

8.3.2 Feature of the Industrial Town

Organization of I-san is divided by three regions by each Ministry and Agency, because of the supporting system of hierarchy. Roughly speaking, southwest center and gate city is Nakhon Ratchasima, southeast center is Ubon Ratchathani and Northwest center is Khon Kaen. Four provinces in northeast I-san are divided into two groups. Nakhon Phanom and Mukdahan belong to Ubon Ratchathani of the Southeast and Sakon Nakhon and Kalasin belong to the Khon Kaen of Northwest center. Since the four provinces are far from the center city, they could not receive full support from the center. Even that Khon Kaen and Ubon Ratchathani are the centers of the regions, they themselves also require economic support. Eventually, four provinces should be developing themselves (see Figure 8.9).

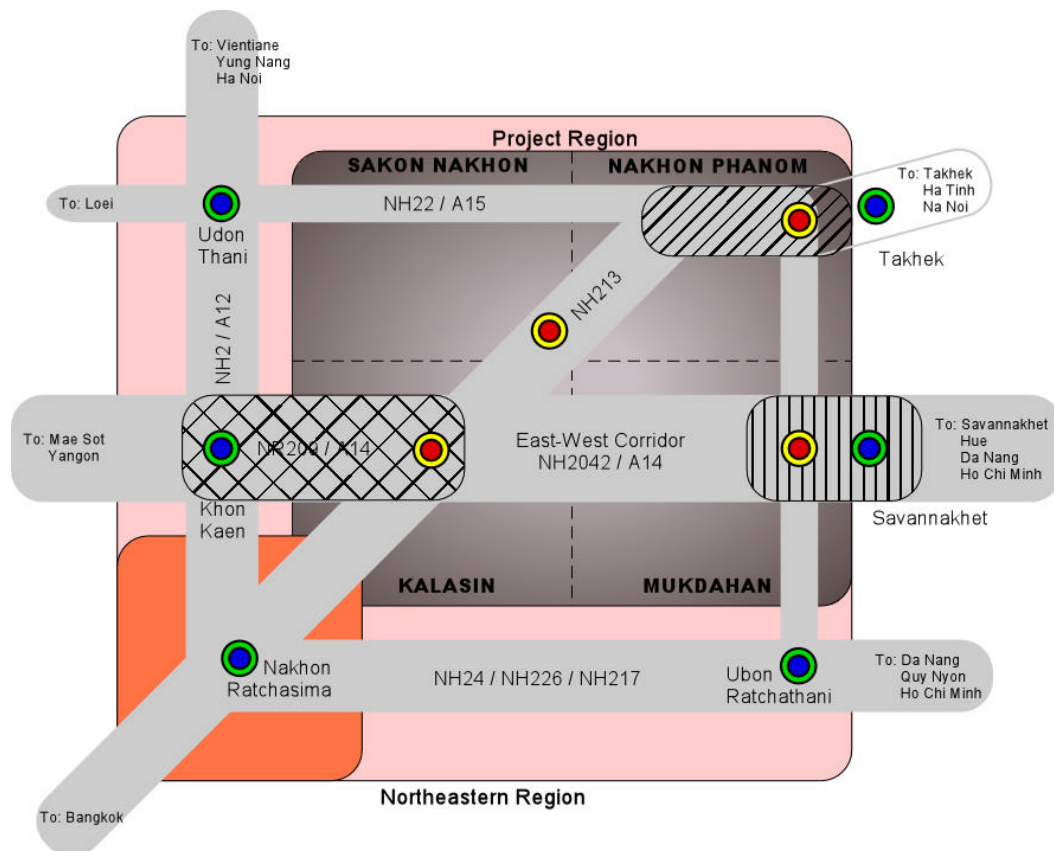


Figure 8.9 Functions of Four Provincial Towns

But a careful consideration of this region indicates that I-san region should be divided into four sub-regions. Northeast region of four provinces should be joined together and establish a new regional community. Sakon Nakhon should be considered as the center because of the following reasons:

- Sakon Nakhon is the biggest economic town among the four provinces;
- It is the geographical center among the four provinces;

- It has a well-developed industrial infrastructure of airport and road network among the four provinces; and
- Sakon Nakhon has a potential for Agro-Science City with agricultural activities of R&D institute and universities.

On the other hand, the other provinces have potentials as follows:

- Nakhon Phanom has a dual-potential for footloose industries using its airport facility and for northeastern gate city to Laos and north Vietnam;
- Mukdahan will have a 2nd international Mekong bridge in 2004 and function as the eastern gateway city to Laos/Vietnam and People's Republic of China; and
- Kalasin can be the satellite city of Khon Kaen because of its location and has a potential for receiving supporting industries and tourism industries.

8.3.3 New Trend of Industry

Biggest revolution of Japanese manufacturing business are: 1) relocation overseas of the mass production processing line, 2) inter manufacturing system in big companies and 3) new movement of rearrangement and resettlement for supporting industry. A number of Japanese companies have relocated to Thailand and have set up a manufacturing network in the Asian region.

Recently, a second production revolution occurred, namely: 1) reevaluation of skilled workers of SMI, 2) reevaluation of elder technicians of LSI, 3) mobilization of researchers, 4) mobilization of overseas experienced workers, 5) restoration of craftsmanship for hand-made and 6) importance of utilizing only one technology. Japanese manufacturing industries are awakening interest in restructuring of manufacturing industry.

However, the basic strategy and policy of Japanese industries continually keep to the following policies:

- Favorable attitude in business for the local people and government;
- Meet with the national industrial policy;
- Lead the transfer of technical knowledge;
- Strengthen the international competitiveness;
- Reinvestment to the local area; and
- HRD for the workers.

Moreover, sale of a newly developed product is carried out simultaneously in the world market. It means that there is no time lag for sales promotion between

developing countries and developed countries. Industrial development is occurring all at the same time and even rural areas can influence industrial competition.

On the other hand, even SMI has an “One Village, One Product” movement from Oita Japan. This movement is being adopted in developing countries and areas, however its three fundamentals of existence are the same as the LSI principle. They are:

- Local but think global (with local character but internationally appealing);
- Autonomy and independence for innovation (to be decided locally); and
- HRD (creation of leader who has innovative mind).

In today’s world, even C&FI and SMI need innovators to lead the manufacturing industry, which is shifting from the scale merits economies to become niche industries employing a small number of people but utilizing high technology.

8.3.4 Direction of Local Industry

Basically, the development direction of the local industry has to consider the industrial functions and targets. Those functions and targets are: 1) final firm which produce final product and/or stage firm which produce parts and components for the final products, 2) footloose industry namely labour intensive industry and/or local-based industry namely resources based industry and 3) aiming to local market and/or big market/export market.

Product of stage firm is easy introduction to the I-san region, because it has a big market compared with the final firm. However, final firm is stronger than stage firm because the former goes directly to markets. Those products are as follows:

- Final firm: sausage, garments, bamboo product, flooring and milk; and
- Stage firm: sugar, tapioca, tomato puree, wood timber and textile.

Labor-intensive industries located near BKK are starting to relocate their factories to areas and countries where labor cost is cheaper. If the four provinces received labor-intensive industries, the following types of industry would be possible in this region:

- Footloose industry: gems and silver, garments, and assembling of components (print circuit board); and
- Local-based industry: sugar, tapioca, canned tomato, canned fruit and rubber.

Local market is the low value and low quality market, however big market/export market is high value and high quality. Although aimed to the local market, quality should be developed high value. Those products are as follows:

- Local market: iron knives and bamboo baskets; and
- City/export market: garments, tomato pure and sausage.

These products are dependent on the market demand and the market demand easily changes based on customer's taste. So manufacturing companies should have a very close relationship with market, otherwise, they cannot survive. Moreover, manufacturing companies should have a lot of related information, namely, raw material, manufacturing technology, new products and market information.

With regard to the possibility of manufacturing activity in the study area by type of firm, type of manufacturing industry and market from the viewpoint of internal activity and external activity, there are several potential industries and businesses could be listed in the table below (see Table 8.22).

Table 8.22 Target Industries by Activity, by Market

Item	Local Market	Big market /Export Market
From Internal Activity	Import Substitution	Niche Industry
	Local-resource-based Industry	Final Firm
	Stage firm	Export Oriented
From External Activity	Trade Business	Footloose Industry
	New Product Business	Direct Investment

Considering about going concern for business work, the choice of activities should be based on the internal activity and the choice of market should be aiming to the big market/export market. The result of choices of industries are summarized as follows:

- Niche industry aiming to the niche market;
- Newly developed product for niche market up on the R&D activities to use local materials;
- Export and/or souvenir market related to export oriented industries; and
- Labor intensive industry.

During the study period, existing marketable products and new potential products are identified. However, renovation and/or R&D are necessary to meet the market demand and customer's taste. Moreover, the local resources of Northeastern Region have their limitation. Therefore, how to effectively utilize raw material should be considered as shown by each highlighted group in the Table 8.23 (1/3 to 3/3).

Table 8.23 (1/3) One Hundred Business Opportunities for NBR

Resource		No.	Product	Method of Processing	Major Market	Constraints	Suitable Location			
Classification of Business Field (1)	Classification of Business Field (2)						NP	SN	MH	KS
Silviculture Product	bamboo	1	fishing rod	drying, figuration and weaving	local and tourism	demand from tourists			#	#
		2	bamboo teeth pick and chopsticks	drying and shaving	local	sophistication of the design and product	#		#	#
		3	bamboo charcoal for filtration	dry and fumigation	local	application of advanced technology				#
		4	musical instruments	drying, carving and assembling	local and tourism	to make an appropriate lots of special species	#			#
		5	cage, basket, mat and fishing boat	drying, figuration and weaving	local	sophistication of the products	#	#	#	#
		6	bamboo paper	crushing and pulping	local	sophistication of the products, marketing	#		#	#
		7	bamboo shoot	boiling and canning	export and local	sophistication of the products, marketing	#		#	#
	rubber tree	8	para wood natural rubber	chemical processing	local and export	sophistication of the products	#	#	#	#
		9	parawood furniture	thermal-fumatorium with chemical	local and export	sophistication of the products	#	#	#	#
		10	rubber resin for sealing	chemical processing	local	imported other materials needed from Lao	#	#	#	#
	teak tree	11	rubber belt, tube, engineering rubber	drying, sawing and assembling	local and export	sophistication of the products	#	#	#	#
		12	teak furniture, table ware	drying, sawing, cutting and carving	local and tourism	sophistication of the products	#			#
		13	dinosaurs curving	drying and curving	local and tourism	sophistication of the products	#			#
		14	puzzle	cut, carving and coloring	local and tourism	creation of new design and idea	#			#
	eucalyptus	15	eucalyptus chip for paper	wood chipping and pulping	local and export	quality control	#	#	#	#
		16	eucalyptus charcoal for filtration	cutting and fumigation	local	sophistication of the products	#	#	#	#
		17	road pavement by eucalyptus chip	chipping and chemical processing	local	creation of new markets	#	#	#	#
	coconut tree	18	spoon	drying, cutting and carving	local and truism	sophistication of the products	#	#	#	#
		19	bowl	drying, cutting and carving	local and truism	sophistication of the products	#	#	#	#
		20	coconut charcoal	cutting and fumigation	local	diffusion of new technology	#	#		#
		21	coconut milk	peeling, mixing and extracting	local	competitiveness of existing manufacturers	#			#
	coffee tree	22	coffee	drying and roasting	local	marketing and promotion				#
		27	mulberry paper	peeling and pulping from jute	local and tourism	requirement of numbers of tourists		#	#	#
		28	mulberry paper for packaging	peeling and pulping from jute	local and tourism	to make strong and soft		#	#	#
		29	mulberry wine	brewing	local and export	commercialization and stable market		#	#	#
	mulberry tree	30	mulberry tea	selection and drying	local	advertisement of health		#	#	#
		31	silk textile and sewing	filature and textile	local, export and tourism	new design and small product		#	#	#
		32	silk garments	cutting and sewing	local and export	sophistication of the products		#	#	#
		33	silk towel and socks with protein	cutting and sewing	local and export	new technology		#	#	#

Note: NP=Nakhon Phanom, SN=Sakon Nakhon, MH=Mukdahan and KS=Kalasin

Table 8.23 (2/3) One Hundred Business Opportunities for NBR

Resource		No.	Product	Method of Processing	Major Market	Constraints	Suitable Location			
Classification of Business Field (1)	Classification of Business Field (2)						NP	SN	MH	KS
Orchard Product	mango	34	juice, jam, ice cream and seasoning	mixing and canning	local and export	competitiveness of existing manufacturers	#	#	#	#
	litchi	35	juice, jam, ice cream and seasoning	mixing and canning	local and export	competitiveness of existing manufacturers	#	#	#	#
	mangosteen	36	juice, jam, ice cream and seasoning	mixing and canning	local and export	competitiveness of existing manufacturers			#	#
	rambutan	37	juice, jam, ice cream and seasoning	mixing and canning	local and export	competitiveness of existing manufacturers			#	#
	longan	38	juice, jam, ice cream and seasoning	mixing and canning	local and export	competitiveness of existing manufacturers	#	#	#	#
	tamarind	39	juice, jam, ice cream and seasoning	mixing and canning	local	competitiveness of existing manufacturers	#	#	#	#
Herbal Product	cotton	23	natural dyeing	extraction and evaporation	textile market	standardization of the color	#	#	#	#
		24	cotton textile and sewing	filature and textile	local and export	sophistication of the products	#	#	#	#
		25	cotton garment	cutting and sewing	local and export	sophistication of the products	#	#	#	#
		26	cotton swab	spooling	local	sophistication of the products	#	#	#	#
	reed	40	reed miniature model	weaving	local and tourism	sophistication of the products	#	#	#	#
		41	reed mat	weaving	local and export	sophistication of the products	#	#	#	#
		42	kenaf paper	pulping	local	sophistication of the products	#	#	#	#
aloe	43	aloe shampoo	chemical processing	local	sophistication of the products, marketing	#	#	#	#	
jute	44	rope	dyeing and weaving	local	sophistication of the products, marketing				#	
medicinal herb	45	traditional medicine	extraction and blending	local	import from Laos and new technology	#	#	#	#	
Vegetable Product	tomato	46	tomato paste	cutting, mixing and canning	export and local	sophistication of the products, marketing	#			
	asparagus	47	canned asparagus	boiling and canning	export and local	sophistication of the products, marketing				#
	mushroom	48	mushroom juice	boiling and canning	local	sophistication of the products, marketing		#		
		49	dried mushroom	cutting and drying	export and local	sophistication of the products, marketing		#	#	#
	peanut	50	peanut oil	extraction	export and local	sophistication of the products, marketing	#	#	#	#
		51	peanut confectionery	drying and mixing	local	sophistication of the products, marketing	#	#	#	#
	soybean	52	soybean oil	extraction	local	sophistication of the products, marketing	#	#	#	#
		53	soybean sauce	boiling and bottling	local	sophistication of the products, marketing	#	#	#	#
	sweat corn	54	canned sweat corn	boiling and canning	export and local	sophistication of the products, marketing	#	#	#	#
	55	snack	mixing and fry	local	sophistication of the products, marketing	#	#	#	#	
banana	56	banana chip	cutting and drying	local	competitiveness of existing manufacturers	#	#	#	#	
cantaloupe	57	cantaloupe juice, jam, ice cream	cutting, mixing and canning	local	competitiveness of existing manufacturers	#	#	#	#	
Major Crop	rice & sticky rice	58	conical hat	thresh and weaving	local and export	sophistication of the products	#	#	#	#
		59	rice noodle	thresh, mixing and bending	local	sophistication of the products	#	#	#	#
		60	fodder	mixing and bending	local	sophistication of the products	#	#	#	#
		61	rice cracker	flouring, drying and grilled	local and export	sophistication of the products	#	#	#	#
		62	rice husk for fuel (briquet)	drying and molding	local	sophistication of the products	#	#	#	#
		63	rice wine	brewing	local and export	sophistication of the products	#	#	#	#

Note: NP=Nakhon Phanom, SN=Sakon Nakhon, MH=Mukdahan and KS=Kalasin

Table 8.23 (3/3) One Hundred Business Opportunities for NBR

Resource		No.	Product	Method of Processing	Major Market	Constraints	Suitable Location			
Classification of Business Field (1)	Classification of Business Field (2)						NP	SN	MH	KS
Major Crop	cassava	64	tapioca flour	drying and flouring	local and export	sophistication of the products	#	#	#	#
		65	chips, waffle, cracker, bread	kneading and cooking	export and local	sophistication of the products	#	#	#	#
		66	carriage container, dish, planter pot	drying, molding and pressing	export	necessity of new technology with lower cost	#	#	#	#
		67	tapioca fodder	cutting and drying	local	low price and profits	#	#	#	#
	sugarcane	68	citric acid	extraction	local and export	sophistication of the products	#	#	#	#
		69	sugar	compression and drying	local and export	low profits	#	#	#	#
		70	bagasse paper for agri-land cover	drying, chipping and pulping	local	necessity of new technology with lower cost	#	#	#	#
		71	particle board	drying, chipping and shaping	local	necessity of new technology with lower cost	#	#	#	#
		72	fodder	drying and chipping	local	necessity of new technology with lower cost	#	#	#	#
		73	packaging material	drying, chipping and shaping	local	necessity of new technology with lower cost	#	#	#	#
Fishery Product	fresh water fish	74	fertilizer	waste water from sugar process	local	contract with farmers	#	#	#	#
		75	tilapia grill, fry or ferment	cutting and frying	local	sophistication of the products	#	#	#	#
		76	paste (tilapia, catfish)	boiling and mixing	local	sophistication of the products	#	#	#	#
		77	fish sausage	boiling, mixing and shaping	local	sophistication of the products	#	#	#	#
		78	fodder	boiling and mixing	local	sophistication of the products	#	#	#	#
Livestock Product	poultry	79	fresh water shrimp	boiling and mixing	local	sophistication of the products	#	#	#	#
		80	natural chicken meat	boiling and canning	local	sophistication of the products	#	#	#	#
	cow	81	beef meat	cutting and drying	local	sophistication of the products	#	#	#	#
		82	pet food	cutting and molding	local and export	sophistication of the products	#	#	#	#
		83	handbag, shoe, belt making	cutting and molding	local and export	sophistication of the products	#	#	#	#
		84	milk	extraction	local	school dole	#	#	#	#
		85	yogurt and cheese	fermentation	local	limited market (new generation only)	#	#	#	#
86	ice cream	mixing and icing	local	sophistication of the products	#	#	#	#		
Chemical Product	plastic	87	plastic products	plastic molding and injection	local	high replicability	#	#	#	#
		88	plastic tape basket	weaving	local and export	sophistication of the products	#	#	#	#
		89	fishing net	weaving	local	sophistication of the products	#	#	#	#
Metal Product	iron	90	tableware, knife, plow, etc.	forging	local	sophistication of the products	#	#	#	#
	machinery	91	machine parts, pump, spring	casting	local	necessity of high-tech	#	#	#	#
Clay Product	earthen ware	92	giant pottery of water jar with tap	shaping and burning	local and tourism	limited variety and quality of design	#	#	#	#
		93	dinosaurs earthenware	shaping and burning	local and tourism	sophistication of the products	#	#	#	#
Other Industry	electronics	94	print circuit board	setting and soldering	local	necessity of high technology	#	#	#	#
	hair care	95	wig	dyeing and setting	local and export	sophistication of the products	#	#	#	#
	footwear	96	shoes	cutting and adhesion	local	newly design	#	#	#	#
	vein leaf	97	artificial flower	cutting and adhesion	local and export	sophistication of the products	#	#	#	#
Service Industry	agro-factory	98	organic vegetables	hydroponics or sandponics	local and tourism	sophistication of the products	#	#	#	#
	amusement	99	eco-tourism	qua house and tourism business	local and tourism	selection of attractive concept of eco-tourism	#	#	#	#
	service	100	illumination business	lighting technology	local	necessity of new lighting design technology	#	#	#	#

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8.3.5 Direction of Local Industries by Provinces

Based on the preliminary findings described in the former sections, the possibilities of establishment of manufacturing industries base in each province are investigated. Some ideas of industrial development strategies for each province are describes as follows:

(1) Nakhon Phanom

Nakhon Phanom will become the eastern gateway town to Laos/Vietnam and the industrial base of footloose industries with its airport facility.

- Establishment of the “Border Industrial City of Nakhon Phanom”;
- Establishment of industrial area for labor intensive industry and SMI;
- Promotion of agro-industrial business;
- Application of new special incentives to manufacturing industries by government;
- Up-grading of airport for industrial activity;
- Transition of industrial area to free trade zone in the future; and
- Implementation of 3rd Mekong Bridge in the future.

(2) Sakon Nakhon

Sakon Nakhon will act as the geographical center of northeast I-san region and also the support center for agricultural research activity and manufacturing industrial activities with universities and R&D institutes.

- Establishment of the “Agro-Science City of Sakon Nakhon” as a regional center;
- Promotion of agro-industrial business;
- Promotion of manufacturing industries as a whole;
- Invitation of university branches;
- Invitation of R&D institute for agro-industry;
- Establishment of the agro-technology institute for niche industry of agriculture; and
- Establishment of industrial development center for supporting industries.

(3) Mukdahan

Mukdahan will be the eastern “gateway town” to Laos/Vietnam/People’s Republic of China through the 2nd Mekong Bridge and the distribution manufacturing base of special economic zone.

- Establishment of the “Border Trade City of Mukdahan”;
- Establishment of distribution industrial zone;
- Promotion of trade business;
- Promotion of agro-industrial business;
- Expansion of the road to Khon Kaen/Kalasin/Sakon Nakhon/Nakhon Phanom;
- Establishment of new international trading system between Thailand and Laos/Vietnam;
- Creation of new special trade system on raw material exchange; and
- Migration system for foreign workers.

(4) Kalasin

Kalasin is to be the satellite town of Khon Kaen and its supporting industries and location of the tourism base in the northeast region.

- Establishment of the “Green Industrial City of Kalasin”;
- Invitation to supporting industries of Khon Kaen;
- Promotion of agro-industrial business;
- Setting up the tourism industry system; and
- Creation of new souvenir items.