as traditional goods may gain a large potential market in the industrial countries.

Thai handicrafts have long played a considerable role in exports, and there is a possibility that they can be expanded with the intensive and appropriate assistance programmes.

Interestingly, some external market-oriented industries have recently emerged. An example is watch parts produced solely for export.<sup>1</sup> There is a good prospect for such component part industry supplied to industrial firms in industrially advanced countries. Increasing wages in those countries offer an opportunity to a country with abundant supply of labour to undertake such industries as intermediate products, electronic and other component assembly for export.<sup>2</sup> Export processing zones will considerably bolster up the proposed export programme.

It is unlikely that Thailand will be transformed into an industrial country in the near future, but there is a potential to diversify and expand the industrial sector. As the economy is directed towards more industrialization, adjustment of an agricultural society to the

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1. A promoted firm in Bangkok, Cosmo Industries Co. Ltd., has produced watch parts since 1968. In 1970 the export was 300,000 units at the value of 15 million baht. Ninety percent of products went to Switzerland, the remaining were exported to the United States and Japan. (The Third Plan, p. 313.)
  2. Singapore is always referred to as an example of a country that successfully attracted foreign investment in assembling electronic products for firms in the United States. (Asian Development Bank (ed.), p.226.)

industrial environment is inevitable. The more the industry grows, the more complex are the problems in the industrial development process. In the face of severe competitiveness in industrial activities amongst developed and developing countries, it needs much fundamental co-ordination amongst all sectors concerned to achieve the desirable growth of Thai industry.

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