JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

OFFICE OF INDUSTRIAL ECONOMICS,
MINISTRY OF INDUSTRY
THE KINGDOM OF THAILAND

THE STUDY ON THE MASTER PLAN FOR THE INDUSTRIAL DEVELOPMENT IN THE PROVINCIAL CLUSTER OF NAKHON RATCHASIMA, BURI RAM, SURIN AND CHAIYAPHUM IN THE KINGDOM OF THAILAND

JUNE 2000

UNICO INTERNATIONAL CORPORATION

INTERNATIONAL DEVELOPMENT CENTER OF JAPAN

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Preface

In response to a request from the Government of the Kingdom of Thailand, the Government of Japan decided to conduct the Study on the Master Plan for the Industrial Development in the Provincial Cluster of Nakhon Ratchasima, Buri Ram, Surin and Chaiyaphum in the Kingdom of Thailand, and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Kingdom of Thailand a study team headed by Mr. Yoji Watanabe of UNICO International Corporation, and organized by UNICO International Cooperation and International Development Center of Japan, four times from December 1999 to June 2000.

The team held discussions with the officials concerned of the Thai Government, and conducted field surveys including a questionnaire survey and workshops by provinces. After the team returned to Japan, further studies and analysis were made and this report was prepared.

I hope that this report will contribute to the development of the regional industry and the Small and Medium-Scaled Enterprises (SMEs) in Thailand and enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Thai Government for their close cooperation extended to the team.

June 2000

Kimio Fujita

Kimio FUJITA
President
Japan International Cooperation Agency

June 2000

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Dear Mr. Fujita

Letter of Transmittal

We are pleased to submit to you the final report for the Study on The Master Plan for the Industrial Development in the Provincial Cluster of Nakhon Ratchasima, Buri Ram, Surin and Chaiyaphum in the Kingdom of Thailand. The report contains studies on the present state of regional industrial development and small and medium-sized enterprises (SMEs) in the target provincial cluster, analysis of the underlying conditions affecting the further regional industry development based on the regional resources, formulation and recommendations for a master plan and development programs (Action Plan) based on the foregoing studies and analysis.

This report presents a total of thirty-eight projects/programs as an Action Plan of regional industry development, in addition to the direction and a Master Plan of regional industry development in the target provincial cluster. Especially, the most important ten projects/programs are also mentioned scheduling and potential benefits of implementation of the projects/programs in the report

The Thai Government has been implemented the Industrial Restructuring Plan (IRP) as a countermeasure for the economic crisis which was occurred in July, 1997. The Government particularly understands through implementation of IRP that it is an indispensable and urgent need for further development of Thai industries, to develop the regional and small and medium-sized enterprises (SMEs), and formulated the SMEs Promotion Act and the SMEs master plan to develop them. We believe that the projects/programs recommended in the report serve as a basis for plans for developing regional industry and SMEs, which will substantially contribute to the industrial development of the country.

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs and the Ministry of International Trade and Industry. We also wish to express our deep gratitude to the Ministry of Industry and other authorities concerned of the Kingdom of Thailand for the close cooperation and assistance extended to us during our investigations and study.

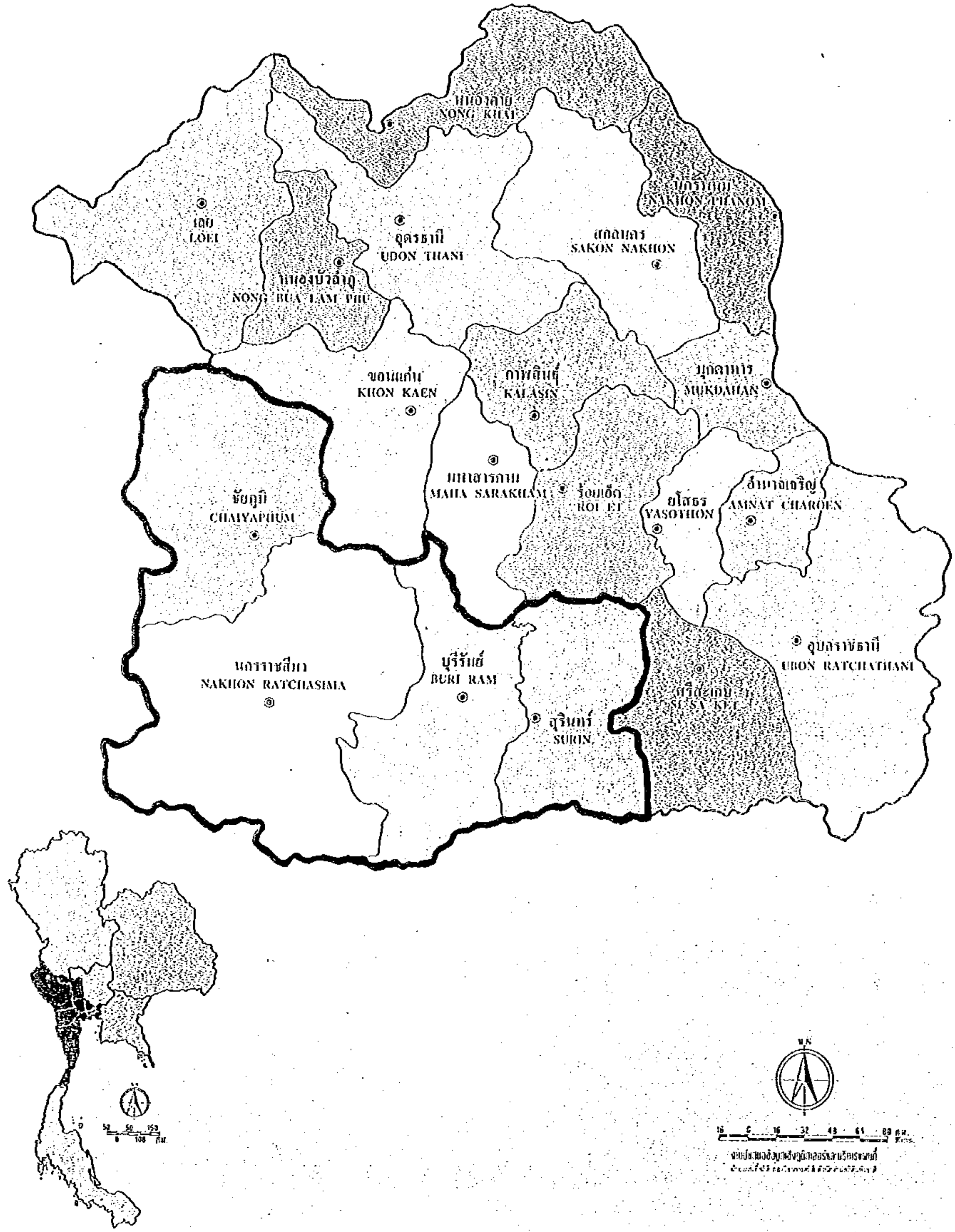
Very truly yours,

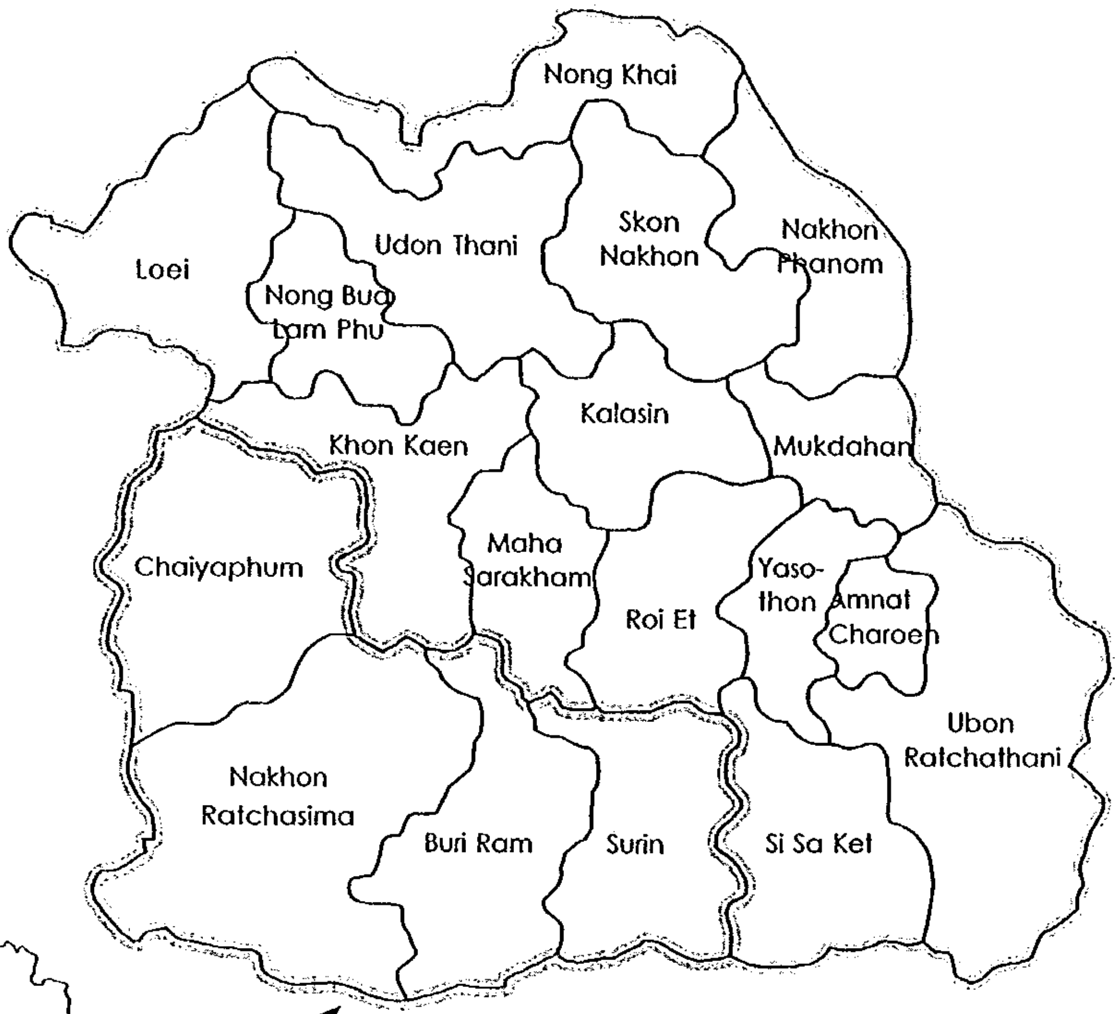
渡辺洋司

Yoji WATANABE
Team Leader
Study on the Master Plan for the Industrial Development in the Provincial Cluster of Nakhon Ratchasima, Buri Ram, Surin and Chaiyaphum In the Kingdom of Thailand

แผนที่ภาคตะวันออกเฉียงเหนือแสดงขอบเขตจังหวัด

MAP OF NORTHEASTERN REGION SHOWING CHANGWAT BOUNDARIES





LOCATION OF THE TARGET PROVINCES (1996)

Area	:	10.1%
Population	:	10.7%
Population density	:	126/km² (National average: 119/km²)
GPP	:	4.0%
GPP per capita	:	37.5% (as compared to Bangkok: 11.3%)
No. of Establishments	:	3.8%

List of Abbreviations

AOTS	Association for Overseas Technical Scholarship
ASEAN	Association of South East Asian Nations
ASID	Asian Supporting Industries Database
BAAC	Bank for Agriculture and Agriculture cooperatives
BADC	Belgium Administration of Development Cooperation
BCHID	Bureau of Cottage and Handicraft Industries Development
BINED	Bureau of Industrial Enterprise Development
BIPA	Bureau of Industrial Promotion Administration
BIPPP	Bureau of Industrial Promotion Policy and Planning
BISD	Bureau of Industrial Sectors Development
BMA	Bangkok Metropolitan Administration
BMR	Bangkok Metropolitan Region
BOI	Board of Investment
BOT	Bank of Thailand
BSID	Bureau of Supporting Industries Development
BUILD	BOI's Unit of Industrial Linkage Development
CC	Chamber of Commerce
CDRAC	Corporate Debt Restructuring Advisory Committee
CEE	Certified Enterprise Evaluator
CEFE	Competency-based Economy Through Formation of Enterprise
CF	Consulting Fund
CPA	Certified Public Accountant
DEP	Department of Export Promotion
DIP	Department of Industrial Promotion
DIW	Department of Industrial Works
DMR	Department of Mineral Resources
DOH	Department of Highways
DOLA	Department of Local Administration
DOVE	Department of Vocational Education
DSD	Department of Skill Development
DVT	Dual Vocational Training
EDP	Entrepreneurship Development Program
EEI	Electrical and Electronics Institute
EGAT	Electricity Generating Authority of Thailand
ESB	Eastern Seaboard
FTI	Federation of Thai Industries

List of Abbreviations

GDP	Gross Domestic Product
GPP	Gross Provincial Product
GRP	Gross Regional Product
GSB	Government Savings Bank
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH
HACCP	
HRD	Human Resource Development
ICD	Inland Container Depot
IEAT	Industrial Estate Authority of Thailand
IFCT	Industrial Finance Corporation of Thailand
IPC	Industrial Promotion Center
IRP	Industrial Restructuring Plan
ISMED	Institute of SMEs Development
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
JODC	Japan Overseas Development Corporation
JPPCC	Joint Public/Private Sector Consultative Committee
J/V	Joint Venture
MCM	Minimum Cost Manufacturing
MEA	Metropolitan Electricity Authority
MLSW	Ministry of Labour and Social Welfare
MOAC	Ministry of Agriculture and Cooperatives
MOC	Ministry of Commerce
MOE	Ministry of Education
MOF	Ministry of Finance
MOI	Ministry of Industry
MOIT	Ministry of Interior
MOTC	Ministry of Transport and Communications
MSCI	Management System Certificate Institute
MSTE	Ministry of Science, Technology and Environment
NESDB	National Economic and Social Development Board
NFI	National Food Institute
NGO	Non-governmental Organization
NISD	National Institute for Skill Development
NPL	Non Performing Loan
NSO	National Statistics Office

List of Abbreviations

NSTDA	National Science and Technology Development Agency
OEM	Original Equipment Manufacturing
OIE	Office of Industrial Economics
OJC	Off-farm Job Creation Project
OJT	On-the-job training
PAO	Provincial Administration Organization/Provincial Administration Office
PEA	Provincial Electricity Authority
PIO	Provincial Industrial Offices
PMO	Prime Minister's Office
PRID	Promotion of Rural Industrial Development Project
PSCD	Provincial Center for Skill Development
PTT	Petroleum Authority of Thailand
PWA	Provincial Waterworks Authority
REM	Replacement Equipment Manufacturing (after sales)
RID	Royal Irrigation Department
RISD	Regional Institutes for Skill Development
RIT	Rajamangala Institute of Technology
SFAC	SMEs Financial Advisory Center
SICGC	Small Industry Credit Guarantee Corporation
SIFC	Small Industry Finance Corporation
SIZ	Suranaree Industrial Zone
SMEPO	SMEs Promotion Office
SMEs	Small and Medium-sized Enterprise(s)
SMIs	Small and Medium-sized Industry(s)
SRT	State Railway of Thailand
SSIPP	Small-Scale Industry Promotion Project
SUT	Suranaree University of Technology
TCC	Thai Chamber of Commerce
TF	Training Fund
TGI	Thai-German Institute
TISI	Thai Industrial Standards Institute
TOT	Telephone Organization of Thailand
TPA	Technological Promotion Association (Thai-Japan)
TT&T	Thai Telephone and Telecommunication Public Co., Ltd.
TTI	Thailand Textile Institute

CONTENTS

Chapter 1 INTRODUCTION

Chapter 1 INTRODUCTION

This is the Final Report of the Study on the Master Plan for the Industrial Development in the Provincial Cluster of Nakhon Ratchasima, Buri Ram, Surin and Chaiyaphum in the Kingdom of Thailand. The Study was commenced in November 1999 on the basis of the Scope of the Study in the Scope of Work signed between Japan International Cooperation Agency (JICA) and the Office of Industrial Economics (OIE) of the Ministry of Industry of Thailand on August 13, 1999.

1.1 Background and Objective of the Study

(1) Study Background

1) The 8th National Economic and Social Development Plan (1997-2001) has set the framework of economic development through dispersal of economic activities to regional area. Within this framework, the 8th Plan calls for the formulation of Strategic Plans for industrial development in Provincial Clusters to ensure the development of such areas accord with their development potential as well as their needs. Such principle is consistent with the development strategy of the Ministry of Industry (MOI). The materialization of such strategy requires the existence of a regional industrial development (or investment) master plan in each provincial cluster.

2) Within the ideological framework of the National Economic and Social Development Plan, the Office of Industrial Economics of MOI, as directly responsible agency, recognizes the need to initiate activities that would lead to the formulation of the Master Plan for the Industrial Development in the provincial clusters. The objective of this development plan will be to specify the actionable procedures that support the economic activities contributing to the dispersal of the industrial production base and distribution of investment. It is also the expectation that the development plan will define the framework, the need of assistance from the public sector that will provide some guidelines for budget allocation as well as framework and system for improvement of concerned agencies.

3) Under these circumstances, the Government of the Kingdom of Thailand requested the Government of Japan to conduct a Study on the regional industrial development in a few provincial clusters. In response, the Japanese government sent a preliminary study mission on project formulation to Thailand in August 1999 to evaluate the background, needs and possible effects derived from execution of the Study and to select a target provincial cluster. Finally, the Scope of Work for the Study was prepared and signed by the both governments on August 13, 1999.

(2) Objectives of the Study

The objective of the Study is to formulate a regional industrial development master plan in the Provincial Cluster of Nakhon Ratchasima, Buri Ram, Surin and Chaiyaphum with the specific development projects which includes action plans for the promotion of small and medium enterprises in the rural areas. Also, technology transfer in the relevant fields will be made to the Thai counterpart and local consultants throughout the process of the study.

1.2 Scope and Method of the Study

(1) Scope of the Study

Areas covered:	Provinces of Nakhon Ratchasima, Buri Ram, Surin, Chaiyaphum and Bangkok Metropolitan Region
Industry types covered:	Manufacturing industry excluding rice mill in the study area, especially supporting industries and food processing industry are the priority sub-sectors which will be focused on in the Study.

(2) Method of the Study

The present conditions of the industries were analyzed mainly through direct hearing from enterprises/factories managers and questionnaire surveys of those enterprises. Concerning policies, systems and financial conditions for regional industrial development and SMEs, the study team visited relevant institutions. As far as direct interviews with enterprises in Surin and Chaiyaphum is concerned, Local consultants have been implemented it under cooperation with Provincial Industrial Offices in two provinces. The numbers of institutions and business enterprises the survey team has visited during field surveys and the number of enterprises that have responded to the questionnaire survey are as follows.

1)	Visits to government-related agencies (includes educational/training and financial institutions)	32
2)	Visits to business enterprises/factories (by members of the survey team)	121
	Nakhon Ratchasima	39
	Buri Ram	16
	Surin	20
	Chaiyaphum	25
	Bangkok Metropolitan Region	21
3)	Questionnaire survey of business enterprises (by local consultant)	40

In the Study, workshops were held two times in each four provinces. The first workshop aimed at analysis of the present situation of local industries, while the second one was planned as a means of formulation of a strategic plan for provincial industrial development. Number of participants for each workshops are as follows.

	Nakhon Ratchasima	Buri Ram	Surin	Chaiyaphum
the first workshop	37	51	51	51
the second workshop	58	39	30	35

(3) Survey Schedule

The schedule for field surveys and the reports made so far are as follows.

<u>Schedule for field surveys</u>

- 1st field survey (explanation and discussion on IC/R)	Dec.1 - 17, 1999
- 2nd field survey (full-scale survey)	Jan.5 - Feb.24, 2000
- 3rd field survey (explanation and discussion on IT/R and supplementary survey)	Mar. 13 - 30, 2000
- 4th field survey (explanation and discussion on DF/R)	May 24 - Jun.6, 2000

<u>Schedule for submission of reports</u>

- Inception Report (IC/R)	December 1, 1999
- Interim Report (IT/R)	March 15, 2000
- Draft Final Report (DF/R)	May 24, 2000

Chapter 2 Current State of the Target Provinces

Chapter 2 Current State of the Target Provinces

2.1 Macro Economy of the Target Provinces

2.1.1 Current Economic Status of the Northeast Region and the Target Provinces

2.1.1.1 Northeast Region

Thailand, made up of 76 provinces, is generally classified into seven regions. The Northeast Region consists of 19 provinces and accounts for 32.9% of the total land area and 34.7% of population as of the end of 1998. Although the region boasts the largest land area and population among seven regions, its economic power is relatively small as its gross regional product (GRP) represents merely 11.8% of the country's GDP (see Table 2.1-1).

Table 2.1-1 REGION & PROVINCE IN COMAPRISON (Area, Population, GPP)

Region/provinces		Area			Population			GPP* (million baht)			GPP* per capita (baht)		
		sq.km.	%	Rank	1998	%	Rank	1996	%	Rank	1996	%	Rank
Whole kingdom (76 provinces)		513,114	100%		61,466,178	100%		4,598,292	100%		76,634	-	
Bangkok & Vicinities	(6)	7,758	1.5%	-	9,242,038	15.0%	-	2,354,275	51.2%	-	253,290	-	-
Central	(6)	16,593	3.2%	-	2,962,647	4.8%	-	212,347	4.6%	-	73,629	-	-
Eastern	(8)	36,503	7%	-	4,131,040	6.7%	-	463,458	10.1%	-	121,802	-	-
Western	(6)	43,047	8.4%	-	3,591,578	5.8%	-	191,188	4.2%	-	56,732	-	-
Northeastern	(19)	168,854	32.9%	-	21,312,166	34.7%	-	543,479	11.8%	-	26,635	-	-
Northern	(17)	169,644	33.1%	-	12,159,930	19.8%	-	422,300	9.2%	-	37,878	-	-
Southern	(14)	70,715	13.8%	-	8,066,779	13.1%	-	411,245	8.9%	-	51,657	-	-
Bangkok		1,565	0.3%	68	5,647,799	9.2%	1	1,797,809	39.1%	1	254,611	-	1
Chaiyaphum		12,778	2.5%	7	1,115,519	1.8%	15	28,191	0.6%	32	26,346	-	62
Nakhon Ratchasima		20,494	4.0%	1	2,510,839	4.1%	2	100,733	2.2%	6	39,519	-	39
Buri Ram		10,322	2.0%	17	1,494,836	2.4%	7	31,798	0.7%	27	21,824	-	69
Surin		8,124	1.6%	24	1,367,685	2.2%	10	25,654	0.6%	39	19,719	-	75

Note: * Gross provincial product at current market prices

Source: Thailand in Figures 1998-1999, Alpha Research Co., Ltd.

In fact, measured by growth provincial product (GPP) per capita, 19 provinces in the region show the lowest average figure of 26,635 baht (1996) among other regions, which is 37.5% of the national average and one tenths that of Bangkok and vicinities, which is the region showing the highest GPP figure.

Economic backwardness of the region is also evidenced in the Provincial Economic Development Indices that was developed and published by the National Economic and Social Development Board (NESDB) (Table 2.1-2). 76 provinces in the country are compared by using four indices: ① investment made between 1992 and 1995; ② population density; ③ income per capita; and ④ share of the agricultural sector in GPP. Based on overall evaluation and scoring of the indices, all the provinces are divided into the "economically developed area" and "other area" or in progress development position. At present, NESDB classifies top ten provinces in the overall scoring (from Bangkok in first place to Nakhon Pathom in tenth) as "developed areas." In the Northeast Region, two provinces, namely Khon Kaen and Nakhon Ratchasima, ranked above the national average, 16th and 24th respectively, whereas other regions were rated below the national average. In particular, income per capita fell much lower than the average.

According to the 1999 macroeconomic indicators for the region announced by the northeast branch of the Bank of Thailand, the region's economic growth rate went upward to 1.0% from negative growth of 3.5% in the previous year. This is due to the devaluation of baht after the economic crisis, which benefited the region, especially the southern part which is a major producing area of rice and feed grains for exports. Thus, the region was less affected by the macroeconomic deterioration than the Bangkok Metropolitan area. Nevertheless, investment in the region declined considerably in 1998 and 1999, in terms of both the number of projects and value. This seems to reflect the fact that businesses are giving priority to the improvement of immediate cash flow. The low level of investment explains in part that the region fails to create new jobs that meet increasing demand from local people who have returned from the metropolitan area.

Table 2.1-2 Provincial Economic Development Indices

Rank	Province	Population Density (person/km2)	Investment with permission of BOI during 1992-1995 (million baht)	Income per capita (baht/month)	Percentage of agricultural product 1994 (%)	Indicator index of development position
Provinces which is in progress development position						
1	Bangkok	3,568	121,162	15,358	0.5	99
2	Patum Thani	355	32,922	15,302	2.2	95
3	Chon Buri	221	125,459	11,936	4.3	94
4	Samut Prakan	911	15,044	11,710	6.4	93
5	Nonthaburi	1,190	13,489	3,682	4.2	91
6	Ayuttaya	274	40,696	4,813	6.0	90
7	Samut Sakon	437	5,662	15,324	12.4	88
8	Saraburi	158	9,299	6,753	4.6	87
9	Rayong	132	423,269	9,590	13.4	85
10	Nakon Pathom	332	3,208	5,153	10.7	84
Provinces with second level of development position						
11	Phuket	368	2,890	6,016	17.7	80
12	Ratchaburi	152	6,955	3,309	12.9	78
13	Chachoengsao	113	30,087	4,891	13.4	77
14	Sing Buri	270	4,444	2,187	16.7	72
15	Lamphun	90	9,848	3,839	13.2	72
16	Khon Kaen	154	4,644	1,832	11.9	70
17	Prachin Buri	89	49,491	2,654	20.4	67
18	Ang Tong	294	1,316	1,896	13.5	67
19	Lop Buri	119	17,307	2,071	20.7	66
20	Chiang Mai	77	7,994	2,474	11.7	66
21	Songkhla	155	16,343	3,107	38.0	64
22	Phetchaburi	71	11,279	2,662	13.9	63
23	Samut Songkhram	495	460	2,040	16.5	63
24	Nakhon Ratchasima	120	30,723	1,572	21.9	61
25	Lampang	64	4,776	2,199	9.2	60
26	Prachuap Khiri Khan	72	4,053	3,305	21.2	59
27	Suphan Buri	156	910	2,184	23.9	57
28	Chai Nat	141	1,595	2,130	27.8	53
29	Nakhon Sawan	116	2,143	1,928	23.6	53
30	Chiang Rai	107	4,400	1,305	20.1	52
31	Kanchanaburi	38	2,455	2,736	19.6	51
32	Nakhon Si Thammarat	150	2,693	1,779	31.0	50
33	Udon Thani	123	3,002	1,152	23.7	48
34	Phisanulok	78	2,946	1,648	23.6	47
35	Trat	73	770	2,914	24.3	47
36	Ubon Ratchathani	107	3,560	1,101	22.6	45
37	Nakhon Nayok	111	141	2,191	21.2	45
38	Surat Thani	63	7,417	2,811	43.7	44
39	Chanthaburi	73	770	2,386	24.8	44
40	Trang	113	2,087	2,446	52.8	43
41	Amnat Charoen	111	351	1,498	17.8	43
42	Nong Khai	118	771	1,142	21.9	42
43	Yala	86	1,450	2,345	37.1	41
44	Pattani	290	259	1,943	45.8	40
45	Chaiyaphum	85	8,501	1,156	30.7	40

46	Buri Ram	140	1,308	1,010	27.3	39
47	Roi Et	155	705	1,013	26.4	39
48	Tak	27	2,278	1,601	23.0	39
49	Chumphon	71	1,413	2,559	44.2	37
50	Ra-yao	81	838	1,414	25.1	37
51	Rayong	42	1,191	4,868	51.6	36
52	Kalasin	137	676	990	25.3	36
53	Surin	164	417	1,000	27.9	36
54	Narathiwat	136	154	1,868	31.5	36
55	Krabi	68	1,244	3,020	62.6	35
56	Sakon Nakhon	109	712	1,027	24.0	35
57	Satun	97	473	2,335	48.8	35
58	Maha Sarakham	172	95	1,093	26.3	35
59	Phichit	131	369	1,375	30.7	34
60	Nong Bua Lamphu	122	88	1,141	21.8	34
61	Phatthalung	143	348	1,460	34.9	34
62	Phrae	77	97	1,318	17.7	34
63	Yasothon	129	545	999	27.0	33
64	Nakhon Pathom	124	521	1,005	29.7	31
65	Srisaked	157	141	894	29.3	30
66	Phangnga	53	463	3,360	57.0	30
67	Uttaradit	61	386	1,694	25.4	29
68	Sukhothai	94	319	1,503	30.5	29
69	Phechabun	82	899	1,263	38.6	28
70	Mukdahan	72	471	1,080	25.1	27
71	Kamphaeng Phet	68	373	1,763	31.4	24
72	Uthai Thani	48	321	1,669	29.7	23
73	Loei	54	670	1,289	31.2	23
74	Mae Hong Son	17	0	1,199	23.5	20
75	Nan	41	132	1,224	25.5	19
76	Srakaew	69	125	1,150	32.6	15

Source: The National Economic and Social Development Board (NESDB)

2.1.1.2 Target four provinces

Four provinces selected for this study ("target provinces/provincial cluster") are located in the southwest part of the Northeast Region. Pak Chong, southern part of Nakhon Ratchasima and closest to Bangkok among other regions, is 180km away, and Surin is 500km away at its east end. Buri Ram is bordered on the east by Cambodia. Finally, Chaiyaphum is located inland, north of Nakhon Ratchasima and adjacent to Khon Kaen, administrative center of the region. Basic economic data on the target four regions as compared to the entire country are summarized as follows:

	Country	The Target Provinces	Share of Total
Land area (km^2)	513,114	51,718	10.1%
Population (persons)	60,819,227	6,488,879	10.7%
Population density (per km^2)	119	126	-
GD (regional) P (million baht)	4,598,292	186,376	4%
GPP per capita (baht)	76,634	28,722	37.5%
No. of business establishments	318,660	12,052	3.8%

注)*:Gross provincial product

The target provinces in combined total account for slightly over 10% of the total in land area and population and 3.8% in the number of business establishments. Their average GPP per capita is around one third the national average (one-tenths that of Bangkok). In the ranking based on the overall development index of NESDB, Nakhon Ratchasima ranked 24th, Chaiyaphum 45th, Buri Ram 46th and Surin 53rd.

Then, economic profiles of the target provinces are described below. Note that the figure in ( ) denotes the rank of each province among the total of 76 provinces. (See Table 2.1-1 for reference).

1) Buri Ram and Surin

Buri Ram has land area of 10,322 km2 (17) and population of 1,495,000 (7), with GPP totaling 31,798 million baht (27). It is relatively good access to other regions (land and air) and will soon be connected by road to the adjacent, northwest part of Cambodia.

Surin has land area of 8,124 km2 (24) and population of 1,368,000 (10). Its GPP amounts to 25,654 million baht (39). Its population density is highest in the Northeast Region.

The two provinces have economic characteristics unique to the region in the most distinctive way. While their agricultural sectors account for 23% each of GPP, share of the manufacturing sector remains at 9.5% in Buri Ram and a meager 3.6% in Surin. Furthermore, the manufacturing sector is dominated by rice cleaning (approximately 90% of total), while the capital-intensive machinery industry represents less than 5%. GPP per capita is very low: Buri Ram ranked 69^{th} and Surin 75^{th}. As shown in Table 2.1-3 which lists ten provinces showing the lowest growth rate of GPP per capita between 1991 and 1996, Surim recorded the second lowest growth rate and Buri Ram was the eighth. This clearly indicates that economies in the two provinces remained stagnant during the period (in the first half of 1990's) when Thailand underwent rapid economic growth.

Table 2.1-3 TEN LOWEST GPP PER CAPITA* PROVINCES (1991-1996)

Unit:Baht

Rank		Province	GPP per capita	
1991	1996		1991	1996
1	1	Si Sa Ket	12,103	19,636
3	2	Surin	12,332	19,719
2	3	Yasothon	12,323	19,990
-	4	Nong Bua Lamphu**	-	20,949
10	5	Maha Sarakharn	14,096	21,085
7	6	Nakhon Phanom	13,504	21,330
9	7	Roi Et	13,666	21,680
8	8	Buri Ram	13,665	21,824
6	9	Kalasin	13,497	21,887
4	10	Sakon Nakhon	13,383	23,475
		Whole Kingdom	44,307	76,634

* Gross provincial product at current market prices
**Became province in 1993

Also, as there are few industries in the provinces, they are known as a major supply source of migrant workers. In fact, the economic crisis that broke out in the summer of 1997 caused a large number of migrant workers from the provinces to lose jobs, return home and work at farm, resulting in increased underemployment (latent unemployment).

2) Chaiyaphum

The province has land area of 12,778 km2 (7) and population of 1,116,000 (15), with GPP of 29,191 million baht (32). While the province's agricultural sector has a slightly higher share of GPP than Buri Ram and Surin, its manufacturing sector also represents a much higher share (15.4%) because the province is located between two major cities in Northeast, Nakhon Ratchasima and Kohn Kaen. Nevertheless, as seen in the above two provinces, its industrial activities are dominated by those that generate a relatively small amount of value added, such as rice milling, tapioca production, and the processing of farm products. As a result, GPP per capita is very low, ranked 62nd among 76 provinces. Thus, the province is considered to have a similar economic structure to Buri Ram and Surin.

In Chaiyaphum, an industrial project is underway. The ASEAN Potash Mining Project plans to excavate potash deposits located in Bamnet Narong, southern part of the province near the border with Nakhon Ratchasima, and process ores chemically for commercial shipment. While the project, when rolled out, is expected to contribute much to economic development in the province, it plans to export the processed ores to other provinces or overseas. Thus, it is needed to develop the investment circumstances to stimulate growth of new industries that use potash as raw material, such as fertilizer and glass.

3) Nakhon Ratchasima

Nakhon Ratchasima covers 20,494 km2 of area (1) where 2,511,000 persons reside (2). Its GPP totals 100,733 million baht. The province has long been known for its fertile land that extends in the southern part of the region and produces rice and fruits. While agriculture is still a major industry, the province has been growing as a commercial center since the 1980s by taking advantage of its location as a gateway to the northeastern region. At the same time, diverse industries have flourished along Highway Route 2, including truck and bus assembly plants, machining shops, food processing plants (including beverages and dairy products) and concrete factories, in addition to traditional industries including silk textile in Pak Thong Chai and ceramics in Dan Kwian. Then, in the 1990s, Suranree Industrial Zone (SIZ) was developed as only one industrial estate in the region and attracted new industries, such as electrical and electronics as well as chemical, to promote further industrial diversification.

2.1.1.3 Unemployment Rate of the Target Provinces

The unemployment rate in Thailand was changed relatively at low level before the economic crises occurred in 1997. The rate, however, increased in 1998 up to 3.4% and remained at the level of around 3 to 3.3% until the end of 1999. Unemployment rates of the four provinces changed almost same trends of national rate. Burd ram and Chaiyaphum shows higher rates at 4.1% and 3.6% in November 1999 respectively, while Nakhon Ratchasima and Surin were 1.7% and 0.1% at the same period. The lower unemployment rates of the four provinces than that of the country may be partially explained by the structure of economic activities in the provinces. Because the four provinces are heavily relying on the agriculture, unemployed workers may be able to work with their families in the agricultural sector. In such case, they are counted as employed at the survey. Therefore, the unemployment rate may not be an appropriate indicator for regional or provincial comparison of labor market conditions in Thailand.

Table 2.1-4. UNEMPLOYMENT RATES OF THAILAND AND THE FOUR PROVINCES

	1995 (R3)	1996 (R3)	1997 (R3)	1998 (R3)	1999 (R3)	1999 (R4)
Thailand	na	1.1%	0.9%	3.4%	3.0%	3.3%
Nakhon Ratchasima	0.3%	0.6%	0.4%	3.4%	1.2%	1.7%
Buri Ram	2.9%	1.0%	0.7%	2.7%	1.0%	4.1%
Surin	0.2%	0.5%	0.4%	2.0%	0.5%	0.1%
Chaiyaphum	0.1%	4.6%	0.6%	3.8%	0.9%	3.6%

Source: National Statistics Office, Labor Statistics Division,
Statistical Table Population's State of Employment Survey Project at Provincial Level
Round 3 in August 1995-1999 and round 4 in November 1999.

2.1.2 Industrial Structure of the Target Provinces

Major characteristics of the industrial structure of the target provinces are summarized as follows.

2.1.2.1 Agriculture-based industrial and employment structures

Tables 2.1-5 and 2.1-6 show industrial and employment structures of the Northeast Region and the target provinces as of 1996. When compared with the industrial structure of the country as a whole (GDP-based) shown in the left side of Table 2.1-5, it is obvious that agriculture is a major economic base in all the provinces (or the region as a whole). While the manufacturing sector has a higher share than agriculture in Nakhon Ratchasima, agriculture shares top position with commerce in other three provinces. The strong position of agriculture is more clearly seen in the employment structure by industry (Table 2.1-6). Even Nakhon Ratchasima, where agriculture does not dominate the local economy in terms of GPP, 66% of employees are engaged in agriculture, the lowest percentage among the target provinces.]The percentage reaches 85.0% in Buri Ram, 81.6% in Surin and 76.9% in Chaiyaphum, all exceeding the regional average. Thus, the provincial cluster is considered to have the highest concentration of farmers in the country.

Table 2.1-5. GPP IN THE TARGET PROVINCES (1996)

	Whole kingdom	North-eastern	Chaiyaphum		Nakhon Ratchasima		Buri Ram		Surin	
	%	%	million baht	%	million baht	%	million baht	%	million baht	%
Agriculture	11.0	19.9	7,555	26.8	17,226	17.1	7,385	23.2	5,900	23.0
Mining and quarrying	1.4	0.7	0	0.0	1,410	1.4	286	0.9	77	0.3
Manufacturing	28.4	12.2	4,341	15.4	24,579	24.4	3,024	9.5	924	3.6
Construction	7.4	11.1	2,509	8.9	10,980	10.9	3,247	10.2	2,565	10.0
Electricity and water supply	2.3	1.4	395	1.4	1,813	1.8	350	1.1	334	1.3
Transportation and communications	7.3	4.3	1,015	3.6	3,727	3.7	955	3.0	975	3.8
Wholesale and retail trade	15.5	18.9	5,356	19.0	12,592	12.5	7,385	23.2	6,106	23.8
Bank, insurance and real estate	7.6	4.8	987	3.5	4,533	4.5	1,305	4.1	1,180	4.6
Ownership of dwellings	2.4	3.6	1,156	4.1	2,619	2.6	1,305	4.1	1,180	4.6
Public administration and defence	3.7	7.2	1,691	6.0	5,540	5.5	2,260	7.1	2,258	8.8
Service	13.1	15.9	3,186	11.3	15,715	15.6	4,361	13.7	4,156	16.2
Gross provincial product	100.0	100.0	28,191	100	100,734	100	31,863	100	25,654	100

Source: Thailand in Figures 1998-1999, Alpha Research Co., Ltd.

Table 2.1-6. EMPLOYED PERSONS AGED 13 YEARS AND OVER BY INDUSTRY (1995)

	Whole kingdom %	North-eastern %	Chaiyaphum		Nakhon Ratchasima		Buri Ram		Surin	
			persons	%	persons	%	persons	%	persons	%
Agriculture forestry, hunting and fishing	46.7	73.1	481,269	76.9	939,700	66.0	661,529	85.0	605,418	81.6
Mining and quarrying	0.2	0.0	-	-	-	-	396	0	803	0
Mnufacturing	14.9	6.2	32,374	5.2	144,299	10.1	17,240	2.2	18,843	2.5
Construction repair and demolition	7.3	3.4	10,276	1.6	68,835	4.8	11,983	1.5	15,356	2.1
Electricity, gas, water and sanitary services	0.6	0.2	1,683	0.3	1,883	0.1	3,913	0.5	408	0.1
Commerce	13.6	7.0	44,059	7.0	126,511	8.9	40,081	5.1	37,720	5.1
Transport, storage and communication	3.3	1.7	6,798	1.1	20,612	1.4	3,967	0.5	10,431	1.4
Services	13.4	8.3	49,769	7.9	121,756	8.6	39,559	5.1	53,318	7.2
Activities not adequately described	0.0	0.0	-	-	-	-	-	-	-	-
Total Employed persons	100.0	100.0	626,228	100	1,423,597	100	778,669	100	742,297	100

Source: Thailand in Figures 1998-1999, Alpha Research Co., Ltd.

In contrast, the manufacturing sector holds a small share of GPP (Table 2.1-5). While the manufacturing sector in Nakhon Ratchasima shows a relatively high share of 24.4% close to the national average (28.4%), those in other three provinces account for much smaller percentages. In particular, share of the manufacturing sector falls far below that of the agricultural sector in Buri Ram and Surin. Other characteristics unique to the target regions are a relatively high share of the construction sector (all exceed the national average) and a slower share of the service industry including communication and finance.

Then, the changes in industrial structure of each province between 1990 and 1996 are shown in Table 2.1-7a and b. Comparison of the target provinces indicates that only Nakhon Ratchasima has shifted its economic base from agriculture to manufacturing. In other provinces, agriculture retained a high share, although it declined slightly. On the other hand, the manufacturing sector remained flat or declined (Buri Ram). This indicates that rapid industrial development that occurred in the country during the past ten years had few impacts on the three provinces. This is confirmed from the investment trend in the provincial cluster. Thus, any significant change in industrial structure did not occur in the three provinces during the industrial boom in the 1990s. Now, even a backlash is seen as a result of the economic crisis in July 1997. According to our hearing survey in the area, a large number of migrant workers has returned and is forced to make their living by working at farms. Unless new jobs are created in the non-agricultural sector,

Table 2.1-7a. CHANGES IN INDUSTRIAL STRUCTURE OF FOUR PROVINCES

NAKHON RATCHASIMA

Gross provincial product: at current market prices unit: %

	1990	1994	1995	1996
Agriculture	23.0	17.4	17.4	17.1
Crops	16.2	12.7	13.4	12.5
Livestock	3.1	2.1	1.8	2.1
Fisheries	0.1	0.2	0.3	0.4
Forestry	0.2	0.0	0.0	0.0
Agricultural service	1.7	1.2	0.9	0.9
Simple agricultural processing product	1.7	1.1	1.0	1.2
Mining and quarrying	1.1	1.2	1.6	1.4
Manufacturing	15.4	21.4	24.0	24.4
Construction	9.7	11.6	11.2	10.9
Electricity and water supply	2.0	1.9	1.7	1.8
Transportation and communications	5.1	4.0	3.7	3.7
Wholesale and retail trade	17.2	14.2	12.9	12.5
Bank, insurance and real estate	3.2	4.4	4.3	4.5
Ownership of dwellings	4.4	3.0	2.5	2.6
Public administration and defence service	6.4	5.6	5.5	5.5
Service	12.6	15.3	15.4	15.6
Gross provincial product (%)	100.0	100.0	100.0	100.0
Gross provincial product (million baht)	41,969	75,220	92,218	100,734
Gross provincial product per capita (baht)	17,516	30,028	36,479	39,519

BURI RAM

Gross provincial product: at current market prices unit: %

	1990	1994	1995	1996
Agriculture	28.4	21.9	22.2	23.2
Crops	20.0	15.0	16.3	16.7
Livestock	4.2	3.2	2.8	2.7
Fisheries	0.3	0.2	0.2	0.3
Forestry	0.0	0.1	0.0	0.0
Agricultural service	2.0	1.7	1.4	1.4
Simple agricultural processing product	1.9	1.6	1.5	2.0
Mining and quarrying	0.8	0.8	0.8	0.9
Manufacturing	12.6	11.3	11.4	9.5
Construction	7.2	7.3	9.7	10.2
Electricity and water supply	0.8	1.2	1.1	1.1
Transportation and communications	2.4	2.9	2.9	3.0
Wholesale and retail trade	22.9	25.0	23.5	23.2
Bank, insurance and real estate	1.9	3.9	3.9	4.1
Ownership of dwellings	5.7	4.7	4.0	4.1
Public administration and defence service	5.9	6.8	6.8	7.1
Service	11.3	14.3	13.7	13.7
Gross provincial product (%)	100.0	100.0	100.0	100.0
Gross provincial product (million baht)	17,025	24,667	30,082	31,799
Gross provincial product per capita (baht)	12,427	17,226	20,804	21,824

Table 2.1-7b. CHANGES IN INDUSTRIAL STRUCTURE OF FOUR PROVINCES

SURIN

Gross provincial product: at current market prices unit: %

	1990	1994	1995	1996
Agriculture	26.7	23.6	23.2	23.0
Crops	18.0	16.3	16.1	15.5
Livestock	4.1	3.0	3.2	2.8
Fisheries	0.4	0.5	0.4	0.8
Forestry	0.0	0.0	0.0	0.0
Agricultural service	2.1	1.9	1.6	1.7
Simple agricultural processing product	2.0	1.9	1.8	2.3
Mining and quarrying	0.3	0.3	0.3	0.3
Manufacturing	3.8	5.4	4.9	3.6
Construction	7.3	8.8	9.6	10.0
Electricity and water supply	1.0	1.3	1.3	1.3
Transportation and communications	3.3	3.6	3.5	3.8
Wholesale and retail trade	25.0	24.9	24.3	23.8
Bank, insurance and real estate	2.2	3.6	4.3	4.6
Ownership of dwellings	6.3	5.1	4.6	4.6
Public administration and defence service	7.0	7.9	8.4	8.8
Service	17.2	15.4	15.7	16.2
Gross provincial product (%)	100.0	100.0	100.0	100.0
Gross provincial product (million baht)	14,101	20,671	24,122	25,653
Gross provincial product per capita (baht)	11,455	16,137	18,670	19,719

CHAIYAPHUM

Gross provincial product: at current market prices unit: %

	1990	1994	1995	1996
Agriculture	29.3	26.1	25.3	26.8
Crops	21.3	19.5	19.1	20.5
Livestock	3.4	2.4	2.5	2.0
Fisheries	0.3	0.6	0.6	0.9
Forestry	0.1	0.0	0.0	0.0
Agricultural service	2.1	1.7	1.4	1.4
Simple agricultural processing product	2.2	1.7	1.6	1.9
Mining and quarrying	0.0	0.0	0.0	0.0
Manufacturing	14.8	15.2	16.4	15.4
Construction	6.4	6.8	8.5	8.9
Electricity and water supply	1.2	1.5	1.5	1.4
Transportation and communications	2.8	3.5	3.3	3.6
Wholesale and retail trade	20.8	21.4	20.0	19.0
Bank, insurance and real estate	1.9	3.3	3.5	3.5
Ownership of dwellings	5.7	4.8	4.1	4.1
Public administration and defence service	5.5	5.9	6.1	6.0
Service	11.7	11.4	11.4	11.3
Gross provincial product (%)	100.0	100.0	100.0	100.0
Gross provincial product (million baht)	13,941	21,088	25,948	28,191
Gross provincial product per capita (baht)	13,844	20,045	24,456	26,346

Source: Gross regional and provincial product, 1996, NESDB the three provinces are unable to change their industrial structure. In conclusion, agriculture is still a major economic base of the provincial cluster, although industrialization progresses in Nakhon Ratchasima to some degree in recent years.

Major agricultural output in the target provinces is rice and cassava. Nakhon Ratchasima, Buri Ram and Surin are the top three rice producing provinces in the country. Also, Nakhon Ratchasima and Chaiyaphum hold the first and second places in cassava production. However, while land suitable for agriculture concentrates in Nakhon Ratchasima and the southern part of Buri Ram, rice production dominates (grown in 54% of total cultivatable land) to keep income at a low level. Despite the efforts to add new crops, such as sweet cane and kenaf, and diversify farm operation, continued dependence on the low value added activity prevents income growth and requires many people to find an additional source of income.

2.1.2.2 Characteristics of industrial composition in each province

(1) Surin, Buri Ram and Chaiyaphum

Industrial composition in three provinces other than Nakhon Ratchasima was analyzed. Table 2.1-8 summarizes composition of the manufacturing sector in each province, based on the number of establishments in key industries.

Table 2.1-8. NO. OF MFG. ENTERPRISES BY TYPE OF BUSINESS AND PROVINCES

Unit: %

	Food, Beverages and Tobacco	Textiles, Wearing Apparel, & Leathers	Wood Products and Furnitures	Paper Printing and Publishing	Chemical Rubber and Plastics	Non-Metalic Mineral Products	Basic Metal Industries	Fabricated Metal, Machinery Equipment	Others
Nakhon Ratchasima	53.1	31.3	6.5	0.1	0.5	1.6	0.7	4.0	2.2
Buriram	17.6	77.4	1.2	-	0.1	0.8	0.1	0.2	2.6
Surin	22.1	69.5	6.3	-	-	0.7	0.2	1.1	0.1
Chaiyaphum	34.9	55.9	5.8	-	-	1.8	-	1.5	0.1

Source: Report of The 1997 Listing of Manufacturing Industry Establishments National Statistical Office

As data on small- and medium-sized enterprises are not fully collected by the provincial industrial office (PIO) after 1994 because the Department of Industrial Works lowered standards for factory registration, statistical data in NSO's 1997 Listing were used as the basis of estimation. Industrial composition common to the three provinces is characterized by dominant share of two industries, textile and food processing, which represent more than 90% of total. Machining and metalworking industries mainly do repairing or produce household goods. In Buri Ram, a labor-intensive wig factory and a major brand's textile factory were opened after 1992, but they are still exceptional cases.

(2) Nakhon Ratchasima

On the other hand, in Nakhon Ratchasima, industrial development started from food processing (including rice cleaning, animal feed, beverage and dairy products) and diverse industries have developed, including textile, machining, metalworking and concrete products. While the food processing industry holds a large share of 53%, the province successfully attracts diverse industries through the development of the SIZ and other efforts. Table 2.1-9 summarizes number of establishments at the SIZ by type of industries. The list includes one of the largest resin plants in the country and suppliers to automotive manufacturers operating in Bangkok. Notably, the SIZ accommodates 12 suppliers of electrical and electronic parts and components.

Table 2.1-9. TYPE OF BUSINESS IN SURANREE INDUSTRIAL ZONE

(AS of June 1999)

Food and Beverages	2
Textiles, wearing apparel and leathers	6
Paper printing and publishing	1
Chemical rubber and plastics	10
Non-metallic mineral products	1
Metalworking products	4
Machining	4
Electrical &. electronic parts including computers	12
Automobile and automotive parts	9
Others	8

Note: Not including those in commerce and service sector
Source: Suranaree Industrial Zone

2.1.2.3 Prospective Industries In the target provinces

The economic base of the target provinces is still agriculture and the manufacturing sector is dominated by the processing of farm products. Recently, the MOI has identified industries and products which have high potential in industrial development of the provincial cluster (see Table 2.1-10).

The list is based on Regional Investment Opportunity which was prepared by the Bureau of Policy and Planning, the Department of Industrial Promotion (DIP) on the basis of current data and information on each province that was collected through the IPC offices. The list was prepared as a revised version of the BPP's inventory list. While it is noted that some adjustments should be made because the development of the list at the IPC level was carried out before and after the 1997 economic crisis, the list appears to be consistent in terms of development potential. Industries identified in the list are very similar to those found by the study team through the field survey, including diversification of processing of farm products, textiles (apparel) and the fostering of suppliers in the electrical and electronics industry.

In addition to the above list, the MOI has designated products for special support (intensive promotion project), which were selected by the Bureau of Handicraft & Cottage Industries Development responsible for promotion of handicrafts and other specialty products in rural areas. Table 2.1-11 summarizes the items selected for the latest reinforcement project and associated with the target provinces. As they are fairly detailed and include those that are seemingly too small to become an independent sub-sector, they should be considered as the first step of promotion of industrialization in rural areas.

Table 2.1.10. SUMMARY OF INVESTMENT POTENTIALITY

Province	Type of Industry	Reason / Supportive Factors	Remarks
Chaiyaphum	1. Products from Mango	• Local raw material. • There is a project to promote mango plantation by public sector.	
	2. Animal Feed	• There are a lot of raw material including corn, sugar cane, tapioca, soy bean. • High potential for livestock	It should be the factories which cause no pollution.
	3. Repair and Assemble Agro-Related Machinery	Occupation of the population in this area are mostly agro-based so the demand is large.	
	4. Ready-made Clothes	• A lot of labor in the area. • Not require so high technology.	
	5. Artificial Flower	• A lot of labor in the area. • Not require so high technology.	
Nakhon Ratchasima	1. Glucose from Tapioca Flour	• Abundant of local raw material. • It is the product which support food and drink industry, medicine, and chemical products.	
	2. Metal Enameling	• To support metallic products' factories in Nakhon Ratchasima and nearby provinces. • The existing 1 factory is not sufficient.	To support the metal enameled factories that want to move out from Bangkok and Metropolitan.
	3. Maintenance of Shipping Containers	• Nakhon Ratchasima is the center for shipment between central and northeastern regions. • In the future, Inland Customer Depot will be established here.	There should be both shipping and packaging business at the same time.
	4. Electronic Parts	• There are potential semi-skilled labor. • "Inland Customer Depot" will be established here.	
	5. Ready-made Clothes	• A lot of labor in the area. • Not require so high technology.	Presently, there is one readymade cloth factory which join Rural Industry Development Project.
	6. Leather Products	• A lot of labor in the area. • Not require so high technology.	
Buri Ram	1. Shoe Parts	Local labor available.	• Should cooperate with investors from the central region who wish to move the production base. • Should focus on export-oriented production.
	2. Ready-made Clothes	• Local labor available. • It is the expanding industry for export.	• Should cooperate with investors from the central region who wish to move the production base. • Should focus on export-oriented production.
	3. Tools used in Agriculture	• Cheap labor and land price. • Agricultural sector tends to expand.	• Should cooperate with investors from the central region who wish to move the production base. • Should focus on export-oriented production especially to Indo-china region.
Surin	1. Ready-made Clothes	• Abundant of local labor and there is the formation of cooperatives. • It is the expanding industry for export.	• Should jointly invest with investors from central region or foreign partners. • Should focus on export-oriented production demand.
	2. Artificial Flower	• Abundant local labor. • It is the expanding industry for export.	• Should jointly invest with investors from central region or foreign partners. • Public sector should support training about packaging, management, and marketing.
	3. Tools used in Agriculture	• Cheap labor and land price. • Agricultural sector tends to expand. • It is expected that in the future Indo-china market will expand.	

Source: 1. Report of study on northeast's industry economics in year 1996 and trend in 1997/OIE, MOI
2. Investment Plan of each Province
Prepared by DIP: IPC6 & IPC7

Table 2.1-11. PROJECT UNDER BHCID FOR 1999

Province	Project
Chaiyaphum	- Small engine and motor cycle repairing - Artificial flower (cocoon) - Build up shuttle - Woven fabric with shuttle
Nakhon Ratchasima	- Sewing garment - Hyacinth products - Build up shuttle - Woven fabric with shuttle - Drying and blenching of cotton and silk - Woven silk fabric with native loom
Buri Ram	- Wicker wave of bamboo - Small engine repairing - Sewing garment - Woven fabric with shuttle - Tie-dye process of silk - Reed mat - Artificial flower from para rubber leaf - Reed mat product - Broom from grass - Build up shuttle - Woven silk fabrics of tie-dye process
Surin	- Sewing garment - Woven fabric with shuttle - Metal soldering - Products from cloth and other materials - Blanket

Source: Bureau of Handicraft & Cottage Industries Development, Department of Industrial Promotion, Ministry of Industry

2.1.3 Geographical Distribution of Factories and Investment in the Target Provinces

Figure 2.1-1 shows geographical distribution of factories having 100 or more employees in the provincial cluster as of 1995. Table 2.1-12 summarizes the changes in the number of establishments in each province, by size of employment, between 1994 and 1996. As clearly seen, a small number of factories are operated in all the provinces except Nakhon Ratchasima and they are mainly small in size, led by family operations. There are only eleven establishments with more than 300 employees in the three provinces other than Nakhon Ratchasima, as of 1996.

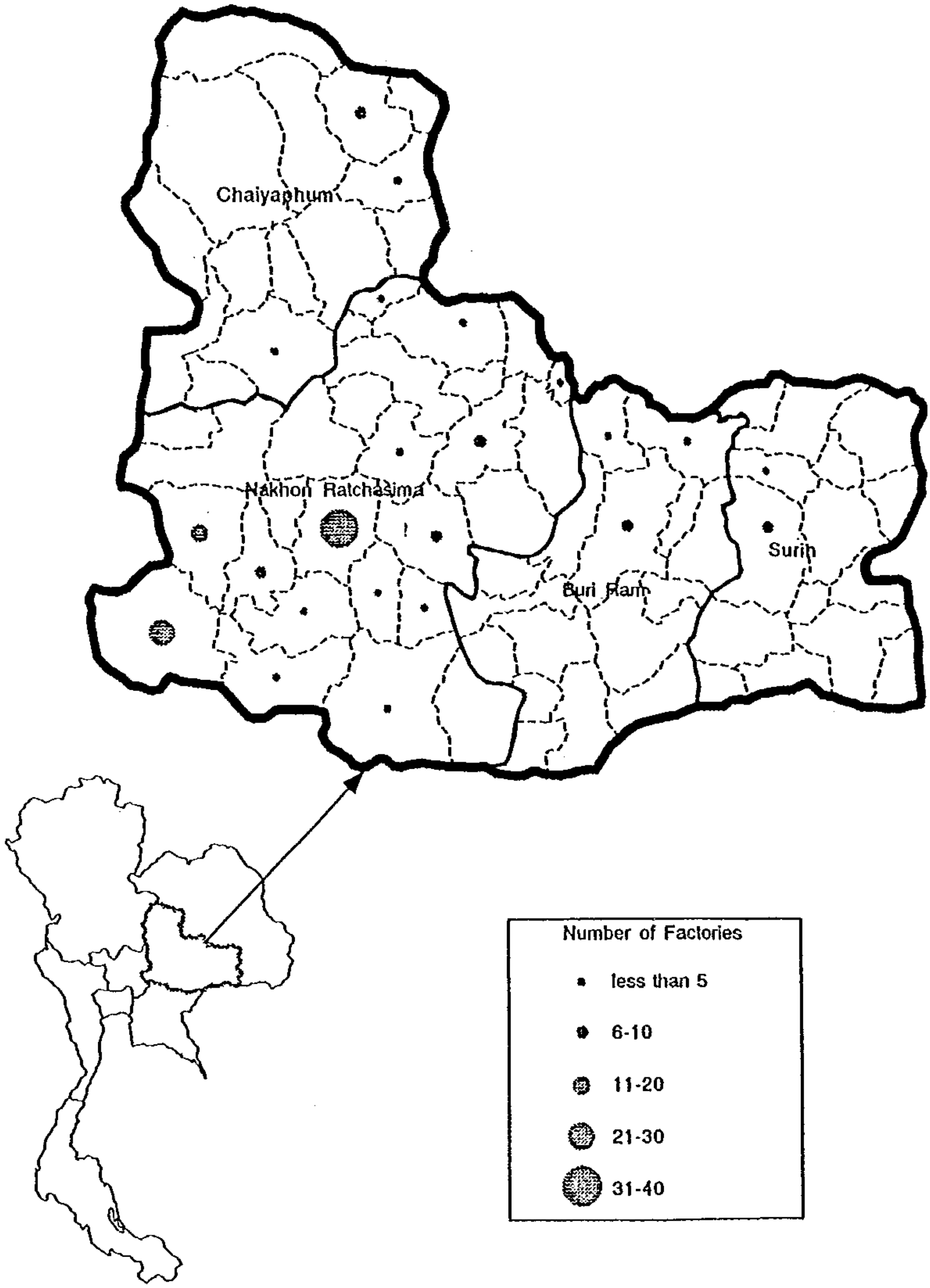
In the 1996 data, Buri Ram has the highest percentage of small enterprises having 9 or less employees, or 82.2%, which is lower than the national average of 88.5%. If a new definition of small enterprises under the SME Promotion Act - 50 or less employees - is applied, around 97% of enterprises in all the target provinces except Nakhon Ratchasima fall under it. The percentage is slightly higher than the national average. Thus, industrial composition by size of establishment in the provincial cluster follows the national trend. The major issue is, as pointed out earlier, the number of establishments in the four provinces accounts for only 3.8% of the national total, which is far below share of population (10.7%).

Then, Table 2.1-13 shows the recent investment trend in the Northeast Region, measured by the number of projects approved by BOI. Again, Nakhon Ratchasima holds a predominant share and accounts for over 50% of the regional total, in terms of both the number of projects and the amount of investment. In particular, investment in the province grew rapidly as BOI set forth policy to give priority to Zone III in 1993. The dominant position shown in Table 2.1-13 that shows the number of projects approved by BOI is confirmed from aggregate investment data between 1992 and 1998 provided by the northeast branch of the Bank of Thailand, indicating that 7,778 investment projects took place in Nakhon Ratchasima (19% of Northeast and 6% of the entire country) to create an estimated 100,000 jobs. On the other hand, none of the other three provinces had more than 2,000 projects (see Table 2.1-14).

In addition to its high rankings in land area (first place) and population (second), Nakhon Ratchasima is considered to have a strong economic power (sixth in GPP). Naturally, it is expected to play a leading role in economic development efforts for the target provinces. It should be noted, however, that a major thrust is required from the outside to promote economic development, as seen in the case of Rayong. The province is located at the same distance from Bangkok (220 - 255km) as Nakhon Ratchasima, with the same level of population density, and it received large investment (total value of BOI-approved projects) between 1992 and 1995, which is around fourteen times that made in Nakhon Ratchasima. The difference originated in the fact that the central and local governments initiated an economic development program in the province, focusing on capital-intensive, heavy industries. While local conditions are somewhat different, industrial development can be effectively promoted in the provincial cluster, with Nakhon Ratchasima as the center, by planning and implementing a development program based on the region's development potential.

Figure 2.1-1. GEOGRAPHICAL DISTRIBUTION OF FACTORIES

(Having 100 or more employees, excepting a rice milling)



Source: "Promotion of Industrial Competitiveness in the Disadvantaged Regions of Thailand" March 1997, UNIDO

Table 2.1-12. CHANGES IN THE NUMBER OF ESTABLISHMENTS

No. of Establishments and Size: Nakhon Ratchasima

Size of establishment	No. of establishments			No. of employees		
	1994	1995	1996	1994	1995	1996
1-9 employees	3,483	3,938	4,220	10,515	12,101	13,479
10-19 employees	455	565	701	6,170	7,747	9,644
20-49 employees	327	428	498	9,574	12,697	14,713
50-99 employees	128	179	196	8,744	12,091	13,344
100-229 employees	105	129	141	17,461	21,530	23,367
300-499 employees	22	22	29	8,149	8,163	10,852
500-999 employees	5	6	14	3,216	4,131	9,551
Over, 1000 employees	6	10	13	17,442	23,632	27,936
Total	4,531	5,277	5,812	81,271	102,092	122,886

No. of Establishments and Size: Chaiyaphum

Size of establishment	No. of establishments			No. of employees		
	1994	1995	1996	1994	1995	1996
1-9 employees	1,560	1,614	1,763	4,239	4,468	5,089
10-19 employees	130	161	202	1,721	2,130	2,650
20-49 employees	72	102	123	2,073	2,971	3,602
50-99 employees	33	45	49	2,157	2,984	3,208
100-229 employees	11	16	18	1,483	2,202	2,387
300-499 employees	1	-	-	412	-	-
500-999 employees	1	1	1	805	805	805
Over, 1000 employees	-	-	-	-	-	-
Total	1,808	1,939	2,156	12,890	15,560	17,741

No. of Establishments and Size: Buri Ram

Size of establishment	No. of establishments			No. of employees		
	1994	1995	1996	1994	1995	1996
1-9 employees	1,601	1,654	1,710	4,110	4,377	4,712
10-19 employees	137	145	171	1,809	1,930	2,323
20-49 employees	109	122	137	3,153	3,505	3,983
50-99 employees	27	34	35	1,797	2,271	2,365
100-229 employees	18	18	20	2,711	2,984	3,268
300-499 employees	2	1	2	665	315	785
500-999 employees	2	2	3	1,226	1,188	1,872
Over, 1000 employees	1	1	1	1,435	1,435	1,435
Total	1,897	1,977	2,079	16,906	18,005	20,743

No. of Establishments and Size: Surin

Size of establishment	No. of establishments			No. of employees		
	1994	1995	1996	1994	1995	1996
1-9 employees	1,563	1,575	1,588	5,402	5,503	5,635
10-19 employees	179	189	208	2,415	2,561	2,836
20-49 employees	119	127	152	3,454	3,739	4,327
50-99 employees	29	36	36	1,900	2,696	2,637
100-229 employees	13	13	17	1,882	1,877	2,383
300-499 employees	5	4	4	1,797	1,379	1,264
500-999 employees	-	-	-	-	-	-
Over, 1000 employees	-	-	-	-	-	-
Total	1,908	1,944	2,005	16,850	17,755	19,082

(Source: Year Book of Labor Statistics 1992-1996, Ministry of labor and Social Welfare)

Table 2.1-13. BOI APPROVED PROJECTS IN THE TARGET PROVINCES (as of Dec. 1999)

	Section 1		Section 2		Section 3		Section 4		Section 5		Section 6		Section 7		Total	
	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment	No.	Employ-ment
Nakhon Ratchasima	65	11,569	24	3,068	78	33,177	67	9,954	42	49,221	60	10,290	31	3,831	367	121,110
Chaiyaphum	6	427	0	0	6	3,652	2	318	0	0	4	1,445	2	375	20	6,217
Buri Ram	2	60	0	0	10	3,438	1	139	0	0	0	0	7	1,259	20	4,896
Surin	3	1,425	0	0	3	568	0	0	1	61	2	64	4	781	13	2,949

Source: BOI

Table 2.1-14. TOTAL INVESTMENT PROJECTS IN THE TARGET PROVINCES (as of Dec. 1998)

	Projects	Employment	Amount (mil)
Nakhon Ratchasima	7,778	100,020	47,376
Chaiyaphum	1,776	11,326	5,372
Buri Ram	1,565	12,242	2,569
Surin	1,379	7,468	2,217

Source: Bank of Thailand, North-eastern Office

2.1.4 Industrial Resources in the Provincial Cluster

2.1.4.1 Farm products

Major industrial resources available in the provincial cluster are classified into farm products and mineral resources. First of all, the target provinces have major producers of rice, sugar cane, cassava and corn and process rice and cassava (to make tapioca) locally. Table 2.1-15 lists the country's major farm products in order of production (value), and their breakdown by province. As clearly seen in these tables, major products in the provincial cluster are also often the country's key farm products. Furthermore, a radish in Surin and a chili in Chaiyaphum are famous as a specialty in rural area.

Table 2.1-15. TEN MOST IMPORTANT AGRICULTURAL PRODUCTS IN THAILAND AND IMPORTANT PRODUCING PROVINCES

Unit: million baht

Rank	Agricultural proudct	Estimated farm value
1	Paddy rice	104,884.2
2	Smoked rubber sheet	64,158.9
3	Sugar cane	22,378.0
4	Cassava roots	17,040.2
5	Maize, shelled	16,827.8
6	Oil palm	4,622.8
7	Garlic	2,060.8
8	Soy bean	3,338.9
9	Conconut	3,119.9
10	Coffee bean	3,050.9

Unit: ton

Rank	Province	Production	% of total
Paddy Rice		Crop year 1995/1996	
1	*Nakhon Ratchasima*	876,813	4.9%
2	*Buri Ram*	798,158	4.5%
3	*Surin*	763,871	4.3%
4	Ubon Ratchathani	748,398	4.2%
5	Si Sa Ket	690,658	3.9%
6	Nakhon Sawan	611,482	3.4%
7	Kamphaeng Phet	592,139	3.3%
8	Roi Et	581,138	3.3%
9	Chai Nat	573,372	3.2%
10	Phetchabun	516,650	2.9%
	Others	10,975,938	61.9%
	Whole kingdom	17,728,617	100.0%
Sugar cane		Crop year 1995/1996	
1	Kanchanaburi	6,484,032	11.2%
2	Suphan Buri	6,185,052	10.7%
3	Kamphaeng Phet	4,828,730	8.3%
4	Udon Thani	4,786,197	8.3%
5	*Nakhon Ratchasima*	3,914,600	6.8%
6	*Chaiyaphum*	3,830,806	6.6%
7	Nakhon Sawan	3,625,560	6.3%
8	Khon Kaen	2,762,924	4.8%
9	Ratchaburi	2,561,802	4.4%
10	Chon Buri	2,268,616	3.9%
	Others	16,725,441	28.9%
	Whole kingdom	57,973,760	100.0%
Cassava		Crop year 1996	
1	*Nakhon Ratchasima*	3,994,860	23.0%
2	*Chaiyaphum*	1,183,860	6.8%
3	Chachoengasao	861,810	5.0%
4	Sa Kaeo	797,102	4.6%
5	Kamphaeng Phet	789,171	4.5%
6	Kalasin	745,010	4.3%
7	Udon Thani	734,967	4.2%
8	Khon Kaen	622,833	3.6%
9	Chon Buri	603,142	3.5%
10	Rayong	549,321	3.2%
	Others	6,506,124	37.4%
	Whole kingdom	17,387,780	100.0%
Maize		Crop year 1995/1996	
1	Phetchabun	794,883	19.1%
2	*Nakhon Ratchasima*	424,697	10.2%
3	Lob Buri	408,695	9.8%
4	Sa Keo	325,539	7.8%
5	Nakhon Sawan	289,045	7.0%
6	Loei	278,983	6.7%
7	Saraburi	164,867	4.0%
8	Tak	156,111	3.8%
9	Chiang Rai	134,458	3.2%
10	Kamphaeng Phet	129,685	3.1%
	Others	1,047,555	25.2%
	Whole kingdom	4,154,518	100.0%
Kenaf		Crop year 1994/1995	
1	Si Sa Ket	17,921	17.1%
2	Udon Ratchathani	16,018	15.3%
3	*Chaiyaphum*	14,519	13.9%
4	*Surin*	10,920	10.4%
5	*Nakhon Ratchasima*	7,355	7.0%
6	Sa Kaeo	6,104	5.8%
7	Yasothon	5,051	4.8%
8	*Buri Ram*	4,370	4.2%
	Whole kingdom	104,744	100.0%

Source: Thailand in Figures 1998-1999, Alpha Research Co., Ltd.

In addition, the provincial cluster is a major production area for kenaf and eucalyptus which can be grown in infertile land and contains plant fiber which can be used for commercial purposes. At present, they are used as raw materials for textile, woodworking and paper making. The provincial cluster produces a variety of fruits which are generally grown in other parts of the country, such as coconut, banana and papaya, while no specialty product is available. On the other hand, palm oil is not produced widely as it is primarily produced in the southern region.

The southern part of Buri Ram produces another commercially valuable farm product,. i.e., rubber. With a relatively short history of cultivation, fully-grown rubber trees are still small in number compared to the south. The cultivation area has reached 50,000 rai (800,000 km2). At present, rubber is shipped to Sara Buri in form of sap and little processing is carried out within the province. In Nakhon Ratchasima, silk textile is produced in Pak Thong Chai and silk fibers are locally produced in small quantities, but most comes from the northern region such as Phet Cha Bun.

All the target provinces boast large poultry production. In the southern part of Nakhon Ratchasima, livestock farming is carried out extensively and beef is processed and shipped to other provinces. Some area in Buriram and Surin is known for sausage production, most of which is made at farm by using manual labor. There are few ham and sausage factories having large production capacity.

Table 2.1-16. PRODUCTION OF LIVESTOCK AND POULTRY

Unit: number of head

	Buffaloes		Cattle		Swine		Broiler		Native Chicken	
	1997	%*	1997	%	1997	%	1997	%	1997	%
Nakhon Ratchasima	15,879	5.5	81,920	7.2	387,759	3.5	11,593,921	1.6	4,338,866	4.7
Buri Ram	30,042	10.3	33,444	2.9	355,147	3.2	2,095,093	0.3	3,776,492	4.1
Surin	17,186	5.9	25,636	2.3	136,720	1.2	637,818	0.1	2,640,135	2.9
Chaiyaphum	18,775	4.7	24,525	2.2	161,633	1.5	798,910	0.1	2,749,931	3.0

Note: * the ratio of a province to the national total
Source: National Statistics Office

2.1.4.2 Mineral resources

Major mineral resources available in the target provinces are rock salt, potash, marble, and gravel for construction use. Gypsum and brown coal are also available in limited quantities. Table 2.1-17 and 2.1-18 lists major mineral resources available in the Northeast Region and mineral production in Nakhon Ratchasima, based on the 1995 industrial statistics of the region. Rock salt is available throughout the region, and Chaiyaphum and Nakhon Ratchasima produce relatively large amounts. In Buri Ram and 1.5 million, a large amount of basalt rock is deposited in the old volcanic area and is used for reinforcement of concrete pavement. In 1999, approximately 2.4 million tons of basalt rock were produced at nine locations in Buri Ram and Surin respectively.

In conclusion, farm products and mineral resources that can be used for industrial production are relatively abundant in Chaiyaphum and Nakhon Ratchasima, while Surin and Buri Ram produce a limited number of items, such as rice, kenaf and gravel, in large quantities.

Table 2.1-17. PRODUCTION OF PRINCIPAL MINERAL IN NORTHEASTERN

Unit: tons

Kind of mineral	1991	1992	1993	1994
Anthracite	14,300	22,000	15,500	11,900
Barite	85,120	12,923	12,300	16,892
Barite (Chemical grade)	10,360	9,350	13,000	11,140
Barite (Drilling mud grade)	10,200	10,400	5,000	11,012
Dolomite (Limestone)	-	-	-	93,000
Granite	7,383	1,552	1,771	587
Iron	-	-	-	44,270
Limestone (Ornamental)	-	-	-	400
Limestone (Other industries)	91,500	103,000	122,000	137,000
Manganese (Battery grade)	1,326	1,179	737	866
Marble	22,027	26,622	25,684	24,463
Rock salt	124,500	212,750	261,612	287,806

Source: Department of Mineral Resources, MOI

Table 2.1-18. PRINCIPAL MINERAL IN NAKHON RATCHASIMA

Unit: tons

Kind of mineral	1991	1992	1993	1994
Dolomite (limestone)	-	-	-	93,000
Granite	-	-	-	242
Limestone (Ornamental)	-	-	-	400
Limestone (Other industries)	91,500	103,000	122,000	137,000
Marble	22,027	26,622	25,684	24,463
Rock salt	124,500	212,750	261,612	287,806

Source: Department of Mineral Resources, MOI

2.2 Policies and Implementation Mechanism for Regional Industries Development

2.2.1 Promotion of SMEs and Regional Industries Development

The Thai government enacted the SMEs Promotion Act in February 2000, which sets forth a basic guideline for policymaking, budgeting and programming related to the fostering of SMEs throughout the country. The act mandates the establishment of the SMEs Promotion Office that is currently underway. The SMEs Development Master Plan has been reviewed at the cabinet meeting on April 11, 2000. Functionally, the SMEs Promotion Act forms a general framework for SMEs promotion policies and programs, while the SMEs Development Master Plan prescribes strategies, goals and actions at operationalized levels. For instance, Section 4 of the act designates development of regional, rural and community-based SMEs as the scope of coverage, but it does not shows a specific direction of actual promotion, which is instead established in the master plan, as follows:

<u>Promotion of Regional SMEs</u>

Direction I: Fostering of microenterprises and rural industries, and support for startup

(1) Fostering of microenterprises in rural areas by using management resources of large enterprises;
(2) Establishment of incubation centers in rural regions;
(3) Establishment of a financial support for start up companies (Start-up Fund) through the special finance institution using the SMEs promotion Fund or the Bank of Thailand;
(4) Use of venture capitals to meet the financial needs of small businesses in rural regions; and
(5) Development of information resources related to investment opportunities in rural regions.

Direction II: Promotion of productive use of traditional expertise and resources owned by microenterprises and rural industries

(1) Advisory services for product development, product design and packaging technology; and

(2) Dissemination of knowledge on the above and the sponsoring of seminars and workshops.

Direction III: Improvement of management capabilities and support for participation in public program

(1) Enhancement of training program and advisory services;
(2) Development of the Entrepreneurship Development Program designed for the local entrepreneur and community-based enterprises;
(3) Promotion of registration and tax incentive (exemption of corporate tax for five years); and
(4) Promotion of joint procurement of raw materials, storage, packaging and transportation.

Direction IV: Promotion of group and cooperative activities

(1) Support for establishment of an organization representing microenterprises;
(2) Expansion of the role of the trade association; and
(3) Strengthening of support organizations in terms of function and capability.

While the SMEs Development Master Plan has still to be approved by the cabinet and it may not be implemented as it is, it certainly proposes a set of right directions that development efforts should take, as derived from the analysis of the current state. These directions are very useful in formulating recommendations in this study.

Traditionally, SME policy in Thailand has been focused on small- and medium-scaled industries (SMIs), which are mainly located in and around Bangkok Metropolitan Region. Some criticize that the traditional policy primarily takes care of SMEs in urban areas, while effectively neglecting those in rural regions. As these two groups of SMEs face different problems to be overcome, while sharing some, and the future SMEs promotion policy should address the local needs from the standpoint of promoting rural and community-based industries.