CHAPTER 8

INDUSTRY

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8.1 Current Situation of Thai Industry

8.1.1 Industrial Development

The prime motor of the Thai economy had been the agricultural sector, especially rice production based on the country's rich natural conditions. The basic structure of the economy, therefore, was to export primary goods such as rice, tin, etc. and to import the manufacturing products. Such an economic structure was weak as it faces trade deficit by the international price fluctuation of primary goods.

(1) 1950's Industrial Situation

In the late 1950's, to strengthen the economic structure, the Government of Thailand (hereinafter called the GOT) adopted a policy of import-substitution industry development and promoted the conversion the commercial capital to the industrial capital. In spite of the efforts by the government, the industrialization remained at a low level.

Then the GOT adopted the private initiative industrialization and utilization of the market mechanism to improve the trade balance based on the recommendation of the World Bank in 1957.

(2) 1960' Industrial Situation

In the early 1960's, the import-substitution industrialization really began. This time there was a significant change of policy to steer government initiative to the private initiative. The GOT, therefore, limited its role to improvement and/or development of the infrastructure supporting the production activities of the private sector. Although the basic policy for the industrialization of developing the import-substitution industrialization remained, the major player was taken over by the foreign investors.

Most automobile assemblers existing in Thailand now started operation during this time as well as the plastic industry. The major export goods, on the other hand, remained the primary goods such as agro-products. The total balance was improved but the trade balance was in a deficit, which was compensated by the foreign direct investment (FDI). In case of the automobile industry, for example, the more cars are produced, the more parts were imported because of the lack of a supporting industry, thus the import-substitution effect deteriorated.

As for the consumption goods, the purchasing power had been small despite a population of 30 million and the market was saturated. In addition to this, targeting such a small domestic market, the industry could not keep the competitiveness through the mass production. The location of industries concentrated in Bangkok and its vicinity because of the infrastructure development. This resulted in expanding regional income differentials.

The uplift of nationalism in the late 1960's by the over-inflow of the FDI caused the government to inevitably restrict the entry of FDI. The GOT, however, continued to hold an open market economy basically. After that movement, the promotion policy of the FDI stepped up to a new era, i.e. selective promotion of FDI.

(3) 1970's Industrial Situation

The industrialization policy changed from the import-substitution to export-oriented industry development since the import-substitution policy had failed to solve the trade deficit. Despite such a policy change, Thai economy remained at low growth because of the external economic situation, i.e. the stagnation of world trade in the first half of the 1970's.

(4) 1980's Industrial Situation

In the early 1980's, following the prospect for commercial natural gas from the Siam Bay, the government started the Eastern Seaboard (ESB) Development Plan, of which the objectives were to promote heavy chemicals and to solve the over concentration of manufacturers in Bangkok and its vicinity. Under the stagnant world economy, the ESB Development Plan was inevitably delayed and the foreign companies hesitated to move owing to the opacity of infrastructure development such as telecommunications, urban facilities, etc. During the first half of the 1980's, Thai economy marked rather low growth but the industrialization progressed steadily.

The period from the second half of the 1980's to the first half of the 1990's should be called the higher-growth decade. The Plaza Accord agreed upon in August 1985 resulted to the adjustment of the exchange rate; the Yen rate to US dollar was raised sharply. Since the Baht rate to US dollar, on the other hand, remained stable, Baht rate to the other currencies, e.g. Yen, was relatively low. The industries in Japan and

Asian NIEs searched the industrial base to export to the United States of America to overcome declining competitiveness.

The ESB development was completed at the same time and investments to it expanded dramatically. In addition, industrial parks by the private sector developed along the access between Bangkok and the ESB such as the Laem Chabang and Maputa Put industrial bases. The expansion of industrial location was observed from Bangkok to the north, east, and southeast in this period.

The applications submitted to Board of Investment (BOI) expanded five-fold in number and nine times by the investment amount for the three years from 1986 to 1989. The foreign investments accounted for 60% of such applications in terms of the number, and 70% in terms of the investment amount. The foreign investments were mostly export-oriented and have brought about great changes in the structure of Thailand's industry and trading (see Figure 8.1).

Figure 8.1 Number of Foreign Direct Investment

(5) 1990's Industrial Situation

In the early 1990's, the investment slowed down due to the settling down of foreign investment for the time being and the recession in Japan. Thai economy was good in successive years despite the investment slow down, because of the satisfactory operation by enterprises that had already been invested in. As the investment expanded, a higher growth of Gross Domestic Product (GDP) was achieved and the per-capita GDP exceeded USD 2,000 in 1993. Such a higher growth, on the other hand, caused a shortage of engineers and raised wages.

The per capita GDP increased in Bangkok and in the invested region; however, a greater part of the country remained at low economic growth, expanding regional income differentials. One of the reasons attributed to this disparity is the failure to achieve the ESB Development Plan of industrial dispersion or relocation, considering that the manufacturing sector is a major contributor to the economic growth in Thailand. Moreover, the Plan served only as guideline and did not impose any restrictions on the location preference by the private sector.

The GOT, based on the 10-year-high-growth experience, adopted the manufacturer-driven economic growth policy to enhance the regional economic development and diversified the infrastructure development over the whole country in order to establish the industrial relocation foundation. This strategy was reasonable in that the activities of private sector or location preference by manufacturers should change with the development of infrastructure as shown in the case of the ESB development and industrial location.

In 1997, the decade-long higher economic growth suddenly came to an end due to financial crisis. The applications of foreign investment submitted to BOI, for instance, decreased by 6.3% in terms of the number and 17.5% in terms of the investment amount. The shortage of foreign currency reserve due to the financial crisis made the government apply for a stabilization loan from international financing institutions. To borrow the emergency loan, the government adopted a tight financial policy, which caused the chain-reaction reduction of domestic demand - declining financing capacity of industries, deteriorating industrial profit, shrinking investment in plant and equipment, and finally, affecting consumer durable goods market.

Due to the financial crisis, the GOT gave up "the dollar standard" policy and adopted the floating rate system. The abandonment of dollar-peg policy led to the sharp devaluation of Baht to the US dollar. Such devaluation, on the other hand, was expected to put the economy on the recovery through the expansion of export. Thai industry, however, was included into the international specialization system and the procurement of parts and materials spread globally.

When the export-driven economic recovery was targeted, the procurement cost increased due to the exchange rate and reduced the export competitiveness. In addition to this, the financial crisis spread to most eastern Asian countries whose economies have also stagnated, and Thailand's economic recovery scenario through exports was faced with difficulties. Under these circumstances, the GOT revised the on-going 8th National Economic and Social Economic Development Plan.

8.1.2 Structure of Manufacturing Sector

The industrial structure is gradually changing as the trend in export goods indicates. The leading industry in the manufacturing sector used to be a labor-intensive one, of which the garment industry is a typical example. Its position is gradually being replaced with the technology-intensive industry of manufacturing computers and related products, electric and electronic products, automobiles, etc. (see Table 8.1).

Table 8.1 Major Export Goods from Thailand (Top 10 Goods)

Unit: %

	1991		1995		1998	
Rank	Products	Composition	Products	Composition	Products	Composition
1	Garment	11.9	Computer, parts	9.3	Computer, parts	14.3
2	Computer, parts	6.4	Garment	7.3	Garment	5.5
3	Jewelry	5.0	Rubber	4.4	IC	4.2
4	Rice	4.2	IC	4.1	Rice	3.9
5	Frozen prawn	3.7	Shoes, parts	3.8	Canned seafood	3.0
6	IC	3.6	Plastic products	3.7	Frozen prawn	2.6
7	Canned seafood	3.5	Frozen prawn	3.6	TV, radio, parts	2.6
8	Rubber	3.4	Jewelry	3.6	Rubber	2.5
9	Tapioca product	3.4	Rice	3.5	Jewelry	2.4
10	Shoes, parts	3.3	Canned seafood	2.4	Car, parts	2.2

Source: Prepared from the data of the Ministry of Commerce

Recent business trends show that many enterprises favor Thailand as a manufacturing base from a global viewpoint, even in the midst of the economic crisis. Especially the automobile industry created a noticeable trend as supported by the automobile assembly plants' operation and the speeches made by the top-level executives of BMW, GM, etc. It is expected that the automobile industry will be an export-oriented industry and contribute to the promotion of Small- and Medium-scale Industry (SMI), which is a big issue in the Thai industry.

Agriculture used to be the leader of the Thai industry, but it has been overtaken by the rapid industrialization that took place during the second half of the 1980s. As Figure 8.2 illustrates, the GDP share of agriculture, including forestry and fishery, decreased by 50%, from 23.2% in 1980 to 11.0% in 1996. On the other hand, the share of manufacturing increased from 21.5% to 28.4% for the same period. This means that the expansion of manufacturing sector achieved the major part of recent economic development in Thailand.

The export trend also shows the significant role of manufacturing. As illustrated by Table 8.2 and Figure 8.3, there was rapid increase in export after 1980. Thailand's export increased 14 times from Bt. 133 billion in 1980 to Bt. 1,806 billion in 1997. During this period, the composition of primary products by agriculture, fishery, forestry, and mining dropped from 63% to 15%, while that by manufacturing jumped from 32% to 82%. This means that manufacturing was the driving force behind the Thai exports.

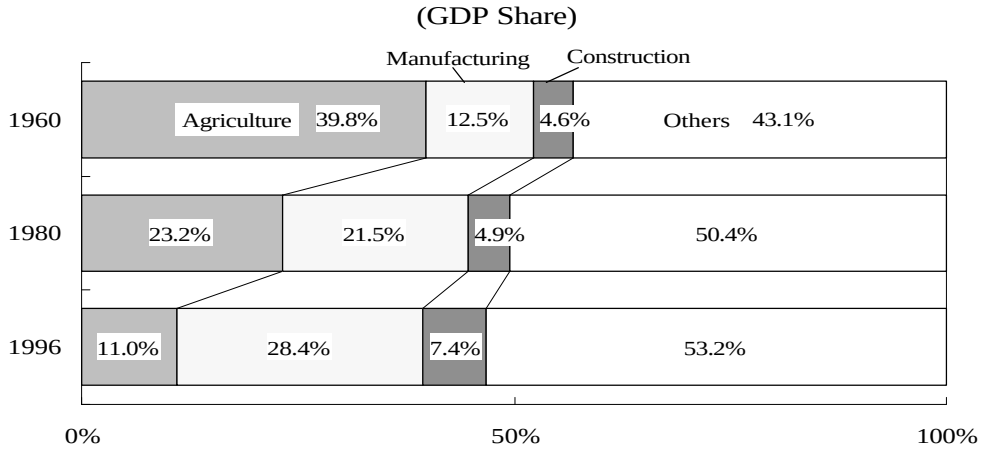

Figure 8.2 Changes in Industrial Structure

Table 8.2 Thailand's Exports by Group of Products

Item	1980		1986		1992		1997	
	mil. Bt.	%	mil. Bt.	%	mil. Bt.	%	mil. Bt.	%
Agriculture	62,506	-47	79,397	-34	123,809	-15	183,962	-10
Fishery	5,547	-4	14,853	-6	48,793	-6	72,227	-4
Forestry	70	0	620	0	780	0	1,285	0
Mining	15,420	-12	6,283	-3	6,803	-1	16,561	-1
Primary Products	83,543	-63	101,153	-43	180,185	-22	274,035	-15
Manufacturing	43,065	-32	129,170	-55	634,385	-77	1,489,055	-82
Others	6,589	-5	3,060	-2	10,073	-1	43,609	-3
Export Total	133,197	-100	233,383	-100	824,643	-100	1,806,699	-100

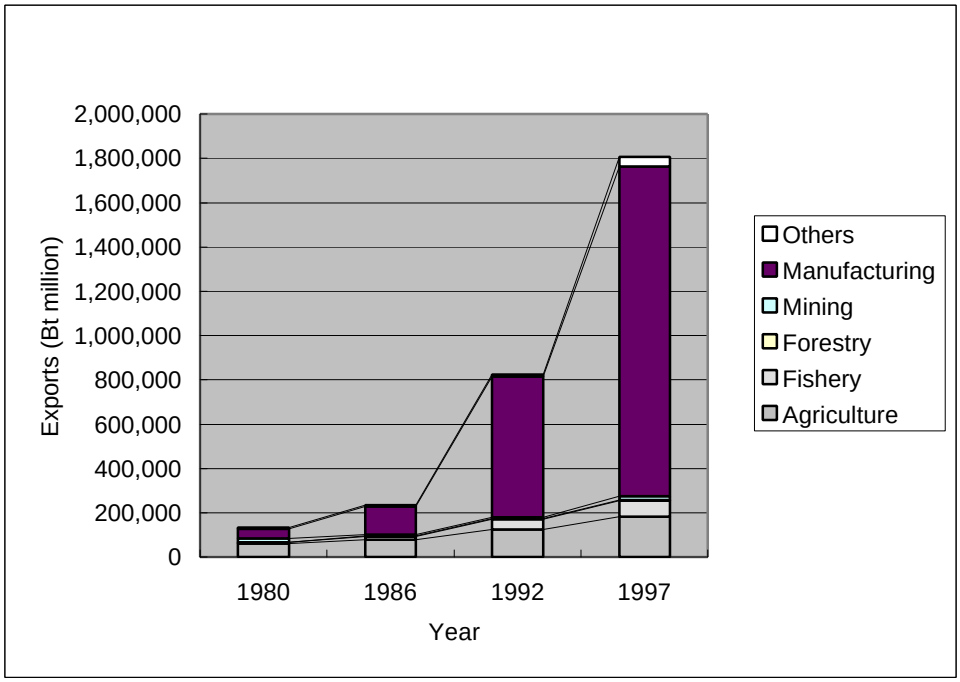

Figure 8.3 Thailand's Exports by Group of Products

8.1.3 Decentralization Policy and Spatial Diversification

Following the 3rd National Economic and Social Development Plan in 1971, the GOT adopted the decentralization policy to promote direct investment into remote areas in order to solve the growing income differentials among the regions since the 1960's. The job creation in remote areas, where the major industry is agriculture, has been effected through the introduction of industries to improve the employment circumstances in the region of unemployment pools and to raise income levels.

To achieve the policy target, the government introduced the designated incentive systems and promoted the development of industrial estates (IE) by the Industrial Estate Authority of Thailand (IEAT). The IEAT, however, developed quite a few IEs in the remote areas. In fact, there were 3 IEs developed by the IEAT outside the range of 200 km from Bangkok, the Northern IE in Lumphun, the Southern IE in Songhkla, and Korat IE in Nakhon Ratchasima (see Figure 8.4). The private sector development of industrial parks (IP), which are enhanced by the GOT, concentrated to the area where investment is expected in the short run. From the viewpoint of industrial decentralization, therefore, only the IEAT can develop IEs in remote areas.

[Definition of Industrial Area]

There is a regulation of industrial area by the IEAT of MOID. These definition is shown in Box 8.1.

Box 8.1 Definition of Industrial Area

> The Industrial Estate Authority of Thailand (IEAT) prescribes definition of the Industrial Estate (IE) and IE should be the industrial area that organized by IEAT. Ministry of Industry has industrial area so called Industrial Zone (IZ) and private company developed industrial area that called Industrial Park (IP).

The IEAT, however, is faced with budgetary restrictions and hesitates to develop an IE in the remote area, in which the investment will be expected only in the long run. As for the industry development in the remote area, the IE shall be fundamental since such regions lacked sufficient infrastructure such as telecommunications, electricity, water supply, and so on. If there were no IE in the area, no company would want to nominate that area as a location site. With minimal information about location conditions, the foreign investors, who are the major players of FDI, will find it difficult to consider the less developed areas than would the Thai investors.

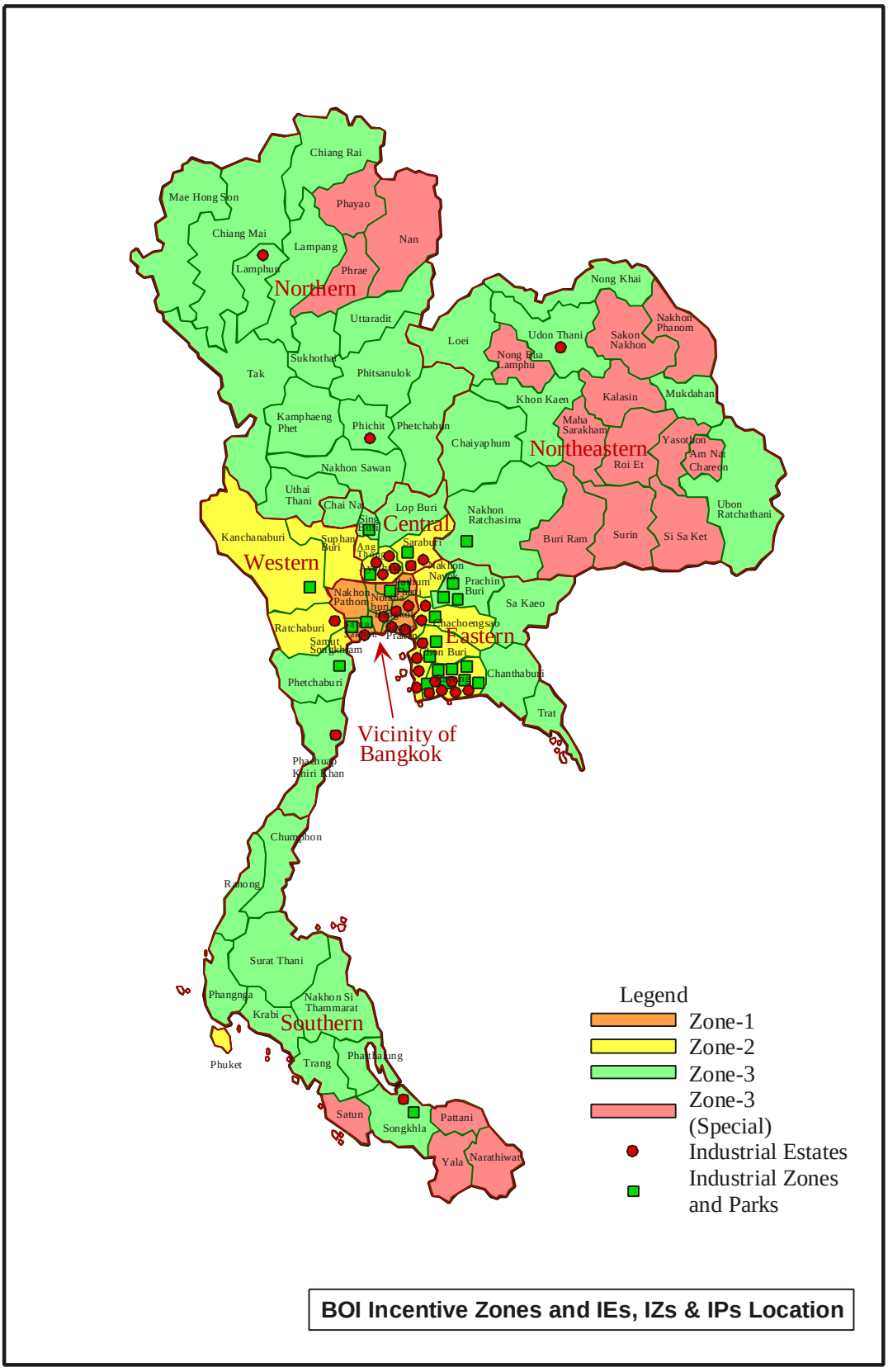

Figure 8.4 Location of Industrial Estate by IEAT

Evidently the lack of IEs in remote areas caused the stagnation of manufacturing activities as shown in Table 8.3. An over-concentration of manufacturing to Bangkok and its vicinity was observed in 1990. The area generated Bt. 442 million of GRP for the manufacturing sector, which accounted for 74% of the whole Kingdom. After that, manufacturing gradually spread into other regions. Consequently, the share of Bangkok and its vicinity decreased to 64%. Spatial diversification spread for the most part to the Eastern Region, where the share of manufacturing rose from 9% to 16% for the period between 1990 and 1996.

To introduce or relocate industries into remote areas, the BOI adopted the zoning system, which is to provide different incentives in designated "zones". A remote area is included in Zone-3, which offers investors with the most attractive incentive package, but a few companies have opted to locate in such an area. Even in recent years, the major manufacturing firms have selected locations in Bangkok and its vicinity. In the case of export-oriented industries, for example, one of the most important factors for their site selection is convenient access to the international seaport and airport, which are located in Bangkok and its vicinity.

Table 8.3 Gross Regional Product for Manufacturing Sector at Current Price

Unit: million Baht

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average Growth Rate
Bangkok	272,122	323,565	352,733	400,521	418,399	472,095	510,249	532,346	529,559	8.68
Vicinity of Bangkok	182,344	207,672	187,059	205,292	247,758	290,630	309,213	312,807	306,117	6.69
Central	23,477	30,234	45,373	50,658	62,471	71,500	78,560	80,046	75,734	15.77
Eastern	51,565	70,859	88,357	115,341	145,545	175,901	215,985	233,225	245,483	21.54
Western	17,195	19,427	25,310	29,380	33,528	39,715	41,954	44,174	47,632	13.58
Northeastern	21,204	23,758	33,550	40,038	48,364	59,897	66,321	67,386	67,666	15.61
Northern	17,232	19,803	30,669	33,580	41,043	46,130	50,087	51,886	53,399	15.19
Southern	10,734	11,243	15,937	17,560	20,430	23,716	26,448	27,409	28,804	13.13
Whole Kingdom	595,873	706,561	778,987	892,369	1,017,536	1,179,585	1,298,817	1,349,278	1,354,394	10.81

Source: NESDB

The issue to be considered is whether investors would prefer to locate in an area near the ports, has an IE but no incentives or a remote area that is far from the ports, has no IE but offers attractive incentives. Past location trends suggest that conditions like transportation and existing IE were what investors look for rather than the ncentives for industries.

8.1.4 Review of 8th National Economic and Social Development Plan Revision

The economic crisis took place in the first year of implementation of the Eighth Plan (1997-2001). It was unprecedented and more critical than the prior projection that had been considered during the formulation process. It was, therefore, necessary that the 8th National Economic and Social Development Plan consider appropriate

measures for rehabilitation of economy and security of society. A review has been conducted on the revisions to the Eight Plan, focusing on the industrial development, as follows:

(1) Main Policies of Eighth Plan Revision

- Adjust production process in the different economic sectors to become more self-reliant, use more technology and be competitive in the world market. Agriculture and services would become more significant in alleviating the current account deficit.
- Create linkage among agriculture, industry and services in order to promote greater application of locally produced raw materials, as well as generate more employment and value adding industries.
- Upgrade efficiency in production management to solicit cooperation from all parties and be ready for economic changes.
- Prioritize the public investment plans and projects taking into account the current budget constraints, increase private sector role, upgrade managerial efficiency, and adopt an efficient pricing policy that reflects actual costs in operations to achieve a better delivery of services.

(2) Operation Guidelines for Strengthening Industrial Production Base

1) Designate explicit direction for industrialization, taking into account the current economic and budget constraints. Emphasis shall be given to competitiveness upgrading and prioritization of each industrial zone by:
   - Setting potential target industries that deserve government promotion, including:
     - Export-oriented industries showing promising opportunities for market expansion and technology development, such as textile industry, food processing, electrical and electronic appliances, jewelry and ornamentals;
     - Industries contributing to rural employment and income generation, focusing on low-technology and sub-contracting jobs, such as thread dyeing, gem cutting, as well as food processing and preservation; and
     - New industries with brilliant growth potential such as premium textile fabrics, paints, pharmaceutical products and printing industry.
   - Set priority of industrial zones for effective production plan, with focus on the existing industrial base.

2) Promote industries still competitive in the world market, especially small- and medium-scale industry for generating foreign currencies. The promotion can be conducted via expedition of productivity of labor and capital, machinery replacement

and application of appropriate technology, skill development and elimination of redundant export procedures.

3) Hasten industrial production restructuring through modern application of technology to increase production efficiency and upgrade international competitiveness, by:
   - Improving technology application at the factory level. Industrial consulting services in the public sector shall be extended, and fiscal and monetary measures shall be provided to enhance technology application in export-oriented industries;
   - Promoting technology allies between the Thai industries and multinational companies for exchange and cooperation in technology transfer;
   - Increasing private sector role in technology development, by:
     - Reviewing the existing incentive package and suggesting new ones through fiscal and monetary measures, including relaxation of rules and regulations for the private sector to set up their own technology R&D fund, or to form a R&D group; and
     - Promoting commercial application of research and development (R&D) results, especially those concerned with agriculture, processing, quality preservation and packaging.
   - Urgently developing infrastructure in science and technology, such as:
     - Improving the efficiency of public services in analysis, testing and certifying for quality standards (ISO 9000: International Standard Organization 9000) and environmental management (ISO 14000). Personnel training shall be organized continuously to cope with technology innovations, and private sector shall be urged to compete in quality upgrading; and
     - Provide new skill training compatible with the employment potential in the market in order to catch up with technological advancement. Employment opportunities shall be provided for these newly trained workers, and the Asian Development Bank (ADB) loans shall be used to set proper curricula and public relations activities. More incentives shall be provided for private sector participation in training, such as exemption of corporate tax over 50% of the training cost.

4) Stimulate complete systematic development of basic industries to be linked with higher industrial production so as to reduce reliance on intermediate and high technology goods from abroad. Focus shall be on intermediate industries, such as automobile spare-parts, machinery, plastic products and synthetic yarn. Financial incentive, especially tariff reduction for raw material import, should be provided, including development of sub-contracting connections.

8.2 Current Situation of Local Industry

8.2.1 Current Situation of Industry in Northeast Region

Considering the industrial location in Northeastern Region, it can be said that a lot of industries have suffered from the effects of the financial crisis in 1997. At present, the industries in Bangkok are showing signs of recovery, however, the same cannot be said of the I-san region, which has to address a number of constraints before it can revitalize its industries.

Thailand's economic growth declined in 1998 compared with the previous year before the financial crisis in 1997, however, after 1999 its economy has emerged from a minus to plus growth under the restructuring scheme of the International Monetary Fund (IMF). The growth rate in 1999 was 4.2% and quarterly growth rates of manufacturing in the same year were 4.5%, 8.8%, 16.6% and 15.0% according to NESDB.

In 1998, the country's GDP was Bt. 4,635,926 million at current price and leading industry was manufacturing with Bt. 1,354,394 million. The share of manufacturing was 29.22%, posting a growth rate of 10.81% during the past nine years. Only forestry in agricultural industry registered a negative growth (-3.47%) among all the other industries. In the same time, GDP per capita by USD is decreasing less than USD 2,000 at USD1,834 in 1998 (see Table 8.4).

The GRP of Northeastern Region was Bt. 547,493 million with a growth rate of 9.81% during the past nine years. The leading industry of Northeastern Region is agriculture, which posted a Gross Regional Product (GRP) of Bt. 127,069 million with a growth rate of 7.35%. Banking/insurance/real-estate industry registered the highest growth rate of 21.49%. The manufacturing industry grew at 15.72% or Bt. 67,666 million, which were only 12.36% of total GRP. GRP per capita shows USD 639 at 35% of which whole Kingdom figure shows. (see Table 9.5).

Even with agriculture as the main industry in Northeastern Region at some 23.21% share of GRP, poor soil and erratic rainfall are cited as main reasons for poor agricultural productivity. Moreover, subsistence farming largely depends on similar mono-cultural crop, namely rice, sugarcane and cassava.

[Definition of Local Industry]

Definition of "local industry" means in this industrial section are, 1) the manufacturing industry which using local resources, such as agricultural products, mining resources, fresh water resources and forest resources, including those products imported from Laos during their production process, and 2) the manufacturing industry which using local financial capital including local own equity or terms loan.

Box 8.2 Local Industry

Definition of local industry is:

- Using local raw material; and

Table 8.4 Gross Domestic Product by Industrial Business Field in Thailand (at current price)

Unit: million Baht

Item \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	Share of Industry in 1998 (%)
Agriculture	279,081	317,085	348,128	329,878	392,496	469,426	510,400	541,865	620,183	10.50	13.38
Crop	164,547	181,918	197,058	166,564	208,824	263,205	292,637	313,448	353,256	10.02	7.62
Livestock	32,984	37,430	35,001	32,275	35,675	42,480	43,929	42,362	43,482	3.51	0.94
Fishery	32,278	43,139	55,764	67,410	76,152	84,265	87,893	99,896	137,530	19.86	2.97
Forestry	6,972	7,110	6,705	6,443	6,035	5,856	5,969	5,625	5,257	-3.47	0.11
Agricultural Service	10,748	10,958	11,526	11,149	12,463	12,800	13,480	13,408	13,977	3.34	0.30
Simple Agricultural Processed Product	31,552	36,530	42,074	46,037	53,347	60,820	66,492	67,126	66,681	9.80	1.44
Mining and Quarrying	34,362	39,372	42,306	44,259	48,667	50,113	62,387	84,729	83,863	11.80	1.81
Manufacturing	595,873	707,901	778,987	892,369	1,017,536	1,179,585	1,298,817	1,349,278	1,354,394	10.81	29.22
Construction	133,438	168,278	190,529	220,771	267,801	305,623	343,873	270,012	176,202	3.54	3.80
Electricity and water Supply	47,687	53,461	65,506	75,739	84,552	99,352	106,711	113,288	118,736	12.08	2.56
Transportation and Communication	157,319	177,239	205,216	237,757	269,704	304,446	341,693	369,122	360,462	10.92	7.78
Wholesale and Retail Trade	377,527	426,957	477,027	530,900	600,748	673,085	720,053	753,227	706,797	8.15	15.25
Banking, Insurance and Real Estate	122,063	133,838	182,182	232,194	280,597	315,519	346,876	322,878	264,560	10.15	5.71
Ownership of Dwelling	66,238	70,966	75,437	81,247	88,793	99,337	109,281	115,072	120,833	7.80	2.61
Public Administration and Defense	76,560	86,925	105,392	117,683	127,524	154,667	167,888	176,089	188,372	11.91	4.06
Service	291,952	324,612	360,206	407,461	456,080	534,479	600,511	631,747	641,524	10.34	13.84
Total GDP	2,182,100	2,506,634	2,830,916	3,170,258	3,634,498	4,185,632	4,608,490	4,727,307	4,635,926	9.88	100.00
Percapita GDP (Baht/person)	38,908	44,307	49,410	54,650	61,903	70,464	76,804	78,006	75,749	-	-
Population (1,000 persons)	56,083	56,574	57,294	58,010	58,713	59,401	60,003	60,602	61,201	-	-
Average of Buying and Selling (1USD=Bt.)	25.56	25.49	25.38	25.29	25.12	24.89	25.32	31.32	41.31	-	-
Percapita GDP (USD/person)	-	1,738	1,947	2,161	2,464	2,831	3,033	2,491	1,834	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

Table 8.5 Gross Regional Product by Industrial Business Field in Northeastern Region (at current price)

Unit: million Baht

Item \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	Share of Industry in 1998 (%)
Agriculture	72,026	78,989	85,034	70,685	81,455	98,035	106,671	117,333	127,069	7.35	23.21
Crop	51,150	57,110	61,596	48,289	56,878	70,851	76,254	87,346	97,662	8.42	17.84
Livestock	9,431	10,326	10,395	9,306	10,184	11,221	11,396	11,556	10,542	1.40	1.93
Fishery	1,281	1,232	1,247	1,672	2,154	2,066	2,863	2,458	2,352	7.89	0.43
Forestry	415	141	102	81	84	19	20	304	1,110	13.09	0.20
Agricultural Service	4,836	4,939	5,445	5,150	5,781	6,032	6,193	6,304	6,424	3.61	1.17
Simple Agricultural Processed Product	4,913	5,241	6,249	6,187	6,374	7,846	9,945	9,365	8,979	7.83	1.64
Mining and Quarrying	1,035	2,011	2,254	2,168	2,767	3,154	4,000	5,179	3,895	18.02	0.71
Manufacturing	21,050	26,804	33,550	40,038	48,364	59,897	66,321	67,386	67,666	15.72	12.36
Construction	20,964	25,558	26,897	28,381	41,301	53,156	61,504	42,910	24,374	1.90	4.45
Electricity and water Supply	3,457	3,865	4,753	5,341	6,444	7,420	7,782	7,752	8,289	11.55	1.51
Transportation and Communication	9,701	10,424	13,972	16,206	18,506	20,957	23,760	25,207	24,929	12.52	4.55
Wholesale and Retail Trade	56,052	62,028	69,168	76,440	86,995	97,371	103,947	108,118	99,918	7.49	18.25
Banking, Insurance and Real Estate	6,778	8,477	10,933	15,385	18,755	22,318	26,679	27,598	32,175	21.49	5.88
Ownership of Dwelling	13,770	14,617	14,611	15,820	17,484	18,627	19,498	20,799	22,103	6.09	4.04
Public Administration and Defense	17,919	20,445	24,875	26,535	29,388	35,035	35,976	36,938	38,995	10.21	7.12
Service	36,182	40,789	48,420	56,618	63,481	76,838	85,425	91,674	98,080	13.28	17.91
Total GRP	258,934	294,007	334,467	353,617	414,940	492,808	541,563	550,894	547,493	9.81	100.00
Percapita GRP (Baht/person)	-	15,128	17,019	17,800	20,683	24,341	26,541	26,778	26,407	-	-
Population (1,000 persons)	-	19,435	19,653	19,866	20,062	20,246	20,405	20,573	20,733	-	-
Average of Buying and Selling (1USD=Bt.)	25.56	25.49	25.38	25.29	25.12	24.89	25.32	31.32	41.31	-	-
Percapita GRP (USD/person)	-	593	671	704	823	978	1,048	855	639	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

8.2.2 Current Situation of Industry in Four Provinces

After the financial crisis in 1997, many industries in Northeastern Region faced market and financial problems. In particular, four provinces are faced with problems arising from a mono-cultural system of agriculture. Those problems and issues appeared after 1998.

The Gross Provincial Product (GPP) of the four provinces in 1998 were Bt. 14,065 million in Nakhon Phanom (NP), Bt. 22,525 million in Sakon Nakhon (SN), Bt. 8,638 million in Mukdahan (MH) and Bt. 21,395 million in Kalasin (KS). And the average annual growth rates in the same period from 1990 to 1998 were NP 8.53%, SN 8.65%, MH 12.36% and KS 9.50%, respectively.

(1) Industrial Situation in Nakhon Phanom

The leading industry in Nakhon Phanom (NP) is agriculture at Bt. 3,796 million of GPP, followed by wholesale/retail-sales at Bt. 3,155 million and service industry at Bt. 2,169 million. The wholesale/retail-sales/services are the active industry in NP, because of the international border trade between Thailand and Laos/Vietnam. The manufacturing industry occupies a GPP share of only 2.83% or Bt. 398 million. Although the development of manufacturing industry is lagging behind, the transportation/telecommunication industry and electricity/water supply industry are well developed even in the local area. Forestry under agriculture is showing zero

GPP while livestock is showing minus (-1.32%) with Bt. 287 million, and fishery is showing a 10.24% growth rate and even a small amount of GPP at Bt. 120 million.

Average Unemployment Rate, were 5.66% in 1994 and 4.40% in 1997, however in 1998, the rate was jumped to 10.30% drastically. Because of in NP send a lot of immigrant labor to the abroad and those people also return back to NP after the financial crisis effected in ASEAN region (see Table 8.6).

(2) Industrial Situation in Sakon Nakhon

The leading industries in Sakon Nakhon (SN) are agricultural industry at Bt. 5,429 million of GPP, wholesales/retailing-sales at Bt. 5,087 million and service industry at Bt. 4,133 million. These industries posted growth rates of 6.18%, 7.75% and 11.93% respectively. The structure of leading industries is the same with that of NP; however, agriculture of SN is 1.43 times bigger than NP because of the presence of Na Un Irrigation and Phu Phan Royal Development Study Center. SN is also the biggest town among the four provinces, with the finance/insurance/real-estate industry growing at 22.02%. The forestry industry is not a main industry with only Bt. 1 million of GPP and livestock and fishery of agricultural industry recorded negative growth of –2.79% and –7.11% respectively.

The average unemployment rate from 1994 to 1998 were 3.54% and 5.75% that not effected much compared with NP, because SN is the biggest province among 4 provinces and next to the Khon Kaen, which is the center of northern part of I-san region, however the rate was jumped to 5.75% from 1.61% in 1997 (see Table 8.7).

(3) Industrial Situation in Mukdahan

The number one industry in Mukdahan (MH) is service industry with Bt. 2,175 million of GPP and 21.69% of growth rate. Following service industry is agricultural industry with Bt. 1,828 million and 8.15% of growth rate. Wholesale/retail sales industry with Bt. 1,482 million and 8.67% of growth rate is the third. MH is also the international gateway town between Thailand and Laos/Vietnam. MH shows the highest growth rate of GPP among the four provinces with 12.36%, compared with the national growth average of 9.88%. However, the manufacturing industry's Bt. 775 million was recorded at a lower growth rate of 9.0%.

The average unemployment rate from 1994 to 1998 were showing 3.61% to 10.41%, however the rate was jumped at 6.00% in 1997 to 10.41% in 1998, because MH is the second province which send a lot of immigrant labor to the abroad (see Table 8.8).

(4) Industrial Situation in Kalasin

The GPP growth rate of Kalasin (KS) is nearly equal with the national average at 9.5%.

As with both NP and SN, the primary industry is also agriculture with Bt. 6,562 million of GPP and 21.69% of growth rate. KS has a huge Lam Pao Irrigation Project so that the agricultural GPP is the highest among 4 provinces. Secondary industry is wholesales/retail sales with Bt. 4,556 million and tertiary industry is service with Bt. 23,707 million. The GPP of manufacturing industry is only Bt. 782 million and shares only 3.6% of KS's GPP. The banking/insurance/real-estate shows the highest growth rate with 22.61%. On the other hand, livestock, fishery and mining and quarrying industry are showing negative growth with –4.09%, -2.54% and –4.11% respectively. The fishery industry in KS is not well developed, that same as in SN, even though there are a lot of ponds and lakes for agriculture in the provinces.

The average unemployment rates from 1994 to 1998 were 2.55% to 2.04% and the rate is quite low even they had got effective from financial crisis. The labors who are homecoming seems to be absorption to the agricultural industry, service industry and manufacturing industry (see Table 8.9).

Table 8.6 Gross Provincial Product by Industrial Business Field in Nakhon Phanom (at current price)

Unit: million Baht

Item \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	Share of Industry in 1998 (%)
Agriculture	2,463	3,150	2,676	3,896	3,218	3,608	3,468	2,903	3,796	5.56	26.99
Crop	1,793	2,510	1,983	3,183	2,495	2,806	2,598	2,010	2,928	6.32	20.82
Livestock	319	292	303	270	314	327	308	327	287	-1.32	2.04
Fishery	55	45	48	65	56	67	103	123	120	10.24	0.85
Forestry	9	0	0	0	0	0	0	0	0	-	0.00
Agricultural Service	119	124	125	126	134	142	147	147	156	3.40	1.11
Simple Agricultural Processed Product	167	179	217	252	219	266	312	296	305	7.83	2.17
Mining and Quarrying	31	33	31	33	63	75	100	110	55	7.46	0.39
Manufacturing	181	194	180	249	300	334	350	364	398	10.33	2.83
Construction	456	557	714	601	966	1,386	2,013	1,398	905	8.95	6.43
Electricity and water Supply	79	89	105	114	144	165	179	170	182	10.96	1.29
Transportation and Communication	221	247	449	489	560	610	714	778	742	16.34	5.28
Wholesale and Retail Trade	1,706	1,898	2,129	2,366	2,687	3,001	3,200	3,326	3,155	7.99	22.43
Banking, Insurance and Real Estate	140	183	249	362	450	521	625	642	723	22.82	5.14
Ownership of Dwelling	412	437	451	503	549	589	616	665	710	7.05	5.05
Public Administration and Defense	574	663	813	944	977	1,141	1,175	1,176	1,230	9.99	8.75
Service	1,043	1,151	1,301	1,434	1,703	1,734	1,834	2,001	2,169	9.58	15.42
Total GPP	7,306	8,602	9,098	10,991	11,617	13,164	14,274	13,533	14,065	8.53	100.00
Percapita GPP (Baht/person)	11,614	13,504	14,127	16,883	17,682	19,825	21,336	20,079	20,684	-	-
Population (1,000 persons)	-	637	644	651	657	664	669	674	680	-	-
Average Total Labour Fource (1,000 persons)	-	-	-	-	352	342	358	358	334	-	-
Average Unemployment Rate (%)	-	-	-	-	5.66	7.64	5.85	4.40	10.30	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

Table 8.7 Gross Provincial Product by Industrial Business Field in Sakon Nakhon (at current price)

Unit: million Baht

Item \ Year	1990 (p)	1991 (p)	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	share of Industry in 1998 (%)
Agriculture	3,361	3,643	3,817	3,519	4,019	4,681	4,975	5,044	5,429	6.18	24.10
Crop	2,425	2,597	2,667	2,326	2,833	3,536	3,636	3,765	4,245	7.25	18.85
Livestock	469	431	438	429	472	396	466	467	374	-2.79	1.66
Fishery	177	192	195	260	165	125	120	113	98	-7.11	0.44
Forestry	0	0	1	0	1	1	0	0	1	-	0.00
Agricultural Service	75	206	242	229	254	263	270	260	272	17.41	1.21
Simple Agricultural Processed Product	215	217	274	275	294	360	483	439	439	9.34	1.95
Mining and Quarrying	6	13	14	15	17	20	27	30	15	11.41	0.07
Manufacturing	459	502	646	887	939	1,034	958	912	871	8.33	3.87
Construction	871	1,084	1,105	1,106	1,858	2,480	3,764	1,992	1,230	4.41	5.46
Electricity and water Supply	137	151	183	199	236	268	281	278	305	10.52	1.35
Transportation and Communication	428	466	646	907	923	1,049	1,268	1,142	1,134	12.94	5.03
Wholesale and Retail Trade	2,799	3,100	3,456	3,817	4,340	4,848	5,161	5,359	5,087	7.75	22.58
Banking, Insurance and Real Estate	247	299	399	583	731	825	1,026	1,124	1,212	22.02	5.38
Ownership of Dwelling	684	725	723	783	867	926	973	1,050	1,125	6.42	4.99
Public Administration and Defense	927	1,063	1,298	1,490	1,591	1,804	1,843	1,910	1,984	9.98	8.81
Service	1,678	1,841	2,148	2,473	2,628	3,004	3,333	3,739	4,133	11.93	18.35
Total GPP	11,597	12,887	14,435	15,779	18,149	20,939	23,609	22,580	22,525	8.65	100.00
Percapita GPP (Baht/person)	12,246	13,382	14,820	16,019	18,240	20,856	23,306	22,116	21,890	-	-
Population (1,000 persons)	-	963	974	985	995	1,004	1,013	1,021	1,029	-	-
Average Total Labour Fource (1,000 persons)	-	-	-	-	572	521	547	541	501	-	-
Average Unemployment Rate (%)	-	-	-	-	3.54	3.33	2.14	1.61	5.75	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

Table 8.8 Gross Provincial Product by Industrial Business Field in Mukdahan (at current price)

Unit: million Baht

Item \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	Share of Industry in 1998 (%)
Agriculture	976	1,191	1,173	1,081	1,210	1,524	1,611	1,733	1,828	8.15	21.16
Crop	685	774	730	663	835	1,079	1,109	1,268	1,411	9.45	16.33
Livestock	147	270	280	235	180	228	249	213	166	1.49	1.92
Fishery	18	19	18	25	24	23	25	30	30	6.82	0.35
Forestry	0	0	0	1	1	0	1	0	0	-	0.00
Agricultural Service	52	56	57	70	79	82	83	87	92	7.28	1.07
Simple Agricultural Processed Product	74	72	88	87	91	112	144	135	129	7.24	1.49
Mining and Quarrying	35	36	39	44	67	79	105	117	68	8.47	0.79
Manufacturing	232	251	304	350	418	482	654	685	775	16.30	8.97
Construction	228	290	367	396	728	1,071	1,135	641	422	7.97	4.89
Electricity and water Supply	39	42	47	53	77	88	100	100	102	12.69	1.18
Transportation and Communication	117	130	243	250	277	331	351	369	366	15.33	4.24
Wholesale and Retail Trade	762	853	961	1,073	1,232	1,389	1,488	1,553	1,482	8.67	17.16
Banking, Insurance and Real Estate	78	101	142	215	281	340	439	411	405	22.92	4.69
Ownership of Dwelling	187	200	202	225	250	272	289	310	333	7.46	3.86
Public Administration and Defense	292	342	423	504	537	581	619	648	682	11.19	7.90
Service	452	518	580	672	914	1,263	1,615	1,858	2,175	21.69	25.18
Total GPP	3,399	3,954	4,481	4,863	5,991	7,420	8,406	8,425	8,638	12.36	100.00
Percapita GPP (Baht/person)	12,732	14,644	16,414	17,620	21,473	26,406	29,703	29,458	29,993	-	-
Population (1,000 persons)	-	270	273	276	279	281	283	286	288	-	-
Average Total Labour Fource (1,000 persons)	-	-	-	-	158	155	160	151	150	-	-
Average Unemployment Rate (%)	-	-	-	-	3.61	6.16	6.12	6.00	10.41	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

Table 8.9 Gross Provincial Product by Industrial Business Fieldin Kalasin (at current price)

Unit: million Baht

Item \ Year	1990	1991	1992	1993	1994	1995	1996	1997	1998 (p)	Average Annual Change (%/year)	Share of Industry in 1999 (%)
Agriculture	3,242	3,671	3,964	3,278	3,455	4,521	4,470	5,071	6,562	9.21	30.67
Crop	2,332	2,564	2,956	2,306	2,415	3,400	3,344	3,800	4,523	8.63	21.14
Livestock	367	427	386	345	386	390	312	271	263	-4.09	1.23
Fishery	106	86	94	119	133	111	111	99	86	-2.54	0.40
Forestry	0	0	0	1	6	5	2	236	1,021	-	4.77
Agricultural Service	208	209	241	233	228	254	237	246	256	2.62	1.20
Simple Agricultural Processed Product	229	385	287	274	287	361	464	419	413	7.66	1.93
Mining and Quarrying	22	11	6	6	18	22	29	32	16	-4.11	0.07
Manufacturing	412	427	412	480	566	653	697	718	782	8.34	3.66
Construction	684	845	854	837	1,596	2,364	2,491	1,315	855	2.82	4.00
Electricity and water Supply	132	167	226	267	256	286	299	291	305	11.00	1.43
Transportation and Communication	271	323	470	562	654	747	840	856	872	15.73	4.08
Wholesale and Retail Trade	2,348	2,635	2,976	3,330	3,805	4,268	4,566	4,771	4,556	8.64	21.29
Banking, Insurance and Real Estate	206	248	316	444	541	635	836	824	1,052	22.61	4.92
Ownership of Dwelling	643	681	666	717	793	843	882	928	987	5.50	4.61
Public Administration and Defense	753	870	1,068	1,233	1,252	1,491	1,526	1,590	1,701	10.72	7.95
Service	1,636	1,757	2,005	2,255	2,343	2,894	3,056	3,339	3,707	10.76	17.33
Total GPP	10,350	11,635	12,963	13,409	15,279	18,724	19,692	19,735	21,395	9.50	100.00
Percapita GPP (Baht/person)	12,133	13,498	14,866	15,220	17,187	20,897	21,807	21,687	23,357	-	-
Population (1,000 persons)	853	862	872	881	889	896	903	910	916	-	-
Average Total Labour Fource (1,000 persons)	-	-	-	-	492	514	496	495	495	-	-
Average Unemployment Rate (%)	-	-	-	-	2.55	1.52	0.77	0.72	2.04	-	-

Source: Office of National Economic and Social Development Board

Note: (p) means preliminary data.

8.2.3 Current Situation of Manufacturing Industry in Four Provinces

The number of manufacturing establishments in the four provinces was only 204 in 1996. Aside from a few medium- and large-scale industries (M&LSI) that are mainly engaged in agriculture, the majority in the study area are cottage- and family-industries (C&FI) and small-scale industry (SSI) types (see Table 8.10 to Table 8.15).

(1) Situation of Manufacturing Industry in Nakhon Phanom

The number of manufacturing industries in NP was 27. Of this number, there is only 1 large-scale industry and 1 medium-scale industry. While 25 are all categorized into small-scale industries with less than 49 employees. The registered capital of these 26 firms is almost less than Bt. 49 million/establishment (see Table 8.10 and Table 8.11).

Ownership of these firms is defined as follows: 14 by individual proprietorship, 8 by juristic partnership, 4 limited companies and one not adequately classified. The industries are broken down by economic status into 3 types: 22 single units, 4 branch offices and one head office. The main factories in NP are as follows:

- Agro-products factory;
- Wooden products factory;
- Silverwork factory; and
- Motorcycle assembly factory; etc.

On the other hand, Table 8.12 shows top 10 manufacturing industries in 2001 in NP. First one is the canned tomato & sweet corn factory, the second one is jewelry factory and the third one is garment factory with 500, 285 and 90 workers respectively. Although we choose top ten industries, the 6th one is SSI and 10th one is C&FI. There are only few big industries in NP (see Table 8.12).

The locations of the factories are widely spread over the province, with 9 in the municipal area, 7 in the sanitary district and 11 in the non-municipal area. Gross industrial output (GIO) of NP is Bt. 350 million and value added (VA) of manufacturing is Bt. 180 million. Four public and private industries collectively earned Bt. 237 million, accounting for 68% of NP's manufacturing share.

(2) Situation of Manufacturing Industry in Sakon Nakhon

SN has 43 manufacturing industries, 3 are large-scale industries, 3 are medium-scale industries (MSI) and 37 are small-scale industries (SSI) (see Table 8.10 and Table 8.11).

Individual proprietorship status stands at 24 industries, juristic partnerships at 7, limited companies at 10, state company at 1 and other status, 1. The industries are broken down by economic status into 3 types: 39 single units, 2 head offices and 2 branches. The major manufacturing industries, which are related with agro-industry, are as follows:

- Rice mill;
- Cassava products factory; and
- Milk factory; etc.

Normally, the rice mill is not including in manufacturing industry, however rice mill is the biggest manufacturing industry, second one is cassava industry and third is garment industry. There are no large-scale industry in SN and the 9th and 10th manufacturing industries are categorized in C&FI with 8 and 6 workers respectively (see Table 8.13).

The GIO of SN is Bt. 449 million and VA is Bt. 65 million. GIO and VA per capita of SSI are higher than those of MSI and LSI.

(3) Situation of Manufacturing Industry in Mukdahan

MH has 47 small- and medium-scale industries (SMI). Ownership consists of 17 individual proprietors, 13 juristic partnerships, 11 limited companies, one state enterprise and 5 others whose statuses are not adequately defined (see Table 8.10 and Table 8.11). The major factories are as follows:

- Sugar factory;

- Pet toy factory (chewing gum for pet dogs and cats made by caw skin); and
- Rice noodle factory; etc.

In the year 2001, Department of MH described top 9 manufacturing industries in Table 8.14). The first industry is raw sugar factory and the second and the third are garment factories. The raw sugar factory is the large-scale industry with 300 workers and the garment factories are medium-scale industries with 140 and 100 workers respectively. Remaining 4 manufacturing industries are categorized SSI and 2 industries are C&FI (see Table 8.14).

GIO of MH is Bt. 884 million and VA is Bt. 165 million. GIO per capita is Bt. 144,000 to Bt. 739,000 and VA per capita is Bt. 35,000 to Bt. 139,000. These figures show that MH has an average manufacturing industry among the four provinces. GIO by public and private companies earned a total of Bt. 674 million, or about 76% of total GIO (see Table 8.11).

(4) Situation of Manufacturing Industry in Kalasin

KS has 87 factories engaged in manufacturing led by cassava and sugarcane agro-industry. However, majority (70) of the industries are small-scale and 13 are medium-scale companies. There are 4 large-scale industries in terms of number of employees and registered capital. The major factories are as follows:

- Sugar factory;
- Tapioca factory; and
- Catfish sausage factory; etc.

The top 10 manufacturing industries in KS are all related to sugar and tapioca even citric acid produced by tapioca flour. There are 5 large-scale industries, 4 medium-scale industries and 1 small-scale industry (see Table 8.15).

GIO and VA of KS is the best among the four provinces with Bt. 3,175 million and Bt. 779 million respectively. GIO and VA per capita are also highest at Bt. 1,145,000/worker and Bt. 351,000/worker respectively (see Table 8.11).

There are a few industries in I-san region that have remained active in spite of the financial crisis. This can be attributed to 1) the secure assets held by the owner, such as land and majority of the business capital, 2) the capability of the owner, in terms of having business experience and creativity, and 3) existing of own market or market information. These important points are more clearly laid out as follows:

- I-san business should be coordinated by I-san people who commands respect and have good leadership qualities;
- Leader has a lot of experience in the kind of business which will be established;
- Leader should be familiar with market of the business engaged in and has a

connection for entry into the market; and

- Leader has land and capital for establishment of the business.

Only those with the above mentioned characteristics should venture into business in the I-san region. Otherwise, the probability of success would be almost nil.

[Definition of Small- and Medium-scale Industry]

The each Ministry, agency and other related organization upon their business requirement, categorizes definition of Small- and Medium-scale Industry. However in this report, SMI definition is categorized in the Box 8.3.

Box 8.3 Definition of SME

The definition of SMI varies by category, objectives of categorization and method of support of SME by each ministry and agency. Size of employment, fixed asset and nature of business operation are used as determinants. However, on 8th December 1998, there was a discussion between the Department of Industrial Promotion (DIP), and organizations related to SMEs in Thailand. DIP has a special definition of SMI by number of workers and horsepower of facilities. That definition is described in Table.

	Factory 1	Factory 2	Factory 3
Number of Workers	Less than 19	20 to less than 49	Over 50
HP of Machinery	Less than 19 HP	20 to less than 49 HP	Over 50 HP

Note: HP means horsepower.

DIP definition is very special because using category by facilities. The advantage is clear for the L&FI and SSI activities. Group of university technocrats made SMI category focusing to L&FI small business. Those categories describe in Table. The definition of family business is clearer because of the less than 5-worker company occupied 75% of total industry.

	Family Industry	Small Scale	Medium Scale	Large Scale
Number of Employee	0 to 9	10 to 49	50 to 199	Over 200

After the discussion of the category, following category was adoption for SMI and this category is considered in SMI master plan. Final category for general purpose is decided in below.

Category		Small	Small and Medium
Production	Employee Fixed assets Paid up capital	Less than 50 workers Not exceeding Bt. 50 million Over 50% of FC	51 to 200 workers Not exceeding Bt. 200 million Over 50% of FC
Service	Employee Fixed assets Paid up capital	Less than 50 workers Not exceeding Bt. 50 million Over 50% of FC	51 to 200 workers Not exceeding Bt. 200 million Over 50% of FC
Wholesaling	Employee Fixed assets Paid up capital	Less than 25 workers Not exceeding Bt. 50 million Over 50% of FC	26 to 50 workers Not exceeding Bt. 100 million Over 50% of FC
Retailing	Employee Fixed assets Paid up capital	Less than 15 workers Not exceeding Bt. 30 million Over 50% of FC	16 to 30 workers Not exceeding Bt. 60 million Over 50% of FC

This category is adapting for the SMI definition and L&FI definition is better for use the group of university technocrats.

Table 8.10 Number of Manufacturing Establishments in the Study Area in 1996

Unit: Number of Establishments

Provinces and Region	Total Establishments	by Size of Establishments							by Form of Legal Status							by Economic Status				by Registered Capital							
		10-19 employees	20-49 Employees	50-99 Employees	100-199 Employees	200-499 Employees	500-999 Employees	Over 1,000 Employees	Individual Proprietor	Juristic Partnership	Co, Ltd. Public Company	Government, State-enterpri	Non-profit Institute	Cooperatives	Others	Single Unit	Network	Head Office	Branch	Less 1 million Baht	1-9 million Baht	10-49 million Baht	50-99 million Baht	100-199 million Baht	200-499 million Baht	500-999 million Baht	over 1,000 million Baht
Kalasin	87	48	22	7	6	4	0	0	52	16	16	0	0	1	2	82	1	0	4	57	20	6	1	2	1	0	0
Nakhon Phanom	27	18	7	0	1	0	1	0	14	8	4	0	0	0	1	22	0	1	4	18	7	1	0	0	0	0	1
Mukdahan	47	29	11	5	1	1	0	0	17	13	11	1	0	0	5	44	1	0	2	31	11	5	0	0	0	0	0
Sakon Nakhon	43	20	17	2	1	3	0	0	24	7	10	1	0	0	1	39	0	2	2	29	10	3	0	1	0	0	0
Total of 4 Provinces	204	115	57	14	9	8	1	0	107	44	41	2	0	1	9	187	2	3	12	135	48	15	1	3	1	0	1
Northeastern Region	1,941	1,011	577	169	91	58	13	22	915	459	448	11	2	10	96	1,708	26	57	150	1,140	545	171	27	25	20	7	6

Source: Report of the 1977 Industrial Census Northeastern Region

Note: High lighted establishment means Medium Scale Industry.

Table 8.11 Out Put of Manufacturing Establishment in 1996

Unit: Thousand Baht

Province	Item	Total	by Administration Area			by Number of Employees					by Administration Status			
			Municipal Area	Sanitary District	Non-municipal Area	10-19 Employees	20-49 Employees	50-99 Employees	100-199 Employees	Over 200 Employees	Individual Proprietor	Juristic Partnership	Company Ltd., Public Company	Cooperatives and Others
Kalasin	Nos. of Establishments	87	21	20	46	48	22	7	6	4	52	16	16	3
	Value of GIO	3,174,845	166,046	664,694	2,344,105	298,768	376,236	321,176	1,030,604	1,148,059	625,747	296,140	2,205,339	47,617
	GIO / Establish.	36,492	7,907	33,235	50,959	6,224	17,102	45,882	171,767	287,015	12,034	18,509	137,834	15,872
	GIO / Person	-	-	-	-	415	489	612	1,145	820	-	-	-	-
	Value Added	778,534	106,846	164,340	507,348	155,762	43,916	52,383	315,986	210,486	133,546	42,242	567,534	35,212
	VA / Establish.	8,949	5,088	8,217	11,029	3,245	1,996	7,483	52,664	52,622	2,568	2,640	35,471	11,737
	VA / Person	-	-	-	-	216	57	100	351	150	-	-	-	-
Nakhon Phanom	Nos. of Establishments	27	9	7	11	18	7	0	1	1	14	8	4	1
	Value of GIO	350,377	36,353	16,053	297,971	63,899	286,477				20,314	86,871	236,696	6,496
	GIO / Establish.	12,977	4,039	2,293	27,088	3,550	31,831				1,451	10,859	59,174	6,496
	GIO / Person	-	-	-	-	20	385				-	-	-	-
	Value Added	180,938	4,531	7,858	168,549	28,362	152,576				7,514	50,244	121,730	1,450
	VA / Establish.	6,701	503	1,123	15,323	1,576	16,953				537	6,281	30,433	1,450
	VA / Person	-	-	-	-	9	205				-	-	-	-
Mukdahan	Nos. of Establishments	47	22	2	23	29	11	5	1	1	17	13	11	6
	Value of GIO	884,458	216,349	17,046	651,063	62,833	174,954	646,672			44,189	163,406	674,190	2,673
	GIO / Establish.	18,818	9,834	8,523	28,307	2,167	15,905	92,382			2,599	12,570	61,290	446
	GIO / Person	-	-	-	-	144	454	739						
	Value Added	165,292	50,741	7,622	106,929	15,420	28,563	121,309			25,967	43,420	94,637	1,268
	VA / Establish.	3,517	2,306	3,811	4,649	532	2,597	17,330			1,527	3,340	8,603	211
	VA / Person	-	-	-	-	35	74	139			-	-	-	-
Sakon Nakhon	Nos. of Establishments	43	18	10	15	20	17	2	1	3	24	7	10	2
	Value of GIO	449,209	159,630	186,981	102,598	102,172	190,013	157,023			80,651	116,369	244,277	7,911
	GIO / Establish.	10,447	8,868	18,698	6,840	5,109	11,177	26,171			3,360	16,624	24,428	3,956
	GIO / Person	-	-	-	-	341	319	116			-	-	-	-
	Value Added	65,243	37,461	13,423	14,359	20,549	27,621	17,073			30,282	15,773	16,898	386,255
	VA / Establish.	1,517	2,081	1,342	957	1,027	1,625	2,846			1,262	2,253	1,690	193,128
	VA / Person	-	-	-	-	68	46	13			-	-	-	-

Source: Report of the 1997 Industrial Census Northeastern Region

Note: High lighted manufacturing establishment means Medium Scale Industry.

GIO means Gross Industrial Out Put.

Table 8.12 Top 10 Manufacturing Industries in Nakhon Phanom in 2001

Item	Name of Company	Product	Capacity	Market	Number of Labour
1	Sun-Tech Group Co., Ltd	Canned tomato & canned sweat corn	Tomato: 560,000 box/year	Australia, New Zealand, Japan, Malaysia, U.S.A., and Europe	500
2	J.R. Jewelry Co., Ltd	Jewelry	Ring: 2,000,000 pieces/year Ear-ring: 160,000 pairs/year Necklace: 2,000 pieces/year Bracelet: 5,000 pieces/year	U.S.A. and Japan	285
3	V.R. Thai Garment Factory Co., Ltd	Garments	Pants: 150,000 item/year Shirt: 30,000 item/year	Domestic	90
4	Malee Samparn Co., Ltd	Canned sweet corn	16,000 ton/year	Europe, Japan, and USA	83
5	Nakhon Phanom Pinewood Co., Ltd.	Door & window frame, window & door and parquet and furniture	Door and window frame: 2,000 piece/year Production of window & door: 2,000 piece/year Parquet: 10,000 $ft.^3$/year Wood for making furniture: 135,000 m^3/year	Domestic Domestic Domestic Japan and Taiwan	77
6	Watchalin Rubber Co., Ltd	Saw milling (hardwood)	Processed wood: 7,000 m^3/year	Japan, Taiwan and domestic	30
7	Chokboonme Agriculture	Tobacco product	Tobacco product: 9 ton/year	Laos & domestic	30
8	Forest-Thai Co., Ltd	Hard wood products e.g., door & parquet	Parquet tile: 36,000 $ft.^3$year Door & window: 2,200 piece/year, Furniture: 6000 piece/year	Foreign & domestic	28
9	Tiamsakphanit Rice Mill	Rice	100 cart/day	Domestic	12
10	Kitrungroeng Corp., Ltd.	Asphalt	30,000 ton/year	Domestic	8

Source: Department of Industry in NP

Table 8.13 Top 10 Manufacturing Industries in Sakon Nakhon in 2001

Item	Name of Company	Product	Capacity	Market	Number of Labour
1	Srisakol Rice Mill Co., Ltd	Rice	300 cart/day	Sakon Nakhon and its vicinity	88
2	Yungsngthai Agricultural Product Co., Ltd	Cassava pellets	19,000 ton/year	Sakon Nakhon and its vicinity	64
3	B.K.C. Corp. Ltd	Garments	35,000 item/year	Sakon Nakhon and its vicinity	50
4	Unghuahengsakol Corp. Ltd	Cassava Shredded	1,200 ton/year	Bangkok	32
5	Klur-Sakol	Salt	4,800 ton/year	Sakon Nakhon and its vicinity	25
6	Sakol-concrete Co., Ltd	Concrete Products	30,000 m^3/year	Sakon Nakhon and its vicinity	20
7	Pattanakarnchang	Rebuilding and repair machinery parts	36,000 piece/year	Sakon Nakhon	20
8	Waritchapoom Dairy Corp. Ltd	Pasteurized milk	200 ton	Sakon Nakhon and its vicinity	10
9	Sakolkitjarorn An Ice Factory	Water and ice	21.43 ton/day	Sakon Nakhon	8
10	Kittitunyawat Co., Ltd	Rice	30 cart/day	Sakon Nakhon and its vicinity	6

Source: Department of Industry in SN

Table 8.14 Top 9 Manufacturing Industries in Mukdahan in 2001

Item	Name of Company	Product	Capacity	Market	Number of labour
1	Sahareang Co., Ltd	Raw sugar	445,000 ton/year	Foreign & domestic	300
2	T.H.F. Garment Co., Ltd	Garments	100,000 dozen/year	Foreign & domestic	140
3	Intersport	Garments	100,000 dozen/year	Foreign & domestic	100
4	Mookdatanyatip Co., Ltd	Rice	3,800 ton/year	Foreign & domestic	20
5	Sahathal Rice Mill	Rice	3,960 ton/year	Foreign & domestic	20
6	Limpradit Rice Mill	Rice	780 ton/year	Foreign & domestic	18
7	Muktawee Concrete Corp. Ltd	Reinforced concrete	25,200 m^3/year	Domestic	18
8	Sukai-Mukdaharn Construction Corp. Ltd	Pebble Sand	4,000 m^3/year 4,000 m^3/year	Domestic Domestic	7
9	Thasaisripaui Corp. Ltd	Pebble Sand	4,000 m^3/year 3,000 m^3/year	Domestic Domestic	7

Note: Mukdahan has only 9 big companies and the others are small size companies.

Source: Department of Industry in MH

Table 8.15 Top 10 Manufacturing Industries in Kalasin in 2001

Item	Name of Company	Product	Capacity	Market	Number of Labour
1	Mltr Kalasin Sugar Corp. Ltd	Raw sugar & refined white sugar	1,700,000 ton/year	Foreign & domestic	800
2	I-San Sugar Industry Co., Ltd	Raw sugar Refined white sugar	31,050 ton/year 72,450 ton/year	Foreign & domestic	300
3	Asia Citric Acid Co., Ltd	Citric acid	6,700 ton/year	Foreign & domestic	215
4	Kalasin Flour Co., Ltd	Tapioca	16,000 ton/year	Domestic	215
5	Somdej Flour Mill Co., Ltd	Tapioca	18,000 ton/year	Domestic	214
6	Asia Native Starch Manufacturing Co., Ltd	Tapioca	42,200 ton/year	Foreign & domestic	170
7	Thai Wah Public Co., Ltd	Tapioca	6,000 ton/year	Foreign	132
8	National Starch and Chemical (Thailand) Limited	Tapioca	60,000 ton/year	Foreign: 80% Domestic: 20%	109
9	Asia Modified Starch Co., Ltd	Tapioca	21,000 ton/year	Foreign	67
10	Jiratpatana Agriculture Co., Ltd	Tapioca	48,000 ton/year	Foreign & domestic	28

Note: 1) I-San Sugar Industry Co., Ltd has two plant capabilities.

2) This is correct because this factory has 2 products and each product has its capacity.

Source: Department of Industry in KS

8.2.4 Cottage and Family Industry in Four Provinces

The manufacturing sectors where farmers work during the off-season of agriculture and/or at night are called cottage industry and/or family industry. There are no detailed statistical data on C&FI, because majority of them has no legal status that means, they are not officially registered. Moreover, the industrial policy constructed from the Five-Year National Plan does not show a detailed program and policy on

C&FI with the exception of a budget allocation plan. Even looking at the provincial industrial plan, it is so difficult to get a sense of the industrial policy on C&FI. Moreover, these industries are supported by a lot of middlemen from large town in-and out-side, and the products are distributed through middlemen in the towns and big cities for trading business activity. So the market channel is also difficult to follow and complicated, too.

C&FI activities are mainly assisted by non-governmental organizations (NGO) and/or non-profit organizations (NPO), however international organizations such as the World Bank (WB), Department of Rural Community Development of Ministry of Interior (MOIT), and Industrial Promotion Department of Ministry of Industry (MOID) assisted officially without close coordination each other.

Although there are no detailed data, information on the cottage and family industries were gathered by field survey. It was found that the local leader and/or a trusted person in the community, who lead these manufacturing activities so called C&FI (see Table 8.16). The main business fields are as follows:

- Silk textile and garments;
- Cotton textile and garments;
- Earthen pottery;
- Bamboo product, namely musical instruments by Laos material) and baskets;
- Plastic tape weaving basket (raw material comes from BKK by their order);
- Carving;
- Food industry; and
- Iron knives; etc.

The above-mentioned products are divided into three market types depending on where they will be sold: 1) local market, 2) export market in big cities and 3) foreign market. The products that sold in local market are the Low quality products for sundry goods for local family use. The products that sold in big towns are middle and high quality products for town family use and decoration purpose. The high-quality products targeted for the foreign market are produced by reputable manufacturing companies, which have production on “development-import-scheme” by foreign companies.

Usually, a foreign trading company would send a specialist to a local company to teach local workers how to manufacture a newly designed product with the appropriate production technology. The foreign companies for sale abroad would then import the products of the local company. This scheme means that foreign company develops and produces the newly designed products in Thailand upon by the taste of foreign market. International NGO/NPO also has a similar scheme and import the product to their respective countries.

The manufacture of silk textiles and silk garment is a traditional handicraft industry in the four provinces especially in Nakhon Phanom and Kalasin. They utilize high looming technology such as ikat looming, emboss looming and design looming with several colored strings. Their products have won a lot of award in country's contests organized by the Royal Family in Bangkok.

Table 8.16 Products List of Cottage and Family Industries in Four Provinces

Page	Name of Products	Capacity / Month	Address	Remarks
79/1	Ready made cloth and garment	1,200 pieces	Kalasin	
79/2	Cloth, Kit cloth, Lai Dok cloth	100,20,20	Kalasin	Lai Dok is the specialty of I-San.
79/3	Blanket	8,000 pieces	Kalasin	
79/4	Scarf, Shawl, Table cloth	200 pieces	Kalasin	
79/5	Phrae-Wa silk	60 pieces	Kalasin	Phrae-Wa is the specialty of Kalasin.
128/1	Bamboo basket for sticky rice	1,000 pieces	Kalasin	
128/2	Handicraft from Kok mat	200 pieces	Kalasin	Kok is a kind of reeds.
43/1	Shampoo, Conditioner, Liquid soap	1,000 bottles	Mukdahan	
80/1	Cotton cloth and garment		Mukdahan	
80/2	All purpose cloth, Table cloth, Cloth and garment	100 pieces	Mukdahan	
80/3	Textiles, Mud-Mee silk	200 meters	Mukdahan	Mud-Mee is the specialty of I-San.
80/4	Cotton cloth, Table cloth, Dish cloth	300 pieces	Mukdahan	
128/3	Plastic Basket		Mukdahan	
128/4	Handicraft from Kok (basket, pen box)	15,30,60	Mukdahan	Kok is a kind of reeds.
128/5	Handicraft from grass (broom)	3,000 pieces	Mukdahan	
53/1	Flower Artificial from silk warm cocoon and cloth	250 pieces	Nakhon Phanom	
85/1	Mud-Mee silk, Muk cloth, All purpose cloth	400-500 meters	Nakhon Phanom	Mud-Mee is the specialty of I-San.
85/2	Muk cloth	20 meters	Nakhon Phanom	Muk is the specialty of I-San.
85/3	Mud-Mee silk, Muk cloth	42 pieces	Nakhon Phanom	Mud-Mee is the specialty of I-San.
86/1	Mud-Mee cotton cloth	100 pieces	Nakhon Phanom	Mud-Mee is the specialty of I-San.
131/1	Handicraft from Kok (basket, bag, mat)	15 pieces	Nakhon Phanom	Kok is a kind of reeds.
132/2	Handicraft from rattan (basket, Wheels)	50 pieces	Nakhon Phanom	
43/2	Herbal Conditioner, Liquid soap from ginger	500,300 bottles	Sakon Nakhon	
53/2	Garland from soap	300 pieces	Sakon Nakhon	
87/1	Mud-Mee silk	3,000 meters	Sakon Nakhon	Mud-Mee is the specialty of I-San.
87/2	Mud-Mee cotton cloth, blanket cover	600 meters	Sakon Nakhon	Mud-Mee is the specialty of I-San.
87/3	Silk cloth and garment	100 pieces	Sakon Nakhon	
87/4	Natural dyeing cotton and pillow	100 meters, pieces	Sakon Nakhon	
88/1	Cotton cloth, Cotton blanket	100 pieces	Sakon Nakhon	
88/2	Muk cloth	300 meters	Sakon Nakhon	Muk is the specialty of I-San.
88/3	Cotton cloth, Shawl	700 meters	Sakon Nakhon	
88/4	Mud-Mee cotton cloth, Mud-Mee silk, Blanket	20,10,20	Sakon Nakhon	Mud-Mee is the specialty of I-San.

Source: Handicraft Catalog of MOID

8.2.5 Problems and Issues of Local Industry

Agricultural main problems of I-san are the brackish land (lack of fertile agricultural lands), floods (lack of drainage control) and the vagaries of weather (dry weather conditions), which affect agricultural production activities. In an interview survey in Bangkok (BKK), it was found that nobody showed any interest in investing in I-san region because that particular notion had never entered their minds. If nobody outside I-san wishes to invest in manufacturing industry in I-san region, then the ones who should be investing, should be the I-san people themselves. However, the Northeastern Region is faced with a lot of problems and issues, which need to be addressed.

(1) Issues of Industrial Policy and Planning

1) Industrial Policy and Planning

The total number of industrial establishments (not only for manufacturing industry) in Thailand is 864,064, of which 99.7% are cottage and family industries (C&FI) and remaining are small- and medium-scale industries (SMI) employing less than 199 workers and large-scale industries employing over 200 workers. Moreover, more than 40% of these establishments do not have any legal personalities.

There are 157,300 establishments engaged in manufacturing, however the C&FI industries, which employ less than 5 workers, accounts for 116,400 establishments, or around 74% of total manufacturing industry. Those categorized as SSI accounts for 34,600, Medium-scale industry (MSI) accounts for 3,150 and large-scale industries (LSI) covers 1,400 establishments, which are around 23%, 2% and 1.0% of total manufacturing industry respectively (see Table 8.17).

Table 8.17 Breakdown of Manufacturing Industry in Thailand

Item	C&FI (less than 5)	SSI (less than 49)	MSI (less than 199)	LSI (over 200)	Total
Manufacturing industry	116,400 (about 74%)	34,600 (about 23%)	3,150 (about 2%)	1,400 (about 1%)	155,550 (about 98.9%)

Note: Total number of manufacturing industries does not meet with calculation figure.
Source: SMI Master Plan

Even though there are a lot of C&FI and SMI in Thailand, the industrial policy and planning by the central government and local governments could not provide a clear direction to the SMI. The SMI Act was enacted only in 2000. Industries have been waiting for action plan of this Act and the detailed policy and planning as well. However, the implementing rules and regulations are still being prepared.

2) Finance

Government has an industrial financial system through several banks and departments, however, it does not work well especially for SMI. There are industrial banks in Thailand, namely, Industrial Finance Corporation of Thailand (IFCT) and Small Industry Finance Corporation (SIFC).

IFCT was established to provide financial support to MSI and LSI. After the financial crisis in 1997, IFCT had to evaluate enterprises applying for financing under a stringent money market. Following this evaluation, a number of MSI and weak enterprises failed to receive financing from IFCT (see Table 8.18).

Table 8.18 Comparison of the Industrial Loan Conditions by Financial Sources

Item	IFCT	SIFC			Promotion Office of MOID	BAAC					
Criteria of Business	up to 50 mil.B for SSI and up to 200 mil.B for MSI	less than 100 mil.B of industry, service and trading			SMI, Micro Factory, Home Manufacturing	individual client farmers and farmers' associations					
Loan Purpose	new investment project or expansion project	set up, expand and improve business			Working capital for local activities	agricultural assets, fertilizer, hired labor, chemicals, fuel, seeds, rental and necessary household expenses					
Criteria for investment	-	purchase/improve land and building, purchase machinery and transport vehicle and revolving fund			-	Production cost during production season, that are cost of land preparation, seed, fertilizer, labour, etc. and household expenses.					
Loan Duration	not over 5 years including grace period	within 10 years including 2 years grace period			-	6 months to 20 years					
Loan Amount	not over 25 mil.B for SSI and not over 100 mil.B for MSI	500 thousand B to 50 mil.B			-	-					
Loan Interest	General	General	Special	bank guarantee of BOT	General	AAA	AA	A	B	Past Penalty-1	Past Penalty-2
L/T	MLR-1.0	MLR+1.0	MLR+0.5	-	MLR-1.0	MLR=9% (in 1997)	MLR +1.00	MLR +2.00	MLR +3.00	MLR +3.00 +1.00	MLR +3.00 +3.00
S/T	-	MLR+2	MLR+2	MLR-1	-	ditto	ditto	ditto	ditto	ditto	ditto
MLR	-	MLR=7.0% in May 2000			-	MLR=9% in 1997					
Collateral	-	land, building and machinery			-	land, agricultural machinery, product					
Application	-	identification card, bank guarantee, business permission, company registration, income statement, recommendation letter in case of remaining debts			-	-					
Others	base on IFCT criteria	investment consulting service			-	loan for only farmers					

Note: IFCT=Industrial Finance Corporation of Thailand, SIFC=Small Industry Finance Corporation, MOID=Ministry of Industry, BAAC= Bank for Agriculture and Agricultural Cooperatives, BOT=Bank of Thailand, MLR=Minimum Loan Rate, SSI=Small-scale Industry, SMI=Small- and Medium-scale Industry, MSI=Medium-scale Industry

Source: annual report from each organization

The SSI financing scheme by SIFC adopted this attitude of evaluation, too. Consequently, SIFC provided the financial loan to several bigger manufacturing industries, because of the financial safety for them, so the C&FI and SSI could not pass the evaluation. Even though the banks have to provide for financial institutes to the manufacturing industries, and even received a financial budget for SSI as supporting industries from the central government, they could not settle the SMI financial problem. The government is expected to come up with a system that will address this problem such as C&FI and SMI financial scheme.

On the other hand, when farmers start agro-based manufacturing industries, farmers could have financial support from Bank for Agriculture and Agricultural Corporatives (BAAC), for small amount of their agro-business. BAAC provides loan for only farmers because of the agricultural bank rule. However farmers themselves have huge debt for several decades. So that there are a lot of the farmers could not pay back to the bank even principal and sometimes they tangled in bankruptcy. Finally BAAC provide non-profit-loan (NPL) to the farmers. It makes farmers in to the vicious circle of the loan. The new cabinet has a new policy to solve this problem of the farmers, so we have to wait the clear policy and action plan.

3) Issue of Industrial Supporting Systems

The industrial promotion center, which has already been established in 11 locations in Thailand, is an organization similar to local industrial platform (LIP). Four among 11 industrial promotion centers are located in the Northeast Region, i.e. Udon Thani, Khon Kaen, Nakhon Ratchasima and Buri Rum; however, none is located in the study area.

This is the new policy of the incubation system for the manufacturing industries, however this scheme is standing at start point. However, unfortunately the lack of budget and operation skill, this system works as a vocational training. And manufacturing Industries in the study area have to go to an industrial promotion center located far from them if they need one.

4) BOI New Scheme

BOI provided a new incentive scheme in August 2000. The study area is in Zone-3 and it is possible to have a highest new incentive to the manufacturing industries. However, the BOI scheme is not attractive for new investors to the four provinces. There has been an increasing tendency for labor-intensive industry in Thailand to relocate to neighboring countries, because foreign workers could not easily be employed workers in the four provinces.

Thai government basically prohibits foreign workers after financial crisis, because of the job for Thai workers. While past few years, Thai manufacturing companies find difficulty to comply with a lot of government requirements such as a health certification, ID required, high security bond, and others for foreign workers. Even they wish to employ Thai workers, however they refuse of manufacturing workers but farmers. The Mae Sot manufacturing industries illustrate this case of industries relocating to a neighboring country because of they could not employee Myanmar's and Thai workers, too.

The new government wishes to change the BOI scheme again for keeping the budgetary balance. So, they are considering the New BOI Scheme now. Even

though, the Thai government has to find a special way of coordinating the border manufacturing-based industries in MH.

(2) Issues of I-san Custom

The citizens of Bangkok have the poor image of the I-san region as a land of antiquity, poor people, monoculture agriculture, and brackish land. Thai government has policies and projects regarding this region but those were formulated based on the opinions of people in Bangkok. Government policies and projects have to be implemented with I-san people through open discussion.

Also, I-san culture is a high context culture where people have the same social values measure, on the other hand, BKK has a low context culture compared with I-san culture. So the national policies and plans, including industrial and agricultural plans, created by the center (BKK) could not be easily accepted by I-san people. Moreover, in the past few decades, I-san people's trust in government only brought them bitter disappointment. They were "kissed, kicked and kissed" (3K) by the central government. Especially, the old people could not change their minds easily compared with young people. Even if there were highly productive agricultural products, high value added fishes, and new biotechnology, the elderly I-san people would refuse these new methods.

With the I-san people in mind, it would be better to prepare two directions of new policy and planning, one for the old and one for the young peoples. New policy and planning for the new generation should be aimed at high value added activities and new technology transfer. Education and vocational training would also be required.

(3) Issue of the Local Industries along Asian Highway

In Ayutthaya, the handicraft industry has grown well, because of its historical heritage background, variety of circumstances for raw materials, different kinds of products and the opening of an international airport. A lot of people are gathering in this area for sightseeing and business as a center of tourism spot. Ayutthaya has a powerful attraction to people and provides a point of contact.

There are several handicraft centers where people could enjoy shopping and culture products. In the handicraft center, people can also have a first-hand experience of handicraft making. There are several events in the daytime and nighttime, including a night bazaar.

Those markets are taking care of the local industries. The various handicraft-making establishments in Thailand send their products to these tourism centers to be sold. Even the handicraft industry in the northeast has contacts in those spots and also in

large cities such as BKK, Phuket, etc. On the other hand, there are no places or activity that could attract people to the I-san Region.

1) Industrial Activity of Tak Province

There was an investment boom in Tak Province with the establishment of factories using Myanmar's workers. These were labor-intensive factories manufacturing garments, shoes, and others. After the financial crisis, the government devised a new policy that directed Thai companies to employ Thai workers exclusively. Consequently, the factories could no longer hire Myanmar workers, but at the same time, could not employ Thai people, because Thai people were hesitant to work in the factories. Finally, the companies decided to relocate to Yungnan Province of People's Republic of China. Even if there are still several industrial establishments in Tak Province, the industrial policy by Thai government has already starting corrupted industrial activity (see Table 8.19).

Table 8.19 Investment in Tak Province

1998			1999		
Application Approved (companies)	Investment Capital (mil. Bt.)	Employment (persons)	Application Approved (companies)	Investment Capital (mil. Bt.)	Employment (persons)
7	143	3,798	0	0	0

Source: BOI

Remaining industry is the food processing industry. Agricultural products and processed products of agro-industry are transported to the big cities mainly to BKK. There is very little trade along the East-West corridor. If there were trade commodities between Myanmar in the east and Laos/Vietnam in the west, those would only be precious and/or high value added products. However, there are no such trade commodities between west and east nowadays.

2) Raw Materials of Laos

In general, the industry of Laos is not developing well except primary industry such as wood and mineral. Thailand wants these raw material for building construction, furniture making, etc. However, the lack of infrastructure to transport them is a major problem. There is lack of access road during the rainy season, lack of mining technology and lack of resources condition policy.

Thai industries could not operate regularly without a stable delivery of raw material throughout the year because of the high competition in the market. In a capsule, the problems and issues are:

- Assurance of stable delivery of raw material considering quality, quantity, timing, and price;

- Unclear contract system; and
- Lack of environmental control system.

(4) Issues of Raw Materials

I-san region is an agro-based area and most industries in the four provinces are related to agro-industry. It is a so-called 'easy' industry, but in reality, it has to deal with a number of problems mainly because of the following:

- Products have low value added features and income from sale is also low;
- Mass production is necessary;
- There is high competition with existing large factories in BKK;
- Production process including final waste product causes pollution; and
- It is dependent on weather conditions for agricultural production.

1) Agricultural Raw Material

There are two tomato puree factories in NP and SN. Those factories also produce canned sweat corn, tropical fruit juice, etc. The factories are operated only half of the year because the harvest season of vegetables and fruits is short and production volume depends on the weather. Their productions are supplying products during the off-season of the world market and the adjustment meaning of the shortage of market volume. Moreover, the process lines could not process all kinds of vegetables and fruits.

The capacity utilization of the factories is the crucial point, so they should have raw material throughout the year upon the research and development (R&D) work of the new agro-products in the study area. However if other kinds of vegetable and fruit could be harvested in these areas and/or that the harvest season could be expanded, the capacity utilization of factories could be increased (see Figure 8.5). Thai government has started the promotion of those activities.

Para rubber wood plantation is also being promoted in I-san region. Introducing other types of products into I-san should be welcome in an effort to establish a niche industry. However, there has been no move to develop new business activities.

On the other hand, farmers do not consider changes in market price and demand of agricultural products. There is no policy and planning of price control and volume of agricultural output by the government and farmers. So that when the quantity of a particular product becomes so big, its sales price drops. This production cycle affects the manufacturing industry as a lack of supply of raw material at one time and over supply at another time.

Main agricultural products in I-san are rice, sugar and tapioca, which are also internationally traded commodities and main export commodities of Thailand, however the price is decreasing and unstable (see Table 8.20). If I-san farmers are major contributors to the Thai economy, then they should get more benefits from their production. Thai Government has to consider the economic condition and financial problem of I-san in the new era. More important point is that I-san people need start-up funds for establishment of new businesses.

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Normal Rice											■	■
Second Rice				■	■							
Sugar	■	■	■	■							■	■
Tapioca	■	■	■	■	■	■	■	■	■	■	■	■
Baby Corn	■	■	■	■	■						■	■
Sweet Corn	■	■	■	■	■	■						■
Tomato	■	■	■	■								
Vegetable	■	■	■	■	■	■	■	■	■	■	■	■
Para Rubber	■	■	■	■	■	■	■				■	■
Marubery Tea	■	■	■	■	■	■	■	■	■	■	■	■
Kenaf	■	■	■	■	■						■	■
Pineapple	■			■	■	■						■
Tangerine	■	■							■	■	■	■
Jackfruit	■	■	■	■	■							
Banana	■	■	■	■	■	■	■	■	■	■	■	■
Water Melon	■	■	■	■	■	■	■	■	■	■	■	■
Papaya	■	■	■	■	■	■	■	■	■	■	■	■
Guava	■	■	■	■	■	■	■	■	■	■	■	■
Orange	■	■	■	■	■	■	■	■	■	■	■	■
Mango			■	■	■							
Litchi				■	■	■						
Durian					■	■	■	■				
Mangosteen					■	■	■	■	■			
Ramburtan					■	■	■	■	■			
Sugar Apple						■	■	■	■			
Longan						■	■	■				
Langsat							■	■	■	■		
Pomelo								■	■	■	■	
Sweet Orange									■	■	■	
Sapodilla									■	■	■	■

Figure 8.5 Season of the Agricultural Product in Thailand

Table 8.20 International Commodity Prices in USD

Commodity	Nov-95	Nov-97	Nov-99	May-00	Oct-00	Nov-00	Change of Annual Rate (%)
Rice (ton)	430.00	410.00	290.00	270.00	245.00	250.00	-10.28
Corn (bushel)	3.10	2.70	1.87	2.21	1.84	1.96	-8.76
Oil (barrel)	16.53	19.45	22.89	24.89	30.89	30.54	13.06
Cotton (pound)	0.84	0.70	0.50	0.56	0.61	0.61	-6.20
Rubber (pound)	0.77	0.51	0.44	0.38	0.38	0.37	-13.63
Sugar (pound)	0.12	0.13	0.07	0.07	0.11	0.10	-3.58
Coconut Oil (pound)	0.35	0.29	0.41	0.28	0.18	0.20	-10.59
Palm Oil (pound)	0.32	0.27	0.16	0.16	0.10	0.11	-19.23
Soybean (bushel)	6.53	6.72	4.54	5.36	4.49	4.57	-6.89
Tea (pound)	0.79	1.06	1.27	1.13	1.17	1.17	8.17
Coffee (pound)	1.22	1.52	1.05	1.00	0.83	0.74	-9.52
Lumber (1,000 board ft.)	235.00	314.00	339.00	286.00	222.00	208.00	-2.41

Source: Asiaweek Nov. 17, 2000

2) Fishery Raw Material

Large companies coordinate the tilapia business, while fishermen buy alevin from these companies and cultivate tilapia. However, fishermen should be developing their own market. Large companies are not responsible for the tilapia market. People in SN and KS said that there are a lot of lakes and ponds in this area, however the aquaculture business is decreasing because of lack of a support system. New, value added fish products have not been well developed except catfish sausage. Value added products and their market should be developed for the economic benefit of the region.

3) Raw Material for Handicraft

Since middlemen control all aspects of this business, handicraft workers do not get the opportunity to develop their own raw material market and product market. There are also a lot of villages and workers in the handicraft business in Thailand who are in this same predicament. Ultimately, workers should get risk for raw material, product development, product sophistication and market including finance. If they are lucky, they get to produce high value added products and earn more money compared with another business like plastic bag and basket business. But the market and consumer's taste is the same as life; it changes quickly. Workers should know the market mechanism because their lives depend on it. Workers have to have at least their own market information, too.

(5) Issues of Manufacturing Technology

1) Quality of Production Technology

There are a lot of groups producing items made of bamboo. They make several types of products, however, those products sometimes have hangnails and paint droppings. Drying and treatment process of the bamboo works is not sophisticated. And hand tools are very important for production; unfortunately these groups do not have high quality knives and special tools. Moreover, finishing work is not really good. Workers need to know how to maintain hand tools and to learn the skill of using them.

2) Technology Transfer

Thai government provides the technical support system for the handicraft industry. Technical support system is operated by Ministry of Trade (MOTR), Ministry of Industry (MOID), Ministry of Interior (MOIT), Ministry of Labor and Social Welfare (MOLSW), etc. These Ministries provide similar technical support system. What they do is they send specialists from BKK to advise group members, but no coordination is made among the ministries. It would be more efficient and cost minimize to organize technical support through one agency.

With regard to technical support from the BKK, it was not really followed by I-san people because of the region's past historical experience on innovation. What should be done first is teach the I-san people about market requirements meet with the customer's taste. Otherwise, they could not have an understanding of what the market needs on the products.

(6) Issue of Products

There are several tourism spots, namely temples, dinosaur and national parks in the four provinces. However, there is no I-san brand products but Thai brand. In the case of I-san region, even the smallest spots should be developed for the local persons and tourist, because there is a possibility for tourism industry and I-san brand shops could be opened there. C&FI should create new tourism souvenir items brimming with local character. However, only the sophisticated and high quality products should be sold and low quality products should be discarded to promote a brand new image of I-san. The government has to support these activities.

Unfortunately, there has been no tourism market study conducted to determine the kind of souvenir tourists would most probably buy. Tourists would not be able to use an expensive silk cloth for wear nor bring home large size and heavy products because of packaging concerns, etc. Product development that required in I-san products is therefore considering for the customer's needs and taste.

There should be balance and uniformity of the products of handicraft items. It means that high quality raw material, metal fixture and excellent craftsmanship should all go together in producing high quality products. Combining low quality and high quality material detracts from the overall impact and attractiveness of products. The totality of the product should be considered.

(7) Issues of Business Administration

1) Finance

The cottage and family industries (C&FI) and small-scale industries (SSI) could not get bank financing because of lack of collateral even though these industries might have some business and/or market. They are in dire need of even working capital. Finance of single proprietorship establishments is coordinated among family members, who oftentimes use their savings for the business. It is said that the interest rate of financing a family industry is so high that the family could not pay back even the principal. The interest rate is nuclear, but finally they go into huge debt in repaying just the interest.

Bank for Agriculture and Agricultural Cooperatives (BAAC) also have financing schemes for C&FI and small- and medium-scale industries (SMI) run by farmers; however, BAAC require 5 bondspersons even for businesses by small farmers. There have been instances where bondspersons go bankrupt and sit in judgment.

SMI is also suffering in financial system, because the bank looks into their financial statements quite closely and request a lot of collateral. Their working capital is quite tight, too. Eventually, they resort to reducing business operation, cutting back on production.

Big companies of Thailand are the strong-firm, multi-industrial firm and all-around firm. These companies invest in a lot of business in different fields, even in businesses of C&FI and SMI. The weak companies could not compete with these big ones and close down. Small-scale rice mills are crushed by the distribution system of big companies. Those engaged in agro-business, small business and low value added business lose. Large-scale Industry (LSI) should be take responsibility for those fields and markets and support should be given to C&FI and SMI for the new era industrial structure in I-san.

2) Marketing

Traditional silk textile groups use high looming technology and their market is the upper class, sophisticated members of society. However, after the financial crisis they lost their market and their production volume rapidly decreased. They stuck to their conventional market and did not pursue alternative markets. They could not get

market information and could not create new marketing technology for their business. Marketing strategy is very important even for C&FI.

Big cities have promotion centers and/or offices with exhibits and sales booths operated by the central government and local government. The products exhibited come from all over the country. People have no specific original mark and/or trade mark for I-san that identifies their local products, however only the very special products could identify by the Thai people. People easily recognize that where the products comes from Thailand and/or big cities like Chang Mai, for instance. I-san products do not conjure an image of I-san even if the products come from I-san. Developing brand products from I-san would be worthwhile especially for sales promotion.

3) Information

For the C&FI and SMI, their production advantage is low cost of raw material and low cost of labor. However, the location of the industry is far from market so that market information could not be obtained easily. Those industries cannot produce products that meet market demand.

On the other hand, there is a boom in information technology (IT) worldwide. Important point of IT is that people could have equal opportunities to create business. As a result, new types of businesses have been developed through business-to-business (B to B), business-to-consumer (B to C), consumer-to-consumer (C to C), consumer-to-peer (C to P) and peer-to-peer (P to P). Even one consumer and/or businessperson could have a contact with lots of persons directly by interactive connection. I-san could be connected to people anywhere in the people in just a matter of seconds, and its location would no longer be a handicap. However, this region is not ready for IT-based promotion.

Several businesspersons have already start e-commerce business through the Internet; however, they still lack information on how to start a small trading business. After the creation of the Internet, a lot of people could have a chance to start a business easily. User guide on the Internet and business course for neophyte businesspersons are lacking in the existing system. Government should be supportive of those aggressive businesspersons.

Notwithstanding the Internet boom, local people still need places to gather and exchange information. The Provincial Chamber of Commerce (PCC) and an industrial club fill that need; however, they are open only to business groups. Open space, open discussion place and/or recreational areas are essential to create an environment conducive for local people and farmers. An open communication place will be required in I-san as a community development.

4) Human Resources Development

According to the Job Training Demand Survey, about 20% of total population in Thailand sought job training because of the following expectations: 1) increase in salary (42%), 2) sharpen techniques (20%), 3) upgrade skill (16%), etc. Taking this into account, the Ministry of Labor and Social Welfare (MOLSW) opened vocational training centers and designed a lot of courses covering the following areas:

- Machinery, including automobile, agricultural machines, and welding;
- Electricity and electronics;
- Construction;
- Art and drawing; and
- Business and service; etc.

However, the courses being offered were more suitable for jobs in the big cities. There were no courses offered for those who wish to learn about local technology for local business. Local businesspersons wish to offer the new courses by themselves. Relating with this requirement, job creation is important in this region for further long run courses.

5) Creation of Venture Business

The number of manufacturing establishments in the four provinces is only 204 in the study area. As a result, a lot of people look for temporary work in agricultural field and manufacturing work in big cities. Nobody thinks to establish a venture business. Vocational training only provides job training for workers while Department of Industrial Promotion (DIP) of MOI start incubation system in 2000. The content of the incubation system is just following the form of incubation system in advanced countries and/or one-village-one-product activities by NGO/NPO. The real philosophy of incubation system for manufacturing industries is not adapted in Thailand.

The origin of the “One Village, One Product” was advocated by Oita Prefecture in Japan. This movement involves the citizen to get together in their respective towns and villages and brain storming ideas regarding representative products that will serve as the origin product of prefecture.

There are three big principles of this movement. These are:

- Think Globally and Act Locally

Making products that are accepted nationally as well as internationally while preserving the characteristic fragrance and culture of the region.

- Spirit of Independence and Creativity

It is up to the citizens of a region to decide what is chosen as their own “One Product” and then carries out to completion of product. Some villages have three specialty products, some villages have one product together with few villages collaborating to produce just one, as for there are no set rules to the movement. The government’s role is just to support from the side not directly.

- Human Resources

The “One Village, One Product” movement cannot succeed without regional leaders with foresight. It is necessary to foster human resources who are creative and always up for challenge.

Oita Prefecture is located in the local area, however prefecture has an airport, ports and road with well-coordinated infrastructure (see Table 8.21). And prefecture has a lot of variety resources from sea, flat land, and mountain through the four seasons. So the Oita products, which developed by the villagers, could aiming to the global markets supported by the three philosophies. And villages have a chance to select an original products from variety resources.

The philosophy and the scale are completely different from I-san system, which conducted by government and NGO/NPO in Thailand. The manufacturing industry should be aiming to the world market for compete and wining through this Oita scheme for sharpen the product and technology. As for aiming to the philosophy, it is better induce the incubation system for business creation by supporting with government.

Table 8.21 Real Power of Oita Prefecture

Item	Area	Population		GPP				
		Total	Employee	GPP	GPP/Capita	Primary	Secondary	Tertiary
	km^2	1000 persons	1,000 persons	mil. USD	USD/person	%	%	%
Japan	372,827	126,686	64,700	4,157,500	32,817	2	41	57
Tokyo	2,187	11,837	6,677	718,884	60,732	1	26	74
Oita	6,338	1,226	626	35,864	29,253	10	29	61

Source: Kensei 2001, Sekai Kokuseizue 2001

8.3 Direction of the Local Industrial Development

Industrial development in the four provinces should be projected considering the role of the national infrastructure network and East-West Corridor for regional industrial development. Moreover, an efficient regional development of the four provinces with minimum input should be considered. Thus, the features of the industrial town should be set and developed following directions.

8.3.1 Industrial Corridor and Network

A road network suitable to the features of the cities is important in order to establish an industrial relationship among the neighboring cities and towns.

Provinces with a large share of manufacturing industries are marked with dark color in Figure 8.6, using BKK as base point. This industrial corridor is found on Asian Highway No. 1, No. 2 and No 12, shown in Figure 8.7. The figures indicate the relationship of manufacturing industrial activity with BKK, because every agricultural commodity and manufacturing product are firstly transported to BKK and after that distributed to each province again.

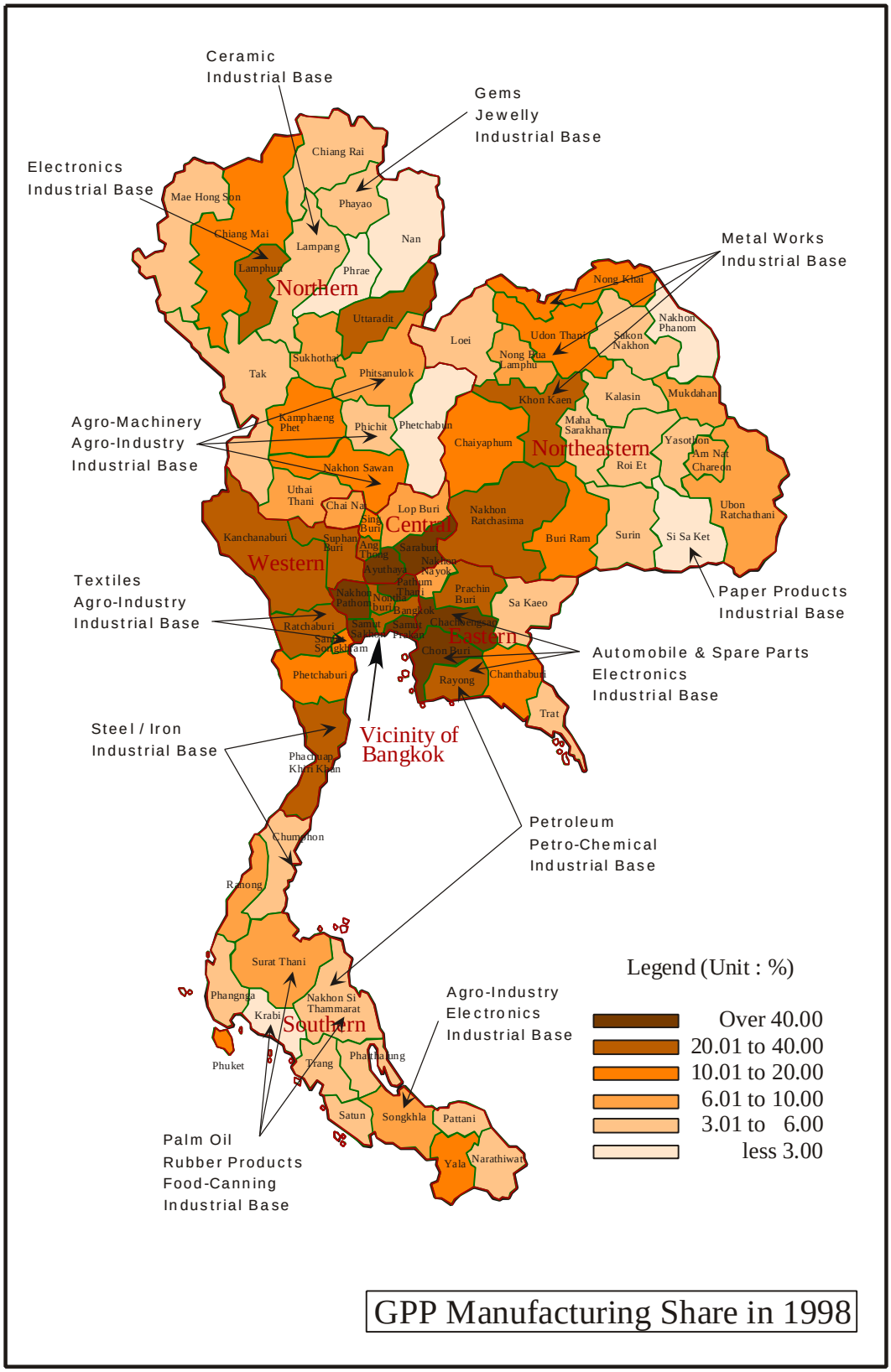

Figure 8.6 GPP Manufacturing Share in 1998

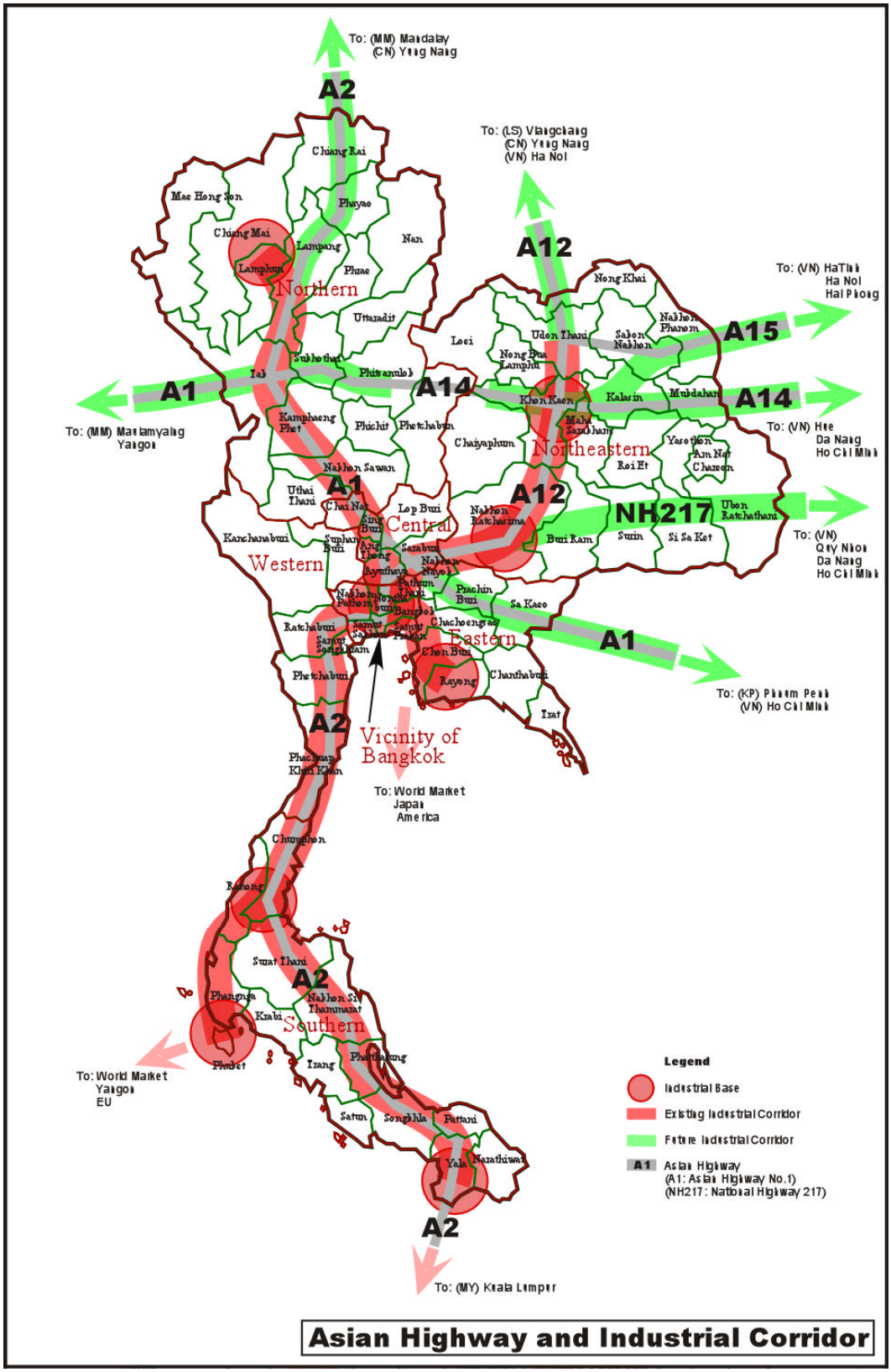

Figure 8.7 Asian Highway and Industrial Corridor

There are five possible corridors in Greater Mekong Sub-region (GMS). However, during the eighth GMS ministerial meeting, the East-West Economic Corridor (EWC) was given first priority for development. EWC stretches from Maulamyaing in Myanmar to Danang in Vietnam through Kalasin, Mukdahan and Savannakhet, with a total length of approximately 1,500km. The EWC is conceptualized as a development corridor, trade corridor, technology corridor, infrastructure corridor, industrial corridor and tourism corridor. Existing and planned main national and international axes are as follows:

- North-south axis: NH2 from BKK to Vientiane of Laos through Sara Buri, Nakhon Ratchashima, Khon Kaen, Udon Thani and Nong Khai;
- East-West axis: NH24 (NH226) from Nakhon Ratchasima to Ubon Ratchathani;
- East-West axis: NH209 from Khon Kaen to Dong Ha of Vietnam through Kalasin and Mukdahan; and
- East-West axis: NH22 from Udon Thani to Ha Tinh of Vietnam through Sakon Nakhon and Nakhon Phanom.

The EWC between Mae Sot of Tak Province and Mukdahan of Mukdahan Province consist of A1 and A14. The friendship bridge over the border between Thailand and Myanmar at Mae Sot was opened in 1997. This river is a small river about 30m wide but in the dry season it is only 10m wide. People can pass by on foot during the dry season and by boat in wet season freely. Small trading business has already started at Mae Sot between Myanmar and Thailand. Trade commodity is wood and natural medicine from Myanmar and garment and daily commodities from Thailand.

Before the financial crisis in 1997, Tak Province attracted foreign investment from Taiwan, etc. along border towns. Factories manufacturing garments, shoes, food, etc. were opened, the Thai government wished to provide job opportunity for Tak people after the financial crisis; however, Tak people disliked being factory workers. Then the people from I-san were invited to work in the factories, but they too refused because the minimum wage was only 130 Bt./day compare with BKK at 162 Bt/day. Finally, Some factories are starting to relocate to the Yunnan Province in the Republic of China.

There are still several factories that located in Tak Province and then send products to BKK and neighboring provinces. All most commodity and goods are transported by A1 to BKK. Thus there is little linkage between Tak Provinces and Mukdahan provinces.

The manufacturing share of Kamphaeng Phet, Sukhothai and Phitsanulok provinces range from 6% to 20% based on agricultural products. These goods are also brought directly to BKK, so very limited trade exists between west and east.

A12 of Nakhon Ratchashima to Khon Kaen is the gate industrial corridor to the study area. Those industrial cities connect directory to BKK. The East-West industrial corridor linkage from Khon Kaen is also very little, even there are Kalasin and Mukdahan industrial bases. However, Mukdahan is expecting a new bridge to be completed in 2004 and a new bypass road (A14) in the future.

There are 3 alternatives for East corridor in I-san and one more alternative could be directly connected from BKK to Phnom Penh and Ho Chi Minh City (HCMC). At Pakse, the new Mekong River bridge construction was completed in August 2000, so that NH217 can be used for international trading to Laos/Vietnam. The Kampong Cham Bridge at Phnom Penh on the Mekong River is also expected to be completed within one year. Those east routes are useful for international trade between Thailand and Vietnam especially HCMC (see Figure 8.8).

Even A14 to Hue and Danang is used for international trade between Thailand and HCMC. After completion of direct network from BKK to HCMC along A1, this route will become the main east connection route. A15 is the main route to Hanoi, however, the Hanoi route is weak because of Hanoi's small market size and proximity from People's Republic of China.

Compared with A14 and NH217, NH217 has a lot of agricultural hinterland for rubber, coffee, pine tree, highland vegetables, etc. in Laos and Vietnam. A14 is the shortest route to the Danang seaport, however port has no hinterland and enough capacity. On the other hand, east end of NH217 in Quy Nhon has also small seaport and development plan for special economic zone. Only there is a difficulty to proceed with development in Laos because of bombs and land mines buried during the war.

Consequently, there are several difficulties to develop this area in terms of network, however, if the Thai government did not develop this area, Chinese commodities would flow through this EWC route. Therefore, the government should be fully supportive of the SMIs in the four provinces and a prioritized budget allocation for projects and programs in these areas is extremely necessary for protection of international competition.

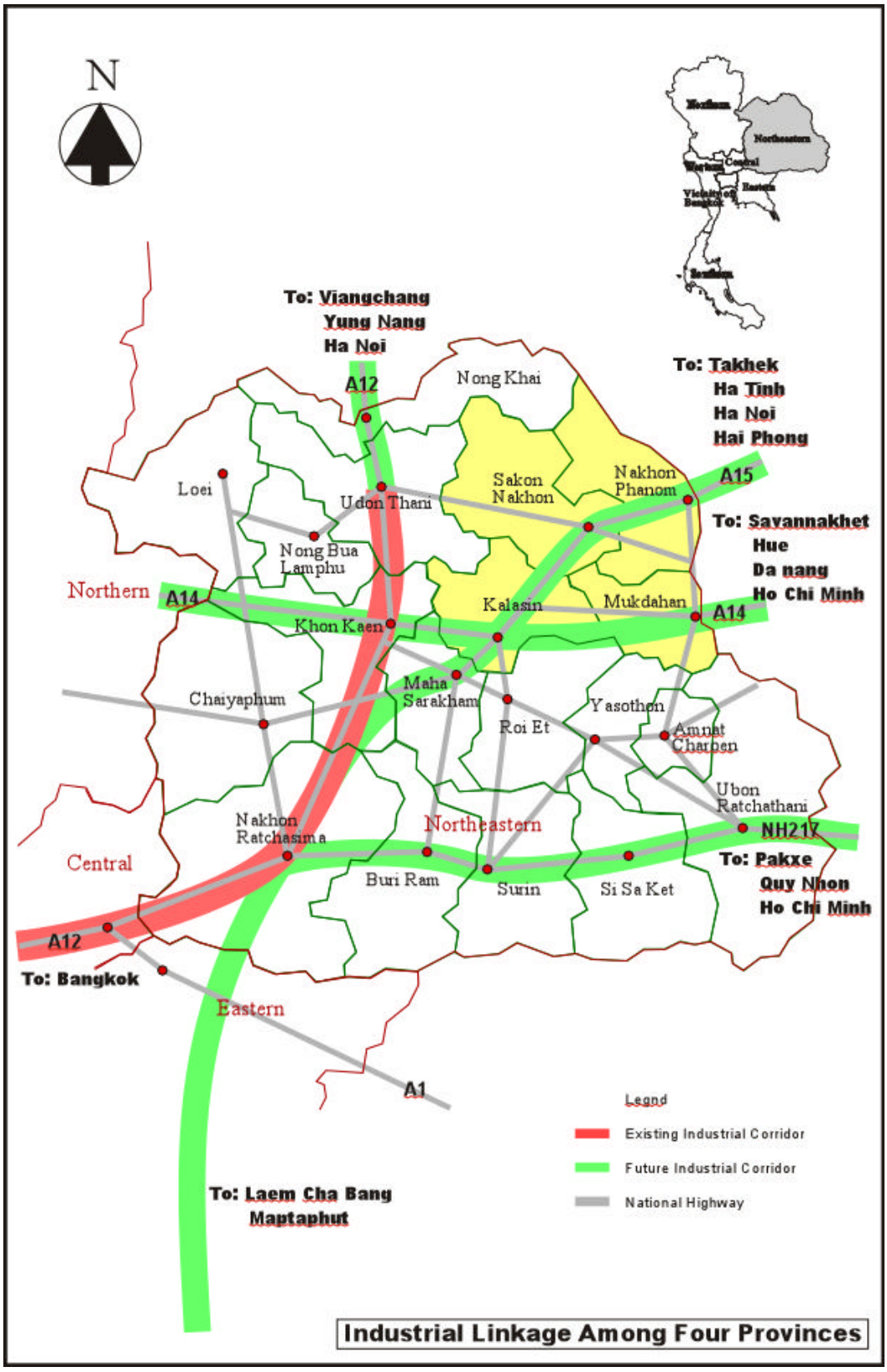

Figure 8.8 Industrial Linkage Among Four Provinces