

6. DEVELOPMENT STRATEGIES

6.1 Strategy 1: Natural Resource and Land Use Management

6.1.1 Rationale and Objectives

The natural system of the NBR has been damaged by deforestation in particular. It has resulted in floods, soil erosion and saltation problems. However, the deterioration of the natural system has not reached a fatal level yet, and the environmental system of the NBR is still functioning. It is, accordingly, crucial to maintain and rehabilitate the current environmental system as basis of human activities, while lessening environmental burdens due to excessive agricultural land expansion and population increase.

Under this recognition, a natural and environmental resource management strategy should be addressed for sustainable utilization of natural resources, taking the following actions:

6.1.2 Proposed Actions

(1) Forest Conservation

In order to conserve existing forests in the protected areas, forest-based economic activities should be properly promoted in the buffer areas with a system whereby the community can use forest resources sustainably for livelihood purpose. At the same time, reforestation activities should be focused first on the protected areas, then the reforestation should be expanded to the idle lands in the long-term. The program includes:

- Conservation of forests in protected areas;
- Management of agro-forestry in buffer areas;
- Facilitation of reforestation activities; and
- Implementation of community forest program for preservation of over-utilization of land in hilly areas.

(2) Soil Conservation

NBR has two sorts of problem regarding soil such as soil erosion and saltation. Soil erosion is mainly caused by deforestation and over-utilization of the deforested area. To prevent over-utilization by agricultural development, community forests program should be promoted in the forested, hilly areas.

On the other hand, soil saltation is caused by evaporation of infiltrated water into the underground through capillary action. Since this problem is very critical for deteriorating farmlands and is expected to spread widely, it is necessary to take action like the following countermeasures in accordance with current situations and conditions:

- Implementation of Community Forest Program to mitigate/ avoid over-utilization of land in the hilly areas;
- Improvement of drainage system; and
- Improvement of soil and farming methods.

(3) Water Quality Conservation

In the short term, water quality management should focus on reducing pollutants by countermeasures against the increased amount of waste and wastewater under careful monitoring. In the long run, on the other hand, urban growth management will be of great importance to structurally change the city to create an “environment-friendly city.” In this sense, water quality management should be carried out from the following four dimensions:

- Urban growth management;
- Reduction and monitoring of effluents into Mekong River, Songkram Rivers, and Nong Han and Lam Pao Reservoirs;
- Expansion of wastewater treatment facilities in Sakon Nakhon, Nakhon Phanom, Mukdahan and Kalasin; and

- Encouragement of community participation for water quality conservation.

(4) Land Use Management

1) Land Use Zoning

Agricultural diversification and crop conversion are the essential policy for agricultural development in the NBR. The areas cultivating cassava and sugarcane are the target areas for the agricultural diversification and conversion. It is also essential that the farmers continue cultivating rice in order to satisfy a basic need for them to be self-sufficient in food. On the other hand, forested areas as well as water bodies should be well conserved in order to maintain the eco-system of the NBR.

Current land uses of agricultural zoned areas are shown in Table 6.1.

2) Farm Activities Integration

In the NBR, it is a fact that farmland per farming household has been gradually reduced due to inheritance of farmland. Further, idle land, which is uncultivated land at present, is increasing in the NBR. This phenomenon implies a deterioration of agriculture in the NBR.

As for solving this problem, it will be necessary to encourage farmers who are enthusiastic about expanding/improving their farm activities. For this end, farm activities should be integrated for better utilization. This will contribute to the improvement of yield with the modernization of farming technology as well as the reduction of farming cost by economies of scale.

To manage integrated farms, a private farming company system is proposed. The farming company is to be organized by enthusiastic local farmers for systematic farming exercise.

Table 6.1: Land Use Changes between 2000 and 2020

Agricultural Zoning	Land Use in 2000		Land use in 2020			
1 Large Scale Irrigation Area	Paddy etc	1,154	4.4%	Intensive farming (diversified farming)	1,154	4.4%
2 Rain-fed Paddy Area	Paddy	9,470	36.3%	Mixed Farming (based on paddy)	9,430	36.1%
3 Rain-fed Upland Area	Field crops Uncultivated land	4,670	17.9%	Crop Diversification and Conservation	4,629	17.7%
		3,560	13.6%	Cassava	464	1.8%
		1,110	4.3%	Sugarcane	246	0.9%
			0.0%	Para-rubber	231	0.9%
			0.0%	Veg & Fruits	195	0.7%
			0.0%	Other crops	1,423	5.5%
4 Phu Phan Mountains and Hilly Area	Forest Grass land	8,615	33.0%	Community Forest	1,471	5.6%
		6,894	26.4%	Conservation	599	2.3%
		1,721	6.6%	Conservation and Agro-Forestry	8,615	33.0%
			0.0%	Ordinal Forst	2,032	7.8%
			0.0%	Community Forest	1,527	5.9%
5 Mekong River-side Fertile Area		560	2.1%	Buffer Forest	875	3.4%
Built-up Area (urban and roads)		849	3.3%	National Parks, Reserve	4,181	16.0%
Water		768	2.9%	Livestock (grass land)	1,340	5.1%
Total		26,086	100.0%	Veg & Fruits, Fishery, Paddy	540	2.1%
				Built-up Area (urban and roads)	950	3.6%
				Water	768	2.9%
				Total	26,086	100.0%

6.2 Strategy 2: Diversification of Local Economy

6.2.1 Rationale

Farmers in the NBR have been suffering from lower income, compared with farmers in the other regions. The problem of lower income is due mainly to their monoculture farming of rice and cassava. It is a vital issue to directly improve the level of farmer's income to be generated through a farming system that can yield more value-added products.

The strategy accordingly addresses creation of a more profitable and sustainable rural economy. This includes actions to promote diversification and mixed farming in close linkage with potentials of the agro-industry, and cottage industries to encourage collective income-generating activities by community groups such as youth and women's groups.

6.2.2 Proposed Actions

Diversification of the local economy can be achieved through diversification of both farming and off-farming products by utilizing local resources. To this end, special emphasis needs to be placed on development of the marketing and distribution channels as well as a market information channel. A conceptual structure for the rural economy enhancement is shown in Figure 6.1, and the following actions are recommended:

- Agricultural diversification and crop conversion;
- Promotion of local industry;
- Improvement of Marketing and Distribution channels; and
- Livestock and dairy products promotion.

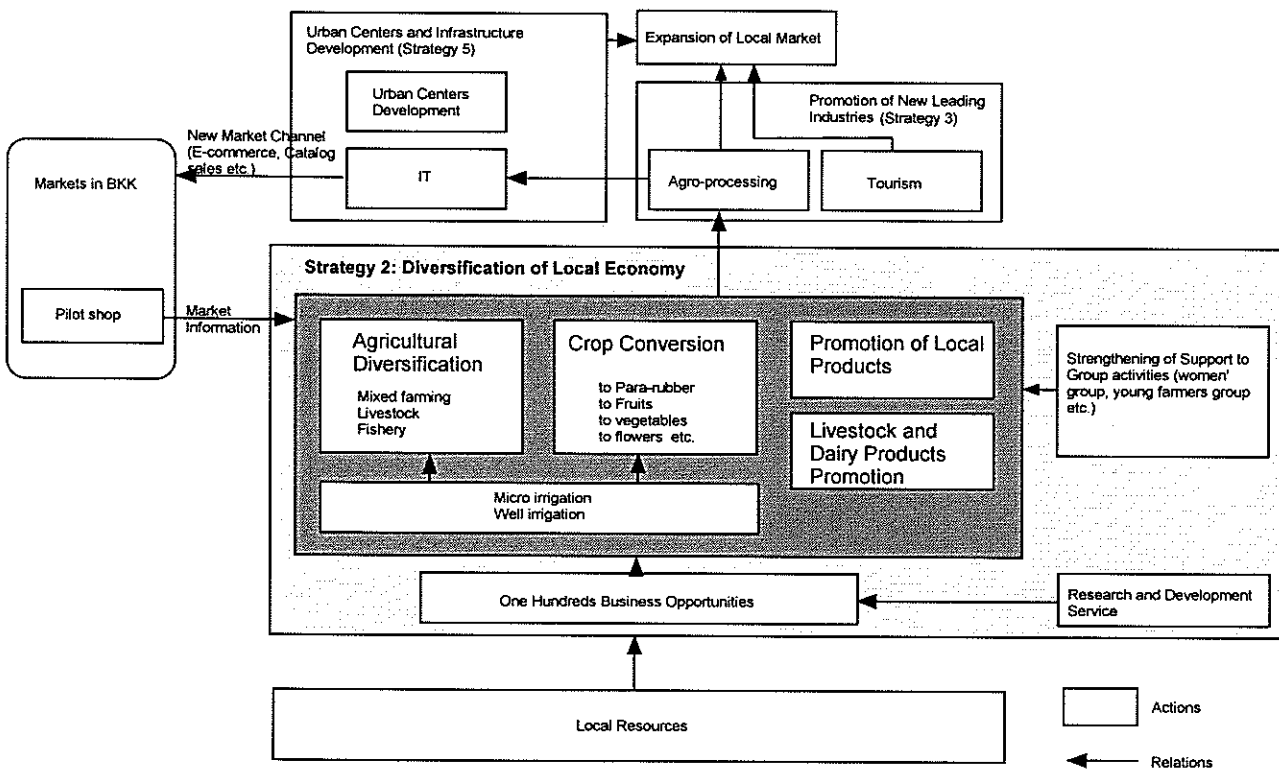


Figure 6.1: Development Concept of Rural Economy

(1) Plans for Agricultural Diversification and Crop Conversion by Zone

Farmers should have greater flexibility in shifting from the current monoculture system to a more appropriate farming system, since the final decision would come from the farmers themselves. The relevant agencies need to actively support them, providing information and technical and financial support. In order to achieve this, the public sector should make efforts to reduce risks that farmers carry out the agricultural diversification and crop conversion with the following measures:

- To encourage farmers to embark on crop diversification or integrated farming, assuring adequate provision of all basic infrastructures such as irrigation systems and road network;
- To designate the area for high-potential irrigation with emphasis on more diversified crops that potentially connect to domestic and international markets and agro-processing industries;
- To guide small-scale farmers in rain-fed areas to promote integrated farming with mixed crop growing, fishery activity and

- livestock raising;
- To provide active information, extension services and training opportunities for appropriate technology to run agricultural diversification and crop conversion; and
- To provide low interest loans and technical information for farmers or farmer groups to exploit and develop the marketing channel/system.

Enhanced policies for such rural economy diversification, however, depend on the characteristics of natural conditions, which can be classified into the following five zones (see Figure 6.2):

- Zone 1: Large-scale irrigation areas**
- Zone 2: Rain-fed paddy areas**
- Zone 3: Rain-fed upland crop areas**
- Zone 4: Phu Phan Mountain and hilly areas**
- Zone 5: Mekong River-side fertile area**

The agricultural development policies by zone are proposed as shown in Table 6.2.



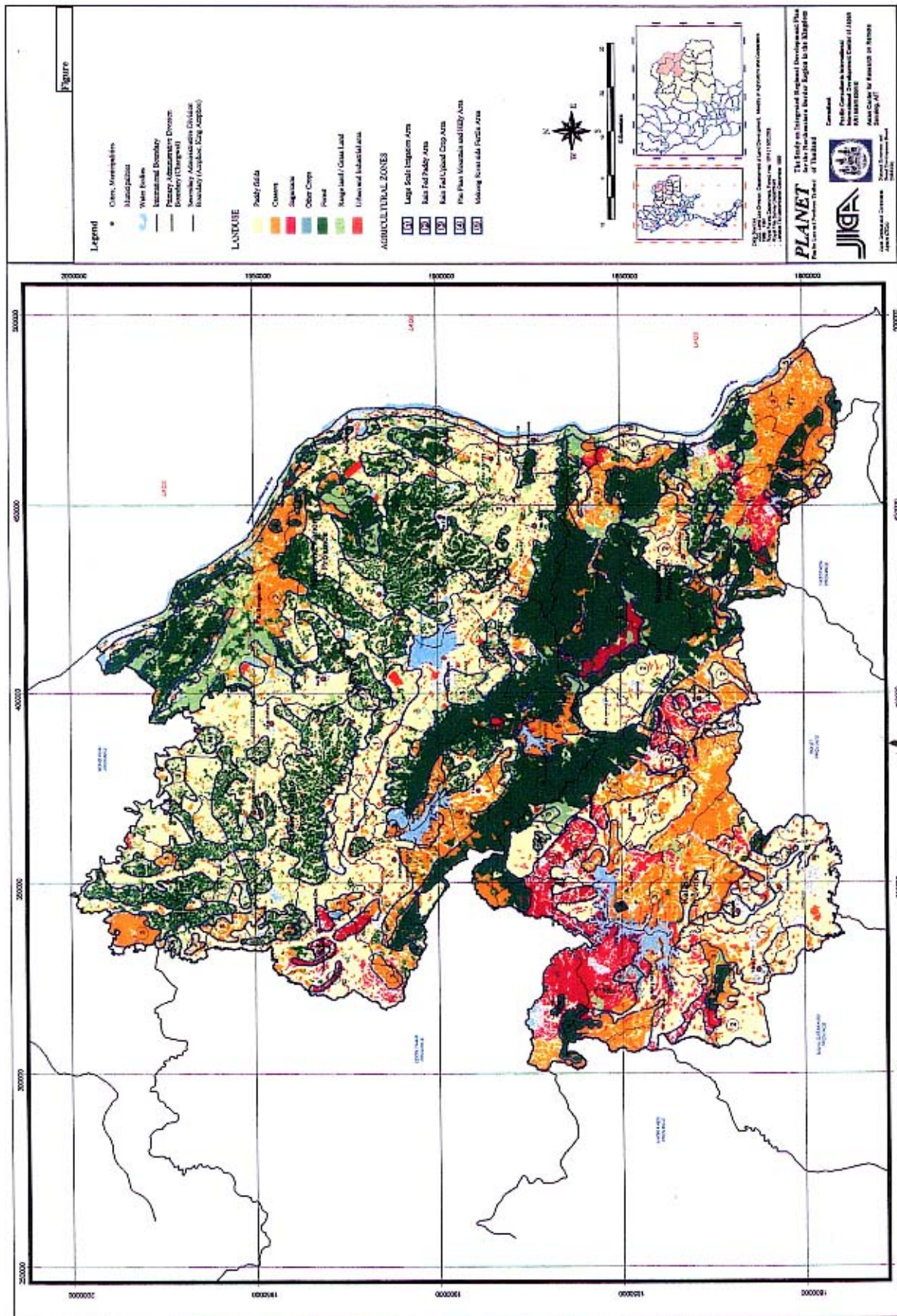


Figure 6.2 Conceptual Agricultural Zoning

Table 6.2: Actions for Agricultural Development by Zone

	Zone 1 Large-scale Irrigation Areas	Zone 2 Rain-fed Paddy Areas	Zone 3 Rain-fed Upland Crop Areas	Zone 4 Phu Phan Mountain and Hilly Areas	Zone 5 Mekong River-side Fertile Areas
Location	Large-scale irrigated area in Sakon Nakhon and Kalasin	Rain-fed areas mainly in Nakhon Phanom, Sakon Nakhon and Kalasin	Inland areas mainly in Mukdahan and Kalasin	Phu Phan Mountains and other mountainous areas and their foot areas	The area along Mekong River
Soil	Low alluvium terraces, High alluvium terraces and fans Suitable for paddy and upland crops	Low alluvium terraces, High alluvium terraces and fans Suitable for paddy	Low alluvium terraces, High alluvium terraces and fans Suitable for paddy and upland crops	Hills and mountains Not suitable for cultivation	Flood plains of recent river alluvium Suitable for paddy, upland crops
Rainfall	Moderate 1100-1500 mm	Moderate 1100-1500 mm	High 1500 mm	High 1500 mm	High 2000 mm
Water Availability in Dry Season	Irrigation	Farm pond and shallow well	Medium- and small-scale irrigation farm pond and shallow well	No water	Pumping irrigation
Level of Current Diversification	Diversified	Monoculture	Monoculture	Monoculture	Diversified
Current Major Crops	Rice, vegetable, ground nuts	Rice	Cassava, sugar cane, para-rubber	Cassava, fruits	Rice, vegetable, fruits, flowers, para-rubber
Principal Agricultural Development Policy	Improvement of efficiency of production in the dry season	Promotion of Mixed farming system Livestock promotion	Crop conversion to para-rubber, Promotion of vegetables and fruits, Livestock promotion	Conservation Agro-forestry, Community forest projects	Crop conversion to para-rubber, Diversification to fruits, vegetables and flowers Inland fishery

(2) Promotion of Local Products

This is an integrated program consisting of several projects. Its primary objective is to improve rural income by further utilizing local resources. To achieve this, the program consists of the following projects to develop effective use of local resources and knowledge in combination with information and market network:

1) “One Village, One Product” Promotion

The objective of the project is to re-appreciate local resources and develop new local products by local initiatives. This project is the substance of the local products promotion program. For this purpose, it is a great necessity to give opportunities for local people to know the principles of the movement and encourage them to find their own “One

Product” though seminar, study tour and availment of consulting service.

2) Products Development and Exhibition Center

This is a center where local people, experts of local education institutes, and local entrepreneurs jointly develop innovative and value-added products and share these outcomes to support the “One Village, One Product” project.

3) Artisan Certificate Program

The program attempts to give prestige and appreciation to the most skillful craftsmen by bestowing an Artisan Certificate. It is expected to function as protection of their original idea and technique toward supporting the originality of products of the “One Village, One Product” project.

4) Women's Production Group Strengthening Project

The women's groups have experiences to produce handicraft and agro-processing by using local resources and skills, which would be an effective background of the "One Village, One Product" project. The project aims at improving and encouraging women's groups by integrating consulting service and loans made by various agencies.

5) Community Development Workers' Service Improvement

Currently, problems and needs of villages are more diverse and specific, so that it becomes more difficult for CDWs to provide the required level of knowledge and skill to villagers.

The project aims to establish a network and database system of resource persons who are specialized in a particular knowledge and skill with rich experience. CDWs and Community Development Department connect requirements in village and such resource persons.

6) Tourist/visitor Center (Highway service station)

The project aims at providing a spot for travelers to be able to look at and buy local products while they are resting. It provides a new and direct market channel for the local products to the consumers, and also new job opportunities involving the tourism sector.

7) Pilot Shop in Bangkok

The project aims at learning national and global market situations and examining evaluation of the local product in markets. Obtained information will be sent to production places in NBR to develop and improve their products based on the latest demand.

8) Direct Sales Promotion

This project attempts to develop a new market channel through direct sales. A direct contract system with urban consumers should be promoted at the tourist/visitor center as well as pilot shop in Bangkok. In future, it will evolve to E-commerce by Internet.

(3) Improvement of Marketing and Distribution Systems

In the current marketing and distribution channels, farmers produce their products based on information and agricultural inputs (seeds, fertilizer, technology and loans) coming from so-called "middlemen," and sell their outputs to the middlemen. In this cycle, farmers always have a weak bargaining power in pricing and shipment. It must be addressed to improve such marketing and distribution channels to diversify farmers' marketing choices with the following directions:

1) Provision of Market Information and diversification of market through:

- Formulating systematic and effective measures for provision of updated market information.
- Developing marketing outlets or channels in all forms, such as central market, wholesale marketing center, collecting and loading warehouse, and forward market of specific commodities.

2) Creation of New Market through:

- Promoting direct sales system connecting farmers and consumers by catalog-retailing and E-commerce.
- Establishing pilot shop in Bangkok mainly for getting detailed market information.
- Promoting contract-farming and joint investment in agro-industry between farmers' group and entrepreneurs.

(4) Livestock and Dairy Products Promotion

1) Livestock Promotion

With utilizing vast upland crop areas of the NBR together with Laos, livestock promotion is of great importance for diversifying income opportunities in micro level and bringing an opportunity to promote agro-processing industries in the NBR.

In order to promote livestock production in the NBR, the following actions should be taken into account:

- Expansion of loan for small scale farmers to support raising cattle;
- Formulation of long term livestock operation plan for small scale farmers and cooperative associations; and
- Improvement of fodder suited for upland areas.

2) Dairy Products Promotion

Consumption of dairy products is increasing with the changes in food habit of the Thai people. Although the domestic market of dairy products is expanding, domestic dairy production cannot fully capture the domestic market due to competition with foreign products. For promoting dairy production, it is indispensable to make efforts to improve production technology as well as to reduce production costs. For this purpose, the following actions should be taken into account:

- Instruction of fodder management technology to farmers by a livestock officer;
- Support to establish dairy cow cooperatives;
- Promotion of contract milk cow raising under private farm;
- Implementation of breeding program to ensure high-quality milk cows at the local level; and
- Improvement of school milk program.



6.3 Strategy 3: Promotion of New Leading Industries

6.3.1 Industrial Development Strategies

Nakhon Phanom: will be the eastern gateway to Laos/ North Vietnam and the industrial base of footloose industries with its airport facility. The following are recommendable strategies:

- Establishment of industrial area for labor intensive industry and SMI;
- Promotion of agro-industrial business;
- Inducement of direct investment for footloose industries; and
- Development as tourism gateway town to Laos and Vietnam.

Sakon Nakhon: is to act as one of the regional centers of NBR and the support center for agricultural research and higher education & training with universities and R&D institutes, strengthening the following:

- Promotion of business in agro-industry;
- Invitation to universities to locate their branches in Sakon Nakhon;
- Invitation to R&D institutes for industry to locate in Sakon Nakhon; and
- Establishment of industrial development center for supporting industries.

Mukdahan: is to be the eastern “gateway town” to Laos/Central Vietnam through the 2nd Mekong International Bridge and the distribution and manufacturing base as a “Special Economic Zone”. Emphasis should be placed on the following strategies:

- Establishment of logistic industrial park;
- Promotion of agro-industrial business;
- Setting up of Asian Highway including 2nd International Bridge; and
- Establishment of new international trading system between Thailand and Laos/Vietnam.

Kalasin: is closely linked with the Khon Kaen economy, therefore, its supporting industries are potential to locate here. Tourism is another promising sector for further development as Kalasin could be a new tourism destination in the northeast region. The following strategies are recommended:

- Inducement to supporting industries of Khon Kaen;
- Promotion of business in agro-industry, and;
- Setting up the tourism industry system.

To realize the above industrial development strategies by province, the following four (4) actions should be taken into consideration as an overall policy of NBR:

6.3.2 Establishment of New Industrial Agglomeration

New industrial areas are designated to create a new industrial agglomeration in the NBR as a whole, based on full-utilization of local resources and location advantages aiming at the GMS markets through the Indochina East-West Corridor. To attract a number of investments from both international and domestic investors, it is proposed that an industrial agglomeration be developed in each province, each with unique characteristics:

- Nakhon Phanom Border Industrial City
- Sakon Nakhon Agro-Science and HRD City
- Mukdahan Goods Distribution and Processing City
- Kalasin Green Industry and Tourism City

6.3.3 Formulation of an Information Network for Local Industrial Development

Local Industrial Platform (LIP): The LIP is proposed to be established as information tools and a local center of the knowledge networking system across the boundaries of industry, connecting comprehensive services including incubation for venture business, technical support including R&D and business start up support. The private sector, or the Chamber of Commerce, should take the initiative to embark on and run the LIP, while the government sector shall provide necessary administrative guidance, information access and financial incentives.

Media shop: The media shop is proposed in order to serve as the local information and training base where people can obtain necessary information, technologies and experiences for business operation and market exploitation on a daily basis. The

media-shop may be organized as one of the functions of the LIP.

6.3.4 Improvement of Local Products

(1) International Joint Research Center by Universities

A research center is proposed where experts of universities can conduct R & D activities to explore new agro-products and applied technologies jointly with the client side, i.e. public and private industries, local administrators, or NGOs/NPOs.

(2) Industrial Technology Development Center

The establishment of a base to provide industrial technology and information support is also recommended. Its purpose is to improve and develop products utilizing the local resources of agriculture, forestry, fishery and mining.

6.3.5 Creation of Supporting Mechanism for Industries

(1) Sofia Plaza

This is a kind of human resource center of technology transfer by senior engineers and experienced craftsmen (after retirement) being invited from foreign countries for the purpose of transferring and teaching industrial technologies and production skills.

(2) Small and Medium Industries Support Program

It is proposed that a package of SMI support program be formulated, including support for enhancement of financial, technical and marketing capabilities. The program should be designed so that it is simply and easily accessible to the SMIs.

6.3.6 Tourism Development

For tourism development in the NBR, in collaboration with SKR of Laos, the following five (5) actions should be focused on:

(1) Development of New Tourism Products

New tourism product provision shall be advantageous for the increase of domestic tourist arrivals by utilizing traditional festival/event tourism, temples, Mekong River and natural beauty in Laos side, like:

- Promotion of Northeastern Festival Week in November
- Development of Thai-Lao-Vietnam Tour
- Promotion of Eco-tourism
- Promotion of Pilgrim Tour

(2) Local Participation

Based on the popularization of more natural and genuine tourism products, opportunities of local participation seem to be expanding along with exploitation of the new tourism products. In this sense, local participation is the key strategy to vary tourism products as well as utilization of local resources through:

- Village Tourism based on One Village, One Product
- Highway Tourists Center
- Local Guide for Eco-tourism in Phu Phan Mountains

(3) Improvement of Tourism Environment

It is necessary to improve the tourism environment to attract tourists, in particular:

- Ease of Immigration Control by integrated immigration examination, visa-waiver, mutual deregulation of tour operator's activities in Thailand and Laos; and
- Tourism Support Facilities Improvement by rating and awards for restaurant, English signboard, car-parking and public toilet

(4) Joint Tourism Promotion

Integration and cooperation method between Thailand and Laos (and Vietnam in future) in the field of tourism promotion should be realized.

- Joint publicity campaign;
- Creating new tourism centerpiece;
- Development of joint web-site for tourism information for the Internet; and
- Joint tourism promotion committee.

(5) Establishment of Tourism Free Zone

Foreign direct investment (FDI) is important to promote tourism, in particular, for development of accommodations and supporting facilities. Additional incentives for tourism FDI will be effective to accelerate FDI

in the NBR and the Indochina East-West Corridor. Furthermore, designation of Tourism Free Zone (TFZ) with incentives for tourism FDI is proposed.

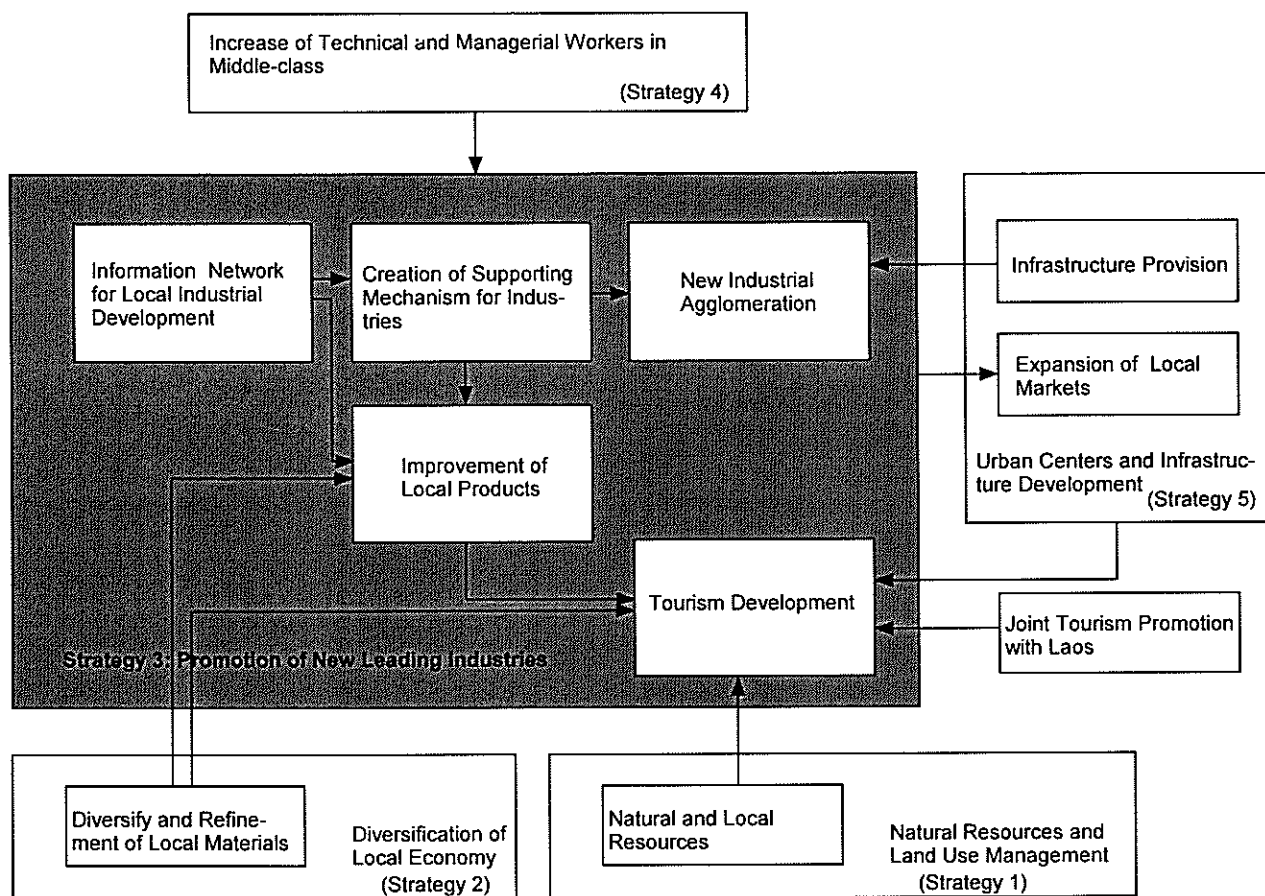


Figure 6.3: Development Concept of New Leading Industries

6.4 Strategy 4: Increase of Technical and Managerial Workers In Middle-class

6.4.1 Rationale

In the next generation of Thai industrial development, it will be a vital issue to increase the number of middle-class work force for shifting the labor-intensive industry to the technology-driven industry. The NBR seeks to be a human resource center where such middle-class technical and managerial workers are fostered for not only the NBR economy, but also the Thai economy as a whole.

For this purpose, it is necessary to strengthen education and human resource development

functions of the NBR of education and training to create adequate number of middle-class technical and managerial workers for industry at various levels as follows:

- Basic education development
- Higher education development
- Vocational and technical training education development
- Training in out-of-school system development

Figure 6.4 depicts the structure of human resource development strategy.

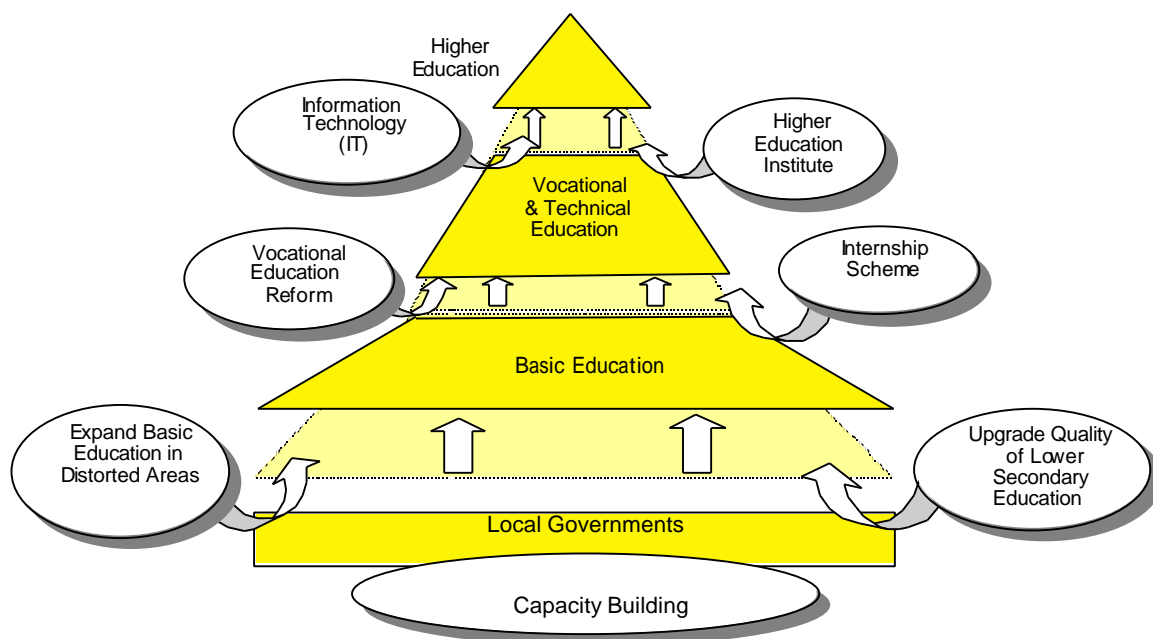


Figure 6.4: Structure of NBR HRD Strategy

6.4.2 Proposed Actions

(1) Basic Education Development

Basic education in the NBR needs to be further expanded in some remote areas, focusing on financial support, counseling and improvement of accessibility.

Moreover, quality of lower secondary education should be further improved to meet rapid increase of the enrollments. For this purpose, the following actions should be taken:

- Basic education improvement through a public education awareness campaign, improvement of accessibility to school, and creation of scholarship fund; and
- Quality improvement of basic education by establishing an intensive training system of primary teachers, and separating lower secondary schools from upper secondary schools.

(2) Higher Education Development

NBR has a geographical advantage of being close to neighboring GMS countries. With current accumulation of higher educational institutes, NBR will become a center for international knowledge exchange and cooperation activities. Meanwhile, it is also indispensable to respond to the growing demand of educating personnel capable of keeping up with globalization and IT revolution in NBR. These are accomplished by the following actions:

- Establishing a GMS International Education and Training Center which can accommodate students from neighboring countries, e.g., Lao PDR, Vietnam, Cambodia and China;

- Expanding courses for English and Computer Literacy Improvement at the existing institutes; and

- Establishment of New Rajabhat Institute in Mukdahan and IT HRD Center in Rajamangala Institute of Technology, Kalasin.

(3) Vocational and Technical Education Development

Expanding the capacity of vocational training can be achieved by:

- Expanding the enrollment capacity of existing vocational training schools;
- Improving quality of vocational education by building a model of "Demand-centered Vocational Education System," which holds flexibility to cope with up-to-date industrial demands; and
- Providing more opportunities of practical training for students through an "Internship Scheme" or "Training in Out-Of-School System" whereby students can choose a company for practical training in the company files collected nationwide. This system is expected to update the training programs to meet the practical demand.

(4) Local Government Administration Training

The decentralization policy, which the Thai government is pursuing, requires more responsibility and higher knowledge of local governments. However, under the current situation, most local organizations cannot cope with such responsibility. This program focuses on capacity building of local government personnel through intensive training.