

THE KINGDOM OF THAILAND

**FINAL REPORT
FOR
THE STUDY ON THE LAEM CHABANG EPZ/GIE
INDUSTRIAL PROMOTION
IN
THE KINGDOM OF THAILAND**

[SUMMARY EDITION]

DECEMBER 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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FINAL REPORT FOR THE STUDY ON THE LAEM CHABANG EPZ/GIE INDUSTRIAL PROMOTION IN THE KINGDOM OF THAILAND

DECEMBER 1988 JAPAN INTERNATIONAL COOPERATION AGENCY



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PREFACE

In response to a request from the Government of the Kingdom of Thailand, the Government of Japan decided to conduct a survey on the Laem Chabang EPZ/GIE Industrial Promotion Project and entrusted the survey to the Japan International Cooperation Agency (JICA).

JICA sent to Thailand a survey team headed by Dr. Sadakazu Iijima from March 14 to November 22, 1988.

The team exchanged views with the officials concerned of the Government of Thailand and conducted field surveys in the study-related areas.

After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the development of the Project and to the promotion of friendly relations between our two countries.

I wish to express my sincerest appreciation to the officials concerned of the Government of the Kingdom of Thailand for their close cooperation extended to the team.

December, 1988

A handwritten signature in cursive script, reading "Kensuke Yanagiya", is written over a horizontal line.

Kensuke Yanagiya
President
Japan International Cooperation Agency

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ABBREVIATIONS

BOI	= Board of Investment
CAT	= Communication Authority of Thailand
CISD	= Chonbri Institute for Skill Development
DIP	= Department of Industrial Promotion
DIW	= Department of Industrial Works
DOVE	= Department of Vocational Education
ETO	= Express Transportation Organization of Thailand
IEAT	= Industrial Estate Authority of Thailand
ISI	= Industrial Service Institutes
ITVE	= Institute of Technology and Vocational Education
KMIT	= King Mangkut's Institute of Technology
MOI	= Ministry of Industry
MOE	= Ministry of Education
NESDB	= National Economic and Social Development Board
NHA	= National Housing Authority of Thailand
NISD	= National Institute for Skill Development
OESB	= Office of Eastern Seaboard Development Committee
OPEC	= Office of Private Education Committee
PAT	= Port Authority of Thailand
TOT	= Telephone Organization of Thailand

INTRODUCTION

In response to the request of the Royal Thai Government (hereinafter referred to as "RTG"), the government of Japan has decided to conduct the Study on the Laem Chabang EPZ/GIE Industrial Promotion (hereinafter referred to as "the Study") in accordance with the Agreement on Technical Cooperation of the two governments.

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation program by the government of Japan, dispatched a preliminary survey team to Thailand for a discussion with RTG on the Study from December 16 to December 23, 1987.

The scope of work for the Study (hereinafter referred to as "S/W") was agreed upon and signed by the director of the Office of the Eastern Seaboard Development Committee, and the leader of the preliminary survey team on December 23, 1987.

The study was started in March, 1988, with the arrival of the JICA study team in Thailand, at which time they explained the inception report to RTG. Actual study work was started in May. Since then, the Study was carried out both in Thailand and in Japan, including a six-month field survey in Thailand.

In the course of the study, the Inception Report, Progress I, II, III and the draft of the Final Report were submitted to RTG. The invitation pamphlets of the Laem Chabang I.E., which included the details of the project, the advantages, the incentives, etc., were produced in Thai, English, and Japanese. The list of potential investors was derived from the results of the questionnaire surveys conducted both in Thailand and in Japan.

During the study period, numerous formal and informal meetings were held in order to prepare the structure of the Final Report and the pamphlets. This final report was finalized by incorporating the results of all the surveys and discussions.

First, the background of the Laem Chabang development was clarified through the review of the national industrial development policy, and the current status of industrialization and the industrial location. Based on this background, the roles of the Laem Chabang I.E. in the industrial development in the Kingdom of Thailand were discussed.

Second, the selection of the target industries was examined based on the previous studies and on the Japanese experience. In addition to the above, questionnaire surveys were conducted to find the potential investors from manufacturing, commerce, warehousing, and shipping industries both in Thailand and Japan. From the results of the above studies, a list of the target industries to be actually established was prepared. The criteria for the selection of the appropriate industries was also presented.

Although the completion of the Laem Chabang I.E. is scheduled within two years, an industrial estate is finalized only when factories are actually established and start their operations. The study addresses several promotional activities and presents the appropriate strategies and institutional arrangement proposals for IEAT.

Finally, the industrial promotion supporting services and facilities are studied based on the experience of several countries. Furthermore, the operation and management of the Laem Chabang EPZ/GIE are discussed.

To facilitate the implementation of the Study smoothly, a steering committee was established and discussions were held.

The list of the members of the steering committee and the members of the Study Team are shown below.

STEERING COMMITTEE

Mr. Prateeb Chuntaketta (Chairman)	IEAT
Mr. Manas Sanguandikul	OESB
Mr. Banjab Piriyaprakob	MOI
Mr. Chavalit Chockratanachai	IEAT
Ms. Wantana Tanapongpipat	IEAT

STUDY TEAM

Dr. Sadakazu Iijima	Leader, Industrial Location Policy	JILC
Mr. Mitsuhiro Fujita	Industrial Management & Operation	JILC
Mr. Hayao Taki	Industrial Estate Planning	JILC
Mr. Takeshi Isogai	Industrial Utility & Facilities	NKK
Mr. Yorihiro Mano	Industrial Promotion	JILC
Mr. Seiichi Aoki	Market Research for Industrial Estates	JILC
Mr. Hiroshi Nishimaki	Promotion of Direct Investment	ECFA

Ref.: IEAT = Industrial Estate Authority of Thailand

OESB = Office of the Eastern Seaboard Development
Committee

MOI = Ministry of Industry

JILC = Japan Industrial Location Center

NKK = NKK Corporation

ECFA = Engineering Consulting Firms Association, Japan

1. REVIEW OF THE BACKGROUND OF THE STUDY

1-1 NATIONAL POLICY ON THE INDUSTRIAL DEVELOPMENT IN THE KINGDOM OF THAILAND

(1) THAI ECONOMY AND NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN

The economy of Thailand has made remarkable progress since the 1960's. During the 1950's, the GDP growth indicated an annual average growth rate of only 4.7%. The following two decades' per annual GDP growth rate jumped to 7.9% and 6.9% in the 1960's and the 1970's, respectively. Early in the 1980's, the growth rate declined to around 5% per annum, but still surpassed that of most of the other developing countries.

This rapid economic growth was accomplished by a considerable increase in agricultural production and in industrial development. This age of economic growth was divided into two periods i.e. one from 1960 to the middle of the 1970's, the other from the middle of the 1970's to 1985. During the former, agriculture was the backbone of the economic growth, during the latter, the manufacturing sector brought about the rapid economic growth (Table 1-1).

The Sixth National Economic and Social Development Plan started in 1987, which also marked the recovery of the Thai economy. The appreciation of Yen and, later, other currencies of the NIES after G-5 agreement in 1985 strengthened the export competitive power of the Thai manufacturing sector. The appreciation of these traditionally exporting countries has also urged Japan, Korea, and Taiwan to search for an alternative overseas production site. Thailand, which has become the first target of these countries, has been experiencing an unprecedented investment boom ever since 1986. The Sixth Plan, which started under these favorable economic

Table 1-1 Trend of Primary Economic Indices 1961-91

	Actual						Target Sixth Plan 1987-91
	First Plan 1961-66	Second Plan 1967-71	Third Plan 1972-76	Fourth Plan 1977-81	Fifth Plan 1982-86		
<u>Economic growth</u>							
Agriculture	4.6	4.1	3.9	3.5	2.1	2.9	
Industries	10.2	9.7	8.6	8.7	5.1	6.6	
Total production	8.1	7.2	6.2	7.3	4.4	5.0	
Exports: goods							
Annual value increase	8.7	4.1	14.0	20.0	8.4	10.7	
Inflation	2.3	1.5	12.5	11.6	2.9	2.3	
Current account deficit/GDP	-	2.5*	1.7	6.3	3.8	0.9	
Budgetary cash deficit/GDP	0.7	2.9	2.7	3.3	3.4	2.6	

Source: NESDB

Ref: * Actual fig. for the last year of the planning period

conditions, basically inherits the unaccomplished goals of the Fifth Plan. One of the characteristics of the Sixth Plan is the shift from project oriented planning to program oriented planning. Another new feature is that it includes policies related to marketing.

(2) HISTORY OF INDUSTRIALIZATION POLICY

The industrialization policy in Thailand originated in the import substitution measures in the 1950's and export promotion in the 1970's. During the 1950's and 1960's, the Thai government introduced protective measures, such as import quotas, tariff barriers, and import bans. The Investment Promotion Act was adopted in 1960 to induce investment. Although the 1960's saw a rapid industrialization, the import substitution deteriorated the balance of payments. Because of the deficit of balance of payment and the relative narrowing the domestic market, the industrial policy was to be placed upon the development of export industries. From the mid of the 1970's the export promotion policy for industrialization has replaced import substitution policy for most of the manufacturing sub-sectors.

The 1980's saw an emergence of the manufacturing sector as the main foreign exchange earner. Utilizing abundant skilled labor and supported by the government, the manufacturing sector has grown to equal both in production and export to the agricultural sector, which still is the backbone of Thailand. Textile products have shown a rapid growth in export since the mid 1970's to become No.1 export item in 1985, surpassing rice which was traditionally the leading export commodity in Thailand.

Another important shift in the industrialization policy was adoption of the measures to disperse industries to rural areas. Throughout the process of industrialization, both population and industries were concentrated in Bangkok, thus

causing a tremendous income gap between the metropolitan and the rural population on one hand, and serious congestion in Bangkok. The Thai government pursued the industrial dispersion through the development of infrastructures, such as establishing industrial estates and provision of special privileges to the manufacturing activities in the designated promotion zones. Yet, these government efforts have not been able to achieve. There has been a phenomenal surge in the investments in Thailand since the mid 1980's, which has tended to overheat the economy. The majority of investments still is concentrated in Bangkok areas (refer to 1-3), causing the shortage of land. This rapid industrialization has caused other bottlenecks such as port congestions. Though the current situation offers a chance to prompt the diversion of industries to rural areas, the government faces many tasks to overcome, including the development of infrastructures such as road networks, and telecommunication networks.

1-2 ROLE OF MANUFACTURING SECTOR IN ECONOMIC DEVELOPMENT

(1) TRANSITION FROM AGRICULTURAL ECONOMY

Thailand had been predominantly an agricultural economy until 1987, when the gross domestic product in the manufacturing sector surpassed that in agriculture (Table 1-2). The agricultural sector constituted 45%, whereas the manufacturing sector held merely a little over 10% in the 1950's. In 1987, the manufacturing sector accounted for 22.2% whereas agriculture constituted 21.0% of the total GDP. The manufacturing sector grew at around an average rate of 10% per year during the period of 1960-1980 (Table 1-3). The agricultural sector grew at only half this rate.

Table 1-2 Trend of Number of Employees Classified by Industries

	1960		1970		1980		1985	
	(%)	(Thousand)	(%)	(Thousand)	(%)	(Thousand)	(%)	(Thousand)
Agriculture	11,332	82.4	13,202	79.3	16,821	72.3	17,674	68.4
Manufacturing	470	3.4	683	4.1	1,308	5.6	2,066	8.0
Total	13,750	100.0	16,652	100.0	23,282	100.0	25,052	100.0

Source: National Statistical Office

Table 1-3 Trend of Economic Structure (1972 prices)

	1960		1965		1970		1975		1980		1985		1986		1987	
	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)	(%)	(Million Baht)
Agriculture	28,277	(40.3)	35,931	(36.1)	48,332	(32.2)	62,080	(30.4)	72,784	(24.9)	86,839	(23.2)	86,215	(22.3)	85,712	(21.0)
Mining and quarrying	860	(1.2)	1,692	(1.7)	2,555	(1.7)	2,485	(1.2)	4,780	(1.6)	6,001	(1.6)	6,086	(1.6)	6,360	(1.6)
Manufacturing	8,389	(12.0)	14,249	(14.3)	23,320	(15.5)	37,146	(18.2)	60,597	(20.7)	77,425	(20.7)	82,612	(21.4)	90,625	(22.2)
Construction	3,343	(4.8)	5,688	(5.7)	8,705	(5.8)	8,514	(4.2)	16,576	(5.7)	17,786	(4.8)	17,911	(4.6)	19,559	(4.8)
Others	29,320	(41.8)	41,984	(42.2)	67,180	(44.8)	93,831	(46.0)	138,115	(47.2)	185,818	(49.7)	193,971	(50.1)	206,776	(50.6)
GDP	70,189		99,544		150,092		204,056		292,852		373,869		386,795		409,032	

Source: NESDB, National Income of Thailand

Note: (%) Percentage rate of GDP

(2) REGIONAL INDUSTRIAL STRUCTURE

In the Sixth Plan, one of the highest priorities of national goals is given to the eradication of poverty. This is the problem for whole Thailand, however, more seriously inequity in income distribution as a regional income gap is expanding between Bangkok metropolitan area and rest of regions. One of the factors of the regional income gap is caused from the difference of the regional industrial structure. That is to say, poor regions were not able to enjoy higher income generated by growth of manufacturing sector and were left behind the growth in Bangkok.

(3) TRADE STRUCTURE

Thailand traditionally exported primary products and imported intermediate and capital goods. Although both the exports and the imports increased steadily, the balance of payments recorded a constant deficit over the years.

During the 1960's, the export structure in Thailand depended on particular primary products (80% of total export) such as rice and rubber, which accounted for 59.9% of the total exports. The 1980's saw an upsurge of manufactured goods in export. In 1985, which was a monumental year, the export of manufacturing goods exceeded that of primary goods. In 1986, the manufactured goods in export accounted for 55.4% of the total.

As for the imports in the 1960's, consumer goods, especially non-durable goods, accounted for a large part of the total import. However, the progress of industrialization, promoted by the import substitution policy mentioned earlier, decreased the imports of consumer goods and increased that of raw materials and capital goods.

The manufacturing sector in Thailand has grown large enough to serve as an economic driving force in the economy, especially in export.

Thailand will be a newly industrialized country in the near future. It is difficult to achieve an export-oriented economic growth because of the protectionism in world trade. However, in order to expand the domestic market, the export-oriented industries must be promoted.

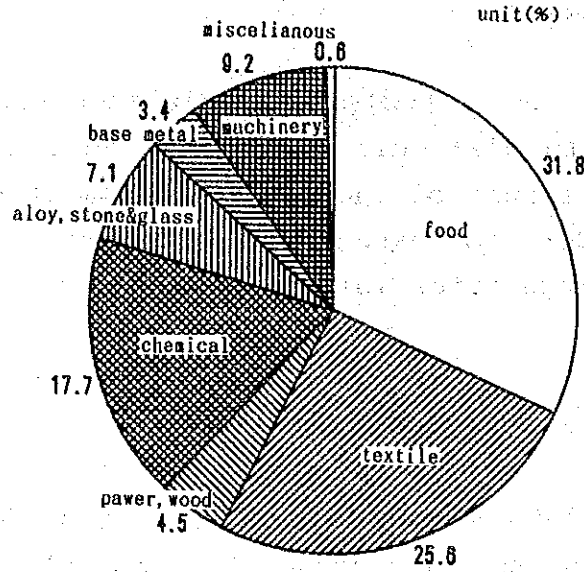
1-3 STRUCTURE OF MANUFACTURING SECTORS

During the 1960's the largest sector in Thailand was domestic consumption agro-processing industries such as food stuff, beverage and Tobacco. The end of '60s these industries decreased its share. In the period of 1970's Textile, apparell, electric machinery, and transportation equipment expanded. This is because of the result of the import substitution measures.

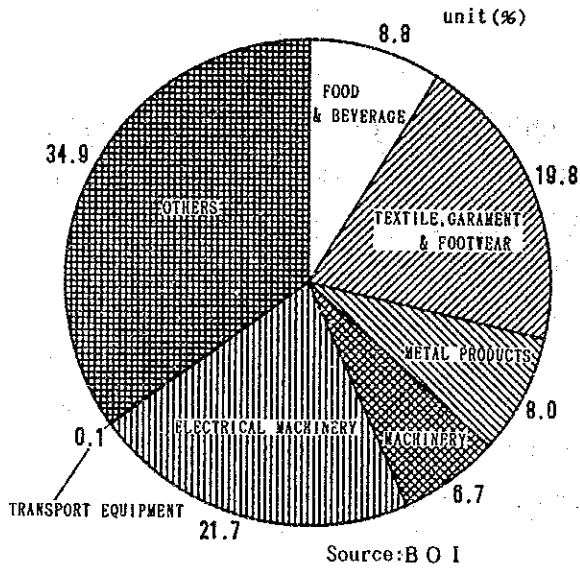
During the early 1980's, the food processing and the textile industries were still the largest sector among the manufacturing sectors. The machinery industry, which is the core of the modern manufacturing sector still, maintains an insignificant share of production. However, electrical equipment and chemicals rapidly increased the share in production among the manufacturing sectors. The industrial structure will shift to an assembly and processing-oriented one for the following reasons (Fig. 1-1).

- The largest sector of the BOI-approved industry is electrical machinery.
- The largest sector of the potential investors derived from the questionnaire survey in this study is machinery, 25.2%, followed by electrical machinery, 18.0%.

① Present Industrial Structure, 1986



② Approval Companies BOI, 1987-1988



③ Potential Investors

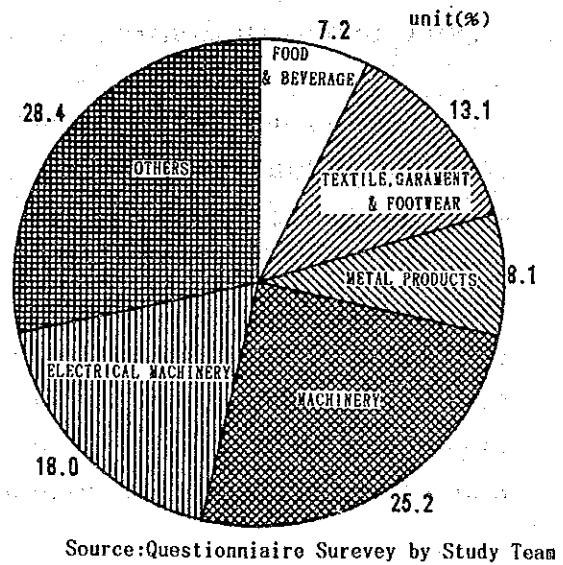


Fig. 1-1 Trend of Industrial Structure

The promotion of this industry becomes a key factor in embarking upon a full-fledged industrialization for Thailand.

1-4 COMPARATIVE ADVANTAGES OF THAILAND IN PRODUCTION

(1) PRODUCTION COST COMPOSITION

The major elements of manufacturing are generally labor, materials, machinery, utilities, and land. According to the statistics in Japan, an average small- and medium-scale manufacturer's production cost is comprised of:

1st material	46.7%
2nd labor	23.8%
3rd depreciation	2.7%
4th utilities	2.5%

The above figures indicate that cost reduction comes largely from labor but not from other sources. The utilities have similar prices throughout the world and their differences are not large enough to influence production costs.

(2) LABOR WAGES

In choosing a country for overseas production, investors would normally check labor costs first among other production costs because labor costs differ most between countries.

Thailand's labor wage level ranks in the middle. The average monthly wage of US \$130 amounts to twice as much as that in China, which ranks the lowest, but only one third that in Korea.

(3) SUPPLY OF ENGINEERS

The recent investment boom in Thailand has caused a serious shortage in the supply of qualified engineers, triggering recruiting of engineers from other companies and soaring salaries for them. In the early part of the boom, the shortage of industrial sites was pointed out as a serious hindrance to the industrialization, but recently a real concern over the shortage of engineers has been voiced among the industrialists. The importance of qualified engineers cannot be overemphasized for the industrialization of Thailand in the long run.

(4) UTILITIES

As already mentioned, utilities contribute only to an insignificant extent to production costs, except for large consumers such as aluminum refining. Since the prices of utilities in Asian countries are generally on the same level, they are not likely to influence investors' decisions in selecting a country for overseas production. Instead, the availability and stability of supplies of utilities are much more important for investors.

In Thailand, electricity and water supply are available in most industrial estates with occasional supply problems, thus factories which require highly sophisticated quality control may face some problem.

(5) LEVEL OF TECHNOLOGY / SUPPORTING INDUSTRIES

The mold and die making industry fits the specifications well for the comparative study. The industry produces indispensable tools for modern mass production of metal or plastic products.

Thailand as same as Malaysia again ranks in the middle level among ASEAN and NIES countries at present. However,

the current investment boom creates a substantial demand for molds and dies, thereby justifying investments in more sophisticated molds and dies making machinery, including ones from other industrialized countries. It is expected that a larger demand and technology transfer from such foreign joint ventures will prompt the development of the industry.

1-5 INDUSTRIAL LOCATION IN BANGKOK AND ITS SURROUNDING AREAS

The concentration of industries and population in Bangkok has become a serious social problem in Thailand (Fig. 1-2).

Among the 1,426 promoted companies approved by the BOI between 1960 and 1986, 933 companies, 65.4%, are concentrated in the Bangkok metropolitan areas including Samut Prakarn, Samut Sakorn, Nontaburi, Patum Tani.

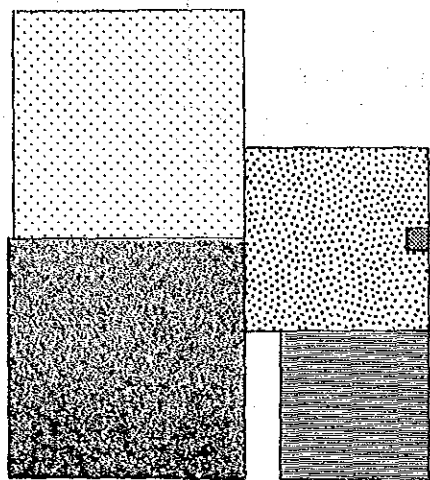
The concentration is attributed to several factors;

- No other international port to handle a large volume of cargo.
- Major market is Bangkok area
- Superior levels of infrastructures in Bangkok area
- Best availability of urban facilities and services in Bangkok area

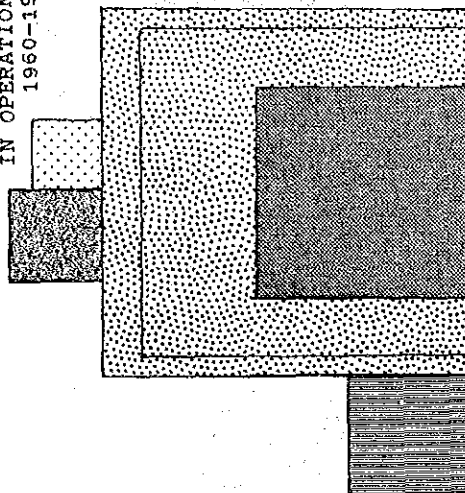
However, these superiorities as industrial location are being deteriorated by over-concentration recently. Still, the majority of industrialists consider that the merits of Bangkok as industrial location far exceed the demerits. Though there are factors pressing the dispersion of industries, the alternative industrial locations to Bangkok appear to be only limited to the vicinities of Bangkok.

There are three axes of industrial dispersion from Bangkok (Fig 1-3). The first direction is to the north along the National Highway No.1 through the Bangkok International Airport to Ayutthaya. Factories that make textiles, tires, motorcycles and cement already exist along this line. The second development has taken place in a direction through Thonburi to Samut Sakorn, Nakom Patom along the National Highway No.4 and No. 35. There already in a concentration of marine resources processing and ceramics. Since this area is close the fishery port, it is one of Asia's canning centers. The last development axis which runs along the National Highway No. 34 and No. 3 through Bang Phoo and Bang Phlee I.E. leads to the Laem Chabang I.E. and the Map Ta Put I.E. This development corridor, which already has electric appliance and automobile industries, is expected to be further boosted by the completion of the Eastern Seaboard Development Program.

AREA

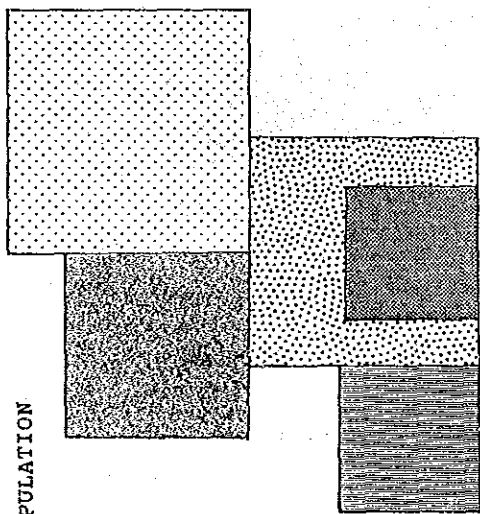


BOI PROMOTED COMPANIES
IN OPERATION
1960-1986

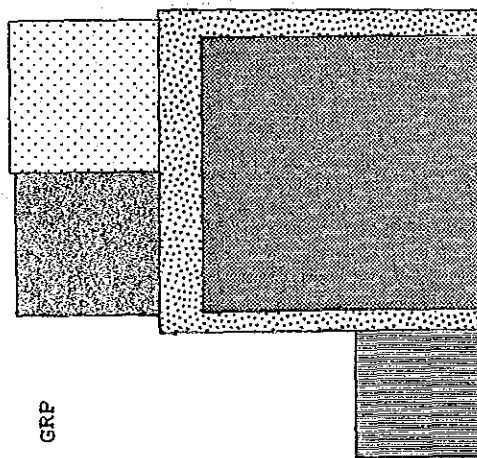


- BANGKOK
- CENTRAL
- ▨ NORTHERN
- NORTH EASTERN
- ▨ SOUTHERN

POPULATION



GDP



Source: Made from BOI, National Statistical Year Book NESDB

Fig. 1-2 Concentration of Industry and Population in Bangkok

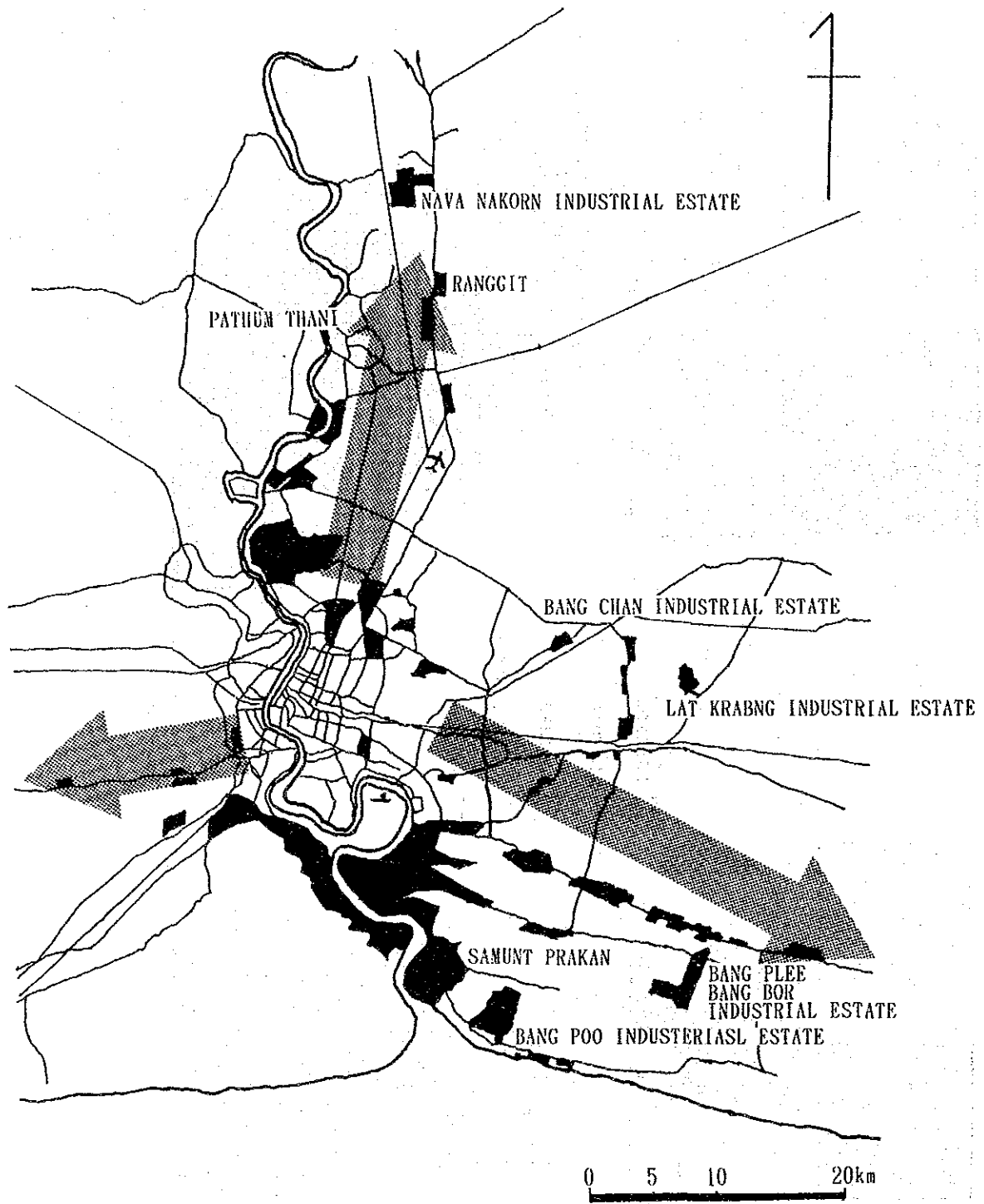


Fig. 1-3 Trend of Industrial Location in Bangkok

2. CURRENT SITUATION OF THE LAEM CHABANG INDUSTRIAL ESTATE

2-1 OBJECTIVES OF THE LAEM CHABANG INDUSTRIAL ESTATE DEVELOPMENT

(1) REVIEW OF THE EASTERN SEABOARD DEVELOPMENT PROGRAM

The major objectives of the Eastern Seaboard Development Program are;

- to accelerate the industrial growth rate
- to offer an alternative industrial location out of Bangkok and promote regional development
- to enhance international competitive power of the Thai economy to promote new industries and to attract foreign investment
- to provide jobs and facilities to encourage urban development away from Bangkok

The Eastern Seaboard Development Program consists of two industrial bases of distinctly different characters, namely, the Laem Chabang I.E. and Map Ta Put I.E. The former is to accommodate light and labor intensive industries and the latter is to establish a chemical industrial complex utilizing natural gas produced in the Siam Bay.

The Laem Chabang I.E. is a strategic industrial base to attract industries from congested Bangkok areas and to enhance international competitiveness of the Thai manufacturing sector which has improved infrastructures and the provision of EPZ.

At present, the international port of the country is limited to the Klong Toey Port, which is a river port up along the Chao Praya River 28 km from the ocean, thereby only allowing 10,000 ton scale ships to enter. The old facilities at the port can no longer cope with ever increasing volume of cargo transported by large container

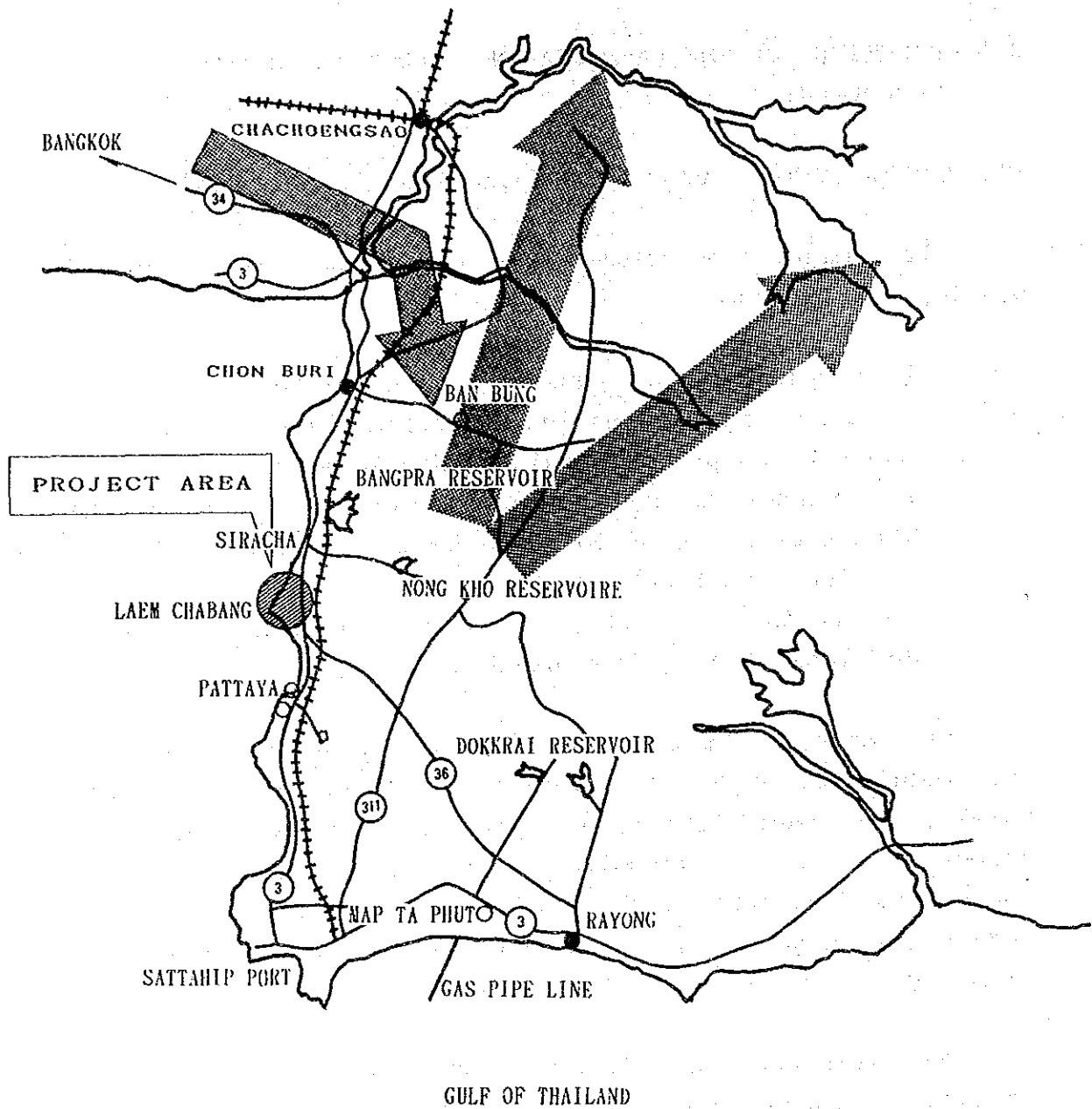


Fig. 2-1 Eastern Seaboard Development Program
Laem Chabang Industrial Complex

ships. The congestion at the port became a controversial problem in 1988 after dramatic increase in trade volume. Acknowledging the need to have a deep sea port, the Thai government had decided earlier to build a 14 m deep sea port at Laem Chabang. The construction was commissioned in 1987 and is planned to be completed in 1991. The new port is expected to increase Thailand's trading capacity tremendously.

(2) REVIEW OF THE MASTER PLAN

The Basic Development Policy in the Master Plan consists of the following three items.

- to create a new growth center of the Eastern Seaboard
- to promote an integrated development
- to provide an environment with amenities

As for the development of Laem Chabang, it must consider the relationship between Laem Chabang and its surrounding area. This view will be more and more important along with the advance of constructions such as a industrial estate and a port.

(3) OBJECTIVES OF THE LAEM CHABANG I.E.

The main objectives of the Laem Chabang I.E. are as follows:

- To prompt the moving of factories from Bangkok and its surrounding areas
- To promote export oriented industries
- To provide employment opportunities

The experiences in many countries indicate that industrialization will never occur by the mere provision of industrial land. Though the congestion and rising factor costs in urban areas may plague enterprises, the benefits of

agglomerated industries often override these negative aspects. The dispersion of industries takes place only when these negative factors start to offset the merits of already developed industrial areas, but it leads only to the peripheral areas equipped with developed infrastructures and access to existing urban centers.

Thailand's development axes are three-directional mentioned above. Once established, the Laem Chabang is to form another nucleus for industrial activities, thus providing a direct gateway to the vast Northeastern Region. In this context, the Laem Chabang I.E. carries an important responsibility to serve as a hub of new industrial activities (Fig. 2-1).

2-2 CURRENT SITUATION OF THE LAEM CHABANG PROJECT

(1) REVIEW OF MASTER PLAN

In Master Plan, Land Use Plan and Layout are conducted on the basis of the basic development policy mentioned above. The basic framework of development is described in the Master Plan as follows:

Sector	Items	Short-term Development 1991	Master Plan 2001
Industrial estate		290 ha	450 ha
		1,800 rai	2,800 rai
Port area	Wharf	116 ha 725 rai	260 ha 1,600 rai
	Hinterland	250 ha 1,560 rai	500 ha 3,100 rai
New Town		130 ha	930 ha
		820 rai	5,800 rai

The basic policy for land use layout of three functions such as the industrial estate, the port area and the new town is as follows (described in the Master Plan).

- To minimize the mixture of different kinds of above functions.
- To minimize traffic congestion and ensure efficient traffic flow of cargoes and commuters.
- To utilize the areas already acquired by IEAT and PAT (1,550 ha).
- To accommodate long-term land demand.

The basic land use plan in the Master Plan is shown in Fig 2-2.

(2) CURRENT SITUATION

1) Infrastructures

a) Commercial Port

The Laem Chabang commercial port is to become a main gateway for international container cargo and is designed to handle 4 million tons per year in 1995.

b) Road Network

Highway No. 3, the so-called Sukumvit Highway, runs in the east of the Laem Chabang I.E. Currently there is no problem in traffic. In order to divert the anticipated heavy traffic, a 60 km 4-lane by-pass from Chonburi to the east of Pattaya will be completed by 1992 or 1993.

c) Railway

A railway between Sriracha and Laem Chabang is planned to be completed in 1990, giving access to the Chachoengsao-Sattahip line, which is currently not in use.

THE STUDY ON THE DEVELOPMENT PROJECT OF
LAEM CHABANG COASTAL AREA

MASTER PLAN

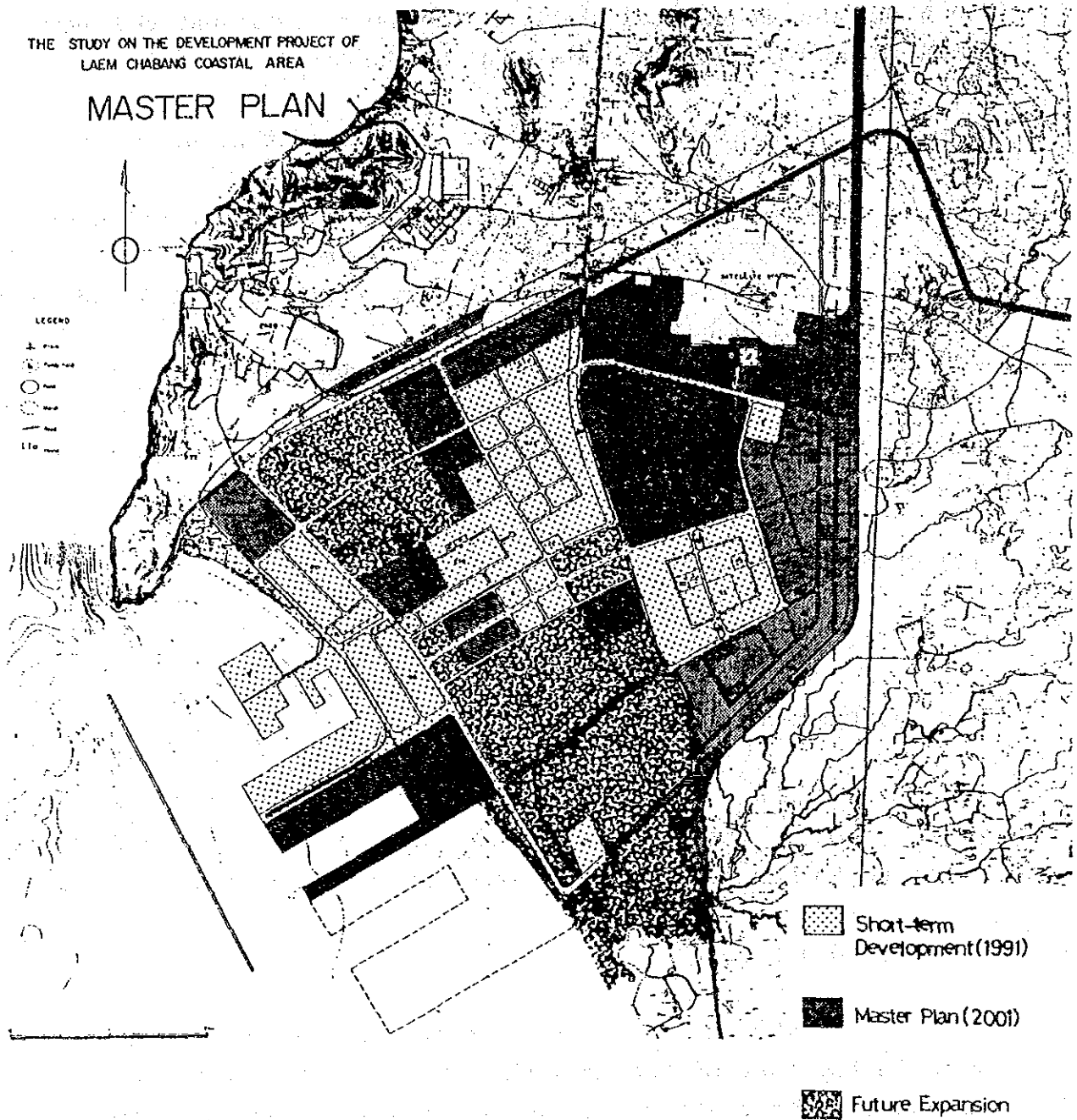


Fig. 2-2 Land Use Plan in the Master Plan

d) Telecommunications

The capacity will be gradually expanded. Then the capacity will be increased to 1,536 by 1990 and to 5,000 by 1991.

e) Electricity Supply

A power distribution plant will be constructed inside the industrial estate to provide 11.5 kv electricity by 1990.

f) Water Supply

The Nong Kho reservoir will supply water at the rate of 39,800 m³/day to the industrial estate. The pipeline to connect the reservoir and the industrial estate is under construction and its completion is scheduled in early 1989.

g) Waste Water Treatment

A waste water treatment plant with a capacity of 29,400m³/day is planned to be constructed inside the industrial estate by 1990, and a capacity of 37,900m³/day outside the industrial estate in the Master Plan.

3) Industrial Estate

The industrial estate covering 3,556 rai (569 ha) in total consists of General Industrial Estate 2,312 rai (369.9 ha) and Export Processing Zone 1,098 rai (175.7 ha) and Commercial and Business Area 146 rai (23 ha). The GIE offers a total of 112 plots, ranging from a 2 rai plot to a 200 rai plot. The EPZ offers a total of 173 plots, ranging from a 2 rai plot to a 33 rai plot.

All the land will be leased for a period of 20 years with possible 10 year extension. The leasing is currently

priced at 59,000 bahts per year, which is fixed for 10 years and a maximum 10 % increase every 10 year.

(3) DEVELOPMENT SCHEDULE

The present stage of the development plan is the starting of land formation and factory construction. Therefore, the actual work is 2 years behind the original schedule. According to the present schedule, the land formation will be completed in September, 1990 (Fig. 2-3).

(4) PROBLEMS RELATED TO LAEM CHABANG

Having been already initiated, the Laem Chabang I.E. only awaits its scheduled completion. For a large scale industrial estate development, the supporting and urban facilities play a crucial role in its development. Housing for workers is an indispensable facility for the incoming industries and the development of housing is one of the important elements in investment decision making. However, housing for the Laem Chabang I.E. faces an inevitable delay due to failure to procure land, partly because of speculation on land. This may produce a setback of the project.

Obviously, the development of an industrial estate is a tool for industrialization of a region, and not a goal in itself. The success of the project rests upon how many and how soon factories operate in the industrial estate. Therefore, the promotion is of the utmost importance in achieving the goals.

2-3 REVIEW OF FINANCIAL PLAN OF THE LAEM CHABANG INDUSTRIAL AREA

(1) PRESENT STATUS

The Laem Chabang I.E. was commissioned in 1988 for the construction of 688 rai of EPZ, 1,406 rai of GIE, 138 rai of business district to be completed in August, 1990. The contract amounts to 1,156 million bahts, including water supply, sewerage, solid waste disposal system, and power distribution system. The Overseas Economic Cooperation Fund of Japan is lending 4,366 million yen for this project.

(2) FINANCIAL ANALYSIS BY JICA MASTER PLAN

According to the Master Plan made in 1985, the financial earning rate of the Laem Chabang Project was 8.4% if utilities are included. It was 8% if only the leasing is included. The estimated construction cost was 1,114 million bahts for 525 rai of EPZ, 1,456 rai of GIE, and 44 rai of business district, a slightly smaller area than the actual implementation. The plan anticipated the sales of the developed plots for 560,000 per rai for GIE and 480,000 per rai for EPZ. Although the differences between the original plan and the latest data are small, the financial plan will be reviewed in the following sections to reconfirm the soundness of the financing of the Laem Chabang I.E.

(3) RESULTS OF FINANCIAL REVIEW

The review of the financial plan for the Laem Chabang I.E. is based upon the following assumptions.

1) Project Life: 20 years from the first full operation year of 1991.

2) Occupancy: 1990 period for full occupancy
 EPZ 20% 7 years

GIE	15%	7 years
BD	0%	5 years

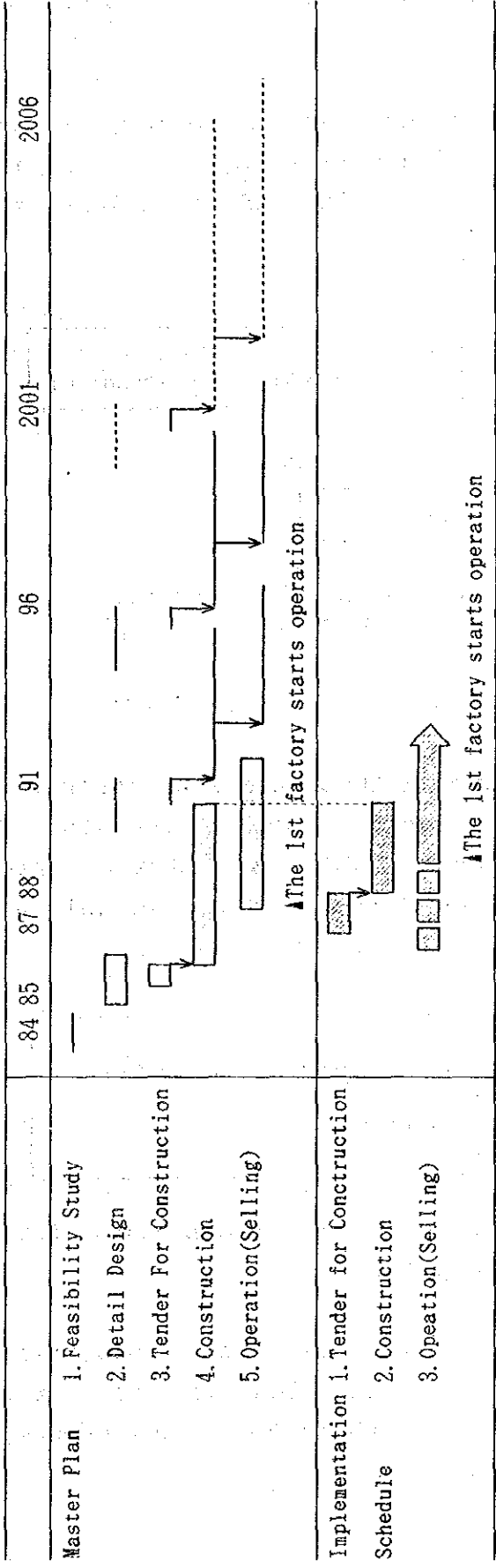
Although most of the parameters changed more favorably than the original plan, the financial internal rate of return (FIRR) showed a small improvement at 8.1% (Table 2-1). This marginal difference is due partly to more costly estimate for the O/M costs.

It is appropriate to assume that it will take 7 years to fill up the developed industrial estates from the principle of conservatism. However, in reality, it should be shortened as a targeting promotion period in order to recover the investment in a short period. The need to fill up the plots quickly is repeatedly stated in Chapter 5. In order to clarify the need, the case of shorter fill-up period with more promotion investment will be examined as follows;

Case : doubling the promotion expense from 8 to 16 million bahts,

Occupancy	1990	period for full occupancy
EPZ	30%	4 years
GIE	30%	4 years
BD	0%	3 years

In this case the FIRR improves by 1% to 9.1% (Table 2-2). It is obvious that a small investment in the initial promotion could improve the financial performance of the whole project.



Note

- 1) [White Bar] : Short term development in Master Plan.
- 2) [Hatched Bar] Construction in Implementation Schedule will complete in Oct. 1990.
Development area in Implementation Schedule covers both short term and long term development area in Master Plan.
- 3) The 1st factory in Implementation Schedule, that CRT, is now underway of factory construction.

Fig. 2-3 Development Schedule of Industrial Estate in Master Plan and Implementation Schedule

3. SELECTION OF TARGET INDUSTRIES AND POTENTIAL INVESTOR FOR THE LAEM CHABANG EPZ/GIE

This chapter, consisting of the following three section, identifies the target industries to be located in Laem Chabang by theoretical analysis and questionnaire survey.

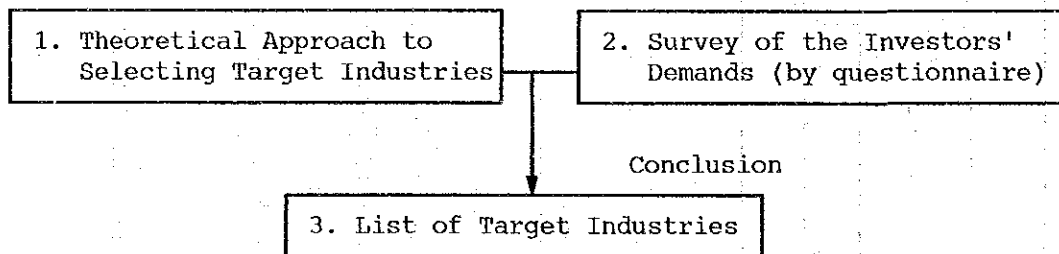


Fig.3-1 Mutual Relation Between the Three Sections, and Flow Chart for This Chapter

3-1 THEORETICAL APPROACH TO SELECTING TARGET INDUSTRIES

This is, as mentioned above, a theoretical analysis for selecting industries and the target industries are studied from the following five approaches, while also taking into account Thailand's industrial development policy as well as decisive factors for an industrial location.

1. Desirable industrial structure
2. Thailand's role in the international production activities
3. Effect of industrial development
4. Industrial location policy in Thailand
5. Site conditions in Laem Chabang

Fig. 3-2 shows the mutual relation between these five approaches and this study's perspective.

The first approach of seeking a desirable industrial structure was for such target industries as basic raw materials, machinery assembly, and their parts/components, and resource-processing industries.

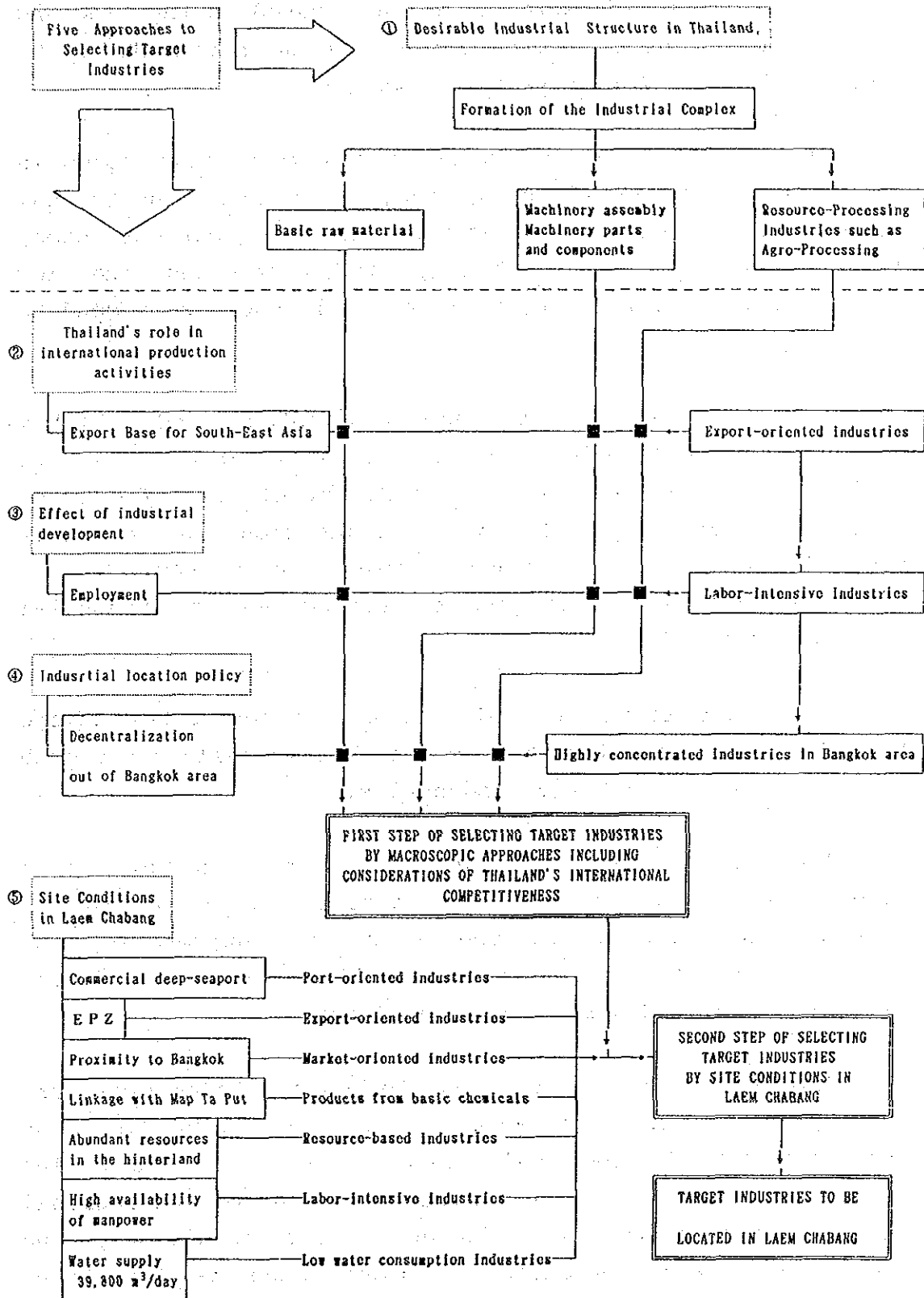


Fig.3-2 Perspective of Target Industries from Five Approaches and Their Mutual Relation

These categories were established based on the flow and patterns of industrial production, and do not contain the decisive factors for industrial location.

It was necessary to study the target industries in order to establish categories, covering theoretical tendencies of industrial location, such as port-oriented, labor-intensive, resource-based, market-oriented and low water consumption industries, which fall under the second to fifth approaches.

The categories of export-oriented and highly concentrated industries in the Bangkok area, and the products from the basic chemicals do not always reflect the theoretical tendencies of industrial location. However, they could be directed or oriented regionally by some of the other approaches and the whole perspective of industrial location in Thailand.

In simple terms, the aforementioned approaches belong to different categories or concepts, but mutually cross each other in a study on target industries.

The fifth approach for the Laem Chabang's site conditions has functions that, firstly, take in industries that are not covered by the other four approaches, and that, secondly, check the location possibility and eligibility of industries for Laem Chabang.

Export-oriented and labor-intensive industries are overlapping in the approaches. This overlapping helps in the matching of Thailand's future trend of industrial development on the national level, with that of the regional factors related to Laem Chabang's site conditions, and thereby the export-oriented and labor-intensive industries can both be prospective for Laem Chabang.

This analysis and study progressed along the above-mentioned concept, while efforts were made to clarify the industries' characteristics for location activities, based on the relevant data as objective as possible, and they were determined to be as follows:

(1) TARGET INDUSTRIES DESIRABLE FOR THAILAND'S INDUSTRIAL STRUCTURE

Thailand is stepping toward to the second stage of industrialization, i.e. from import substitution to promotion of their export industry, but its main manufacturing industries are light-industries such as food processing, textile, apparel, etc..

It is thus expected to make Thailand's industrial structure more complex. Therefore, in order to clarify the target industries from the point of view of forming an industrial complex, the following studies were conducted:

1. An analysis of Thailand's industrial structure and the condition of its resources.
2. An analysis of the globalization of industrial activities, especially of Japanese companies in South-East Asia, focusing the transfer of production power from Japan to such countries as Taiwan, Korea, Thailand, etc.

The electrical/electronic, chemicals, and iron and steel industries have been selected as prospective industries for developing in Thailand in order to meet the future trend of globalization, this is in the light of Thailand's current level of industrialization and its highly competitive man power.

(2) TARGET INDUSTRIES FROM THAILAND'S ROLE (EXPORT BASE)
IN INTERNATIONAL PRODUCTION ACTIVITIES

Laem Chabang has the EPZ (Export Processing Zone) where the import duty can be exempted.

This approach studied industries utilizing the EPZ (export-oriented industries) and examined the relationship between the import duty rate by type of goods and the Thailand's industrial policy such as investment promotion.

As a result, industries under high import duty rate and promoted by incentives were eligible for export-oriented industries, mainly consisting of the various electrical/electronic equipment and part, such light industry products as bags, such resource-processing as frozen shrimp, etc..

(3) TARGET INDUSTRIES FROM THEIR EFFECTS OF INDUSTRIAL
DEVELOPMENT

This approach focused on the effect of employment which is one of the main objectives of the Sixth National Economic and Social Development Plan, and studied the labor-intensive industries by calculating such indicators as the labor equipment ratio and the amount paid ratio to value-added.

As a result of the calculation, the following industries were selected as the target industries: leather products, textiles, apparel, jewellery, sporting equipment, and electrical/electronic equipment.

(4) TARGET INDUSTRIES FROM THE INDUSTRIAL LOCATION POLICY
IN THAILAND (DECENTRALIZATION OF HIGHLY CONCENTRATED
INDUSTRIES IN THE BANGKOK AREA)

It is an important issue in the national policy to decentralize the industries to outside the Bangkok area, which has an approximately 77% concentration of the

employees and the value of gross output by the manufacturing sector in Thailand in 1984.

This approach set forth the highly-concentrated industries in the Bangkok area by calculating their share in the all of Thailand by type of industries, especially for the employees. In addition to this calculation using the Industrial Survey of Thailand, it was taken into account that some industries were export-oriented or labor-intensive industries, which were relatively easy to move their facilities.

As a result, industries which had a high possibility of moving or relocating were such industries as knit products, apparel, wood furniture, containers of paperboard, rubber footwear, and made-up textile goods.

(5) TARGET INDUSTRIES FROM SITE CONDITIONS IN LAEM CHABANG

This approach had functions which, firstly, takes in the industries that were not covered by the other four approaches, and, secondly, checks the location possibility and eligibility of industries derived from the other four approaches for Laem Chabang.

As described already, the industries utilizing the site conditions in Laem Chabang and eligible for them are classified as follows:

- 1 Export-oriented industries (studied previously)
- 2 Port-oriented industries: Industries using the seaside and wharf (private berth), including industries related to physical distribution in the port area
- 3 Market-oriented industries: Industries that proximity to Bangkok is the large important factor for their location

- 4 Intermediate products from basic chemicals:
Industries considered in relation to functional sharing with Map Ta Put
- 5 Labor-intensive industries (studied previously)
- 6 Resource-based industries: Industries locating factories in areas with rich resources and processing resources of agriculture, forestry, and fishery in the vicinity and hinterland of Laem Chabang
- 7 Low water consumption industries: Industries whose water use volume/day is less than 50m³, considering the Water supply capacity of Laem Chabang (use of Japanese Industrial Survey)

3-2 SURVEY OF THE INVESTORS' DEMAND

The main purpose of these surveys were:

- to find potential investors for Laem Chabang
- to clarify the location factors which the potential investors require
- to clarify supporting services and facilities which the potential investors require.

These surveys were conducted from July to September, 1988, and focused on manufacturing, commerce, shipping, and warehouse industries both in Thailand and Japan. The surveys were conducted by mail. The number of dispatch and of respondents were as follows.

	Thailand	Japan
N. of dispatch(a)	1,000	10,000
N. of respondents(b)	269	500
b/a(%)	26.9	5.0

As the results of the surveys, 64 companies in Thailand and 149 companies in Japan have interests in Laem Chabang.

The types of potential investors in Japan were mainly processing and assembly industries, such as electrical machinery (32 companies), machinery(20 companies), clothing (15 companies), and metal products(13 companies). In Thailand, those were also electrical machinery, garments & textiles, and food industries. The Japanese investors were interested in EPZ.

3-3 LIST OF TARGET INDUSTRIES

This third chapter studied target industries to be located in Chabang. The first section (3-1) approached to them from industrial location theory, keeping in mind the direction of Thailand's policies for industry and industrial location, and the globalization of industrial activities. The second section (3-2) has attempted grasp the actual needs for Laem Chabang by questionnaire survey.

This section is the conclusion of this chapter and the study results are arranged, as shown in Tables 3-1 and 3-2. The questionnaire survey asked the companies what extent of interest do they have in Laem Chabang. Answers from them are arranged in the tables, according to the following considerations:

1. As for the industrial classification of potential investors or companies, they are classified by products to be manufactured in Laem Chabang, which were specified in the questionnaire form for companies in Japan.
2. If the products were not specified in the questionnaire form for both of Japan and Thailand, the companies are classified by products they are

producing or business they are engaging in at present.

3. As for degree of their interest in Laem Chabang, if more than one company which belong to the same type of industry have interest in Laem Chabang, the tables exhibit the stronger interest they answered.

Target industries for Laem Chabang are listed in Tables 3-1 and 3-2 and the following three points are outstanding.

The first is that Japanese companies interested in Laem Chabang are distributed in many and various type of industry. There are 67 types of target industry in total. Thailand's companies interested in Laem Chabang are classified into 25 types of industry, which only constitute 37% of the total. On the other hand, Japanese companies interested are classified into 44 types of industry, which constitute 66% of the total. This is because Japanese companies have a high evaluation of Thailand and because foreign investment or industrial location in foreign countries is an urgent issue for a large part of Japanese companies, even though the number of companies interested in Laem Chabang is larger in Japan than in Thailand. It is supposed based on the recent trend of investment that companies in advanced countries and NIES such as Taiwan and Korea are under the same situations.

The second feature is that there are a few companies belonging to the industries targeted because of decentralization from the Bangkok and interested in Laem Chabang. 16 types of industry are listed as this target industry, but companies with an interest are distributed only within 7 industries such as apparel, furniture, paperboard, rubber foot ware, and glass products. In order to cope with such situation, it is expected to establish some incentives for industrial decentralization, in

addition to the expansion of Laem Chabang's publicity (PR) and the active sales promotion.

The third is that relatively large part of the industries classified into "High water consumption industries" have interest in Laem Chabang. This brings about an issue to be discussed and resolved, and also related to the criteria for selection of investors, which will be studied in the next chapter.

Table 3-1 Target Industries to be Located at the Laem Chabang-1
(Final outputs of theoretical approach and questionnaire survey)

Remarks: Symbols have the following meaning relating to the target industries.
 □ : Industries determined by the Approach, "Desirable Industrial Structure"
 ◇ : Export-oriented industries
 ⊙ : Labor-intensive industries
 ○ : Industries with a high possibility of decentralization outside of Bangkok area
 ■ : Port-oriented industries including port-related industries
 ● : Market-oriented industries
 ▲ : Products from basic chemicals (linked with Map Ta Put)
 ★ : Resource-based industries
 ? : High water consumption industries (compared to the Laem Chabang's water-supply capacity)
 → LAEM CHABANG : Industries to be located in Laem Chabang from a theoretical approaches
 QUESTIONNAIRE : THA=Thailand JPN=Japan G=G I E E=EPZ
 Number means company's interest toward the Laem Chabang : 1 → Plan to invest
 2 → Very interested
 3 → Moderate interested

Code	Types of Industry	Types/categories of industry set by the five approaches to be target industries	Industries to be located in the Laem Chabang	QUESTIONNAIRE			
				THA		JPN	
				G	E	G	E
31119	Meat products	□◇⊙ ● ★ ?				3	3
31123	Ice-cream	● ?				3	
31131	Canning of fruit and vegetables	□◇⊙ ● ★ ?					3
31139	Fruit and vegetable products	□◇ ● ★ ?	3	3			3
31141	Canning of fish	□◇ ● ★ ?				3	3
31149	Frozen sea foods products, etc.	□◇ ● ★ ?					3
31164	Taploca mliis	□◇ ● ★					
31171	Bakeries	●	→ LAEM CHABANG				
31172	Biscuits	●	→ LAEM CHABANG				
31173	Noodles and similar products	● ?	→ LAEM CHABANG				
31190	Confectionery	⊙ ●				3	3
31219	Other food products	⊙ ● ?				2	2
31220	Prepared animal feeds	□◇ ● ★ ?	→ LAEM CHABANG				
31340	Soft drinks and carbonated waters	● ?					
32115	Weaving of cotton and man-made fibers	□◇⊙ ● ?					2
32120	Made-up textile goods	□◇⊙ ●	→ LAEM CHABANG				3
32130	Knitting mills	□◇⊙ ●	→ LAEM CHABANG				1
32201	Men's and boys' clothes	□◇⊙ ●	→ LAEM CHABANG	1	1	2	2
32202	Women's, girls' and infants clothes	□◇⊙ ●	→ LAEM CHABANG				3
32209	Other wearing apparel and accessories	□◇⊙ ●	→ LAEM CHABANG	2	2	2	2
33120	Wooden and cane containers	□◇ ● ●	→ LAEM CHABANG				
33230	Leather and leather substitutes products	□◇ ● ●	→ LAEM CHABANG	1	1	3	3
33201	Woody furniture, fixture and flooring including rattan furniture	⊙ ● ● ★	→ LAEM CHABANG	1	1	3	2
34120	Containers and boxes of paper and paperboard	⊙ ● ●	→ LAEM CHABANG	3			
34207	Printing	⊙ ●	→ LAEM CHABANG				
35120	Chemical fertilizer	□ ● ▲ ?				3	
35210	Paints, varnishes and lacquers	● ● ▲ ?	→ LAEM CHABANG				3
35220	Drugs and medicine	● ● ▲ ?					3
35231	Soap and cleaning preparation	● ● ▲ ?	→ LAEM CHABANG				3
35299	Other chemical products	□ ● ● ▲ ?				3	1
35510	Tyre and tube industries	□ ● ● ▲ ★	→ LAEM CHABANG	1			
35591	Rubber sheets and block rubber	□ ● ● ▲ ★	→ LAEM CHABANG	2	2	3	3
35592	Rubber footwear	◇ ⊙ ⊙ ●	→ LAEM CHABANG			3	
35599	Other rubber products	◇ ⊙ ⊙ ●	→ LAEM CHABANG				
35601	Plastic containers	⊙ ● ▲	→ LAEM CHABANG				
35609	Other plastic products	⊙ ● ▲	→ LAEM CHABANG	2	1	2	2
36200	Glass and glass products	□ ⊙ ⊙ ● ★	→ LAEM CHABANG	3			3
36991	Concrete products	⊙ ● ●	→ LAEM CHABANG				3
37110	Iron and steel rolling mills	□ ● ● ●	→ LAEM CHABANG				3
37120	Iron and steel foundries	□ ● ● ●	→ LAEM CHABANG				3
3711	Iron and steel shearing/slitting, etc	□ ● ● ●	→ LAEM CHABANG	1			3
3712	Non-ferrous metal rolling mills	□ ● ● ●	→ LAEM CHABANG				3
	Non-ferrous metal casting and its products	□ ● ● ●	→ LAEM CHABANG				3
38120	Furniture and fixture primarily of metal	◇ ⊙ ⊙ ●	→ LAEM CHABANG				2
38130	Structural metal products	⊙ ● ● ●	→ LAEM CHABANG				3
38191	Metal cans and shipping containers	□ ● ● ●	→ LAEM CHABANG				2
38192	Wire and wire products	□◇⊙ ● ●	→ LAEM CHABANG	3	2		2
38198	Coating, engraving and allied services	□ ⊙ ● ●	→ LAEM CHABANG				
	Heat treatment and electro plating	● ● ●					
38199	Other fabricated metal products	⊙ ● ●	→ LAEM CHABANG				

Table 3-2 Target Industries to be Located at the Laem Chabang -2
(Final outputs of theoretical approach and questionnaire survey)

Remarks: Symbols have the following meaning relating to the target industries.
 : Industries determined by the Approach, "Desirable Industrial Structure"
 : Export-oriented industries
 : Labor-intensive industries
 : Industries with a high possibility of decentralization outside of Bangkok area
 : Port-oriented industries including port-related industries
 : Market-oriented industries
 : Products from basic chemicals (linked with Map Ta Put)
 : Resource-based industries
 : High water consumption industries (compared to the Laem Chabang's water-supply capacity)
 -LAEM CHABANG: Industries to be located in Laem Chabang from a theoretical approaches
 QUESTIONNAIRE: THA=Thailand JPN=Japan G=G I E E=EPZ
 Number means company's interest toward the Laem Chabang: 1 -> Plan to invest
 2 -> Very interested
 3 -> Moderate interested

Code	Types of Industry	Types/categories of industry set by the five approaches to be target industries	Industries to be located in the Laem Chabang	QUESTIONNAIRE			
				THA		JPN	
				G	E	G	E
38220	Agricultural machinery and equipment	<input type="checkbox"/>	->LAEM CHABANG			3	2
38292	Airconditioning machines and their parts	<input type="checkbox"/>	->LAEM CHABANG			3	
38298	Repair shops	<input type="checkbox"/>	->LAEM CHABANG				
38299	Other machinery except electrical	<input type="checkbox"/>	->LAEM CHABANG	3	3	2	2
	:Mold and die					3	3
	:High precision machining					2	2
38310	Electrical industrial machinery and apparatus	<input type="checkbox"/>	->LAEM CHABANG			2	2
	:Micromotor and microtransformer					3	2
	:Various switches and wiring instruments					2	2
	:Control panel, generators, etc.					2	2
38320	Radio, television and communication equipment and apparatus	<input type="checkbox"/>	->LAEM CHABANG	3	3	3	3
	:Various audio apparatus						3
	:CRT (cathod-ray tube)			1			
	:Telephone and its switching equipment					3	3
	:Video tape recorder						
	:Facsimile						
38330	Electrical appliances and housewares	<input type="checkbox"/>	->LAEM CHABANG	2	2	3	3
38392	Electric accumulators	<input type="checkbox"/>	->LAEM CHABANG			3	3
	:Dry cell						
38399	Other electrical apparatus and supplies	<input type="checkbox"/>	->LAEM CHABANG				
	:Electronic copy machines			2	2	3	2
	:Personal computer, etc					3	3
	:Floppy disk drive					3	3
	:Electric printer						
	:Electronic calculators						
	:Assembly of integrated circuit					3	
	:Electronic parts(tuner, transistor, ferite core, key board, speaker, condenser, resistor, LED, magnet head, lead frame, printed board, etc.)			3	2	2	2
38411	Ship-repairing	<input checked="" type="checkbox"/>	->LAEM CHABANG				
38419	Other shipbuilding such as watercraft	<input checked="" type="checkbox"/>					2
38432	Motor vehicle bodies	<input checked="" type="checkbox"/>	->LAEM CHABANG				
38439	Other motor vehicle industries	<input type="checkbox"/>	->LAEM CHABANG			2	2
	:Motor vehicle parts and accessories			3	3	2	2
	:Engines, bearing, etc.			1	2	2	2
38500	Precision instruments and machinery	<input type="checkbox"/>	->LAEM CHABANG				
	:Optical instruments such as cameras and lenses					3	3
	:Ophthalmic goods including frames			3			
	:Watches, clocks and parts					3	3
39011	Cutting and polishing of gem stones	<input type="checkbox"/>	->LAEM CHABANG				
39012	Jewellery	<input type="checkbox"/>	->LAEM CHABANG	3	2		
39030	Sporting and athletic goods	<input type="checkbox"/>	->LAEM CHABANG				
39090	Industries not elsewhere classified	<input type="checkbox"/>	->LAEM CHABANG			2	
	:Toys			3	3	3	3
	:Stationery						3
	:Antique, handicraft and others			1	1		3
Others	Warehousing/transport	<input checked="" type="checkbox"/>	->LAEM CHABANG	3	2		
	wholesale trade	<input checked="" type="checkbox"/>	->LAEM CHABANG	1	1	1	1

4. CRITERIA FOR SELECTION OF INVESTORS

4-1 STRUCTURE AND ITEMS OF THE CRITERIA

Fig.4-1 exemplifies the structure of the Criteria itemized into two different categories. Individual items of the two criteria were established to enable the IEAT to use practicality and objectivity as standard based on quantitative data.

(1) SCREENING-CRITERIA

The purpose of the criteria is to maintain efficient operation and management of Laem Chabang and to check or eliminate investors who cannot satisfy the required conditions.

Itemization was established, to closely relate with Laem Chabang's land use plan, supply capacity of utilities, value-added industrial estate and the IEAT's power.

As a result, the criteria comprised such items as the schedule for beginning industrial operation, water consumption, volume and quality of waste water, building design, environment protection and workers' living conditions.

(2) TARGETING-CRITERIA

The criteria are applied to the investors who can clear the screening-criteria and aim to selectively invite them given higher ranking from the viewpoint of Laem Chabang's development objectives and desirable industrial structure for Thailand.

Itemization was established according the above purpose and considering contribution to forming industrial complexes and promoting export industry, economic effects such as

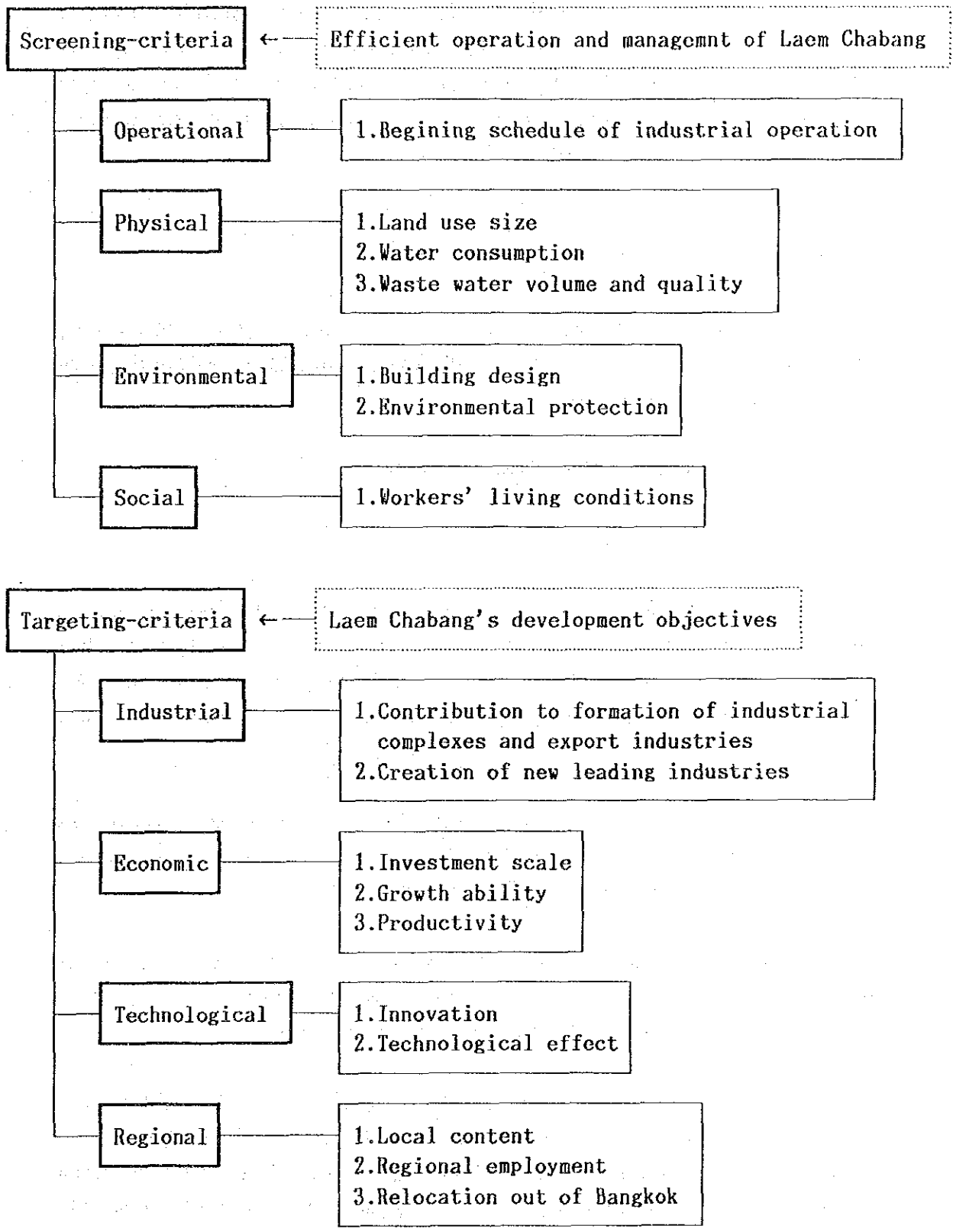


Figure 4-1 Structure of the Criteria for Selecting Investors

investment scale, growth ability, and productivity, technological effects such as innovation and level-up of technology, and regional effects of industrial development such as local content, regional employment, and relocation (decentralization) out of Bangkok.

4-2 CRITERIA FOR SELECTING INVESTORS

Items and standards of the two Criteria were designed, considering their character and their applied methods are studied in this section.

(1) DETAILED DESIGN OF CRITERIA ITEMS

1) Screening-criteria

It is very important for the criteria to be as clear and as quantitative as possible, since the industries that cannot clear these criteria are difficult to locate in Laem Chabang. Table 4-1 exemplifies a detailed design of the itemized criteria.

Beginning schedule of industrial operation must be within 3 years, while considering specific terms necessary for various procedure, construction, etc.

Land used size is minimum of 2 rai. This area is based on the IEAT's experience, and maintenance of a good environment for the industrial estate itself.

Maximum allowable water consumption is $10\text{m}^3/\text{day}$ per rai, with maximum waste water volume being 70 % of the water consumed, and based on Laem Chabang's capacity. The maximum density of discharged water, 500 ppm, is derived from the oxidation ditch system's capacity.

Investors are expected to construct buildings with aesthetic designs (or with not be an unsightly design) and to prepare greenery areas of more than 20% of land area. This was concluded through the experiences of the IEAT and foreign countries, such as Japan.

Investors are also expected to construct buildings in such a way that they maintain harmony with the surrounding environment and adequately dispose of toxic substances by themselves.

As for the worker's housing plan, the investors are to have a housing plan for employees in accordance with their residential situation and wages. It is possible and desirable for the investors to utilize Laem Chabang's housing project.

2) Targeting-criteria

As for the targeting criteria, detailed design means to establish not conditions cleared, but standards to prioritize selection of investors capable of entering Laem Chabang's industrial estate.

For this purpose, item standards have to be designed in such a way that there are some differences among investors during evaluation. This study has adopted the "Point-marking evaluation method".

This method distributes points among the standard items with different characters through weighting and ranking them, and thereby produces total points to prioritize investors.

The weight total was fixed 10 points which were distributed among the items, considering, firstly, their comparative importances from the viewpoint of the effect of industrial location, and secondly, their mutual balance,

Table 4-1 Standards of the Screening-criteria

Composition of Criteria		Standards to be cleared by Investors
Category	Criteria	
Operational	1. Beginning schedule of industrial operation	<i>Within 3 years</i> (considering specific term necessary for various procedure, construction, etc.)
Physical	1. Land use size	<i>Minimum size of 2 rai</i> (based on IEAT's experience and the maintenance of a good environment for the industrial estate itself) It is possible for investors to lease the land jointly in order to clear the above standard.
	2. Water consumption	<i>Maximum volume of 10 m³/day per rai</i> (basically dependent on the supply capacity) - derived from the following calculation $39,800(\text{m}^3/\text{day}) \div 3,410 (\text{rai}) = 11.67 \approx 10$ There seems to be cases in which increasing recycled water volume for use makes it possible to clear the above standard, otherwise investors increase the land area leased.
	3. Waste water volume quality	<i>Maximum 70% of water consumption</i> (dependent on the treatment capacity) - derived from the following calculation $29,400(\text{m}^3/\text{day}) \div 39,800(\text{m}^3/\text{day}) = 0.736 \approx 0.7$ <i>Maximum 500 ppm for discharged water density</i> (dependent on the oxidation ditch system's capacity) - derived from the following calculation $16,900(\text{kg}/\text{day}) \div 29,400(\text{m}^3/\text{day}) = 574 (\text{ppm})$ $\approx 500 (\text{ppm})$ Pre-treatment becomes necessary where discharged water density is higher than 500 ppm.
Environmental	1. Building design — color and shape	<i>Not to be an unsightly design</i> Investors have to explain the reason why they select the color and shape of buildings.
	— greenery distribution — other visual factors	<i>Minimum 20% of land area</i> (derived from the experience in IEAT and foreign countries such as Japan) Green area comprises greenery land and sporting/recreational facility's land. <i>Keeping harmony with the surrounding environment</i>
	2. Environmental protection — toxic substance	<i>Adequate treatment and disposal for such toxic substance as mercury, lead, cadmium, other heavy metals, cyanides, nitrogen oxide, sulfur oxide and so on</i>
Social	1. Workers' living conditions — worker's housing plan	<i>Having a housing plan for employee by their residential situation and wages, including utilization of Lach Chabang's housing project</i>

while not giving large weight to the items that were not covered by the application form and dependent on the objective data such as statistics.

The highest rank was fixed 10 points, which were divided into five ranks. Thus, full marks of the evaluation are 100points (weight total:10 points, highest rank:10 points) in this study.

Table 4-2 is the evaluation sheet for targeting-criteria. The content of standard items was established specifically, considering their characters and purpose.

The content of average ranking points (6 points in evaluation base point) was set according to the characters of items, but as for the quantitative items, it was fixed based on averaged data derived from the Industrial Survey of Thailand, and other information related to export and investment promotion policies within the country.

The lowest ranking points are, in general, two but six points in some criteria. This is in these cases because 6 points are equal to the average of industries total and if the lowest ranking is 2 points many of the average investors would face disadvantages during the evaluation.

(2) FUNCTION OF THE CRITERIA

It seems to be more practical and smooth to provide the Criteria on the application form to the IEAT, therefore allowing them to cover the items as thoroughly as possible.

Table 4-3 shows the items covered by the IEAT's and other representative application form such as that of the DIW (Department of Industrial Works), Tukuba and Kasima industrial estate in Ibaraki Prefecture of Japan. IEAT's form covers many items related to the Criteria, but needs

Table 4-2 Evaluation Sheet of the Targeting-Criteria

Division	Criteria	Weight for Evaluation	Evaluation Base Point				
			1 0	8	6	4	2
Industrial	1. Contribution to :formatin of industrial complex ■ Standard Item Category of industry	1. 0	Agro-based Mold/die, etc.	Assembly Parts Component Basic raw material	Others	-	-
	:export industry development ■ Standard Item Ratio:Export/Gross output	0. 5	61%~	41~60%	21~40%	1~20%	0%
	2. Creation of new leading industry ■ Standard Item Number of existing factories in the same type of designated industry	1. 0	0~3	4~6	7~12	13~20	20~
Economic	1. Investment scale ■ Standard Items Amount of investment for building, equipment and machinery	1. 0	501~ Mill. baht	201~500 Mill. baht	101~200 Mill. baht	51~100 Mill. baht	~50 Mill. baht
	2. Growth ability ■ Standard item Production growth rate/year in the long range	0. 5	7%~	5~6%	4%	3%	~2%
	3. Productivity ■ Standard item Ratio:Value added excluding wages /Gross output	0. 5	41%~	31~40%	26~30%	21~26%	~20%
Technologica	1. Innovation ■ Standard Item Level of technology	1. 0	Most advanced	Moderate advanced	Other		
	2. Tecnological effect ■ Standard Item Ratio:Engineer and skilled labor/Total employment	1. 5	10%~	7~10%	5~6%	3~4%	~2%
Regional	1. Local content ■ Standard Item Ratio:Locally originated raw material/Total input	1. 5	75%~	61~74%	41~60%	21~40%	~20%
	2. Regional employment ■ Standard Item Ratio:Locally employed persons/Total employment	0. 5	95%~	91~94%	81~90%	71~80%	~60%
	3. Relocation out of Bangkok ■ Standard Item Location pattern relating to existing factory in Bangkok Area	1. 0	Scrap & build	Expansion	Other		

the addition of some other items, such as building design, protective method for environment, housing plan and employment by regional origin.

There are some items which remain difficult to cover using the application form; Therefore they should be judged independently, based on industrial and economic indicators, etc., as shown in Table 4-4.

In addition, the following will be taken into consideration as functions of the Criteria;

1. To use them flexibly; especially the item of water consumption in the screening-criteria, consideration of progress in industrial location and the remaining water supply volume
2. To use targeting-criteria to cope with changes in actual socio-economic situation and the tempo of industrial location, including change of weight among criteria and item standards
3. To prepare special incentives for investors prioritized by the targeting-criteria evaluation
4. To select desirable investors taking into account another factors, because the Criteria items cannot cover the all situations related to selecting them

Table 4-3 Comparative List of Application Items

Application Items	Application to				Remarks
	IEAT	DIW	TUKUBA	KASIMA	
<u>1. Identification of applicant</u> 1-1 Name, address, type of applicant, etc. 1-2 Copies of relevant certification 1-3 Profiles of existing operations 1-4 Sales, profit and net income 1-5 Tax payment	■	■	■	■	1. IEAT Industrial Estate Authority of Thailand 2. DIW Department of Industrial Works (Ministry of Industry)
<u>2. Land, building and machine installation</u> 2-1 Place, zone, and area 2-2 Pattern of site reservation 2-3 Land use plan 2-4 Building characteristics 2-5 Machine installation	■	■	■	■	
<u>3. Details of operation</u> 3-1 Type of business activities 3-2 Pattern of location 3-3 Reason of location 3-4 Construction and operation schedule 3-5 Production schedule 3-6 Local and export market 3-7 Working hours and days 3-8 Production process 3-9 Raw material consumption by origin 3-10 Local content ratio 3-11 Cargo by transport means	■	■	■	■	4. Symbol It is distributed where the application form covers items listed on the left side.
<u>4. Manpower</u> 4-1 Total employment 4-2 Employment by job classification 4-3 Regional employment 4-4 Foreign personnel 4-5 Technology transfer and job training plans	■	■	■	■	
<u>5. Financial plan</u> 5-1 Details of registered capital 5-2 Loan or credit funds 5-3 Investment cost	■	■	■	■	
<u>6. Investment promotion status</u>	■				
<u>7. Utilities and other facilities</u> 7-1 Electricity 7-2 Telephone 7-3 Water supply 7-4 Waste-water treatment 7-5 Garbage disposal 7-6 Disposal of other waste 7-7 Protective measures for environment 7-8 Others	■	■	■	■	
<u>8. Request for bonded warehouse</u>	■				

Table 4-4 Mutual Relation between Items of the Criteria and IEAT's Application Form

Composition of Criteria			Items capable of being judged from IEAT's application form <input checked="" type="checkbox"/> existing items <input type="checkbox"/> items to be added	Items judged by industrial and economic indicators, etc.
Division	Category	Criteria		
Screening	Operational	1. Beginning schedule of industrial operation	<input checked="" type="checkbox"/> Construction and operation schedule	
	Physical	1. Land use size	<input checked="" type="checkbox"/> Area required	
		2. Water consumption	<input checked="" type="checkbox"/> Water supply	
		3. Waste water volume and quality	<input checked="" type="checkbox"/> Waste-water treatment (waste-water density)	
	Environmental	1. Building design	<input type="checkbox"/> Building design	
		2. Environmental protection	<input checked="" type="checkbox"/> Garbage disposal <input type="checkbox"/> Protective method for environment	
	Social	1. Workers' living conditions	<input type="checkbox"/> Housing plan for the employee	
Targeting	Industrial	1. Contribution to formation of industrial complexes and export industries	<input checked="" type="checkbox"/> Production items <input checked="" type="checkbox"/> Local and export market	Strategical importance of industries
		2. Creation of new leading industry		Data of Industrial Survey, etc.
	Economic	1. Investment scale	<input checked="" type="checkbox"/> Investment cost	
		2. Growth ability		Growth rate targeted by the Plan
		3. Productivity		Data of Industrial Survey
	Technological	1. Innovation	<input checked="" type="checkbox"/> Production process	
		2. Technological effect	<input checked="" type="checkbox"/> Employment by job classification	
	Regional	1. Local content	<input checked="" type="checkbox"/> Raw materials' consumption by origin <input checked="" type="checkbox"/> Local content ratio	
			2. Regional employment	<input type="checkbox"/> Employment by regional origin
		3. Relocation out of Bangkok	<input checked="" type="checkbox"/> Reason of location	

5. INVESTMENT PROMOTION STRATEGIES AND INCENTIVES FOR THE LAEM CHABANG EPZ/GIE

5-1 INVESTMENT PROMOTION STRATEGIES FOR THE LAEM CHABANG EPZ/GIE

(1) PRESENT SITUATION OF PROMOTION BY IEAT

The section which is responsible for the promotion and sales of the industrial estates established by the IEAT is "Public Relation & Sales Section" which is annexed to the governor.

The current number of the staff members in the IEAT totals 280, among which the Public Relation and Sales Section share only 10 staff members. Within the section for the promotion of the industrial estates, only one is in charge, excluding the section chief who has to oversee the other activities as well. Even if an industrial estate is completed, no income can be generated without sales. Moreover, the interests incurred during the period between the completion and sale is an additional cost for a developer.

The importance of selling the estate at the earliest date is more than obvious. Thus the first step for the improvement of the IEAT should start with reallocating human resources to attaining more efficient operations.

The amount of financial allocation to the marketing section is insufficient for effective promotion activities, just as the personnel allocation is not enough. Annual budget of approximately 1.75 million bahts in 1988, which only shares 2.1% of the total budget can only cover a few advertisements and publications a year. The total unutilized real asset for the IEAT is 260 million bahts as of September 1987. The interest rate for the finance of the investment in the IEAT is 7-8%. Thus the annual interest for the debt for

the unutilized assets is 18 to 20 million bahts. It should be noted that once a plot is sold, the interest payment of such kind can be offset forever. In order to achieve such a prompt disposal of estates, the IEAT must invest more in promotion and marketing.

The public relations for the completed industrial estates dominate the activities of the PR & SALES DIV. of the IEAT. The major activities are ;

- a) Publications, e.g. brochure and investor guide booklet for the industrial estates,
- b) Video production for audio-visual presentation for the potential investors,
- c) Advertisement through newspapers in Thai and English,
- d) Seminar for potential investors within Thailand.

What is lacking in these activities is a direct marketing approach to the potential investors. There is also a lack of approaches to foreign investors, although they constitute the major group of the investors. There are no activities to establish marketing channels.

Since the personal and direct information based upon mutual trust has the most decisive impact upon the investment decision-making, the establishing of the market channels should be a central objective for the IEAT.

As for the expansion of marketing channels, it is efficient to establish outside agents, whether formally contracted or personally connected. Formal agents may prove to be more economical for overseas promotion and informal agents may be more effective for domestic promotion in Thailand.

(2) PROMOTION STRATEGIES AND PROGRAMS

1) General Policy

The promotion of industrial estates requires aggressive salesmanship and the development of marketing channels. For efficient and successful marketing of industrial estates, the promotional activities should be assessed from cost effectiveness and the organization must be structured to maintain the vitality in sales activities for industrial estates.

The first priority for promoting industrial estates should be given to "How fast can they be sold?". An efficient approach to prepare an effective promotion program is first to classify the targets of promotion into groups, to determine promotional activities for each group on the basis of cost-effectiveness and finally to schedule them.

2) Target Grouping for Promotion and its Activities

Promotional activities are listed below according to the target groups as follows;

Investors

Marketing surveys

Data bases

Promotional tours

Seminars

Direct visits

Sector surveys

Intermediate institutions

Study tours

Seminars

Individual meetings

Journalists

Journalist tours

News releases
Advertisements

Common Activities

News Letters
Pamphlets
Investors guides
Video/slides
Events

At the initial stage of promotion, one of the most important activities is how to dig out the potential investors, and the next is how to contact them directly.

There are two ways of learning about the two items mentioned above. One is to get information from companies directly through questionnaire surveys, sector studies, investment seminars, etc. In this study, a survey on potential investors was conducted in Japan and Thailand. It would be more desirable if the coverage of the questionnaires could be extended to other major investor countries such as the USA and Taiwan. These replies should be stored in a data base to be used as a potential client list for seminars or direct visits.

Sector surveys should be conducted to identify the investment needs in order to make accesses to potential clients effectively.

Seminars are also an effective tool in making contact with potential investors. They should be held on some relevant occasions in accordance with the progress of the project, such the seminar conducted as the final presentation of our study on the Laem Chabang I.E.

Another is an indirect way to get information through intermediate institutions and journalists. These people

deal directly or indirectly with investments, and require information on industrial estates. The enlargement of intermediate channels is also needed to reach investors effectively. Especially, association with journalists can provide access to mass-media, thereby reaching a large number of potential investors at one time. In order to gain access to an intermediary, individual meetings, journalist tours, news releases, etc. should be carried out.

In order to gain public attention and familiarization, it is quite useful to create some events to celebrate the project.

As a part of this study, pamphlets have already been created. In addition to them, an investors guide including more detailed information on the Laem Chabang I.E. should be prepared for the potential investors immediately.

3) Schedule of Promotion Activities

Table 5-1 shows the schedule of the promotion activities recommended above. It was made in relation to the construction schedule in order to bring about a maximum effect to attract investors to the Laem Chabang I.E. As is obvious from it, the promotional activities must be concentrated in 1990 when the Laem Chabang I.E. opens. To achieve the target, some activities must be started well in advance. Such activities are video-making and the follow-ups on the first market survey conducted in conjunction with the current study.

Table 5-1 Promotion Schedule

1988	1989	1990
Pamphlet	Video	Video
Investors guide	News letter	
Questionnaire survey I Construct of Date base Sector survey		Questionnaire survey II Date base
Promotion tour	Mediators promotion tour	Journalist tour Opening ceremony
	Acceptance of Applications	Start of Plant construction Moving into

5-2 INCENTIVES FOR INDUSTRIAL PROMOTION IN THE LAEM CHABANG INDUSTRIAL ESTATE

(1) FRAMEWORK OF INCENTIVES AND REGULATIONS

According to attract foreign investment for industrialization, most governments have established the laws and regulations related to investment. The total statutory framework related to investment consists of three major components;

- o Basic guarantee on corporate activities
- o Incentives to solicit investment
- o Regulations on corporate activities

The major goals for the investment incentives are;

- o Development of promising sectors
- o Development of rural areas
- o Securing foreign capital inflows
- o Development of export industries -- long term strategy to secure foreign exchange, thus restoring trade balance
- o Transfer of technology

The length of the exemption in Thailand ranks the third to Singapore and Malaysia. Thailand has an average level of taxation.

As for the import duties on machinery, Thailand in general gives a full exemption to export industries (more than 80% export) during 5 years. As for the raw materials Thailand gives reduction of import duties 50% for one year up to 90% reduction in business tax to other industries when they are located in the investment promotion zones.

Thailand also ranks the middle level among Asian countries.

The cabinet has decided the incentives for the Laem Chabang I.E. as follows;

Import duties: Exemption or reduction of import duties on machinery, spare parts, and raw materials

Corporate tax: 3-8 years exemption followed by 50% reduction for 5 years

Business Tax : Maximum 90% reduction for 5 years

Tax deduction: Double tax deduction of utilities cost since the first year of income generation for 10 years

One-stop-service: One-stop-service by IEAT for investment procedure

The incentives for the Laem Chabang I.E. are generally the averages of the investment promotion zones. The Laem Chabang I.E. should serve as the core of the industrialization of the area and enjoy the benefits accruing to the development of the Eastern Sea Board Development Program. In order to ensure the development of the Laem Chabang I.E., the government should watch the balance of comparative advantages between the Laem Chabang I.E. and its surrounding areas.

As a long-term stand point of view, the proposals of incentives for the Laem Chabang I.E. are as follows.

Simplification of the Incentives

Currently, incentives are given to the promoted companies in return for their contribution to export expansion. At the same time, the BOI must monitor their activities to ensure their conformity with the specified requirements.

In Thailand, rapid industrialization will increase the promoted companies tremendously. Parts and components

manufacturers, so to speak supporting industries, are expected to form a basis to support export industries especially of machinery and electronics apparatus. The BOI announced a revision in the incentive scheme which includes granting import duty exemption to supporting industries as well as exporting industries. However, the evaluation of supporting industries involve a great difficulty and the monitoring will require further efforts.

Industrialization will inevitably accompany the diversification and increase in the inter-relations among manufacturers. High tariff rates become an obstacle for the development of internationally competitive manufacturing sector although it is difficult to reduce tariff instantly in the country where 1/4 of the government revenue derives from import duties.

However, in an international market where price and quality differentiations are the only way to penetrate the market, more competition must be encouraged.

To avoid overloaded administration and give fair competitive grounds it is advisable to give a uniform tax exemption to an industry or at least a sector gradually.

In the long run, import duties should be lowered uniformly and incentives should be simplified to induce more of the private sectors' own initiatives.

Selective Use of Incentives

For the short term, it may be beneficial to strengthen a certain strategic sector to form the basis of the industrialization in Thailand.

If the industrialization continues at the current rate and the wages overshoot, Thailand may be outdone by other countries in comparative advantages for investments.

Concentrating such efforts on some strategic industries deserves further investigation. For instance, most of the Asian countries, except the city countries, have set the automotive industry as a target industry. Every country pushes the localization of automobile production, but, at the moment it stagnates at initial levels due to a limited market size and the lack of supporting industries. Without strong policies to induce concentrated investment in the sector, the further localization cannot be expected. Thailand, which ranks next to Korea and Taiwan in terms of the domestic market and technology level, has a good chance for pursuing the localization of the automotive industry. It is important in doing so to ensure that localization promotes international competitiveness. Otherwise, Thai industry may be segregated from international markets only to impose the economic costs on the local consumers. In any case, the promotion of selected industry involves risks of hampering the development in the long term or that of other sectors. Therefore, it requires a thorough investigation of the possibility and risks.

5-3 REORGANIZATION PROPOSAL FOR THE LAEM CHABANG INDUSTRIAL ESTATE

At present, the functions and organization of the IEAT are structured to conform mainly to the construction of industrial estates. Besides the industrial estates developed by IEAT, already 8 private industrial estates are in operation and the same number of industrial estates are under implementation. Now the need for the involvement of IEAT is questioned. Ideally, the IEAT must assume a strategically leading role in the industrialization of Thailand and, at the same time, maintain its operation profitable. In being able to achieve the goal, the proposal starts with redefinition of the "Objectives".

(1) REDEFINITION OF OBJECTIVES

Judging from the original objectives of the IEAT, the ultimate goal of the IEAT is not merely to develop industrial estates, but is to ;

promote the industrialization in Thailand in accordance to the national development objectives such as 1) advancing the manufacturing sector to higher technology and higher value-added, and 2) dispersing the manufacturing sector to rural areas.

To achieve the above goal, the IEAT has the measures of;

- i) provision of industrial estates and related facilities,
- ii) provision of services to promote investment and assist investors in conducting profitable activities.

The current investment trends indicate that the manufacturing sector will expand more into electronics, electric appliances, transport machinery, office machinery, precision equipment, and computer related products which form a core of the manufacturing sector in industrialized countries. Needless to say, manufacturing of the above-mentioned machinery could bring higher value-added to economy but requires higher technology and more sophisticated management system. Nevertheless, in these fields of production, the Thai manufacturers conduct only the final stage of production process, i.e. assembly work which only produces small margins of value-added. In order to capture the latent part of high value-added, the Thai manufacturing sector must expand to upstream processes of manufacturing process, first components and parts production, second tool and machinery production or material

production. The IEAT can offer a place and services required to induce such agglomeration at an industrial estate.

Another important role of the IEAT is to prompt the decentralization of the industries from the crowded Bangkok area. The dispersion of industries is clearly recognized as one of the chief goals of the national development which aims to correct regional income differences.

In mobilizing the resources available at the IEAT, it requires the restructuring of the organization to bring out its maximum effects in the shortest period (Fig. 5-1).

(2) RESTRUCTURING THE IEAT

The IEAT which is capable of providing industrial lands must contribute to achieving the decentralization of the industrial activities as a public corporation coordinating with other agencies to provide a packaged infrastructures. The industrial locations must be strategically chosen to meet the needs of the society. Moreover, the industrialization in Thailand must be directed to increasing its competitiveness by advancing the manufacturing technologies and by broadening the bases of the industries in terms of products, parts supplies and operations. The IEAT must enhance its capabilities in such research and study field to be able to lay down an overall strategy of industrial locations in Thailand (Fig. 5-2).

To be able to assume such sophisticated responsibility to guide a desirable direction of industrialization, the IEAT must have an aim to study and coordinate activities related to industrial locations and promoting target industries.

The Policy and Coordination Section, a special branch to concentrate on the industrial location planning and monitoring, is suggested.

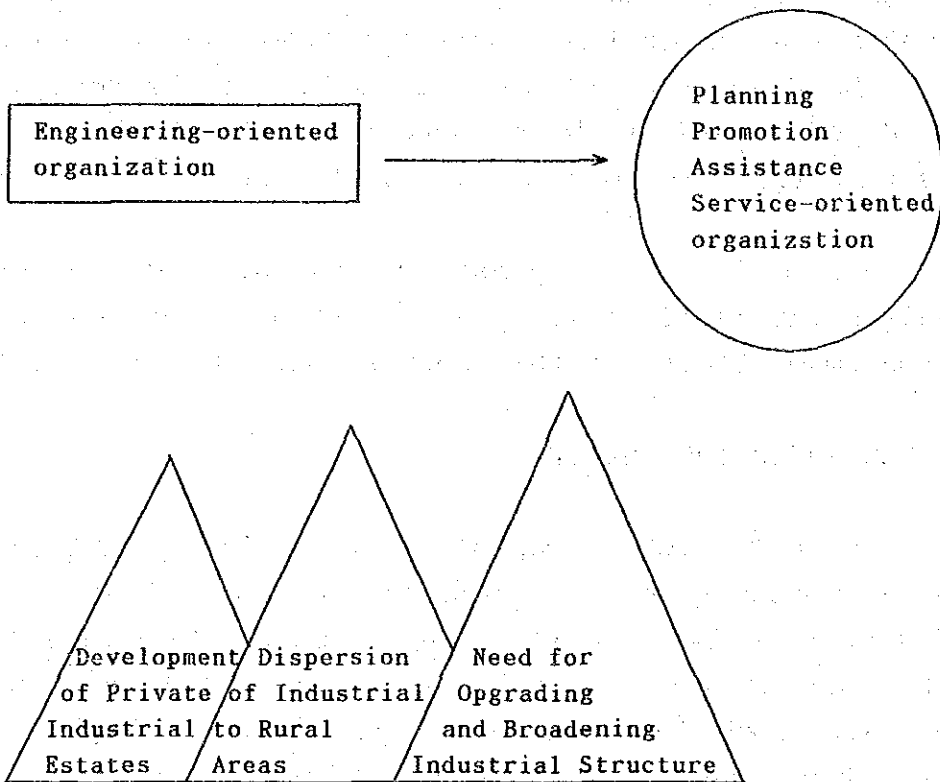


Fig. 5-1 Redefinition of IEAT's Objectives

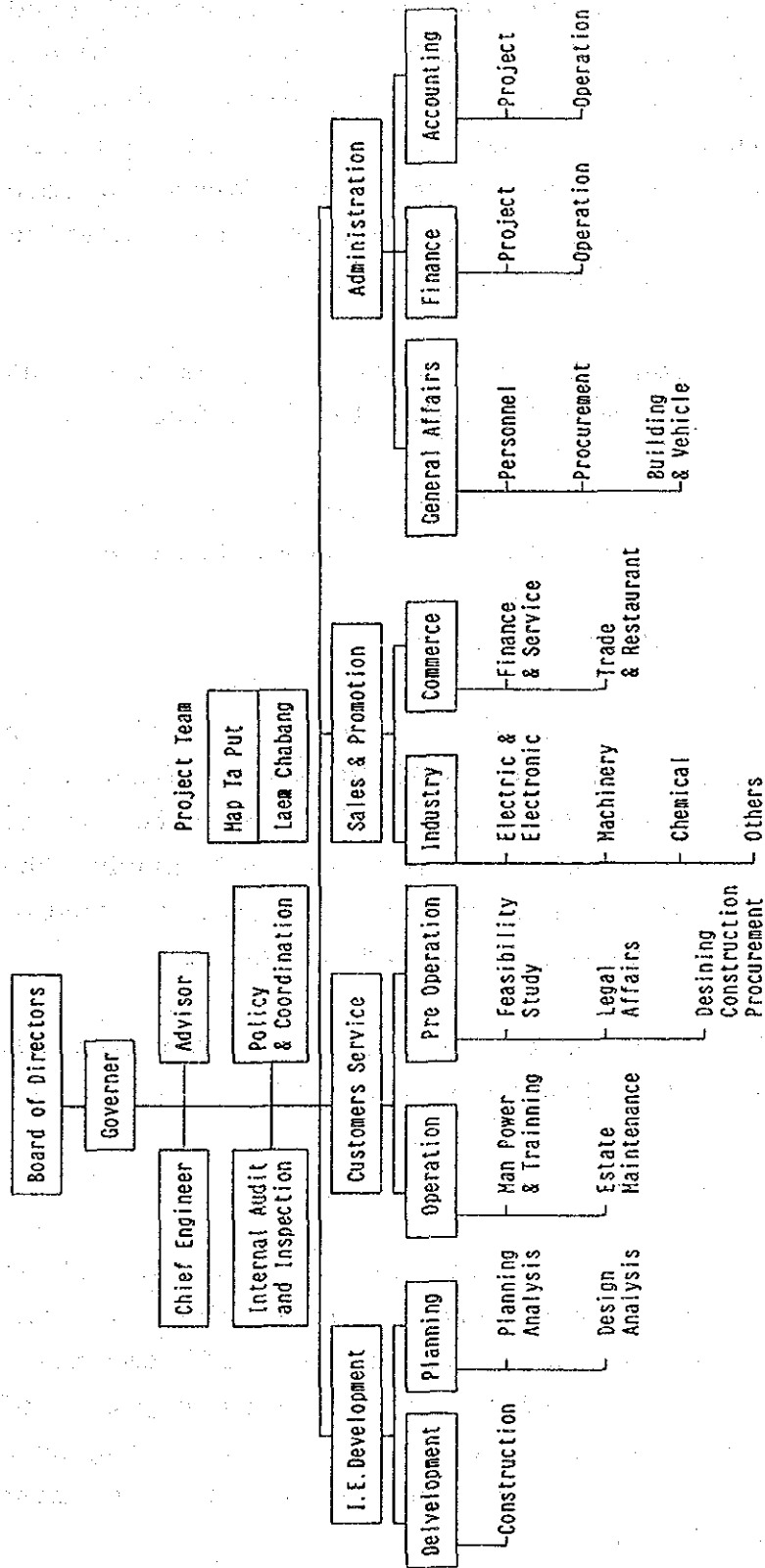


Fig. 5-2 Organization Plan of IEAT

Another important aspect of the IEAT's activities is the fact that its activities are closely related with operations of manufacturers. Though the importance attached to the engineering aspects of the IEAT activities should not be disregarded, more emphasis should be placed upon the promotion and servicing to the customers. The current promotion activities should be reorganized to assume a more positive approach by studying target sectors and analyzing the needs and demands for industrial locations.

To be able to conduct such positive promotion and services to occupants, it would require two branches i.e.

- 1) Setting up the Customers Service Division, and
- 2) Reinforcing the Sales and Promotion as Division.

Policy and Coordination Division

Currently, there is no institution which specializes in the research and study on industrialization in Thailand. As the industrialization progresses at the current rate, it is becoming aware of the needs to monitor and study the balanced development of the manufacturing sector to ensure efficient use of available resources and manpower.

The envisaged activities of the Policy and Coordination Division are delineated in Fig. 5-3 in detail.

Customers Service Division

The Customers Service Division is proposed to add a function of providing "Before and After-Service" to the investors to ensure their operations to take off smoothly. The division should be staffed with experts capable of assisting firms in establishing factories and of acting as a trouble shooter. The expertise deemed to be of most importance to investors are ;

- Feasibility Study
- Legal Affairs concerning licence, incentives, taxes and trades
- Design and construction of factories
- Procurement of equipment and material and trades
- Securing and training manpower
- Other management, in general

The provision of such expertise is extremely useful to foreign firms which are not familiar with local conditions. The lead time which is presently prolonged due to the investment boom can be cut short through such an assistance.

Reinforcement of Sales and Promotion as a Division

There is no investment to develop marketing channels in the current promotion activities of the IEAT. The situation cannot be improved by merely expanding the number of staff. It must expand its marketing functions to undertake long term marketing programs and transform the sales management to attain more efficiency.

1) Sector Division of Promotion

Marketing begins with marketing research to grasp the exact needs of their clients by their attributes, such as nationality, industry type, and size. To be able to conduct such activities, the promotion should be divided into sectors such as electronics, and machinery of priority to concentrate on sector analysis which leads to aggressive promotion (Fig. 5-4).

2) Developing Market Channels

The second improvement should be made to invest more for developing marketing channels. The cases of investment promotion by foreign countries show that promotion offices

	Function	Activities
Policy Coordination	Policy making & Monitoring of industrial location & Sector Development	<ul style="list-style-type: none"> -Data Collection of industrial Location -Master Plan Making & updating -Coordination with Other related Authorities -Coordination within IEAT on total activities -Target Industry Development Study & Policy making

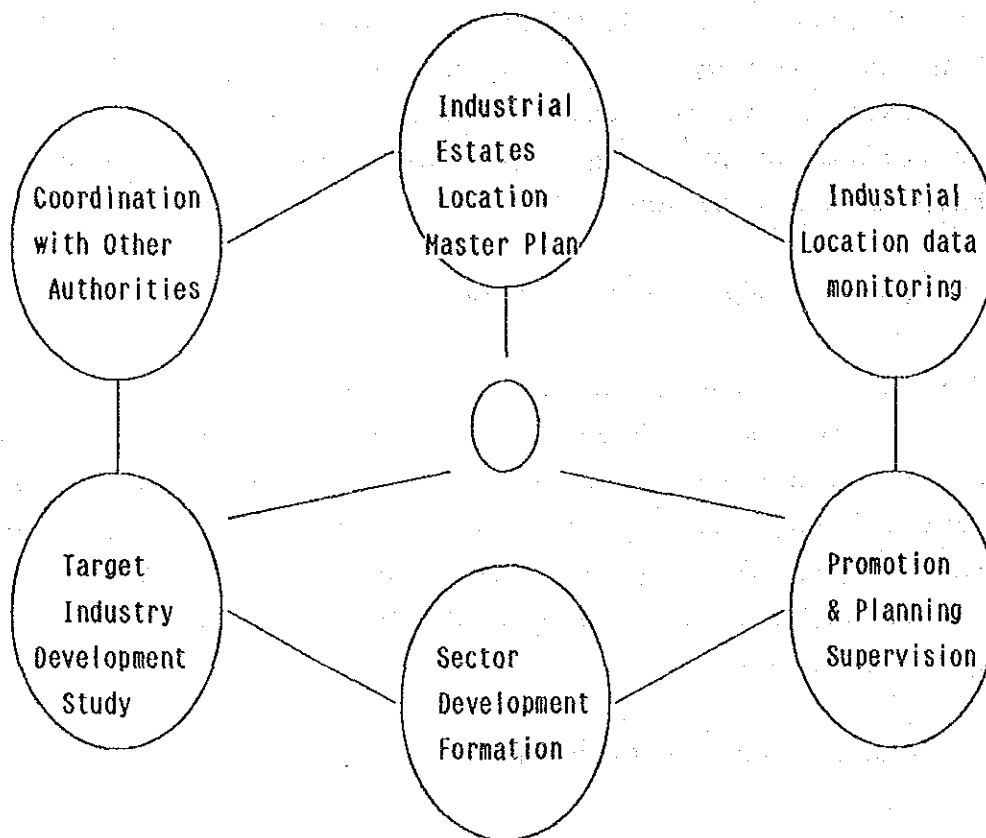


Fig. 5-3 Functions and Activities of Policy Coordination Section

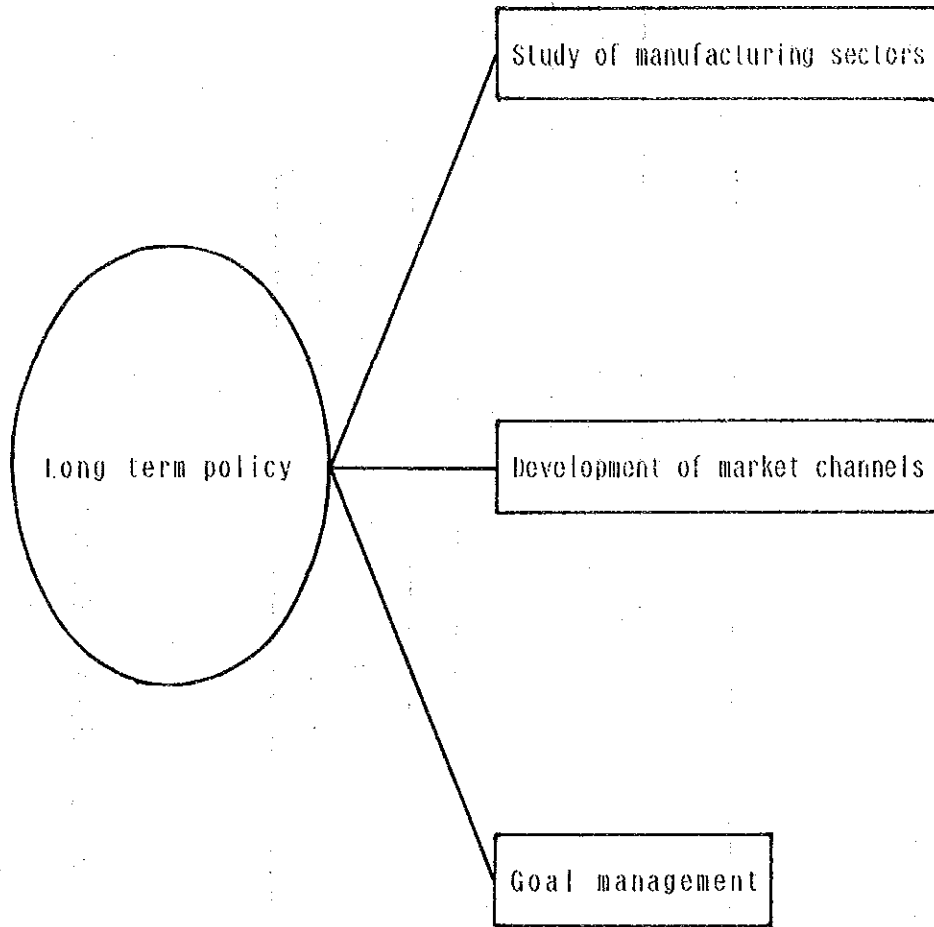


Fig. 5-4 Long Term Marketing Program

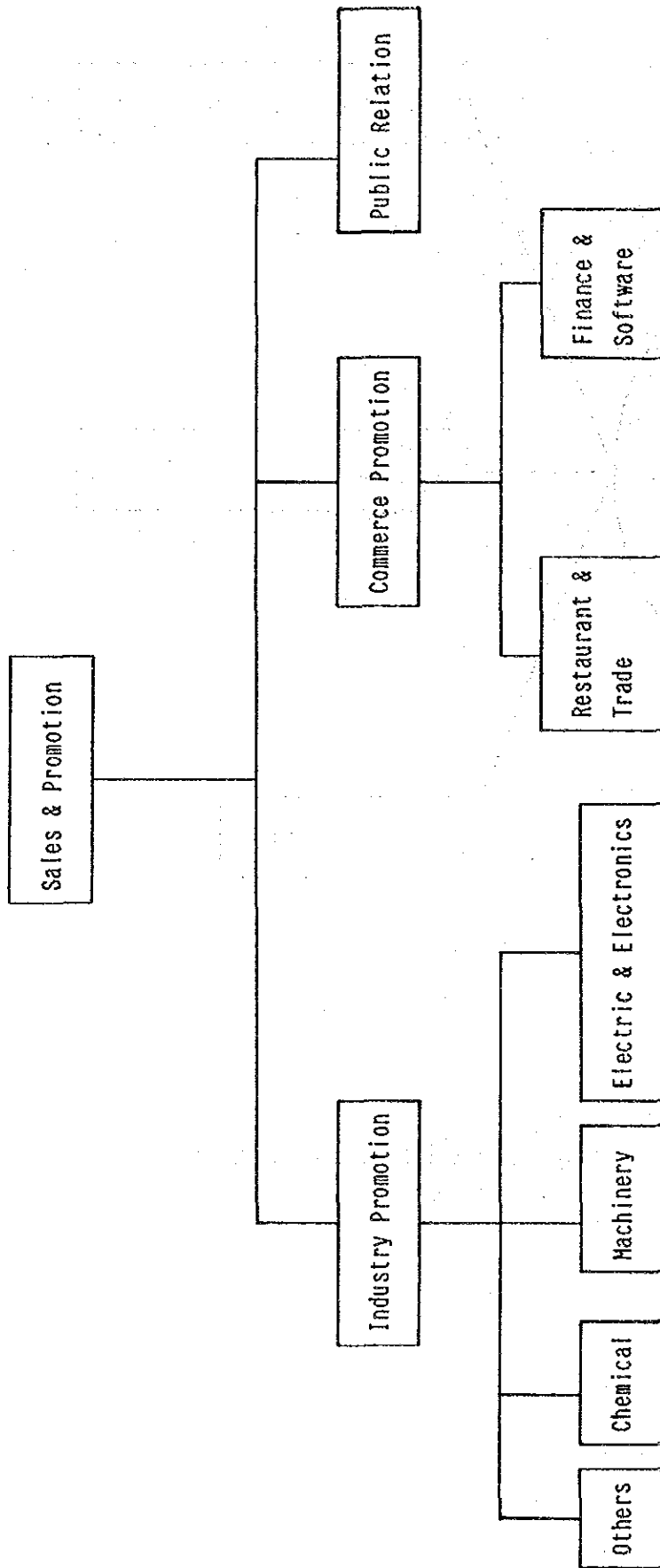


Fig. 5-5 Organization of Sales & Promotion

staffed with officers specializing in specific sectors have successfully achieved attraction of investments (Fig. 5-5).

3) Goal Management

To conduct marketing effectively, some form of "Goal Management" should be introduced to commit the officers to promotion. Goal Management works most efficiently with the provision of incentives. Such a scheme may not comply with the management rules of a public corporation. In that case, direct promotion may be subcontracted to a private firm. Given incentives, the promotion officers will surely use their resources and connections to the maximum.

4) Who Is To Undertake Promotion?

If the aggressive promotion management does not prove to be acceptable to the IEAT, one alternative is to subcontract direct sales activities to a private firm, whether a PR company or a consultant. It would be more economical in the long run since the IEAT does not have to increase its personnel and can give a fixed term of a contract around at the completion of an industrial estate. It also gives an option to the IEAT to change marketing firms if the contracted firm proves ineffective. However, the detachment of promotion activities will deprive the IEAT of the direct access to investors, thereby hindering its information collection functions.

6. OPERATION AND MANAGEMENT PLAN OF THE LAEM CHABANG EPZ/GIE

6-1 SUPPORTING SERVICES AND FACILITIES OF THE LAEM CHABANG INDUSTRIAL ESTATE

(1) EXAMPLES OF INDUSTRIAL ESTATES

Endeavor is now being made to invite oversea firms' production sections to the Laem Chabang EPZ/GIE. The study will be conducted of the supporting service facilities, management and operation of the Laem Chabang EPZ/GIE after reviewing advanced industrial estates in Asian countries including Japan. The industrial estates in those Asian countries which are inviting Japanese, European and American firms and the nations where foreign enterprises are recently making heavy investments.

1) Japan

In a large-scale industrial estate of a basic type in Japan, a center building is constructed to accommodate an administrative office, exhibition lots, meeting rooms, a disaster preventing center and so forth, and a rest park and sports facilities are constructed in its neighborhood.

General supporting services and facilities in an industrial estate are shown in Table 6-1 that are properly selected depending on the characteristics of their siting, features of client firms' business, and so forth.

2) Asian nations

Asian nations, including Thailand, have many so-called free zones (called free trade zone, free port transit zone or export processing zone in different nations) for inviting Japanese, European and North American firms.

Table 6-1 Common Facilities to be Installed Inside and Outside Industrial Estates in Japan

Production activity-supporting facilities	Traffic	Access roads Lot roads Parking lots
	Material distribution	Truck terminals Common warehouses
	Supply, treatment	Drinking water supply pipes Industrial water supply pipes Sewerage Waste water treatment facilities Garbage treatment facilities Electric power supply facilities Gas supply facilities Heat supply facilities
	Tele-communication	Telephone, facsimile and telex communication circuits Post office
Management and operation facilities	Administration	Park center (Administrative office)
	Security	Street lighting Traffic safety facilities (signals, signs, etc.) Police box
	Disaster prevention	Regulating pondage Fire hydrant Fire station Disaster preventing center (in a management office)
Environment, welfare and health facilities	Greens, rest parks, etc.	Landscaping Damping greens Parks
	Sports facilities	Multipurpose sports parks Baseball grounds, tennis courts, etc. Gymnasiums, swimming pools, etc.
Business supporting facilities and private companies	Supply of industry-supporting information	Meeting rooms, training rooms Exhibition lot Rental laboratory Information center, Library Computer center, CAD center Vocational training school
	Issues related to official procedure	Governmental and municipal offices and agencies, Banks and other financial institutions
Residential and environment facilities	Residential facilities	Housing area (for rent and sale)
	Commercial facilities	Shops, shopping center
	Educational facilities	Schools
	Welfare and health	Clinic, hospital, nursery schools

Free zones grant beneficiary rights and other privileges to admitted firms on one hand and impose limitations and restrictions on the other. They are making efforts to become attractive for admitted firms. Namely, all industrial estates (free zones) are fully equipped with firms' production supporting facilities.

3) Thailand

During the study period, several Japanese firms and JETRO Bangkok Center were interviewed. The purpose of the interviews was to study their opinion on the supporting facilities and the management bodies of industrial estates and on the other industrial estates which can be competitors for Laem Chabang. As the result, it was learned that the following five issues are considered as important.

- o Sufficient maintenance and management of existing infrastructure
- o Rapid, one-stop, collective performance of administrative and official procedures
- o Rapid response to firms' requests for information supply, maintenance service, etc.
- o Establishment of business supporting institutions and non-governmental corporations inside and outside the estate
- o Establishment of good residential environments inside and outside the estate

(2) QUESTIONNAIRE SURVEY ON SUPPORTING SERVICES AND FACILITIES

In September, 1988, a questionnaire survey was conducted under the title "Survey on the Progress of International

Specialization and Factory Transit to Overseas and Thailand's Industrial Development". Listed below are the answers to the questionnaire regarding industrial estates' management and operation system as well as firm-supporting services and facilities which their management and operation body offers. A plurality of answers were given from each of the 149 firms which mentioned that they were interested in the Laem Chabang EPZ/GIE. As the result, the above firms consider following items as important.

- . Labor force, quantity and educational level.
- . Level of infrastructures such as electric power supply, communication facilities, and water.
- . Reduction/exemption of various taxes
- . Rapid and simplified various official procedures
- . Unification of the contact-service for the officials and financing.

(3) SERVICES REQUIRED TO MANAGEMENT AND OPERATION BODY

Japanese firms expect overseas industrial estates' management and operation body to carry out the following five issues:

- a. Rapid and one-stop formalities performance and request-response services
- b. High-quality labor force and personnel recruiting services.
- c. Quick customs clearance services
- d. Implementation of good working and residential environments

e. Full implementation of business-supporting facilities, invitation of business-supporting firms.

As for the item a, the management and operation body is required to establish such an organization or system that all formalities, approval and permission applications, requests and so forth may be concentrated on one contact window.

In connection with the item b, the firms' demand can be met by providing direct or indirect services to recruit and introduce workers having special skills, highly educated foremen and group leaders (rather than routine workers), as well as vocational and technological training services.

In connection with the item c, customs clearance jobs are inherently controlled by the taxation authority and industrial estates' management and operation body cannot act for them. The former may however provide maximum facilities and hardware for the latter's convenience. For example, customs clearance jobs can be speeded up and smoothed if computer sets are rent to liberate customs officers from recording jobs and devote them to inspection and tax value estimation.

As for the item d, it is desired to accelerate the execution of the present plan for housing complex construction outside the industrial estate and it is important to implement cultural, recreational, educational and other urban facilities.

As for the item e, it is desirable to invite, under various incentives, non-governmental corporations and public institutions' offices which are expected to offer varied supporting-services in addition to the management and operation body's direct firm-supporting services and facilities. The following would be included among effective measures in this direction: low-rate or free lending of

shop spaces in the Business Center to those concerned in varied services, and management and operation body's preparation of a data base for the situation-wanted informations supplied from the colleges in Bangkok, the informations of raw material suppliers, and so forth to meet admitted firms' requirements.

(4) THE LAEM CHABANG INDUSTRIAL ESTATE'S SUPPORTING SERVICES AND FACILITIES

Almost all of what are required at the beginning of the industrial estate's operation are included in the present plan. When many firms are admitted to it, it would be necessary to add other facilities depending on their needs. In addition to the facilities currently planned, the services and facilities which are shown in Table 6-2, 6-3 are considered for admitted firms.

Table 6-2 Supporting services and facilities desired in initial stage

Service item	Service site or facility	Remarks
1 Formalities performance services	Information desk + management office section in charge	This contact window receives all formalities. It forwards those which the management and operation body can accept to its section in charge or gives advice about necessary documents and competent institutions.
2 Request receiving and fulfilling services	Information desk + management office section in charge	Receives all service requests, etc., and forwards them to management and operation body's section in charge. (It is desirable to prepare a request receiving format beforehand).
3 Information supply services (Specialists may be invited to offer them in place of the management and operation body)	Management office's section in charge	<p>The management and operation body creates a data base of the following information and immediately supplies the information demanded by firms.</p> <ul style="list-style-type: none"> o Skilled engineer situation wanted informations o Informations of raw material suppliers, subcontractors, etc. o Informations of rent houses for foreigners <p>Preliminarily necessary for this purpose are collection of informations, purchase of hardwares and employees' training for their operation.</p>
4 Facility offer services	Management office's section in charge	Telephone reservation of sports facilities in park, its cancellation, and indexing of unreserved hours

Table 6-3 Supporting services and facilities desired when the setting-up of firms has progressed

Service item	Service site or facility	Remarks
5 Services for supporting Admitted Firms' Liaison Conference activities	Meeting room in Management Office or a room in Business Center	The management and operation body advises admitted firms to organize liaison conferences, and assists their activities for information exchange, etc. at the meeting room in Management Office or at a room in the Business Center.
6 Periodical opening of the liaison conference of admitted firms' liaison conference and management and operation body	Meeting room in Management Office (section in charge and liaison meeting of invited firms)	Firms' collective advance of requests, management and operation body's collective fulfilling of requests, management and operation body's determination of firms' needs for new supporting services and promotion of their information of management and operation jobs through both parties' periodical meeting, planning and organization of gatherings for promoting mutual friendship, and promotion of regional development activities Also, the distribution among firms of "Industrial Park News" with the articles on liaison meeting activities may be a significant measure in this direction.
7 Management consultation services (Specialists may be introduced to offer them in place of management and operation body.)	Management office section in charge	Consultation items: introduction of financial institution, efficient firms' asset operation method, etc.
8 Employee bus transportation services	Management office's section in charge	It may be carried out depending or request of firms concerned under an agreement between firms and management office.
9 Workshop services	Management office's section in charge	Employment of welders, sheet metal workers, etc. for the simple repair of the firms' machinery

6-2 STUDY OF MAIN SUPPORTING SERVICES AND FACILITIES IN THE
LAEM CHABANG EPZ/GIE

(1) VOCATIONAL TRAINING FACILITIES

As for the vocational training center as an ancillary facility for the Laem Chabang I.E., the following issues were considered:

- 1) The quality and quantity of labor needed by enterprises entering the Laem Chabang I.E.
- 2) The possibility of labor supply in and around the Laem Chabang I.E.
- 3) The present state of vocational education, training facilities, and related matters in the Laem Chabang I.E.

As the results of the above study, the existing setup and its supplement should be inadequate for the need of the companies, and new facility should be established within or vicinity of the Laem Chabang I.E. The study is also conducted its scale, management method and other related factors.

More than 80 per cent of the labor force required for the Laem Chabang Industrial Estate is unskilled labor. These workers are adequate vicinity of the Laem Chabang I.E. They, therefore, demonstrate a high level of efficiency in mechanized processing assembly and similar simple work. This is a beneficial point for enterprises entering into Laem Chabang. Nevertheless, in cases where strict adherence to product precision standards is required, and on the basis of quality control, pre-employment training ("cultivation" training) and post-employment training for skill upgrading is advisable. From this standpoint, the pre-employment training courses and the skill upgrading courses at the

regional vocational center under NISD will be of some help. It can be expected that enterprises entering the Laem Chabang I.E. will be able to fully obtain the type and amount of labor required. It is essential to know the industrial types of the enterprises and organize the curriculum to meet their needs. The close exchange of information between CISD and the enterprises locating in the estate will become an essential condition for ensuring the project's success.

Although it is one of the measures used to activate CISD and to use it effectively, this alone will not be sufficient for fulfilling the needs of the estate's enterprises. First, its capacity for 6 - 10-month courses is 400 students, which indicates the shortage of the absolute quantity. Second, it is geographically inconvenient distance from Chon Buri. In considering above prospect, it will be necessary to establish a new vocational training facility either within or near the Estate for improving the skills of already employed workers.

In actual terms, the contents of the training offered should concentrate on skill development and the upgrading of existing abilities. It is especially necessary to implement a program that will be valuable and useful to firms within the Estate. This requires that program planners should keep in mind that the targets of the training will be those presently working at enterprises within the Estate. In shaping the program curriculum, it is also necessary to provide training to upgrade the skills of existing workers. Finally, it should also be stressed that, proportional to other groups, the training of managers requires more attention.

The initiating a system of employment introduction should be given full consideration in the contemplation and planning of vocational training facilities. Thailand has nothing comparable to the Japanese Public Employment

Security Office, and no mediation agency to supply information to either those looking for work or to companies seeking workers. Thus employment introduction is an essential issue for planning the industrial estate development. In pondering the establishment of a vocational training facility closely linked to the industrial activities within the Estate, planners must input such data as;

- . job offer and job hunting information,

- . data on both vocational students and the employment needs of companies operating within the estate,

- . Data of unemployment, semi-unemployment, and demand for work in neighboring regions.

Depending upon the determination of local needs, the system eventually developed might be placed within the training facility itself. In any case, recognition of the system's usefulness is also a matter of significance. (See Fig. 6-1.)

Depending upon the aims of enterprises location in the Estate, the vocational training agenda and curriculum should be operated flexibly. To ensure this, representatives of both the enterprises and the center's operating main body should form an internal operations council to promote the mutual exchange of information.

In implementing the aspects of this report, a special details F/S is necessary. In this operation, this region's labor and employment conditions should be surveyed in detail. Firms intending to be located in the estate (and those wishing to locate) should be surveyed by questionnaire and other methods. When additional news on the needs of employee training is received, it must be considered in facility planning. Nevertheless, in establishing the future attractiveness of the estate, and in creating that

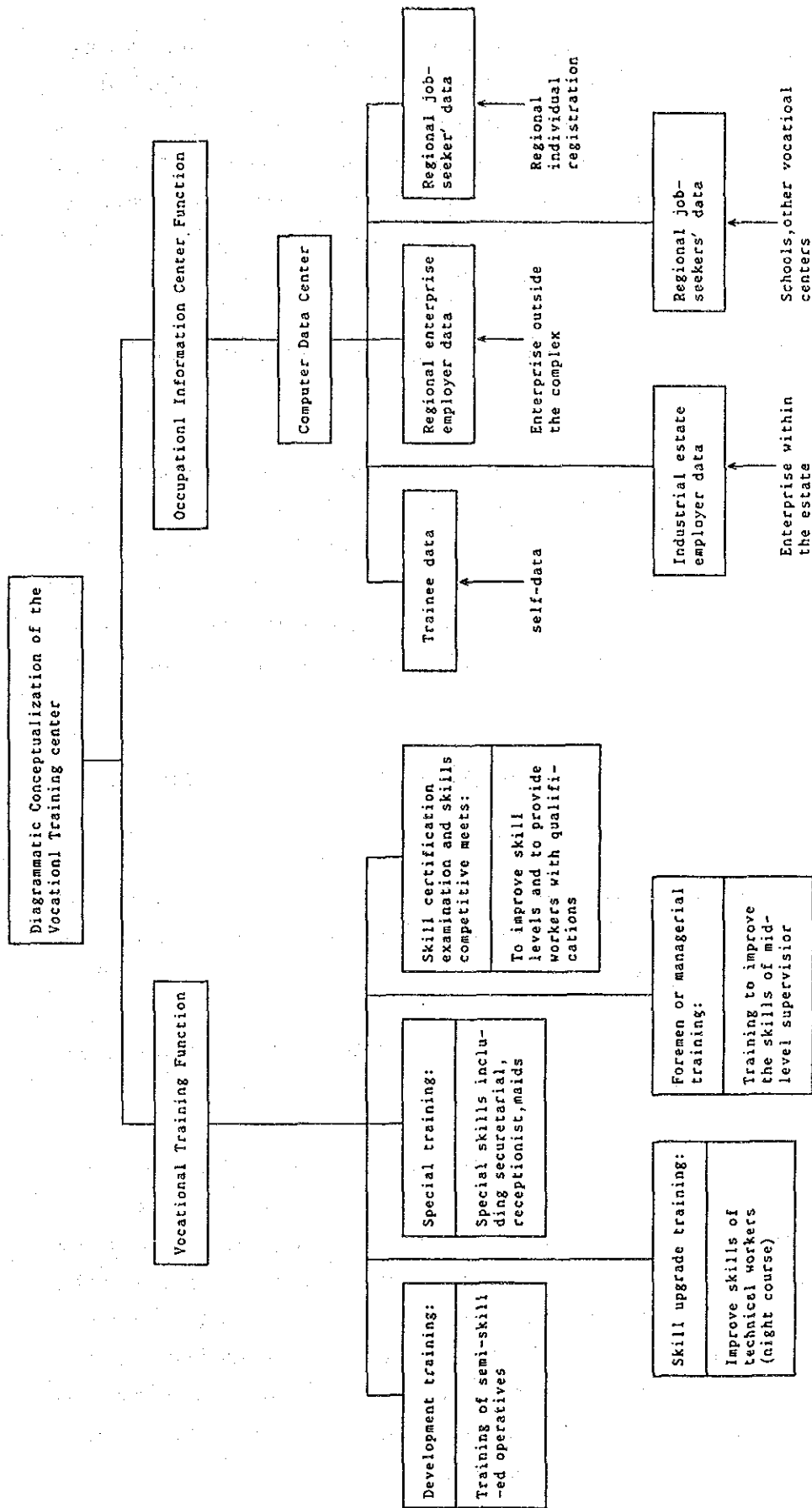


Fig. 6-1 Diagram of the Vocational Training Center

attractiveness, the new construction of a vocational center should be a matter of major concern. It must be included in plans to attract firms to the estate. We propose to make a quick decision to establish a new vocational training center in principle in consideration of the anticipated increase of employment in the eastern seaboard region and the present capacity of the existing facilities.

(2) REVIEW OF THE COMMUNICATION FACILITIES OF THE LAEM
CHABANG EPZ/GIE

Bangkok is, needless to say, the center of economic and industrial activities in Thailand, and here are also gathered the head offices of major enterprises. Moreover, most of the communications with other areas is carried out via Bangkok. Therefore, it is necessary to install sufficient communication lines between Bangkok and the estate.

1) Communications between the Laem Chabang EPZ/GIE and
Bangkok

As for the installation of the communication lines in the Laem Chabang EPZ/GIE, the line capacity will be increased to 5,000 lines.

However, it is needed to have plans for increasing telephone lines even after 1991.

The communication lines between Laem Chabang and Bangkok mostly use the public switched telephone network. Facsimiles and telexes that can be used through the ordinary telephone lines are useful as they are, but there should be other ways to meet the demand for a data communication service with higher speed and reliability. According to the questionnaire taken in Japan, more than 40% wanted to utilize the data communication service (both private lines service and packet switching service).

2) The support for the establishment of the international telecommunication network

The Laem Chabang EPZ/GIE, from its very nature, will mostly consist of factories of foreign companies. The needs for the connection to international telecommunication networks will increase after those factories start full operation. For those factories, it is essential to be able to communicate smoothly and quickly with the head offices in their home countries.

Therefore, a plan to acquire maximum connections to international cables is necessary in order to facilitate overseas telephone connections after the full operation of production in the Laem Chabang I.E. This should be considered in discussions with TOT and CAT.

3) The communication and information facilities in the Laem Chabang EPZ/GIE

In the Industrial Estate, new types of service should be provided to the factories with information-related facilities in addition to the usual production facilities and the controlling facilities. In other words, the value-added of the industrial estate should be raised and its enterprises will be diversified by providing industry supporting facilities, such as an information system, and by offering an environment for efficient production.

The following are the examples of the services and facilities possibly provided in the Industrial Estate.

a. Advanced information facility

Information exchange system

The enterprises which operate in the Industrial Estate do not belong to the same types of industry. Plants

of many different industries will be constructed. Even under these conditions, it is possible to establish or region-oriented information exchange network by obtaining the consensus of the enterprises.

The details of the network can be suggested as a bulletin board system, an electronic mail system, and a teleconference system.

b. The establishment of the jointly-used facilities of communication and information

In order to improve productivity and to rationalize enterprises, various information and communication machinery must be applied to designing, technical calculations and communications.

It is, however, often too costly and inefficient for each enterprise to acquire such equipments individually. Therefore, it is effective for small companies to share this equipment at a common office because the purchase prices and maintenance costs of the equipment are high.

The following is the equipment suggested for the joint office.

- . Teleconference room - the international teleconference service
- . Computers - the establishment of the joint business management center/data processing center using computers.
- . Telex
- . High speed facsimile
- . CAD/CAM

. Database terminals

c. The management system within the Industrial Estate

Each enterprise in the Industrial Estate should take care of the security management (prevention of crimes and fire) and the energy control (electricity, water and gas). At the same time, a collective management system can be established in order to reduce each enterprise's task in management.

Another service in consideration is to provide information of the Industrial Estate itself, such as reservations of facilities within the estate.

4) Information systems of the port area

The main function of present ports is to circulate goods. There is a growing demand for connecting and integrating all the stages of circulation, including loading, sorting, storage and distribution. These are necessary for the fast and low-cost handling of a large quantity of products with different characteristics and sizes. As a result, the improvement of the transportation system is important, connected with the commercial transaction system and the information system. It is becoming necessary to accumulate port functions and commercial functions at the base of information systems.

A system is needed to reduce and simplify the port-controlling activities, to use the port effectively, and to provide information on the port to the users. The details of the port controlling information system are as follows.

a. The shipping information system

b. The facility controlling system

c. The fee calculation system

This port system is requested to have a data link to the other network systems within the Estate and provide transportation information.

- 5) The future of the Laem Chabang EPZ/GIE seen from the aspect of communication and information - Teleport Plan

The Teleport is a fast and economical information disseminating system, which deals with the advancement of the international relations and trades. The Teleport will establish the area as a base for the exchange of information and eventually as a multilateral international information network, taking note of the promotion and integration of the functions of the Teleport and its environment. Also, the core of the Teleport Plan is to set up the nodes of the international communication network, such as a satellite earth station. The concept of the Teleport has recently become very popular.

The reasons for this plan are as follows: the need to secure the communication measures to match the growing demand for communication, the increase of various types of enterprises as a result of free operation of telecommunication, the development of satellite communication, optical fiber, etc.

The characteristic of this plan is that the international telecommunication operations and the development of the area are carried out simultaneously. In the process, the port or the one in charge of the port will play an important role. Such an undertaking will contribute to the future Laem Chabang EPZ/GIE.

The requisites of the Teleport are the following.

Earth station: parabolic antenna, antenna site, auxiliary facilities

Office park facilities: information handling buildings

Cable facilities: communication cables connecting the earth station and the office park facilities, and within the office park.

(3) SERVICES FOR INVESTORS

From the experience of Japan, Korea and Taiwan and the current situation of Thailand, the provision of the following services will be necessary in order to substantiate the services to be offered to investors of the Laem Chabang EPZ/GIE:

- a. Land development and factory construction cooperation
- b. Labor (personnel recommendation)
- c. Establishment of taxation branch office
- d. Immigration administration
- e. Computer service
- f. Establishment of governmental financing branch office
- g. School facilities
- h. Provision of insurance, customs, machinery repair, travel agency offices

i. Consulting service

(4) SIMPLIFICATION OF PROCEDURES FOR FACTORY LOCATION AND OTHER APPLICATIONS

Among various procedures connected with industrial estates and export processing zones, the procedure for applying plant location requires a large amount of time (1 to 2 years).

The factory location applications procedure of the industrial estates and export processing zones of Korea, Taiwan, Thailand, Malaysia and Japan essentially consist of the following elementary operations:

- a. Investment permit application
 - Recommendation qualifications
 - Investment permit
 - Manufacturing permit
- b. Company registration
- c. Capital goods import permit application
 - Application for machinery equipment and raw materials import permits
- d. Foreigners' employment applications
- e. Work permit for foreign employees
- f. Acquisition and preparation of factory location plot
- g. Factory establishment application
- h. Construction permit application
- i. Factory operation permit, machinery installation and factory trial running permit application

j. Factory registration

k. Profit enterprise registration

The numbers of governmental organs involved in the procedures of locating factories in Korea, Taiwan and Malaysia are larger than those of Thailand and Japan. However, an enormous period of time is required for making location applications procedures in Thailand today. Accordingly, it will be urgent for Thailand to simplify her location application procedures on one hand and, at the same time, to improve the efficiency of clerical tasks.

(5) CUSTOMS CLEARANCE SYSTEM

Customs System in the Laem Chabang EPZ/GIE

It will be necessary for the Laem Chabang EPZ/GIE to make the following improvements:

a. Adoption of system for selective inspection of foreign cargoes

At Klong Toei Wharves, all container cargoes are being inspected to prevent smuggling. As a result, the harbor zone is faced with a serious congestion of cargo distribution. This congestion stems partly from a rapid increase in the actual volume of cargoes being handled, but the basic reason is that the existing cargo handling operations and customs system are incapable of coping adequately with the increase of cargoes.

Surcharges are imposed on container cargoes held up due to ship and cargo congestion. This lowers the competitiveness of imported commodities.

Accordingly, in order to prevent cargo congestion in the port area and to ensure speedy customs clearance at

the Laem Chabang EPZ/GIE, it will be necessary to revise the method of examining all container cargoes at least for those corporations which are engaged in export/import constantly, and to adopt the method of selective inspection of cargoes. Regarding the sampling ratio, about 20% of the total quantity would be advisable.

b. Cargo inspection in exporting country

An effective method for expediting the customs clearance of imported cargoes is to have the cargoes inspected beforehand in the exporting country. Among Southeast Asian countries, this system is already being adopted by Indonesia and the Philippines. This has proved highly effective for improving the efficiency of customs clearance work.

By adopting this exporter country inspection system, the importers will be able to obtain raw materials and parts very quickly and the enterprises in the Laem Chabang EPZ/GIE will be able to improve the rates of factory operations. This system will be applicable not only to the foreign cargoes destined to the Laem Chabang EPZ/GIE but as well to cargoes being imported through Klong Toei Wharves, thereby contributing immensely to the development of Thailand's economy.

Introducing this system will involve big changes in Thailand's customs system. Therefore, careful deliberations by the Department of Customs, Ministry of Finance and other related organizations will be necessary. Since the advantages provided by the system's introduction will be great, great efforts should be made to materialize the system's introduction.

c. Increase of Bonded Zones

The cargoes destined to GIE in the Laem Chabang EPZ/GIE, are inspected at the customs office adjacent to the export processing zone. Some cargoes can be stored in a bonded warehouse affiliated to the customs office for a fixed period of time. However, when the number of companies entering GIE increases and their total manufacturing volume increases accordingly, then the bonded warehouse would most likely become inadequate.

It is desirable for the Thai Government to provide the enterprises going into GIE with permission to establish Bonded Zones in their compounds.

Today in Thailand, there are bonded manufacturing warehouses, bonded warehouses, EPZs and other bonded facilities. However a permit is rarely issued for establishing a bonded manufacturing warehouse or bonded warehouse in the compounds of individual companies. It will be desirable for this system to be introduced gradually for the companies venturing into the Laem Chabang GIE.

d. Umbrella service, computerization and autonomous administration

It is required about five days for customs clearance in Thailand. This is a decisive bottleneck for company and factory operations.

The concentration of import/export procedures (umbrella service or one-stop service), computerization and autonomous administration are vital measures for improving the efficiencies of customs clearance operations. These measures are more effective if combined instead of being applied independently. Even in connection with the Laem Chabang EPZ/GIE, it will be desirable to design customs clearance clerical work most efficiently beforehand, in

order to cope with the expected increase in the cargo handling volume.

Umbrella service means a service system under which all operations, such as the procedures for customs clearance, bonding and import/export, are accomplished at one place (in this case, at a single customs clearance area). The exporters and importers will not have to go here and there for cumbersome applications and other procedures. This prevents cargo congestion. Fortunately, the Laem Chabang EPZ/GIE is designed with a setup for offering all these services in the customs area adjacent to EPZ. Therefore, this system must be managed efficiently to ensure smooth services.

By introducing the three systems described above, the Laem Chabang EPZ/GIE will become an industrial base that provides remarkable export competitiveness in Thailand. This condition will stand out as a big incentive for corporations giving thought to venturing into this estate.

(6) STANDARD FACTORY

The objective to install a standard factory in an Industrial Estate is to promote industrial expansion by reducing the investment burden at the initial stage of occupation.

Therefore standard factories are normally installed at the early stage of EPZ development, and their utilization rate at the early stage is higher than owned factories.

This is because most occupants of EPZ are labor-intensive light industries and assembly industries. They do not need so many heavy machines and aim at the early return of investment by utilizing the cheap labor. Many enterprises move their factories to other countries where

the labor cost is lower when the economic development raises labor wages and lowers the relative competitiveness.

In determining occupation conditions and industry types of standard factories in the Laem Chabang EPZ/GIE, the main occupants will be electronic and precision machine processing and assembly industries, followed by life-related industries, such as plastic products, crafts, rubber products, cosmetics, office supplies, textile products and medical machinery.

As for the interest of Japanese enterprises in standard factories, among 107 enterprises, 52 companies (about one half) indicated a wish or a possibility to use standard factories. Therefore, a high occupation rate can be expected at the early stage of the development. It may become necessary to consider the expansion and increase of facilities.

As for the contract types, the land should be rented, but the buildings may be purchased or rented according to each enterprise's intentions. The prices of rent and sales cannot be decided generally, because they depend on the development cost of land and buildings. When both the land and buildings are to be rented, the rental should be \$2 to \$4/m² in order to attract enterprises.

(7) FACILITIES FOR WORKERS

The Laem Chabang EPZ/GIE is situated at about 130 km from Bangkok. Since there is no large city in the vicinity, it will be necessary to provide the estate with welfare facilities for the workers to enjoy their working and daily lives, recreation facilities for enjoying themselves during free hours, and educational facilities for the employees to acquire techniques and knowledge on their own.

Based on the results of the surveys directed to Japanese companies, it was found strongly advisable to make sufficient restaurants, hotel accommodations, and facilities for the education of children.

Highly substantiated welfare facilities are to be constructed in the Laem Chabang EPZ/GIE. In considering their administration, it will be necessary to give due thought to the unique characteristics of the estate.

In view of the environmental conditions the following policies appear desirable for managing the employee facilities in the estate:

- a. Substantiation of sports facilities and their efficient management

The applications for the use of these facilities by tenant corporations and their employees should be handled with priority, and telephone services should be made available for the reservation, alteration or cancellation of the use of these facilities. With finance permitting, nighttime illumination should be provided, and an indoor gymnasium (1,300 m² class) will be desirable. It is recommended to operate these facilities even on weekends and holidays and to provide sports instructors. And sports events should be held from time to time with the participation of as many tenant corporations and their employees as possible to promote mutual understanding and goodwill.

It may be advisable to adopt a system enabling the facilities to be used separately by higher personnel and ordinary employees. Whenever these facilities are idle, they should be made available for local residents.

b. Substantiation of dining facilities

The canteen facility should be made available also to the IEAT personnel, customs officers, governmental personnel as well as the managerial class personnel of the tenant corporations. In this case, persons belonging to various countries will be utilizing the facility in addition to Thailand nationals. Therefore it will be desirable for international foods to be served, if possible, and services should be extended by taking into consideration the food habits of various countries as well as the kinds of foods which are prohibited for religious reasons.

In addition, since the Laem Chabang EPZ/GIE is isolated from city areas, it may be necessary to adopt a system of delivering ordered foods and lunches to the employees of tenant corporations. They should preferably be rich in variety and include Thai style, Western style, high-class, and local type foods. It will be desirable for management of the dining facilities to be provided by private enterprises by renting the dining space to them.

c. Substantiation of lodging facilities

There is an IEAT Guest House with 16 rooms in the estate, but it is to be used primarily by personnel related to the IEAT. Therefore, lodging facilities will definitely be insufficient for companies planning to venture into the Laem Chabang EPZ/GIE.

Since the estate is far away from Metropolitan area, it will be necessary for the convenience of tenant companies to make IEAT's Guest House available for the short-term visitors to the tenant companies. And when it becomes financially possible, it will be desirable for small-scale, modern Western type lodging facilities to be constructed in the environs of the estate.

d. Provision of cultural facilities and international school

As the completion of the Laem Chabang Port and Laem Chabang EPZ/GIE, the cultural and educational facilities for these employees and local residents will be quite inadequate. When considering that a comparatively large number of managerial level personnel and foreign employees will live in the environs of Laem Chabang, it will be important to provide at least the necessary cultural and educational facilities in this region.

More specifically, the following cultural and educational facilities are regarded as necessary for the Laem Chabang EPZ/GIE:

- International school
- Cinema hall
- Lecture room for technical and other courses
- Language laboratory
- Exhibit hall
- Ball room

Among these facilities, the international school is certain to attract the greatest interest of foreign employees. As for its management, it is conceivable for the site to be acquired from the Thai Government at no charge and for the school to be operated jointly by the tenant corporations and the IEAT. Inside this facility, language courses (Japanese, Thai and English languages) may conceivably be provided for the benefit of upper and middle managerial class personnel and foreign employees.

In addition to these facilities, the provision of other cultural facilities such as cinema hall, a ball room and an exhibition hall are considered necessary. So it will be desirable to construct a cultural center accommodating all these facilities on a site adjoining the Laem Chabang

EPZ/GIE. If possible, these facilities should be constructed and managed in combination with the lodging facilities described earlier in item c).

6-3 MANAGEMENT AND OPERATION OF THE LAEM CHABANG EPZ/GIE

(1) ROLES TO BE PLAYED BY THE MANAGEMENT AND OPERATION BODY

The management and operation body's immediate role is to invite firms to set up their plants in the estate, to maintain facilities of the estate constantly in good conditions and to help firms in the estate carry out their businesses successfully.

In a long-term or wide sense, it is to grasp both the new needs of such firms and the move of the Thai economy, to create new industries and to connect this new movement to the economic development of the Laem Chabang region (Table 6-5).

(2) SELECTION OF THE MANAGEMENT AND OPERATION BODY AND SCOPE OF ITS BUSINESSES

1) Desirable Management and Operation Body:

Three following forms can be considered as the possible management and operation body of the Laem Chabang EPZ/GIE. The IEAT, which has been successful in the existing industrial estates in Thailand, should play a central or leading role (Table 6-6).

2) Scope of Duties of Management and Operation Body:

a. Scope of duties and collection of fees, etc.

The duties of the management and operation body are to offer supporting services and manage (regular

inspection, repair, construction, etc.) physical facilities in the industrial estate (Table 6-7).

Table 6-5 Roles of the Management and Operation Body

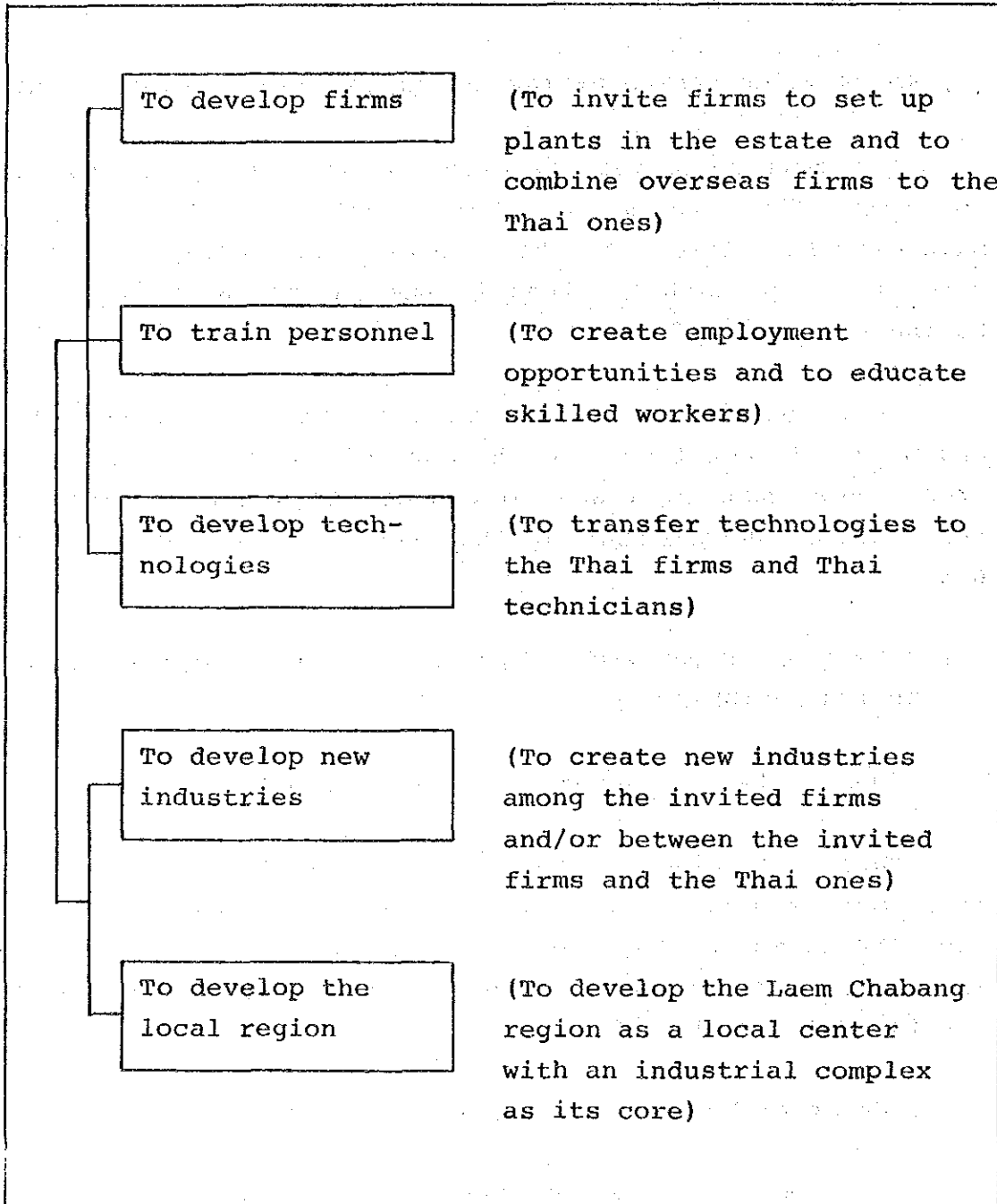


Table 6-6 Three Forms of Management and Operation Body

a IEAT
<p>IEAT is considered as the best organization as a coordinator with the governmental organizations concerned.</p> <p>However, it is necessary to make the best use of the advantages of private enterprises.</p>
b Joint venture between IEAT and private firms
<p>It is necessary to clarify the division of the management and operation duties to be shared by IEAT and private firms. Private firms are reluctant about businesses of low profitability.</p>
c Co-operation between IEAT and invited firms
<p>Firms' intention is apt to be reflected in the management and operation businesses. This form should be adopted only when the industrial estate is occupied almost completely.</p>

Table 6-7 Scope of Duties of Management and Operation Body

1	Offer of supporting services:
1)	Service to administrative works: Telex and facsimile fees would be charged.
2)	Service to attend firms' requests: Free of charge
3)	Information service: Fees would be collected depending upon the types and contents of information.
4)	Sports facilities service: Fees would be collected. (Those who use the facilities shall pay.)
5)	Facilities offer service: Conference room, etc. free of charge.
6)	Holding liaison meeting between firms and management and operation body: Management and operation body shall offer places for the meeting.
7)	Management consulting service: Free of charge, depending upon the demands from firms.
8)	Employees transportation service by bus: Fees would be collected, depending upon demands from firms.
9)	Workshop service: Fees would be collected. Some duties, including the repair of equipment would be entrusted to specialized companies.

2	Maintenance of physical facilities in the industrial estate:
10)	Facilities related to control office: Facilities would be lent to post office, fire station, clinic, bank, etc., free of charge or with fee.
11)	Sports facilities: Special attention is paid to the control of water quality of swimming pool.
12)	Facilities related to customs house: Facilities would be lent to customs house free of charge.
13)	Facilities related to standard factories:
14)	Facilities related to the incinerator: garbage collection and cleaning work would be entrusted to private companies.
15)	Facilities related to drainage:
16)	Facilities related to sub-center: Kiosk and restaurant facilities would be lent to drinking/eating shops with fee.
17)	Facilities related to business center: Rentable floor area would be lent to shop and other firm-supporting companies with fee.
18)	Facilities related to power receiving and transformer substation:
19)	Facilities related to telephone and telegram:

20) Water supply and sewage service:
21) Road network in the estate, including street trees:
22) Facilities related to security and guard: Facilities would be lent to private companies, free of charge.

Maintenance expenses for physical facilities in the premises of firms, including standard factories, water supply and sewage service and garden trees shall be paid by the firms themselves. However, when requested by the firms, the management and operation body would repair or expand facilities and maintain trees with fee.

b. Clarification of scope of duties of management and operation body:

It is necessary to clarify in advance the scope of responsibilities both of the management and operation body and invited firms. It is useful not only for preventing troubles, but also for raising the management and operation body's reputation to include the stipulations about the uses of facilities in the estate and about the scope of responsibilities.

For instance, it is necessary that the contract should say that the periodical maintenance of street trees in the estate should be carried out by the management and operation body, while the trees in the premises of firms should be maintained by the firms themselves.

7. RECOMMENDATIONS

This study is based upon the surveys of the potential investors and their preferences of services and incentives. In the preceding chapters, suggestions were offered according to the stage of industrial promotion such as selection, promotion, management, and maintenance of the industrial estate. In this section, overall recommendations will be presented.

(1) SCREENING AND TARGETING CRITERIA OF INVESTMENT

The screening and targeting criteria presented in Chap. 4 are intended to provide an objective instrument to assess investment applications quantitatively. When these criteria apply to the intended project, they will enable the comparison of projects even from different fields.

(2) USING THE CRITERIA

The current application form of the IEAT does not cover such items as environmental impact, visual appearance, employment generation, and housing. These items should be included to assess the eligibility properly.

The weighing of each item of the evaluation must be carried out to follow the industrial development policies of the country and the changes in the economic situations, and also to control the total impact of the industrial estate on the surrounding environment.

The provisions of the incentives should be accorded the evaluation of the applied investment in order to maintain uniformity.

(3) EFFICIENT AND EFFECTIVE PROMOTION

In spite of the favorable investment climate prevailing in Thailand, the promotion activities should be reinforced to capture the full benefits of the available opportunities to upgrade the industrial structure of Thailand.

Seminars should be conducted continually to keep the attention of the potential investors.

Enlarging the marketing channels is one of the most urgent tasks for the Laem Chabang I.E. project. In order to achieve the enlargement of marketing channels within a short period of time, it may be effective to contract private agents specializing in marketing.

The potential investor survey, which was conducted as part of the Study, provided vital information for the marketing of the industrial estate. It will be quite helpful if a similar survey is conducted in other countries, such as Taiwan and the United States.

The results of the potential investor surveys should be accumulated properly in a database for quick reference, and the database should serve as the target list for marketing. The list of attendants to the seminars should be treated in the same way.

The Study also produced pamphlets of the Laem Chabang I.E., which gives a brief introduction of the project, in Thai, English and Japanese. For further marketing, more detailed information is required for attracting potential investors. It is recommended that an investors' guide on the Laem Chabang I.E. be produced, and also a video clip for audio-visual presentation.

All the promotional efforts should be focused on the year 1990 when the Laem Chabang I.E. is to be completed. A comprehensive schedule of all the promotional activities should be created as suggested in Chap. 5.

(4) LONG-TERM IMPROVEMENT IN INCENTIVES

When incentives are given to certain activities, a promoted company is monitored by BOI in order to prevent it from changing the activities or disposing of equipment or materials. As the number of promoted companies increases exponentially every year, it is feared that the monitoring of a large number of companies, which are interrelated, might interrupt the manufacturing activities. Therefore, in the long term, it is recommended that the incentives be simplified, especially by lowering the import duties. The overall reduction of import duties will further strengthen the export industries, which are now emerging as the leading industry in Thailand.

On a shorter term, it may be worth probing the possibilities of attracting key manufacturing industries by giving special incentives. However, the decision should be made cautiously since it may harm the development of other industries.

(5) RESTRUCTURING THE IEAT

The general policy in changing the structure of the IEAT is to shift the focus from engineering to services.

A policy and coordination section should be set up to plan and monitor the industrial structure and the locations and further to make an industrial estate master plan that will contribute to the national industrial policy in Thailand.

In order to make the start-up of the factories quicker and smoother, a Customer Service Section should be established to provide assistance for registration, licensing, factory construction, and manpower development.

As for the enlargement of the marketing channels for effective promotion and quick sales, the Sales and Promotion Section should be enlarged from the current section to a division equal in size to others, such as the Engineering Division.

(6) FACILITIES REQUIRED FOR THE LAEM CHABANG I.E.

A vocational training center should be established either inside the Laem Chabang I.E. or in its vicinity. The training should be oriented toward the upgrading of the skills of the workers, and the management and control capabilities of the foremen and supervisors in the Laem Chabang I.E. It is recommended to introduce the labor intermediation service to vocational center.

In order to facilitate communication between the companies and the administrating body in the Laem Chabang I.E., the establishment of the committee on the operation of the Laem Chabang I.E., consisting of both the administrating body and the company representatives, is suggested.

More than 5000 lines need to be installed in the planned telecommunication system between Laem Chabang and Bangkok. A large number of factories located in the Laem Chabang I.E. will come from abroad. Therefore, a proper international telecommunication network should be constructed. Some factories in the Laem Chabang I.E. may need an advanced data communication system. If the need for such system is large enough, the establishment of optical fiber lines and a computer center should be probed.

The standard factories may be leased or sold to meet the needs of investors.

Currently, the Laem Chabang area lacks urban facilities and services since there is no big city in the vicinity. An effort for the allocation of resources should be made to provide the facilities and services for the welfare of the workers in the Laem Chabang I.E. The facilities needed are athletic facilities, canteens, restaurants, hotel accommodations, and cultural facilities.

(7) SERVICES REQUIRED FOR THE LAEM CHABANG I.E.

In order to facilitate implementation of the investments in the Laem Chabang I.E., the investors desire services such as financing by public institutions, computer services, schools, and consulting and mediating services for customs clearance.

The most important of all is to streamline the licensing procedures.

In order to speed up customs clearance, measures such as the adoption of sampling inspection, inspection at original countries, one-stop service, computerization and autonomous administration are suggested.

To meet an increasing number of export-oriented investments, the bonded area should be expanded.

(8) CLARIFICATION OF THE RESPONSIBILITIES OF THE ADMINISTRATION BODY

In order to avoid unnecessary conflicts, it is advised to clarify in advance the responsibilities between the administrating body and the factories concerning the maintenance and use of the facilities in the Laem Chabang I.E.

There are some tasks still to be tackled in order to further increase the development effects of the Laem Chabang I.E. project.

1) Establishment of an Industrial Estate for Small-Scale Industries

Although one of the prime objectives of the Laem Chabang I.E. is to facilitate the relocation of industries from the Bangkok Metropolitan Area, a large number of small-scale industries may not be able to relocate their factories. In such a case, the government should explore the possibility of establishing industrial estates specialized for small industries to keep their negative effects to a minimum.

2) Monitoring Environmental Impacts

Special attention should be paid to an area where industrial development is concentrated, such as in the Laem Chabang I.E. The environmental impact should be measured at certain levels of development to ensure the safety of the residents of the area. There are numerous lessons that Japan can offer in this regard.

3) Basic Data Collection for Industrial Planning

The screening criteria are principally based upon the data of the Japanese manufacturing sector. In order to establish an accurate planning system in Thailand, basic data and statistics with regard to manufacturing should be collected regularly.

4) Inducing Industrial Development to Other Areas

The Laem Chabang I.E. is planned to become a new industrial base in Thailand. The next task is how to lead industrial development from the Laem Chabang I.E. to other underdeveloped areas, especially in the northeastern areas.

In order to facilitate a chain-reaction of industrial development to other regions, the government should start to plan the industrial bases now, taking into account the development levels of the metropolitan area and Laem Chabang.

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