INDUSTRIAL DECENTRALIZATION POLICY AND IDENTIFICATION OF LEADING SECTOR

Minoru Makishima

1. Introduction

More than 60 percent of the population in Thailand still earn their income from the agricultural sector. In the Northeast and the North, 78 percent and 73 percent of the population (see Table 1.) rely on agriculture as the major source of income. The population growth rate in agricultural sector is now slower than in the non-agricultural sector.

Economic activities in the regions are mainly agricultural production which is the main source of income, and the major supplier of raw materials for industrial production.

The Northeast covering one–third of total land area has consistenly been the poorest region of the country. In 1898, the total population in the Northeast is the highest, 19.2 million but per capita income is the lowest, 11,981 Baht. Agriculture is still the main source of income for this region. But, low productivity and low quality of those products are major reasons for this Region's performance and income disparity. In the other region, per capita income is higher than the Northeast, but agriculture is still the main source of income especially in the North and the South, GDP in agriculture is higher than in industry. (See Table 2 & 3)

Bangkok Metropolitan Region (BMR), consisting of Bangkok and neighboring five provinces, has the highest per capita income, 96,239 Baht in 1989 followed the Eastern with 45,751 Baht, and the the Central region, 30,587 Baht. The major underlying reason for the higher income levels in these areas being that industry, rather agriculture, is the prime source of income.

As for the manufacturing sector, 75 percent of Gross Regional Product (GRP) in the sector was generated by the BMA. Only remaining 25 percent was shared by other regions (See Table 4).

The imbalance of the employment and income between the manufacturing and agricultural sectors must be a matter of focal concern. The majority of workers, i.e., about 66 percent of total labor force are in the agricultural sector, whose share in the GDP amounted to only 13 percent in 1990.

Furthermore, the concentration of industrial activity in the BMR has caused serious urban problems such as traffic congestion, industrial pollution and rise of land price.

Regional industrial development has thus come to be aknowledged as a key factor for sustainable economic growth through industrial decentralization and development of regional urban centers.

2. Industrial Structure

The industrial structure of Thailand can be distinctly seperated in terms of location, into those which are located in BMR, (Bangkok Metropolitan Region) and vicinity areas and regional industries.

BMR is the location of both medium and large scale industry, capital intensive and high technology investment, import substitution and export oriented industries. By the end of 1990, there are 24,685 factories with 265 million Baht investment and employing more than on million people. The share of the factories and employment occupied by BMR reach 52 percent and 63 percent in industrial sector respectively (See Table 5). Major industries includes textile, electronics equipment, and metal working.

Rural industries in Thailand are small to medium sized industries. There are fewer capital intensive industries and production technology is generally low. Raw materials used are mainly locally produced and serve mainly markets in that region or nearby. The major groups of rural industries are food precessing, metal working and repair shops for machinery' and spare-parts.

The characteristics of industrialization in different regions can be summarized as follows.

(1) The Central, Eastern and Western Region : Investment size is in the second rank after BMR. Major industries are food processing, chemical product for industry, pottery, non–metallic mineral products, machinery–parts and equipments, textile, electrical equipment, transport equipment and paper products.

(2) The Northeastern Region : Although this region has the highest number of factories and employment, the average investments in factories is the lowest. The major industries are food, fabricated metal products and transport equipment, which are small scale operations.

(3) The Northern and Southern Regions : The investment in these Regions are normally resource based and market based. While in the Noth, major industries are food, tabacco, beverage and non-ferrous metal products, in the South will be food, rubber products, non-metallic mineral products and non-ferrous metal products.

The industries in the BMR with high comparative advantage are generally market-oriented such as electrical equipment, chemicals, textile and garment, while those of the regions are resource based industries such as food, rubber, paper and non-metal products.

3. Industrial Decentralization Policy during the First and the Sixth National Economic and Social Development Plan.

The First National Economic and Social Development Plan (1961-66) and Second Plan (1967-71) emphasized the promotion of private investment in industries utilizing domestic raw materials and import-substitute industries. The role of the private sector in industrial development was stressed in anticipation that this will eventually replace inefficient state enterprises.

In order to implement industrial promotion, the Office of the Board of Investment (BOI) was established in 1960 which coincided with the beginning of the First Plan Period. Under the amended Investment Promotion Act in 1962, promoted industries were to receive the privilege such as five year income tax holidays, exemption of business tax and import duties on machinery and equipments for the period of setting up industrial activities. Notably, the BOI did not pay any attention to industrial decentralization during the two earlier Plans mainly because the government had not yet perceived this to be a problematic issue.

It was in the Third Plan (1972-76) that the industrial dispersion was first mentioned clearly. It emphasized that small and medium scale industries should be promoted in non-metropolitan areas and special privileges should be extended to promote regional industrialization. It was also stated that provincial cities such as Chiang Mai, Lampang, Lampun in the North and Khon Kaen, Kalasin in the Northeast should be developed as growth centers.

In response to this policy, a Revolutionary Decree was enacted for investment promotion outside of Bangkok in 1972. In addition to granting incentives on import duties, business taxes and corporate income taxes, it was also specified that 72 districts in 21 provinces were designated as Investment Promotion Zones (IPZs) in the year following. But it was difficult for the BOI to administer in such wide regions and the inadequacies of infrastructure and facilities have become major obstacles to effective promotion of such policies.

Under the same degree, the Industrial Estate Authority of Thailand (IEAT) was set up to manage the industrial estate which was first established in 1972 in Bangchan within BMR. In addition, the legal minimum wage rate which was applicable since 1973, and only pertaining to the BMR, has been extended to all the regions in 1976. The minimum wage rate varies by regions, with the BMR being the highest, while rates being lower in the outlying provinces (See Table 6). It could be perceived as an advantage point rather than other wise though the system is a matter to be settled on a year to year basis by the employers, employees and the government.

The decentrization policy was made much more explicit in the Fourth Plan (1977–1981). There was a strong advocacy for the promotion industrial dispersion outside the BMR. The selected urban growth centers consisting of medium size cities included. Khon Kaen, Udon Thani, Nakhon Ratchasima, Ubon Ratchathani, Chiang Mai, Phitsanulok, Songkhla, Hat Yai, Phuket, and Chon Buri.

The policy followed the redefinition of IPZs by Invest Promotion Act in 1977. The new Act made clear the location of promoted zones where firms would receive extra incentives, such as 50 percent reduction in business tax on sales and corporate income taxes for five years. To make industrial decentralization effective, IPZs was incorporated into following four zones in 1983, that is, Chiang Mai for Zone 1, Khon Kaen for Zone 2, Nakon Ratchasima for Zone 3, and Songkla for Zone 4.

It was the first time that such a growth regional center was designated as promoted investment poles. Though the BMR was exculded from the list, industrial estate, including export proceeding zones, were recognized as a part of the promoted investment zone. As most of industrial areas within BMR could receive the incentive, this measure did have much impact on regional decentralization.

In the Fifth Plan (1982–86), six provinces, i.e., Phitsanulok, Nakhon Sawan, Udon Thani, Surat Thani and Phuket were identified as additional regional urban centers. For the first time, the Eastern Seaboard was designated for specific regional development. Its development plan was formulated to improve the competitiveness in international market by using national resources, natural gas from the new industrial area. In this period, IEAT first set up industrial estate in the Northern Region Industrial Estate (NRIE) in Lampun province near Chiang Mai in 1985. The initial assessment was not positive as a large area of the industrial estate remained unoccupied until recent years.

During the Fifth Plan and Sixth Plan, the BOI initiated several changes in the privileges granted to promoted investment zones. In 1983, it was announced that the exemption of corporate income tax would be extended one year for projects located in industrial estates or outside Bangkok and 5 neibouring provinces. The privilege was applicable to large projects earning net foreign exchange of one million US dollars, and classified agro–based industries using 50 percent of domesting supplies of total production cost. In 1985, the BOI granted incentives to projects located in industrial estates, i.e., tax exemption on machineries and equipment even if the industries were not export–oriented. However, the directives hindered the investment of small or mediun sized local industries to be promoted in the industrial estates outside of BMR and it led to criticisms that the BOI favoured large–scale industries only.

In the Śixth Plan (1987–91), the main objective of regional industrialization policy were to solve the problems employment and income distribution. Emphasis was given to distribution of small–scale industries to provincial areas by encouraging and developing entrepreneurs, production, and technology for the village community for the purpose of creating more jobs and reduce seasonable unemployment. The problems of rural production such as low quality, inadequacies of basic infrastructures, however, remain unsolved. As for the regional urban centers, Chiang Mai, Khon Kaen, Nakhon Ratchasima and Songkhla were selected. In addition to the development of Eastern Sea Board, preparations of master plan for other industrial potential areas such as Songkhla Lake basin, Pak Phanang basin were advocated.

In September 1987, there was a significant change in the BOI's provincial industrialization policy. With the exception of Greater Bangkok, all other areas were designated as promoted areas. Investment Promotion Zones were revised into three zones : Zones 1 consisted of Bangkok and Samut Prakan (excluding Industrial Estates); Zone 2 consisted of four provinces surrounding Bangkok, i.e., Nakhon Pathom, Nonthaburi, Pathum Thani, and Samut Sakhon (including industrial Estates in Bangkok and Samut Prakan); and Zone 3 included the remaining 67 provinces.

The projects located within Zone 3 received the most benefit being the priority target areas. Those within Zone 1 on the other hand lost tax and duty privileges unless they were export-oriented projects or those located in industrial estates.

This policy has successfully made some progress in the distribution of investment to the provinces. The share of the promotions in Zone 1 declined from 72 percent in 1987 to 45 percent in 1988, while the share in Zone 2 and Zone 3 increased from 12 percent to 24 percent, from 16 percent to 31 percent, respectively. The investment promotion zone was again revised in January 1989. Four provinces of zone 3 were absorbed into the new Zone 1, while the new zone 2 consisted of ten provinces in the Central Region formerly belonging to Zone 3. The aim of the rearrangement was to accelerate investments in Zone 3. The present promotion zones are as follows :

Zone 1 ; Bangkok, Samut Prakan, Samut Sakhon, Nakhon Phathom, Nonthaburi and Pathum Thani

Zone 2 ; Samut Songkhram, Ratchaburi, Kanchanaburi, Suphan Buri, Ang Thong, Ayutthaya, Saraburi, Nakhon Nayok, Chonburi and Chacheongsao

Zone 3 ; remaining 57 provinces including Laem Chabang and Map Ta Phut Industrial Estates designated as IPZs

In addition, the BOI expanded its branch to the provinces to provide better information service to investors. The first of these regional branches was the Northeastern office which was set up in Nakhon Ratchasima in 1988. It was followed by another three offices, i.e., Songkhla in the South, Chiang Mai in the North, and Chon Buri in the Eastern Sea Board area.

Details in Table 2 show that the regional investment promotion are performing reasonally well. Notably, there is still high concentration of industries in and around BMR. Some obstacles which require remedial measures prior to effective promotion of regional industrialization are as follows.

First, most of the regional investment are small or medium scale industries such as food processing or machinery parts industries. In the Notheast, more than 99% of the factories are small scale factories; medium and large scale factories represent around 0.53% and 0.08% of the total number of industries. There are few large export-oreinted industries. A substantial part of the investments within Zone 3 depends on Eastern Sea Board (where neighbours Bangkok but has been accepted most privilege as exception). In fact, the number of factories operated in the Northeast is twice as many as the East, but those of employers half of the later to the contrary. It indicates manufacturing employment grows slowly in the regions.

Secondly, the significant boom in industrial estates which were mainly due to private sector and foreign investments boom in the latter half of 1980s, was not necessarily linked with the development of designated regional urban centers. More than 30 industrial estates were set up in this period with the exception of the NRIE in Lampun, most were located near the BMR. These did not, however, provide any social service such as housing, education and public health. (See Table 8). Furthermore, small and middle indigenous entreprenures did not pay any attention to the Industrial Estates. They prefered to locate factories near their homes which is believed to be much more convenient and less costly.

Thirdly, most provincial industries face difficulties obtaining industrial or financial support from the government. There are many responsible government agencies, for example : Ministry of Industry provides technical assistance, training and advice in the field of management, marketing and productivity improvement and financial support through Small Industry Finance Office (SIFO); the Industrial Finance Corporation of Thailand (IFCT) provides medium and long term soft loans on a project basis; Ministry of Interior promotes skill development through its training centers, and have jurisdiction over the local administration which is influential in developing regional urban centers. However, their service cover only limited geographical areas, and provincial enterprenuers face difficulties obtaining soft loans which have also tended to be concentrated into BMR.

4. Industrial Development Guidlines in the Seventh Plan and Indentification of Potential Industries

As mentioned above, the total picture of industrial location still shows the concentration of industrial plants in Bangkok Metropolis and vicinity areas. Factors accounting for low industrial expansion in the provincial areas relalive to overall industrial growth include the shortage of needed basic services, financial obstacles, marketing and technological problems, disadvantages in transport and the long distance from other commercial areas. Consequently, the Seventh Economic and Social Development Plan encourages industrial decentralization to the regions to generate greater employment and income for rural people.

The designated industrial development centers in various provinces in each region has been already identified. It includes Chiang Mai, Phitsanulok and Nakhon Sawan in the North, Khon Kaen and Nakhon Ratchasima in the Northeast, Saraburi and Ratchaburi in the Central and Surat thani and Songkhla in the South.

These industrial development centers are expected to be developed as a new economic base in each region to serve industrial activities. The target for development include the following.

(1) Promoting the role of Industrial Estate Authority of Thailand (IEAT) in the development of public infrastructure facilities and demarcate economic zones to adequately support industrial expansion in the region and, in addition, to prevent adverse impact on the environment which may result from the operation of industrial plants.

(2) Expanding support services, such as training for entrepreneurs, product development and adaptation, dissemination of investment and marketing information, and financial assistance to provincial industries.

(3) Providing incentives to attract newly established industries to move into these industrial development centers

Furthermore, six strategic industries are identified which aim, with governmental support, at capturing an international competitive advantages. They include : agro–Industry and food processing industry ; textiles and garment ; metal working ; electronics ; petrochemical ; iron and steel. They are expected to form the base for long–term industrialization and to provide effective linkage to other industries, utilizing raw materials and semifinished products. These industries are not specified geographically, but may be stretched to rural areas if linked with the regional industrialization policy.

Based on liberalization to enhance the competitiveness of the Thai economy, the industrial policy encourages increasing competition, reducing restrictions on private sector activities, and transforming the government's role from one of control to one of support and supervision. The government will concentrate on accelerating infrastructure outlays, improving the supply of human resources, and science and technology transfer to the regions.

In the former Sixth Plan, the improvement of production system and production diversification to respond market demand and also human resource development of science and technology were stressed. However, they were not extended to small–scale businesses in rural areas, though the strategy included the objective of amending problems of income disparity between urban and rural areas. Effective measures have not been implemented to solve the lack of skilled workers and the weakness of marketing which were obstacles to regional industralization. Adding to expansion of formal and informal education in the regions, the encouragement of in–house training of the private sector and the creation of a fund to be collected from factories of enterprises should be considered.

Presently, regional industrial development is attached top priority in the Seventh Plan. Many quidelines are to be developed for the promotion of new industries based on the region's geographical, natural environment and human resources as well as for the suitable location and delineation of industrial zones. Target areas for regional dispersion of industries are guided in the Plan as follows.

(1) Eastern region : Map Ta Put has been chosen as the location for heavy industry such as petrochemicals. Laem Chabang is becoming a location for the processing industry and export-oriented industry.

(2) Western region : automobile assembly and agricultural mechinery will be developed for supporting the BMR and Central region. Ratchaburi is expected to be urban center as development zones of agro–industry and machinery industry.

(3) North–eastern region : engineering and light export–oriented industries supporting the Central region will be located in the North–east, with heavy concentration in Nakhon Ratchasima, Khon Kaen and Ubon Ratchathani.

(4) Northern region : this region is destined for the promotion of export–oriented industries. Chiang Mai will be developed into a complete export center for the Upper North. Phitsanalok will concentrate on agricultural machinery as a center for the lower North.

(5) Southern region : shipyards, ship repairing and industries involving petrochemcals, crude and natural gas will be developed, with a special focus on Krabi, Songkhla, Surat Thani and Nakhon Si Thammarat.

The nine industrial development centers targetted in the Plan might become location guidlines for regional industrialization policy as well. According to the industrial survey by the Ministry of Industry and the BOI investment promotion targets, the recommendations on some potential industries are summarized as follows.

In the Northern region, apart from major existing industries such as agro–industries, weaving and spinning, mining, metal products, transport equipment, wood products and electrical machinery, there is a tendency for industries to expand and diversify to some new products. They are export–oriented industries such as gem cutting, tourism–related industries such as resorts and health club, garments, granite and marble products and sugar industry. As for NRIE at Lampun located about 700 km north of Bangkok, it should be noticed that the production of small–size products such as electronics parts has been expanding. The expansion of such a high value added product shall upgrade lobour skill and stimulate more industrial growth in this region. Its share has reached more than 20 percent of the enterprises in NRIE in 1992. The investment on electronics business especially from Japan and Taiwan are targetted.

From the resource based industries, two specific projects are recommended; frozen vegetable and fibre board. This is due to the availability of varieties of vegetables in the North and potential markets in Europe, especially Great Britain and also in the USA, frozen vegetables. In the case of fibre boards, the market is growing around 10% and the product can replace or be used as a substitute for plywood which is currently facing problems of supplies. At present, the demand exceeds supply and import value is rather high. This industry will allow for savings of foreign currencies as well as increase value added in local raw materials such as para wood (from rubber tree) and bagasse. Furthermore, the product will be competitive for export because of advantages from raw materials and low cost of labour.

The Southern region has the advantages of abundant of natural resources as well as locational advantages in terms of both on shore and off shore and access to both the Thai Gulf and Andaman Sea. The various categories of industries, which have the development potential include:

1. Local raw material based industries produced for the local market

2. Local raw material based industries produced for export

3. Supporting industries produced raw material or intermediate for other industries

4. Imported raw materials–based industriesfor the export markets

As for potential industries, rubber related industries are first mentioned and is possibly a target investment area for Japan and France. Others are construction materials (such as cement, ceramics, gypsum board, floor made from marble and granite, concrete tile for roof), marine products, para wood products, frozen and canned fruits and vegetables, milk products, meat product and export–oriented industries (such as plastic products and electronics). In addition, Puket and Samui shall be further developed as tourism centers as far as appropriate environmental protection measures exists.

The Northeastern region has high potential for various industrial investment especially labour intensive industries using local raw material such as knitwear, garment, fruit processing, vermicelli, animal fee, tannery, artifical flowers, vegetabel oil, charcoal from agriclultural waste and construction materials. Non–resource based industries, i.e., transportation such as bus body and plastic tube for soft drinks are also recommended. As for tourism industries including hotels, resorts, health club and sport playground, the tourist attractions in this region are dispersed and underdeveloped. Immediate measures for toursim promotion are required with active involvement of both the public and private sectors.

At present, this region has more advantage because of the close connection to Indochinese countries. Nakhon Ratchasima may be developed as the gate way to Indochina and become a center of light labour industries. Khon Kaen is expected to become a base for aircraft manufacturing. As for the agricultural sector that has a major share in Northeast, agro–processing industry should play the most important role particularly in areas where water resources are available. Foot–loose industries also have development potential.

5. Conclusion

Over the last two decades, the rapid industrialization has been accompanied by structural transformation, that is, the growing importance of the manufacturing and service sectors, while the significance of agriculture has been declining. In order to amend the accelerated regional disparity, regional industralization policy has been implemented since 1970s.

A main instrument for regional industrization has been incentive and invest promotion privileges, but these have not been sufficient to attract enterprenuers. In addition to insufficient infurastructures to support manufacturing activities, the lack of social services has also been one of the deterrent factors to potential investments. The concentration of infurastructure facilities and social service under the centralized planning have drawn the manufacturing sector mainly to the BMR. The development of regional urban centers is likely to be the key factor for investment promotion. It may be illustrated that the enterprises in NRIE in Lampun, benefit economic and social facilities in Chiang Mai which lies 25 km north of NRIE. Regional urban centers should be effectively linked with industrial estates or industrial zones. They might influence surrounding areas by providing social service such as hospital, universities and recreational facilities, incentives will be needed to attract skilled workers or management personnel.

The development of regional urban center would contribute to the expansion of local market on which most of small scale industries depend. At present, policy planners aim to extend these to the concepts of regional network which approaches all cities and town within a region or subregion as a cluster of regional urban centers. In this framework, spatial access shall be developed at intra–provincial and intra–regional levels such as roads, railways, ports, airports, buses, cars and so forth. As a first step, regional urban centers should become a "core" of production and marketing, and also "incubator of employment" in the regions.

In order to promote regional industrialization, there are many responsible governmental agencies, The Committee for Rural Development and Decentralization (CRDD) for example, consists of the Ministry of Agriculture and Cooperatives, Ministry of Education, Ministry of Commerce, Ministry of Industry, Ministry of Interior and Office of the National Economic and Social Development Board (NESDB). However, this structure does not directly connect with the provincial industrial development. Individual agencies tend to exercise their own tasks independently, often leading to lack of cooperation.For example, the dispersion of industrial estates without appropriate planning may make it difficult to regulate industries, especially in environmental protection. There

should be a joint committe for promoting regional industrialization to supervise and coordinate the implementation of action plans which should ideally involve the private sector.

As for leading sectors in the regions, the majority of the industries are still resource–based industries and labour intensive industries. In the future, however, serveral factors are likely to play important roles in diversifying the industrial structure of the Region, resulting in the expansion of export–oriented industries. Some of these include the development of regional growth centers, the expansion of border trade, the greater spatial accessibility of industrial areas through the construction of railway and road networks connecting the Northeastern region with the Eastern Sea Board.

Table 1 : Population and Share in Agriculture & Non-Agriculture by Region, in 1989

Region	Agri.	Non–Agri	Total
Central	8,384,506 (42.1)	11,516,301 (57.9)	19,900,807 (100)
North	7,973,315 (72.7)	2,988,718 (27.3)	10,962,033 (100)
Northeast	14,152,321 (78.4)	3,892,761 (21.6)	18,045,082 (100)
South	4,817,965 (68.1)	2,255,463 (31.9)	7,073,428 (100)
Total	35,328,107 (63.11)	20,653,243 (36.89)	55,981,350 (100)

Source : Office of Agricultural Economics,
Ministry of Agriculture and Cooperatives

Note : 1. Figures in parenthesis are percentages
2. Central region includes BMR, West and East regions

Table 2 Population and per capita GRP in Market Price

Population : Million (upper row)
Per Capita GRP : Baht (lower row)

Region \ Year	1985	1986	1987	1988	1989
BMR	8.04 55,709	8.27 59,338	8.46 69,065	8.67 82,241	8.89 96,239
Central	2.60 18,535	2.61 19,324	2.64 21,359	2.66 26,032	2.68 30,587
East	3.17 26,115	3.26 29,118	3.23 31,165	3.28 36,320	3.34 45,751
West	3.02 18,872	3.03 19,884	3.17 21,333	3.21 23,513	3.24 28,434
North	10.18 12,733	10.34 12,968	10.49 14,361	10.63 17,097	10.77 18,833
Northeast	18.02 8,352	18.33 8,597	18.62 9,193	18.91 10,698	19.19 11,981
South	6.65 14,779	6.82 15,821	6.99 17,519	7.17 20,329	7.35 21,956
Total	51.68	52.65	53.60	54.54	55.45

Source : National Account Division, NESDB

Table 3 GDP Market Price by Regions

(Million Baht)

Region & Sector \ Year		1985	1986	1987	1988	1989
BMR	Total	448,007	490,787	584,016	713,114	855,079
	Agri.	15,301	16,660	19,526	22,280	25,432
	Manufac.	163,051	189,606	232,442	287,038	340,926
Central	Total	48,099	50,494	56,430	69,297	82,003
	Agri.	9,316	8,937	10,692	14,326	15,416
	Manufac.	8,549	9,250	10,317	12,174	16,036
East	Total	82,809	94,867	100,724	119,276	152,627
	Agri.	14,561	16,783	19,274	21,586	22,456
	Manufac.	21,006	28,573	23,826	30,706	41,118
West	Total	57,124	60,208	67,604	75,382	92,183
	Agri.	15,209	15,805	18,866	20,797	24,073
	Manufac.	7,377	8,089	8,537	10,673	14,001
North	Total	129,580	134,027	150,619	181,808	202,925
	Agri.	36,780	37,932	44,345	58,880	62,763
	Manufac.	8,788	8,048	8,578	11,675	15,238
South	Total	98,234	107,421	122,564	145,823	161,284
	Agri.	33,911	36,749	45,453	55,019	53,033
	Manufac.	5,905	5,796	6,474	7,670	8,768
Sum total		1,014,398	1,095,367	1,253,147	1,506,976	1,775,978
	Agri.	169,894	178,139	205,592	250,384	266,378
	Manufac.	224,455	258,644	299,326	373,325	453,258

Note : Agri. ; Agriculutre, Manufac. ; Manufacturing
Total includes other sectors

Source : National Account Division, NESDB

Table 4 Gross Regional Product at Current Maket Prices in 1989

Sectors	BMR	Central	West	East	Northeast	North	South	Total
Agriculture	9.55	5.79	9.04	8.43	23.73	23.56	19.91	100
Mining and Quarrying	8.26	20.52	10.87	19.59	8.37	18.52	13.86	100
Manufacturing	75.22	3.54	3.09	9.07	3.79	3.36	1.93	100
Construction	51.62	2.41	4.58	9.42	13.17	10.45	8.36	100
Electricity and Water Supply	54.62	7.18	5.12	8.33	8.61	8.51	7.62	100
Transportation and Communication	60.83	3.11	4.25	7.12	8.48	8.18	8.03	100
Wholesale and Retail Trade	39.04	4.64	6.18	7.45	18.67	13.00	11.03	100
Banking Insurance and Real Estate	66.76	2.51	3.55	5.39	7.36	8.16	6.26	100
Ownership of Dwellings	31.29	4.74	5.64	6.47	25.84	16.49	9.53	100
Public Administration and Defence	29.87	6.34	5.83	6.67	23.06	16.30	11.93	100
Service	53.34	2.93	3.40	9.02	12.02	10.88	8.42	100
Total	48.15	4.62	5.19	8.59	12.94	11.43	9.08	100

Source : NESDB

Table 5 Number of Factory and Employment in 1990

TISC	BMR		Central		West		East		Northeast		North		South		Total	
	Factory	Employment	Factory	Emloyment	Factory	Employment	Factory	Employment	Factory	Employment	Factory	Employment	Factory	Employment	Factory	Employment
1. Food	1.595	114.981	320	47.981	992	120.692	1.811	25.877	3.518	40.675	1.176	17.201	554	27.576	9.966	394.983
2. Beverage	94	12.840	6	341	18	835	20	1.182	31	2.867	49	1.959	30	1.123	248	21.147
3. Tabacco	7	5.385	–	–	1	17	–		1	7	275	15.612	–	–	284	21.021
4. Textile	1.733	172.707	19	10.111	74	3.462	32	3.017	115	25.066	30	2.229	14	355	2.017	216.947
5. Wearing Apparel	1.855	130.790	–	–	5	569	16	2.556	12	824	35	4.242	1	25	1.924	139.006
6. Leather & its Products	397	19.418	2	95	1	35	5	310	2	288	1	7	–	–	408	20.153
7. Footwear	386	30.220	9	3.521	1	450	18	12.599	2	35	2	20	1	503	419	47.348
8. Wood & its Products	967	20.593	47	690	146	1.702	204	6.411	123	2.619	359	10.146	356	5.171	2.202	47.332
9. Furniture	880	19.331	22	1.331	38	593	86	4.254	242	3.831	220	3.478	192	3.707	1.680	36.525
10. Paper & its Products	503	25.700	7	1.025	8	1.342	9	414	4	692	16	258	10	72	557	29.503
11. Publishing & Printing	1.525	21.478	20	73	29	81	19	69	61	438	50	348	58	389	1.762	22.876
12. Industrial Chemicals	201	9.818	10	1.984	19	415	21	1.678	7	252	10	146	15	247	283	14.540
13. Other Chemical Products	737	27.012	10	703	9	433	16	1.011	20	497	54	2.240	19	241	865	32.137
14. Petroleum Refineries	1	350	–	–	–	–	2	934	–	–	1	221	–	–	4	1.505
15. Petroleum Products, Coal & Lignite	24	710	2	1.933	–	–	1	57	–	–	3	78	1	20	31	2.798
16. Rubber Products	425	20.274	28	790	62	134	70	5.689	92	523	70	366	260	24.495	1.007	52.271
17. Plastic Products	1.879	45.595	13	429	5	175	29	2.324	32	901	16	150	38	598	2.012	50.172
18. Pottery	67	7.913	3	2.555	1	6	2	1.024	–	–	3	.34	–	–	76	11.532
19. Glass Products	100	8.003	15	3.419	67	1.997	31	992	15	157	116	3.527	23	348	367	18.443
20. Non-Metalic Mineral Products	447	15.421	280	7.430	292	2.581	239	3.215 483	652	8.045	548	7.219	469	7.083	2.927	50.994
21. Iron & Steel Products	188	9.963	2	1.388	3	85	4	219	9	110	3	38	13	170	222	12.237
22. Non-ferrous Metal Products	298	6.326	5	274	8	572	6	1.393	7	68	9	138	5	266	338	7.863
23. Fabricated Metal Products	4.843	70.435	76	1.263	174	1.026	135	3.873	389	1.828	358	1.734	221	1.503	6.196	79.182
24. Machinery Parts & Equipment	2.287	51.603	364	5.446	604	3.168	449		868	5.065	1.345	5.552	728	4.017	6.645	78.724
25. Electrical Equipment	986	68.687	12	2.316	49	401	56	14.383	58	297	63	1.894	22	178	1.246	88.156
26. Transport Equipment	1.456	43.888	73	615	306	3.861	191	2.151	402	2.875	343	1.614	168	1.840	2.939	56.844
27. Professional & Scientific Products	122	12.139	4	72	–	–	3	67	2	15	2	7	1	13	134	12.313
28. Other Products	682	70.396	3	866	4	149	26	2.162	6	627	14	607	11	158	746	74.965
Total	24.685	1.041.976	1.352	96.651	2.916	144.781	3.501	98.344	6.670	98.602	5.171	81.065	3.210	80.098	47.505	1.641.517
%	51.96	63.48	2.85	5.89	6.14	* 8.82	7.37	5.99	14.04	6.01	10.89	4.94	6.76	4.88	100	100

Source : 1. Dept. of Industrial Works, Ministry of Industry
2. Office of Industrial Economics, Ministry of Industry

Note : Not include Rice Mill, Saw Mill, Cold, Storage, Stone and Sand for Construction and Dry Cleaning

Table 6 Nominal Minimum Wage Rate by Region

(Baht/per Day)

Effective Date	BMR	Central		North		Northeast		South	
		Chonburi Saraburi	Other Provinces	Chiang Mai	Other Provinces	Nakhon Ratchasima	Other Provinces	Ranong Phangnga Phuket	Other Province
1 Jan. 1974	16	–	–	–	–	–	–	–	–
14 Jun. 1974	20	–	–	–	–	–	–	–	–
1 Oct. 1974	20	18	18	16	16	18 *	16	18	18
16 Oct. 1975	25	18	18	16	16	18 *	16	18	18
1 Oct. 1977	28	21	21	19	19	19	19	21	21
1 Oct. 1978	35	28	28	25	25	25	25	28	28
1 Oct. 1979	45	38	38	35	35	35	35	38	38
1 Oct. 1980	54	47	47	44	44	44	44	47	47
1 Oct. 1981	61	61	52	61	52	61	52	61	52
1 Oct. 1982	64	61	52	61	52	61	52	64	52
1 Oct. 1983	66	63	56	63	56	63	56	66	56
1 Jan. 1985	70	65	59	65	59	65	59	70	59
1 Apr. 1987	73	67	61	67	61	67	61	73	61
1 Jan. 1989	76	69	63	69	63	69	63	73	63
1 Apr. 1989	78	70	65	70	65	70	65	75	65
1 Apr. 1990	90	79	74	79	74	79	74	84	74
1 Apr. 1991	100	88	82	88	82	88	82	93	82
1 Apr. 1992	115	101	94	101	94	101	94	107	94

* including Udon Thani, Khon Kaen and Ubon Ratchathani

Source : Department of Labour, Ministry of Interior

Table 7 Distribution of Projects by Location

(In number of projects and % share)

Regions	Applications				
	1987	1988	1989	1990	1991
Bangkok & Samut Prakarn	437(40.6)	552(25.6)	546(43.1)	390(38.5)	204(32.0)
4 Provinces nearby Bangkok	231(21.4)	333(15.5)	–	–	–
10 Province in Central	272(21.5)	577(26.8)	312(24.6)	267(26.4)	136(21.3)
Other Provinces	137(12.7)	691(32.1)	409(32.3)	356(35.1)	298(46.7)
Other Central *	–	230(10.7)	100(7.9)	94(9.3)	95(14.9)
North	35(3.3)	65(3.0)	93(7.3)	83(8.2)	58(9.1)
North-east	20(1.9)	59(2.7)	68(5.4)	75(7.4)	61(9.5)
South	57(5.3)	309(14.4)	118(9.3)	74(7.3)	65(10.2)
Un-known	25(2.3)	26(1.3)	30(2.4)	30(2.9)	19(3.0)
Total	1,077(100)	2,153(100)	1,267(100)	1,013(100)	638(100)

Regions	Approval				
	1987	1988	1989	1990	1991
Bangkok & Samut Prakarn	657(45.7)	430(29.1)	536(45.3)	386(42.3)	193(31.9)
4 Provinces nearby Bangkok	160(25.2)	281(15.6)	–	–	–
10 Provinces in Central	113(17.8)	349(23.6)	324(27.4)	249(27.3)	154(25.4)
Other Provinces	72(11.3)	468(30.6)	323(27.3)	277(30.4)	259(42.7)
Other Central	–	146(9.6)	97(8.2)	79(8.6)	93(15.3)
North	17(2.7)	48(3.1)	77(6.5)	69(7.6)	44(7.3)
North-east	12(1.9)	33(2.1)	57(4.8)	51(5.6)	67(11.0)
South	40(6.3)	240(15.7)	92(7.8)	78(8.6)	55(9.1)
Un-Known	3(0.4)	1(0.1)	–	–	–
Total	635(100)	1,528(100)	1,183(100)	912(100)	606(100)

* includes East and West

Remark : Zone 1 ; Bangkok & Samut Prakan, 4 Provinces nearby Bangkok (after 1989)

Zone 2 ; 10 Provinces in Central

Zone 3 ; Other Provinces

Source ; BOI

Table 8 Industrial Estates in Thailand

(as of March 1992)

Industrial Estates	Site	Locatioon (from BKK)	Year of Completion	Area (Rai)	Available GIZ	EPZ
						–
1. Bang Chan	Minburi	30km/East	1972	677	–	–
2. Minburi I–II	Minburi	40km/North	1988	300	–	–
			1990	270	270	–
3. Lat Krabang	Minburi	35km/East	1990	812	–	50
4. Bang Plee I–III	Samut Prakarn	40km/Southeast	1984	534	–	–
			1989	1,004	–	–
			1993	1,300	800	–
5. Bang Poo I--II	Samut Prakarn	34/km/East	1991	1,542	1,400	–
6. M. Thai	Samut Prakarn	40km/East	1988	2,000	300	–
7. Navanakorn	Pathumthani	40km/East	1988	826	60	–
8. Bangkadi	Pathumthani	46km/North	1987	2,027	–	–
9. Mah Boonkrong	Nonthaburi	40km/North	1988	1,136	–	–
10. Muang Thong Thani	Samut Sakorn	40km/North	1988	1,410	728	–
11. Jongsatit	Samut Sakorn	70km/North	1990	,80	680	–
12. Samut Sakorn	Ayudhaya	36km/West	1989	930	200	–
13. Rojana I–II	Ayudhaya	50km/East	1992	1,429	500	–
14. Ayudhaya	Ayudhaya	70km/North	1989	1,425	40	–
15. Bang–Pa–In	Ayudhaya	70km/North	1990	754	754	40
16. Hi–Tech I–II	Ayudhaya	45km/North	1994	720	70	300
17. Saharattananakorn	Saraburi	60km/North	1990	1,600	100	–
18. Saraburi	Saraburi	90km/North	1996	2,050	1,295	256
19. Nong–Kae	Saraburi	120km/North	1992	1,600	767	140
20. Siam Cement	Chacoengsao	93km/North	1992	2,038	700	–
21. Well Grow I–III	Chachoengsao	92km/North	1993	2,700	898	–
		40km/East	1990	688	–	–
			1991	932	16	–
22. Gate way City	Chonburi	80km/East	1993	552	552	1,500
23. Laem Chabang	Chonburi	123km/Southeast	1993	6,000	2,190	900
24. Chonburi I–II	Chonburi	130km/East	1992	3,500	–	350
			1991	1,240	300	–

			1991			
			1988	2,000	2,000	
25. Sriracha	Chonburi	110km/East	1991	1,202	–	–
26. Bangpakong	Rayong	57km/East	1992	2,315	250	–
27. Mab Ta Phut	Rayong	190km/Southeast	1992	6,000	–	–
28. Eastern	Rayong	190km/Southeast	1991	2,430	816	338
29. Thai Petrochemica	Pracheanburi	180km/East	1991	5,000	3,200	1,800
30. Prachinburi	Pracheanburi	170km/East	1995	1,768	1,768	–
31. Kabinburi	Pracheanburi	160km/East	–	2,400	1,750	–
32. Prosperity	Ratchaburi	125km/East	1992	3,000	3,000	–
33. Ratchaburi	Nakorn	150km/West	1988	2,300	2,300	–
34. Suranaree I–II	Ratchasima	260km/Northeast	1993	530	–	–
			1985(EPZ)	1,500	1,500	–
35. Northern Region	Lamphoon	600km/North	1991(GIZ)	1,760	826	45

Note : GIZ = General Industrial Zone
EPZ = Export Processing Zone

References

ESCAP, The Report of Establishment of Pilot Projects in Khon Kaen and Songkhla Provinces in Support of Integrated Industrialization in Non metropolitan Areas, Bangkok, March 1978.

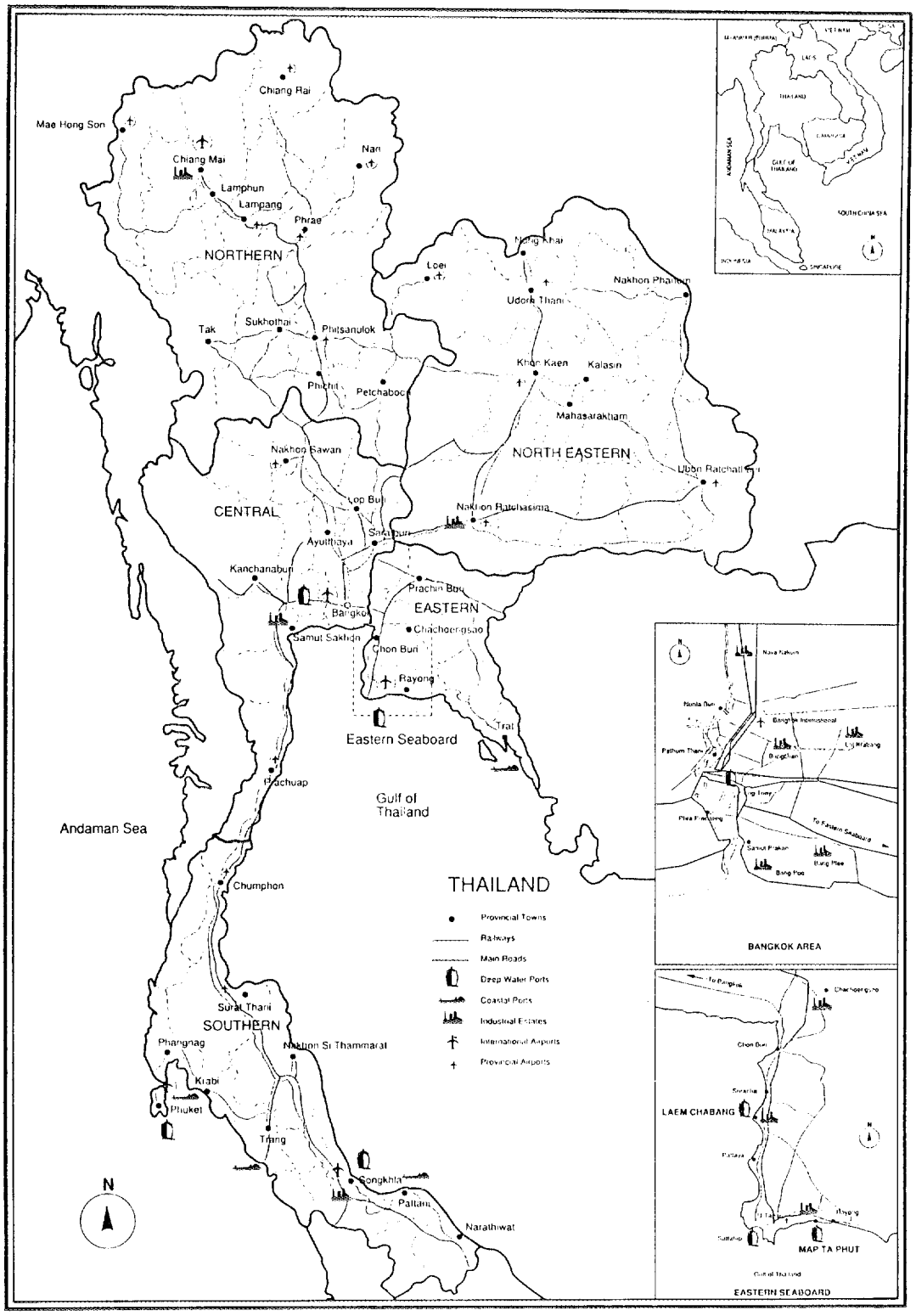
Gosa Araya (ed.),, A SammaryReport on Provincial Industries and Employment, TDRI, Bangkok, April 1990.

JICA, Final Report on Upper Central Regional Study, Tokyo, November, 1990.

NESDB, The Seventh National Economic and Social Development Plan, 1992–1996, 1992.

Samart Chiasakul, Mikimasa Yoshida (eds.), Structural Change of Thai Economy and Industrial Promotion Policy Adjustment, ASEDP Series No. 6, Institute of Developing Economies, Tokyo, March 1990.

Tyler,Biggs, Peter Brimble, Donald Snodgrass and Michael Marray, Rural Industry and Employment Study : A Synthesis Report, TDRI, Bangkok, April 1990.


Chiang Rai
Mae Hong Son
Chiang Mai
Nan
Lamphun
Lampang
Phrae
NORTHERN
Loei
Nakhon Phanom
Udorn Thani
Tak
Sukhothai
Phitsanulok
Khon Kaen
Kalasin
Phichit
Petchabun
Mahasarakham
Nakhon Sawan
NORTH EASTERN
Ubon Ratchathani
CENTRAL
Lop Buri
Nakhon Ratchasima
Ayutthaya
Kanchanaburi
Prachin Buri
Bangkok
EASTERN
Samut Sakhon
Chachoengsao
Chon Buri
Rayong
Eastern Seaboard
Trat
Ranong
Gulf of Thailand
Andaman Sea
Chumphon
THAILAND
Provincial Towns
Railways
Main Roads
Deep Water Ports
Coastal Ports
Industrial Estates
International Airports
Provincial Airports
Surat Thani
SOUTHERN
Phangnga
Nakhon Si Thammarat
Krabi
Phuket
Trang
Songkhla
Pattani
Narathiwat
N
BANGKOK AREA
LAEM CHABANG
MAP TA PHUT
EASTERN SEABOARD

Source : BOI