

PART-V.
TOTAL REVIEW OF FIRST
TO THIRD YEAR SURVEYS

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PART-V. Total Review of First to Third Year Surveys

1. Experience of Industrial Policies in East Asia

After the second world war, Japan focused on the basic industrial fields and devised a series of incentives in taxation, financing, etc. for the same, thereby leading the country from reconstruction of its industries to its subsequent high growth and forming its unique "sectorial industrial promotion measures" (also known as "targeting policies").

Korea learned from the experience of Japan in converting from import substitution type industries to export oriented ones, focusing on key industries and mobilizing tariff, tax, and financial means to protect and encourage them. In its subsequent policies for the promotion of basic industries (steel, engineering, chemical etc.), it used similar means and achieved tremendous success.

Taiwan relied on general incentives in its initial program of export oriented industrialization. In the subsequent promotion of basic industries and promotion of more sophisticated export industries, it designated key industrial sectors and adopted means mobilizing a series of incentives.

Table V-1. History of Industrial Promotion Policies and Export Promotion Policies in Japan, Korea and Taiwan

Japan	Korea	Taiwan
<Industrial Promotion Policies>		
Postwar Reconstruction Period (1946-48) "Priority Production System" Material Quota/ Reconversion Finance Bank Loans/Price Control		
Industrial Rationalization Period (the first half of 1950's) Preferential Treatment for equipment investment (special depreciations)/Loans from the Japan Development Bank/Tax Exemptions	After The Disturbance in Korea (1950's) Import Substitutional Industrial Development Promotion Aids Quota System/Double Exchange Rate/Tax Exemption for Raw Materials & Machinery	Import Substitutional Industrialization Period (the first half of 1950's) Adjustment of Public Key Industries-Sugar, Cement, Fertilizer, ... etc./Textile Industry Promotion with Bave Import Quota
Industrial Development Promotion Period (the latter half of 50's) Synthetic Fiber, Petrochemical, Electronics, Machinery Tariff Protection/Selective Fiscal, Financial Policy (Loans from the Japan Development Bank, Depreciations, Tax Exemptions & Reductions)/Approval of Technology Introduction		Transitional Period to Export Oriented Industry (the latter half of 50's) Adjustment of Public Key Industry/Textile, Agricultural Product Processing Industry Development.
High-Growth Period (1960's) Building an Open Economy. Industry-Government Cooperation System (Investment Adjustment/Co-ordination of Production Field/Industry-by-Industry Development Programs (Law on Extraordinary Measures for Machinery Industries/Law on Extraordinary Measures for Electronic Industries.)	Transition to Export Oriented Industrialization (1960's) Stressing Economic Growth. Introduction of Foreign Capital (Mainly Loans)/Export Light Industry Promotion/Tax Exemptions/Key Industry Promotion With The Government Initiative & Intervention	Export Oriented Industrialization in Full-Swing (1960's) Introduction of Foreign Capital (Loans & Direct Investment)/Focusing on Private Sector/Export Processing Zone/Tax Exemptions & Deductions/Trading Company Promotion
Stable Growth Period (1970-) Drawing up "Vision", Utilizing Market Mechanism. Knowledge-Intensive Industry. High Technology Development.	Export Oriented, Heavy & Chemical Industrialization (1970's) "Heavy & Chemical Industrial-Strategic Industrial Development Plan" Government Controlled Financing Organization. Export Industry, Heavy & Chemical Industries Promotion With Low-Interest Loan. Expansion of Equipments in Private Enterprises.	Heavy & Chemical Industrialization (1970's) 10 Major Development Plan Foundation of Public Enterprises of Iron & Steel, Oil and Shipping/Social Capital Adjustment
	Liberalization, Heavy Chemical Industries Co-ordination (1980's) Economic Liberalization.	High Technology Promotion (1980's) Specifying Strategic Industry.

Japan	Korea	Taiwan
	Leaving Public Cooperation to Private. Foreign Capital Liberalization. Finance Liberalization. heavy & Chemical Industries Co-ordination Small-and Medium-size Enterprises Promotion	Tax Exemptions for Electronics & Machinery/Low-interest Loans/Preferential Revenue Fund/Automobile Industry Promotion.
<Export Industry Promotion and Export Promotion Policies>		
Industrial Rationalization Period (the first half of 1950's) Financial Preferential Measures. Export Preferential Finance (Low Interest Rate Reduction of the Bank of Japan)/ Foundation of the Export Bank of Japan in 1950. Tax Preferential Measures. Export Income Deduction Special Deduction for Export Export Insurance. Foundation of JETRO.	After the Disturbance in Korea (1950's) Export Promotion in Import Substitutional Industrialization Export Promotion Fund/ Export Credit Finance/ Foreign Currency Deposit/ Export Subsidiaries (but Export was depressed)	Import Substitutional Industrialization Period (the first half of 1950's) Public Key Industry Adjustment/Bave of USA Aids Import Quota/Multiple Exchange Rate/Double Price System
Industrial Development Promotion Period (the latter half of 1950's) Shipment Export (Loans from Export-Import Bank of Japan) Special Deduction of Incomes related to overseas transactions		Transition Period to Export Oriented Industrialization (the latter half of 1950's) Starting Rice, Sugar, Agricultural Processing Products Export (Public Sector)/ Export , Import Exchange Link System
High-Growth Period (1960's) Economic Liberalization, Strengthening International Competitiveness. Plant Export (Loans from Export-Import Bank of Japan) Special Deduction for Exports Overseas Market Development Reverse System Expansion of JETRO	Transition to Export Oriented Industrialization (1960's) Private Enterprises Promotion in Export Industry/ Direct Subsidiaries/Low Interest Loans/Accelerated Depreciation/Tax Exemptions & Deductions (Cost Reduction) Export Light Industry (Textile , Wig) Promotion	Export Oriented Industrialization in Full Swing (1960's) Exceptional Loans/Export Loans/Export Processing Zone/Trade Company Promotion/Trade Company Promotion/Tax Preferential Treatment by Investment Act./Introduction of Foreign Capital
	Export Industry Rapid Growth Period (1970's) Expansion of Low Interest Loan/Export Processing Zone/Won Devaluation/ Sogo-Shosha System/ Export-Import Bank of Korea/Introduction of Value Added Tax	Export Industry Advanced Period (1970's) Strengthening Public Enterprises/Export Insurance/ Export Import Bank's Medium- & Long-Term Export Loan System/Foreign Trade Development Association (Far East Trade Service)
	Coping With Trade Conflict (1980's) Export Self-Constraint/ Enterprise Advances to U.S.A. Promoting Open Market	

2. "East Asian Style" Industrial Policy

The concept of industrial policies gradually became clearer and more solidified through the series of industrial promotion measures used in Japan after the Second World War. The success of the same has been recognized and similar forms of policies have been adopted by Korea and in part by Taiwan. Here, these may be called "East Asian style" industrial policies.

"East Asian style" industrial policies feature designation of specific industrial sectors for promotion and mobilization of various incentives in a concentrated or limited time fashion. The specific industries are designated with reference to the history of industrial development in the advanced countries.

The means used for promoting the key industrial sectors have basically been incentives in tariffs, taxes, and financing and have further included lifting or easing of restrictions, support for research and development, and establishment of "visions" for the industries.

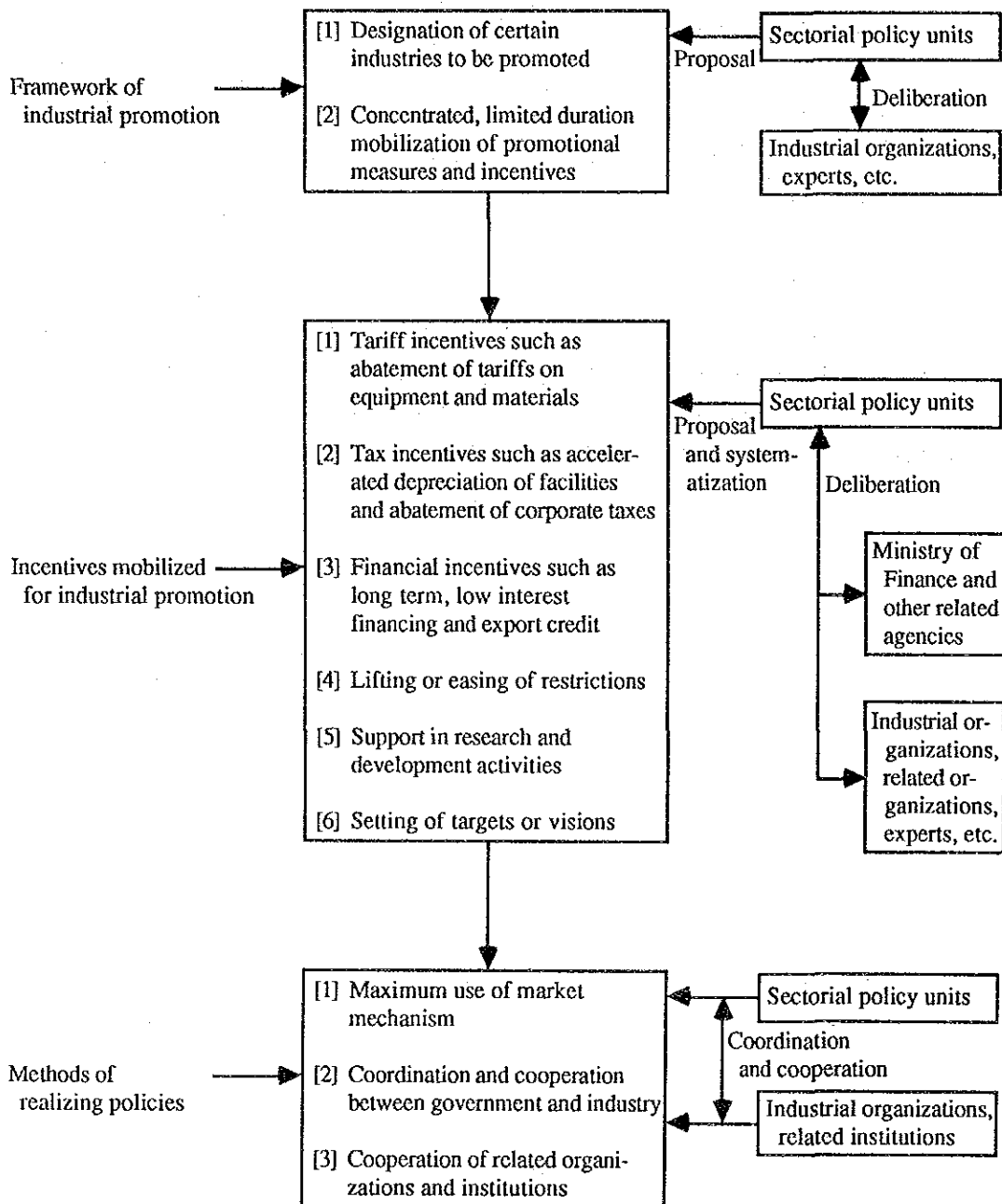
The main promotional means used for the sectorial promotion measures in East Asia were as follows:

- [1] Tariff incentives — Abatement of import tariffs on the machinery and equipment, parts, and raw materials necessary the industries
- [2] Tax incentives — Special (accelerated) depreciation on the machinery and equipment for specified industries and abatement of business taxes, corporate taxes, etc.
- [3] Financial incentives — Low term low interest financing for capital investment and purchases of machinery in specific industries, financing of low interest funds for purchases of raw materials or exports, guarantees for these, etc.
- [4] Lifting or easing of controls — Lifting or easing of controls in areas relating to promoted imports in the case of controls on introduction of foreign capital, introduction of foreign technology, new establishment of facilities, etc.

- [5] Support for research and development activities — Government assistance for research and development activities in specific industries or tax and financial incentives for the same
- [6] Establishment of targets and "visions" — Drawing of pictures of specified industries five or 10 years hence and use of the same as common directions for government policies and activities of private companies

In the promotion of key industrial sectors, the method has been adopted where the sections in charge of the industries in the government, industrial organizations in those industries, etc. play central roles in the exchange of opinions and information between the government and private industry, establishment development goals in a cooperative manner, and engage in activities for the promotion of those industries.

Fig. V-1. Features of "East Asian Style" Industrial Policy



3. Small and Medium Enterprise Policies

To maintain the vitality of industrial activities, it is recognized that it is desirable not only to prevent monopolies, but also to maintain a balanced coexistence between large corporations and small and medium sized enterprises in the industrial structure so as to form a "social division of labor". Therefore, even the advanced nations often have policies for the promotion of small and medium sized businesses.

Japan has had policies for the promotion of small businesses as part of its industrial policies based on the Small and Medium Enterprise Basic Law enacted in 1963. The law provides for measures for the promotion of small and medium sized enterprises overall and measures for promotion of specific industries.

Korea stressed the development of strong financial groups in the early stages of its industrialization and therefore development of small businesses was delayed. In the 1980s, however, it strengthened measures for promotion of small businesses and took concrete steps such as the selection of key industrial sectors and establishment of incentives. Taiwan launched a "central satellite factory system" in the 1980s with the aim of raising the level of its small businesses, under which the government has been supporting the development of small and medium sized enterprises.

Small and medium enterprise policies have two aspects to them: continuous policy schemes covering small business as a whole and short duration policy schemes for key industrial sectors. Together with the sectorial industrial promotional measures covering large companies as well, the small and medium sized enterprises in the key industrial sectors are able to make use of different policy schemes.

Table V-2. Organization of Small and Medium Enterprise Policies of Japan

1. Modernization and advancement of SMEs	
(1) Modernization by industry:	Measures for modernization of SMEs by industry (Small and Medium Enterprise Modernization Promotion Law)
(2) Financing for advancement:	System of financing of Small and Medium Enterprise Corporation (Small and Medium Enterprise Promotion Fund Assistance Law)
(3) Improvement of management resources:	System of diagnosis, guidance, information, training, technical promotion, guidance for internationalization, etc. by government, local bodies, Small Enterprise Corporation, etc. (Small and Medium Enterprise Guidance Law)
(4) Organization:	System of promotion of joint operation of business and collective business (Small and Medium Enterprise Cooperative Association Law)
(5) Small and medium commerce and service measures:	Promotion and coordination of commerce (Small and Medium Retail Commerce Promotion Law, Shopping District Promotion Association Law, Law on Special Measures for Adjusting Retail Commerce)
(6) Business conversion:	Measures for business conversion (Law on Provisional Measures for Conversion of Business of Small and Medium Enterprises)
(7) Measures for regional SMEs :	Measures for SMEs in production areas, indigenous industries, special industrial regions, etc. (Law on Provisional Measures for Small and Medium Enterprises in Production Areas, Law on Provisional Measures for Small and Medium Enterprises in Specific Recession Areas, Law on Provisional Measures for Small and Medium Enterprises in Specific Industries)
2. Stabilization of Management	
(1) Financial assistance:	Financing by government financial institutions, fund assistance for strengthening SMEs, credit supplementation system
(2) Tax measures:	Reduced tax rates, remuneration to business owners, special depreciation, reserves, and other systems
(3) Improvement of net worth:	Investment by Small and Medium Enterprise Investment Promotion Co.

- (4) Prevention of bankruptcies:
Mutual aid for prevention of bankruptcies, financing, consultations, guarantees, and other systems

3. Correction of Disadvantages in Business Activities

- (1) Promotion of subcontractors:
Prevention of delayed payment of subcontracting fees, introduction of subcontracting business, and ensurement of fairness
- (2) Ensurement of government and public demand:
Participation of SMEs in government and public demand
- (3) Rectification of business activities:
Coordination and ensurement of business fields (Law for Adjustment of Fields of Small and Medium Enterprises, Large-Sized Retail Store Law, Law for Special Measures to Adjust Retail Commerce, Law Regarding Organizations of Small and Medium Enterprises, Small and Medium Enterprise Cooperative Association Law)

4. Small enterprise measures

- (1) Project for improvement of management:
System of management guidance by commerce and industry associations and chambers of commerce and industry
- (2) Individual consultation and guidance system:
Guidance by small business counsellors
- (3) System for financing improvement of management of small businesses:
Financing without collateral or guarantor
- (4) System for funding modernization of equipment:
Investment of funds for modernization of equipment and leasing of equipment
- (5) System of mutual aid for small businesses:
Mutual aid system for abandonment of business etc.

Source: K. Fujita, M. Takeuchi, "Small Business Theory", Yuhikaku, 1987

4. Case Studies of Sectorial Industrial Policies of East Asia (OMISSION)

5. Current State of Thai Industrial Development

5-1. Material Supply Industries

(1).Textile Industry

The textile sector previously grew as an import substitution type industry, but along with the rapid growth of the export garment industry, it has taken on another role of expanding and strengthening the supply of materials to the garment industry. At the present time, however, the backwardness of the spinning, weaving, and other facilities and production technology, the insufficient capacity in the dyeing and other midstream sectors, the lack of a converter function, etc. make it impossible for the industry to do a sufficient job in supplying materials.

In particular, to eliminate the insufficient capacity of the midstream sectors such as dyeing and printing, it is considered important for the public sector to provide support for water supply facilities and waste water treatment, all of which are essential for this industry. Further, in raising the technical level of small and medium sized enterprises in the fields of dyeing, printing, finishing, etc., it will be necessary to strengthen the leadership abilities of the TID (Textile Industry Division).

5-2. Supporting Industries

(1) Mold and Die Industry

The auto part, home electrical appliance, plastic, toy, and other export industries are growing rapidly and demand for molds and dies is soaring as well. With the exception of the in-house divisions of the leading companies, which include the foreign capital affiliated companies, the mold and die industry is made up of small and medium sized enterprises which still cannot cope with the demand due to their levels of technical expertise, resulting in many users relying on imports.

To deal with the increase in demand for molds and dies, it is important to strive to raise the level of the numerous small and medium sized mold and die makers. For this, it

would be desirable to make positive use of the functions of MIDI (Metal-Working and Machinery Industries Development Institute). In this regard, it will be important to help promote industrial organizations and smooth the relations between MIDI and the private companies and to help make more effective use of the activities of MIDI.

(2) Plastic Processing Industry (Industrial Parts)

Along with the increased demand for industrial parts for electrical and electronic equipment and automobiles, some of the plastic processing manufacturers which previously produced household goods and daily sundry items have been diversifying to the production of industrial parts. The production technology for industrial plastic parts, where a high degree of precision is required, is insufficient in all areas, including knowledge regarding materials, mold and die making technology, plastic molding technology, etc. There is considerable room for improvement. Also, there are extremely few processing manufacturers able to supply users with the amount of industrial parts demanded in the quantities required.

To increase the supply of industrial parts, it is necessary to raise the level of knowledge and technology of the many small and medium sized plastic processing manufacturers. It would be effective for the Ministry of Industry to establish technical training functions in this area. To enable the government to play a full role in this regard, it would be important to establish a policy unit for plastic processing in the Ministry of Industry.

5-3. Export Industries

(1) Toy Industry

The toy industry is growing rapidly as an export industry, but almost all of the production and exports are by large sized companies (including foreign affiliated companies) engaged in OEM production on order from foreign companies. The problem is that these companies do not have product development capabilities or their own sales channels and further that most of the other small and medium sized companies produce toys of low quality and safety.

To establish the toy industry as an export industry, it is necessary in particular to guarantee the quality and safety of the toys and to eliminate copies and substandard products. The establishment of an organization for inspecting the quality and safety of toys would be desirable. Further, it will be necessary to establish a section in charge of the toy industry in the Ministry of Industry.

(2) Garment Industry

The garment industry is rapidly increasing its exports, but faces numerous problems such as the limits of the domestic supply of materials, insufficient design and product development capabilities, low quality and added value, and a lack of independent sales capabilities.

To promote the expansion and strengthening of the garment industry, it is necessary to develop human resources such as technicians and skilled workers and also to promote the growth of small and medium sized enterprises and subcontractors. Strong support from the government is hoped for in this regard. Further, government support to, in particular, small and medium sized enterprises, would be effective in the area of export promotion activities, including programs for improvement of designs and brand images.

(3) Wooden Furniture Industry

The wooden furniture industry is already building a firm position for itself as an export industry, but faces problems such as limited supplies of materials, a large proportion of products of low degrees of processing and added value, and a low level of technical expertise in the small and medium sized enterprises.

In raising the technical level of small and medium sized enterprises and raising the degree of processing of products and their added value, effective support from government organizations would be desirable. Further, the securing of stable supplies of raw materials is becoming an important issue and here too measures by the government are hoped for.

(4) Plastic Processing Industry (Household Goods)

Reportedly over 2000 companies produce plastic household goods and daily sundries, but export products are made by only a small handful of companies of a medium size or higher. Even these medium sized and larger companies have insufficient processing and design capabilities and further there are very few companies with independent marketing capabilities.

Regarding exports of plastic household goods and daily sundries, support activities by the government in the areas of product development, design, marketing, etc., in particular for small and medium sized enterprises, would be desirable.

(5) Ceramic Industry

The ceramic tableware and novelty industry is moving in the direction of development as an export industry, with even some small and medium sized enterprises in the action. With the exception of the large companies in the Bangkok region, however, the companies lack sufficient knowledge and experience in the supply of materials, processing techniques, design, export marketing, and other arms. Further, in the Lampang province in the North, the necessary checking and grading is not performed in the supply of raw materials. Urgent measures are required to promote effective utilization of resources and improve product qualities.

The ceramic industry, which is centered in Lampang province in the North, can be expected to grow tremendously as an export industry if improvements are made in the area of raw materials and production technology. Toward this end, it would be extremely effective to establish a public service organization in that region offering services such as analysis of materials and training in production technology.

6. Problems in Industrial Development in Thailand

6-1. Insufficient Conversion to Export Orientation

Thailand has been industrializing rapidly and converting from import substitution to export orientation, but a broad range of restrictions and protectionist measures introduced during the period of import substitution type industrialization remain. The residual vested interests often serve to block the free competition and market mechanism needed for export oriented industrialization.

6-2. Limits of BOI Investment Incentives

In the promotion of export oriented industrial development, the investment incentives of the BOI (Board of Investment) have been tremendously effective, but at the same time have served to widen the gap with the supporting industries and small and medium sized enterprises, which do not enjoy such incentives, and to inhibit the development of a linkage or mutual dependency which should be formed with the same.

6-3. Lack of Sectorial Approach

In Thailand, due in part to the unfamiliarity with the idea of sectorial industrial promotion policies, there are no sections or officers in the government given specific charge over the key industrial sectors and, further, industrial organizations which could interface with the same have not been developed. There are many problems because of these situations.

6-4. Backwardness of Small and Medium Enterprise Policies

Thailand has devised various types of measures to promote the development of small and medium sized enterprises and cottage industries, from information services and consulting to financial support schemes. The benefits are not as good, however, as the investment incentives of the BOI, and the measures cannot be said to have been as effective as hoped for due to various limitations.

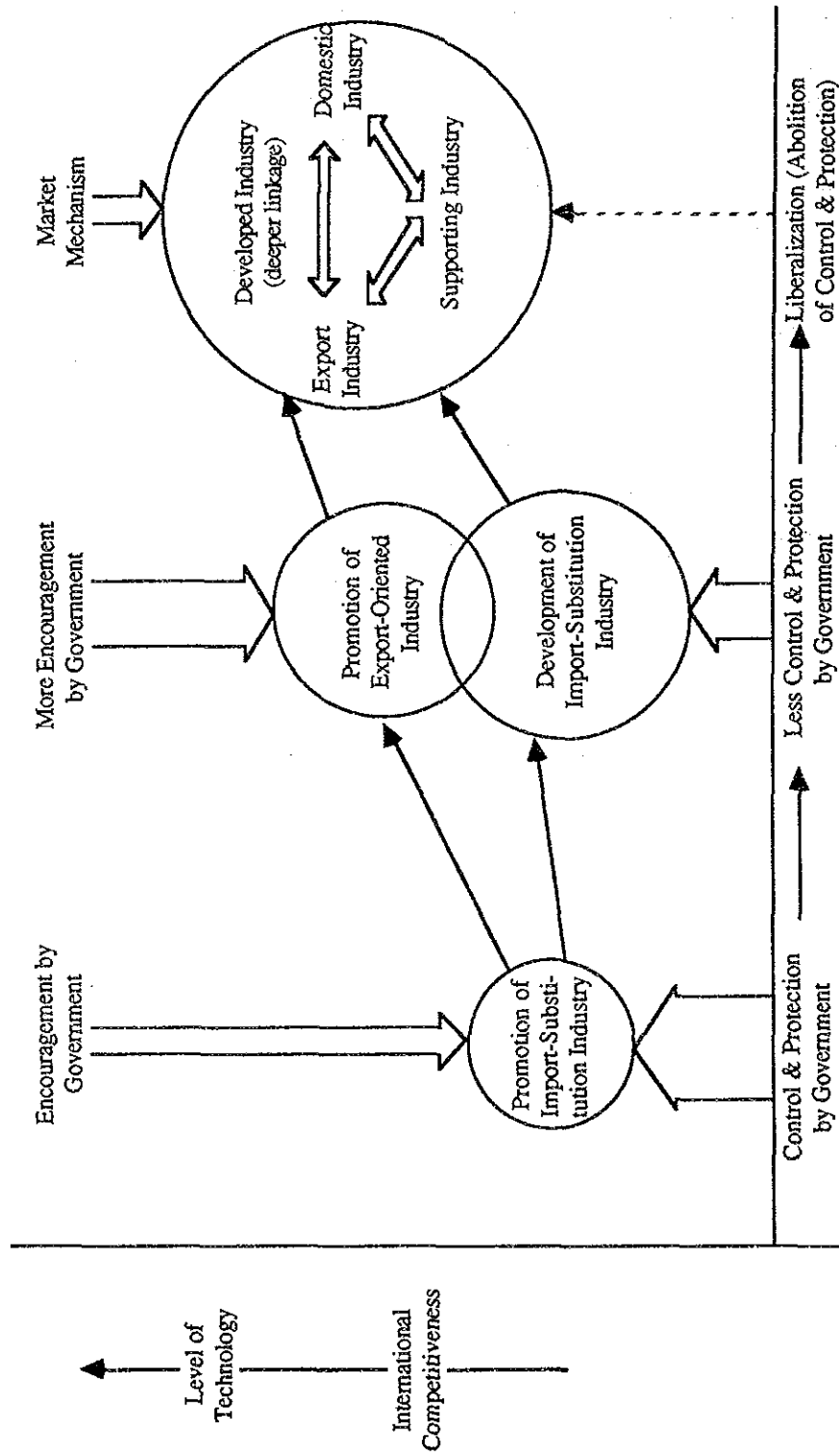
6-5. Rigidification of Public Services for Promotion of Industry

Most of the public organizations providing technical guidance, training or supplying information, etc. for promoting industry lack sufficient funding, so cannot replace old equipment so as to keep up with industrial development or improve the level of their services and therefore cannot meet the demands of industry.

6-6. Imbalance in Industrial Structure and Lack of Linkage Among Industrial Sectors

Despite the rapid growth of export oriented industries making use of the investment incentives of the BOI, there has been insufficient development on the part of the material supply industries, supporting industries, and small businesses which support the same. Because of these, there is insufficient linkage among related industrial sectors. The imbalance in the industrial structure is becoming a serious problem. Further, industrial development is concentrating in the Bangkok metropolitan area, creating the problem of a widening gap with the local regions.

Fig. V-2. Model of Transition from Import-Substitution to Export-Oriented Industry



7. Application of "East Asian Style" Industrial Policies to Thailand

7-1. Adoption of Sectorial Industrial Promotion Measures

To promote the development of the main export industries of Thailand, together with their supporting industries and cottage and small sized businesses, it is considered necessary to devise, separate from the BOI investment incentives, limited duration promotional measures of a type covering the key industrial sectors and industries and reaching the many companies belonging to the same as well. For example, formulation and implementation of such sectorial industrial promotion policies are considered urgent and effective for industries like molds and dies, textile processing (in particular dyeing and printing), plastic processing (in particular industrial parts), toys, and ceramics.

7-2. Small and Medium Enterprise Policies

Through the promotion of industry under the investment incentives of the BOI, the large companies, which include the foreign capital affiliates, and medium sized companies have achieved remarkable growth, but noticeable problems have arisen, such as the slow pace of development and modernization by the small and cottage sized enterprises, the imbalance in the industrial structure and lack of linkage, and further the regional differences in industrial development. Therefore, it has become important for present day Thailand to also devise comprehensive and continuous promotion measures for the development of the small and cottage sized enterprises. At that time, it should be possible to achieve greater effects in the promotion of medium, small, and cottage sized enterprises in the crucial fields by combining the overall small and medium enterprise promotion measures and the above-mentioned limited duration sectorial industrial promotion measures.

7-3. Coordination between Government and Private Sector and Promotion of Industrial Organizations

The effective implementation of sectorial industrial promotion measures requires the clear establishment of units or officers in charge of the industrial sectors in the government and the concentration of as much information and authority as possible in the same for formulation and implementation of policies. Private industry, on the other hand, must strengthen the industrial organizations, gather opinions and information from companies, and cooperate in the formulation and realization of promotion measures

through close communication with the government units or officers in charge. In this regard, both the Thai government and industry still lack enough experience, so it is crucial to establish a system of coordination between the government and private industry with government support or foreign cooperation.

7-4. Use and Stimulation of Public Service Institutions

In promoting industrial development, public service institutions often play important roles in the area of technical guidance, managerial guidance, development of human resources, and dissemination of information. In particular, a large role is played by public institutions related to an industry under promotion in pushing forward sectorial industrial promotion measures. In the initial stages of industrial development, much depends on government support, but along with the development of industry, it becomes possible to place most or part of the burden of costs on to the beneficiaries and place programs on a self operating footing. Desirably, public service institutions in Thailand will play more important roles in this regard.

7-5. Promotion of Industrial Development in Regional Areas

The concentration of industrial development in Thailand in the Bangkok metropolitan area is creating serious problems of overcrowding of the city, emptying of the local regions, and a widening economic gap between the urban and rural regions. To resolve these problems, it would be effective to promote regional economies on a macro level and, in particular for industrial sectors and industries which could easily locate in the regional areas, to formulate and implement sectorial industrial promotion measures and small and medium sized enterprise policies which lead to industrial development in those regional areas. In this regard, the conditions for this are believed to exist in the fabric toy, garment, wooden furniture, ceramic, and other industries.

7-6. Revolution in Consciousness of Staff of Ministry of Industry

The Ministry of Industry is becoming the most important government organization in terms of the industrial development of Thailand and is being looked upon with increasingly greater expectation by the industrial world and related government organizations. In order for the Ministry of Industry to fulfill its role and meet the expectations held toward it, it would be effective to launch a campaign to revolutionize the consciousness of its staff so as to encourage a spirit of challenging new subjects.

The flowchart illustrates the institutional framework for industrial promotion in India. It shows the flow of information and coordination among various ministries and departments, leading to the establishment of vision and realization of sectoral promotion measures by industries.

Key Entities and their Roles:

- Ministry of Industry, department in charge of industrial policies:** The central authority for industrial policies.
- BOI (Board of Investment):** Involved in the incorporation and promotion of investment.
- Ministry of Finance:** Involved in the incorporation of tax and finance system.
- IFCT SIFO (Industrial Finance Corporation and Small Industries Finance Organisation):** Involved in the use of institutional financing.
- DEP (Department of Export Promotion):** Involved in the development of export promotion activities.
- Private industries (including foreign affiliated firms):** The ultimate beneficiaries and participants in the industrial promotion process.

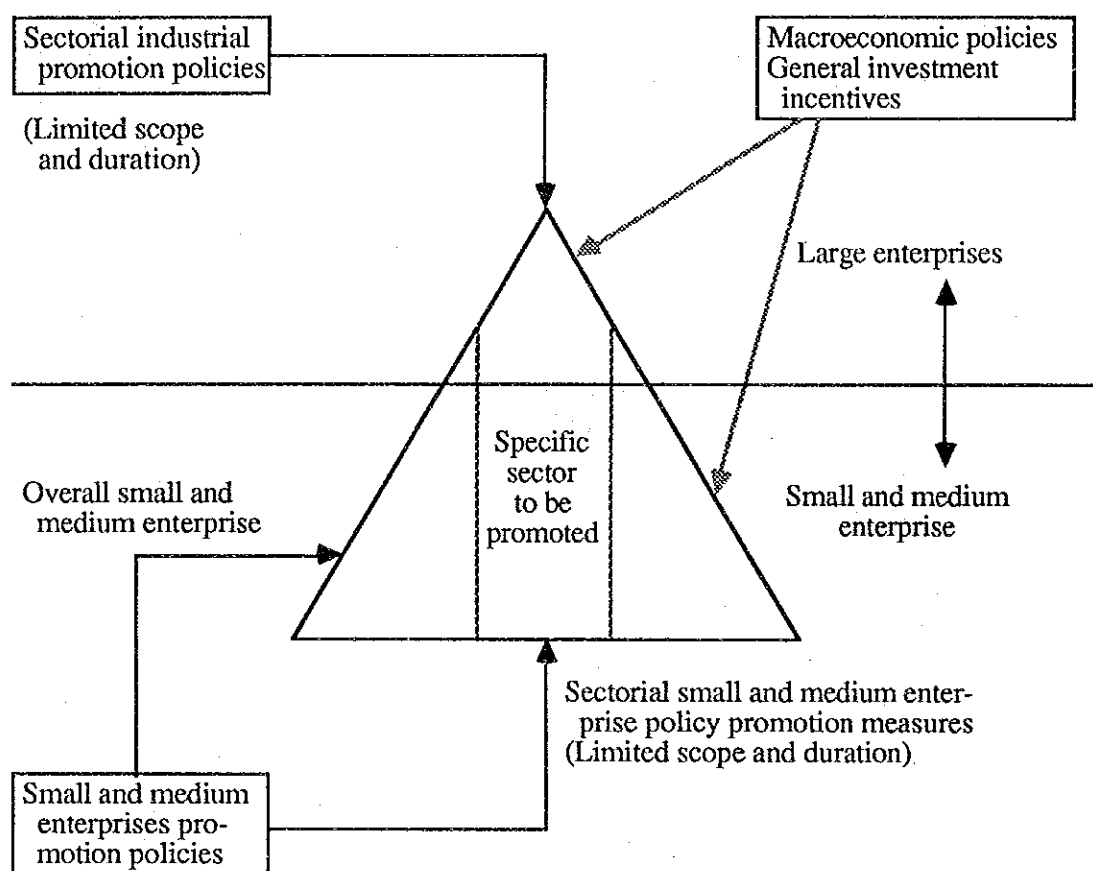
Process Flow:

- Exchange of opinion and information, coordination, cooperation among all ministries:** This is the initial stage, involving the Ministry of Industry and other relevant ministries.
- Incorporation and promotion of investment:** Led by BOI, this stage involves the incorporation of investment and the promotion of investment.
- Incorporation of tax and finance system:** Led by the Ministry of Finance, this stage involves the incorporation of tax and finance system.
- Use of institutional financing:** Led by IFCT SIFO, this stage involves the use of institutional financing.
- Development of export promotion activities:** Led by DEP, this stage involves the development of export promotion activities.
- Development of technical training activities:** Led by the Ministry of Industry, this stage involves the development of technical training activities.
- Establishment of vision for specific industry, Proposal and realization of sectoral promotion measures by industries:** This is the core stage, where the vision is established and the proposal is realized.
- Related industrial organizations:** These organizations are established to facilitate the industrial promotion process.
- Systematization, pursuit of common goals:** The final stage, where the process is systematized and common goals are pursued.

Supporting Activities:

- Technical training organization of Ministry of Industry:** Provides technical training to the workforce.
- Cooperation and exchange of opinion and information:** Essential for the success of the industrial promotion process.
- Cooperation, arrangement, exchange of opinion and information:** Essential for the success of the industrial promotion process.
- Promotion of industrial organizations:** Essential for the success of the industrial promotion process.
- Contact, Conference, Cooperation:** Essential for the success of the industrial promotion process.

Fig. V-4. Sectorial Industrial Policies and Small and Medium Enterprise Policies



Industrial policies	Sectorial industrial promotion measures:	Comprehensive, but limited duration incentives offered to specific industrial sectors designated for promotion
	Small and medium enterprise policy	
	Overall promotion measures:	Permanent incentives for small and medium enterprises as a whole
	Sectorial promotion measures:	Limited duration measures for small and medium enterprises of specific industries designated for promotion

Fig. V-5 Transition from BOI Investment Incentives to Sectorial Industrial Promotion Measures and Small and Medium Enterprise Promotion Measures

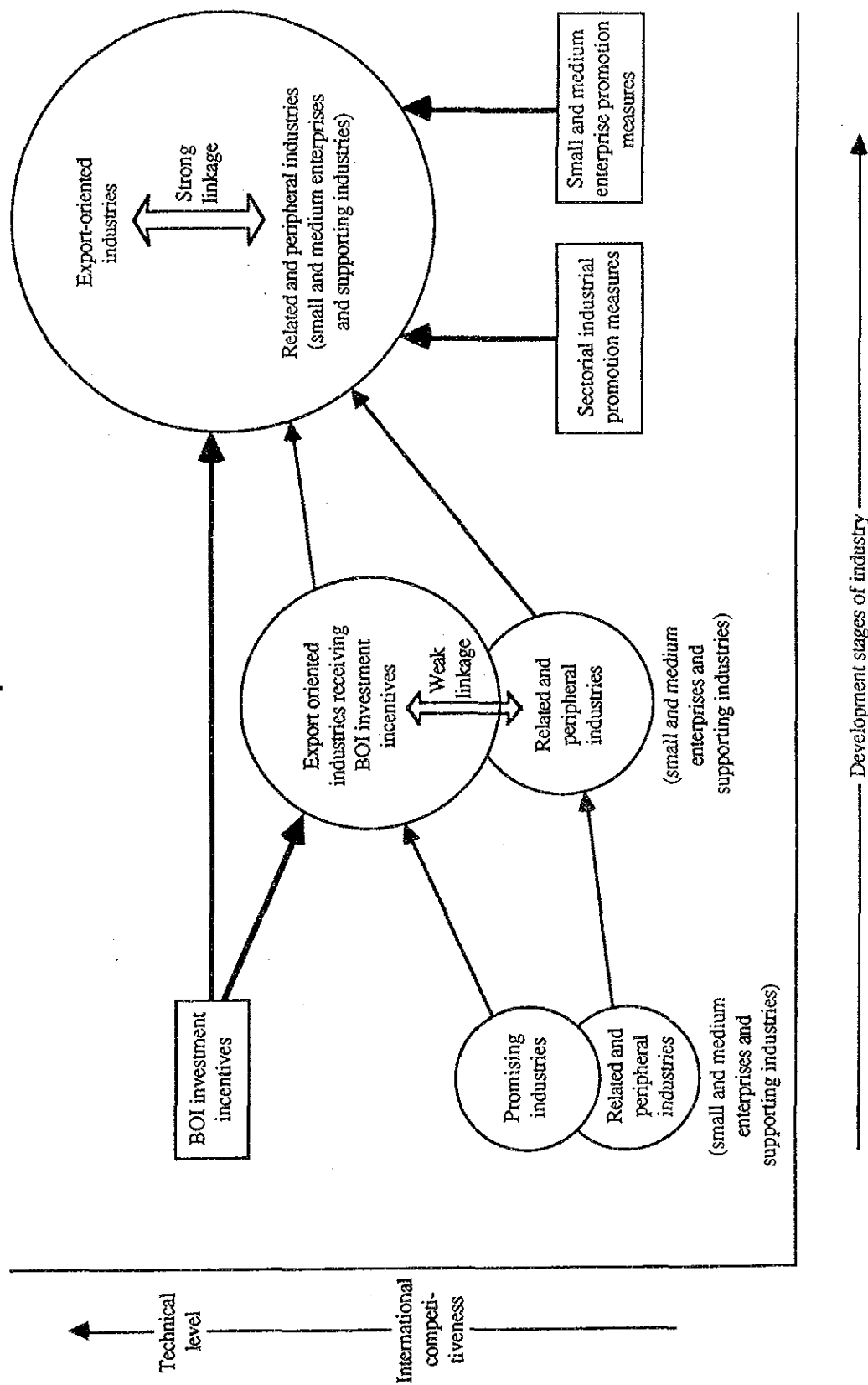


Fig. V-6. Roles of the Policy Unit and Industrial Organization for Specific Industrial Sector Policy

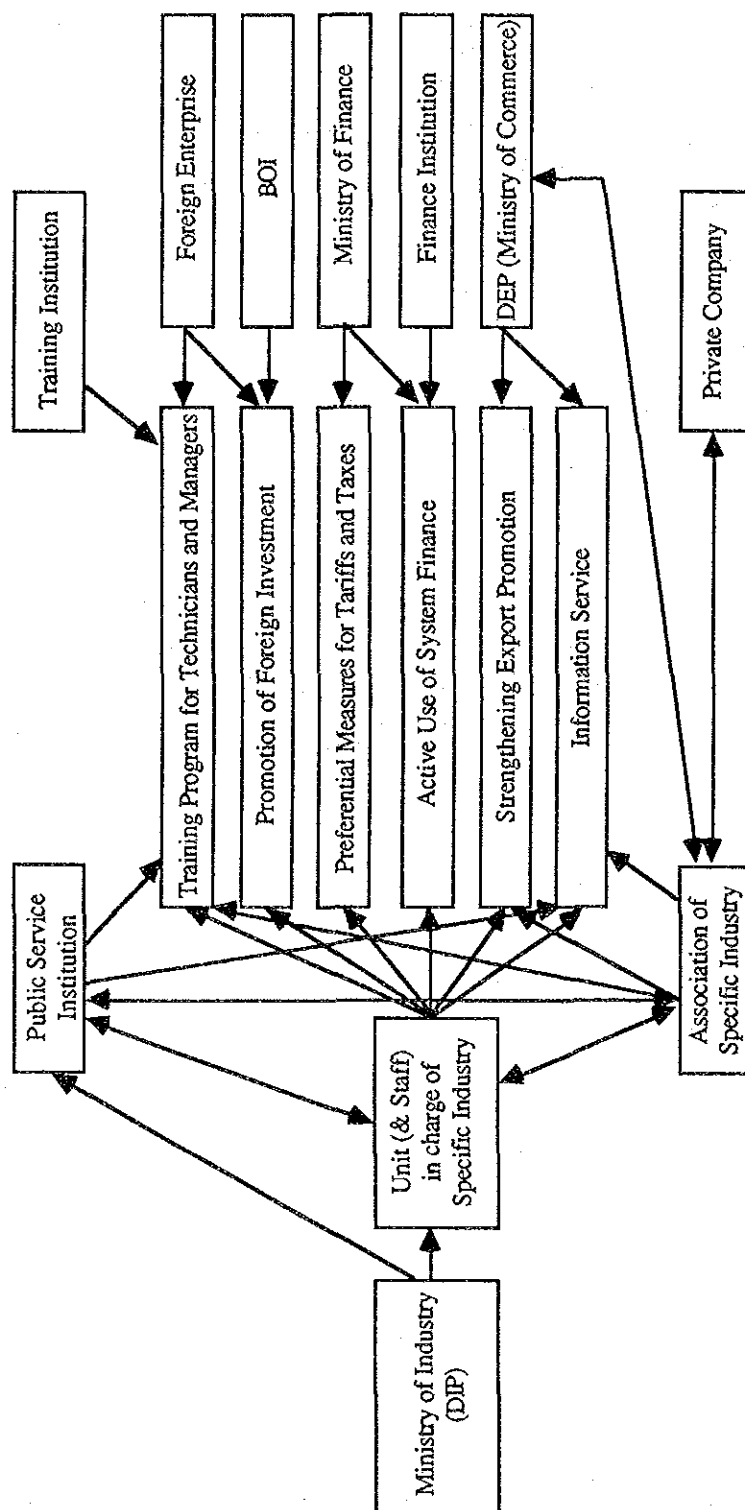


Fig. V-7. A Model of the Development of Public Service Institutions

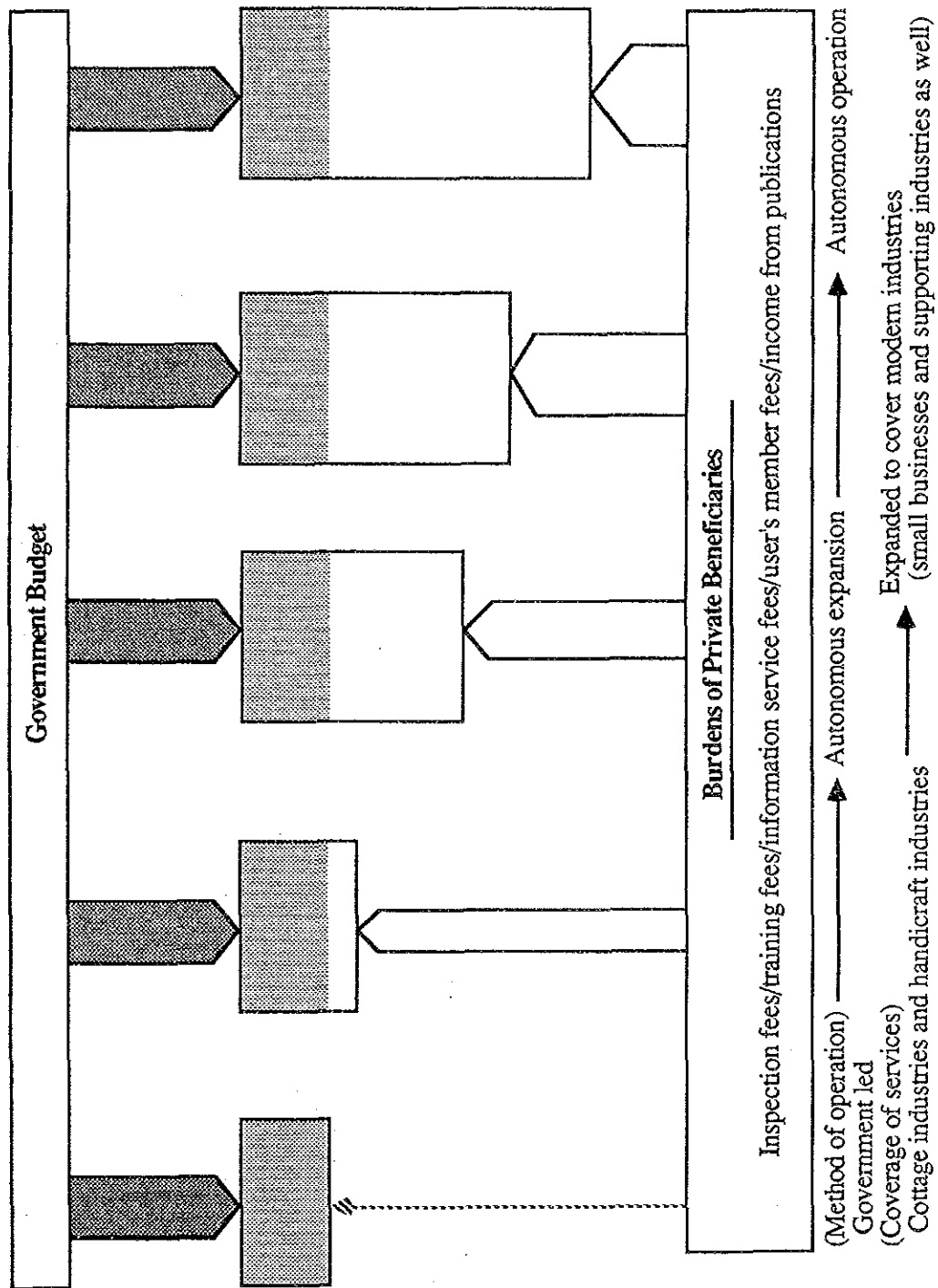


Fig. V-8. Economic/Social/Industrial Development and Policies in Thailand

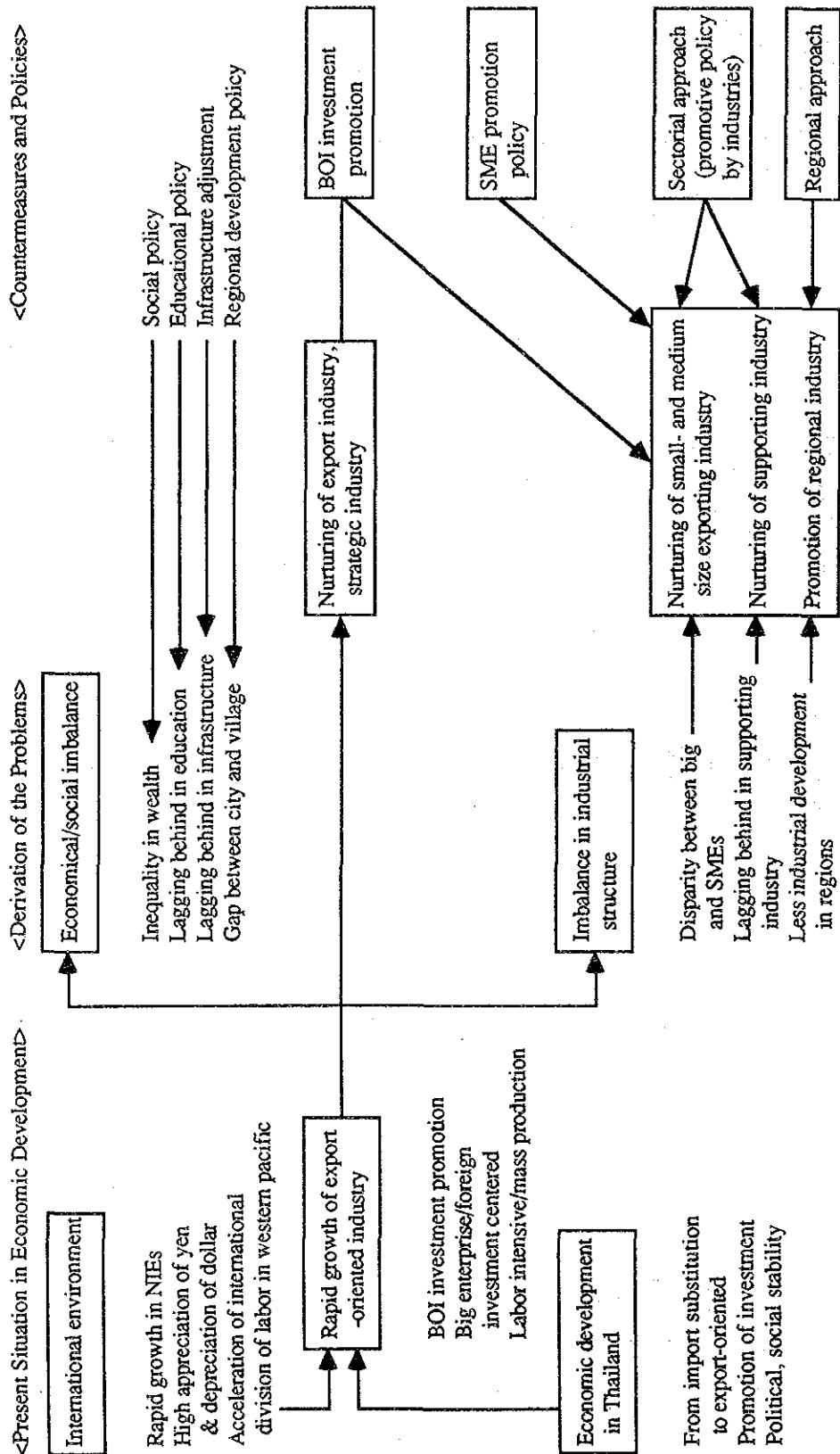
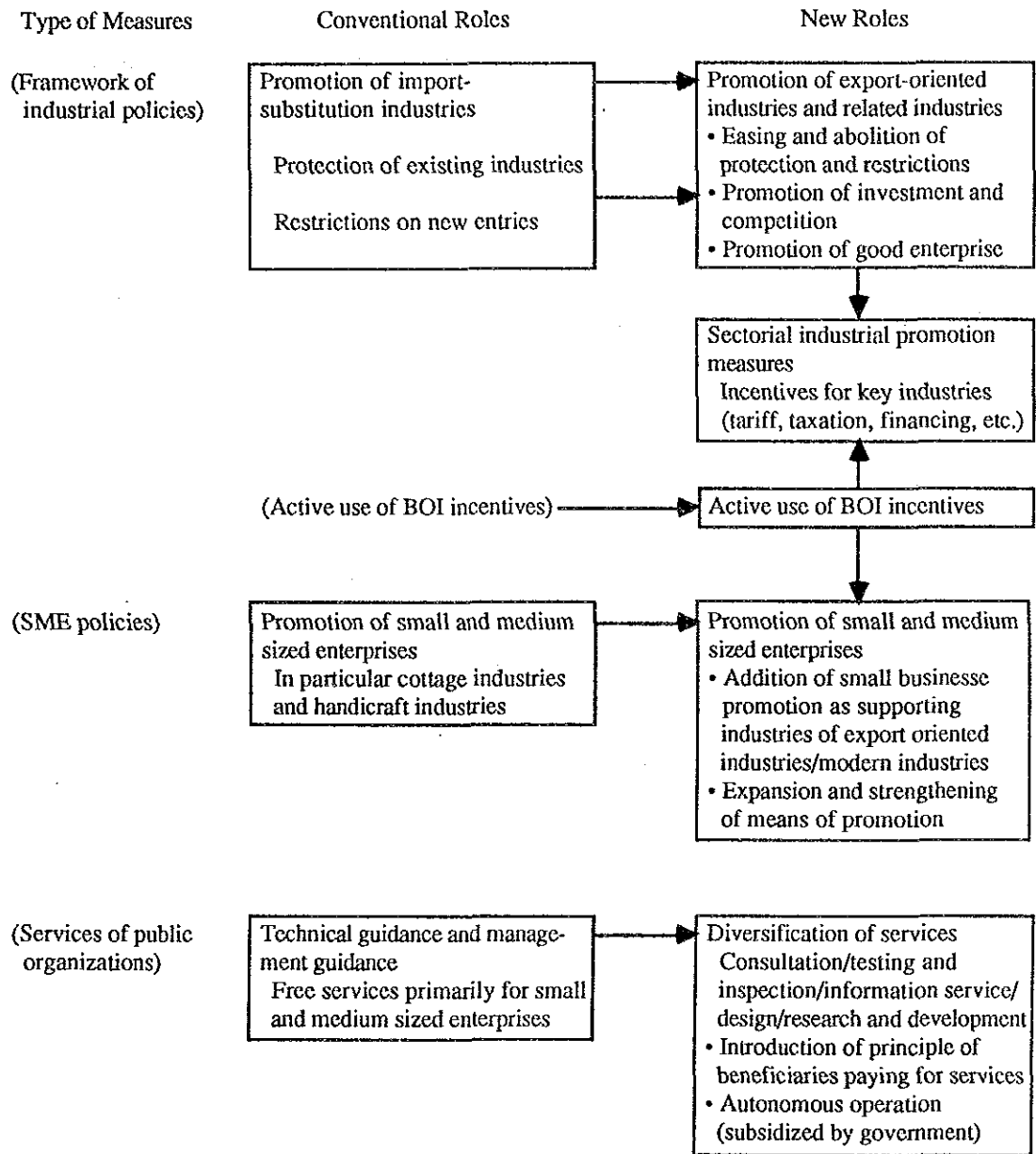


Fig. V-9. Changes in Role of Ministry of Industry



8. Summary Programs of First to Third Year Surveys

Here, consideration will be given to the importance and priorities of the programs presented in the first to third years in accordance with the key themes of the industrial policies taken up in section 7.

(1) Sectorial Industrial Promotion Measures

First, regarding the sectorial industrial promotion measures, most of the industries covered by the survey lack unit or staff for taking charge of sectorial industrial policies. In particular, it is considered of urgent necessity to establish policy units to take charge of toys, plastic processing, and ceramics.

These policy units must prepare information and data regarding the industries in question and obtain a grasp of problems and issues through obtaining information and opinions from industrial organizations, related organizations, experts etc. Further, based on this, they should draw up desirable directions for development of the industries and visions of their future and should formulate and realize sectorial industrial promotion measures combining various measures for elimination of the problems in that direction. In this respect, what should be particularly stressed for the present are policies for promotion of the mold and die industry, plans for augmentation of the textile material supply sector, and the program for promotion of the plastic processing industry.

(2) Small and Medium Sized Enterprise Policy

The small and medium sized enterprise policy at the present stage is limited in effect due to the small size of the policy scheme. Most of the industries covered by the survey are strongly small business-like in nature and even if sectorial industrial policies are formulated, it is considered essential to supplement and reinforce the same by small and medium enterprise policies. For this, it is desirable to strengthen policy schemes including abatement of taxes for small businesses, augmentation of low interest financing, etc. Further, consideration should be given to applying policy schemes for small businesses to specific industries or specific regions in accordance with need.

In this sense, it is important that the industries taken up in the survey all be covered by small business policies as well. In particular, in the supporting industries such as molds and dies and plastic processing, it is necessary to promote subcontractors.

In industries such as toys and garments, it is desirable to promote medium, small, and cottage enterprises and subcontractors in parallel. Further, for wooden products, it is considered effective to promote the development of tieups between small and medium enterprises and foreign businesses.

(3) Coordination Between Public and Private Sectors and Industrial Organizations

In formulating and realizing sectorial industrial promotion policies (including sectorial measures of small business policies), it is essential to have a sufficient exchange of information and opinions and a close cooperative relationship between the government and the private industry. Further, to push forward the same effectively, the industrial organizations would play major roles in obtaining a consensus in the industries and in coordinating interests of the same.

In this sense, for the mold and die industry, we may expect to see the newly established forum becoming more and more active. Further, in the plastic processing industry, the newly established government section will find it important to exchange opinions and information closely with existing private industrial organizations. For the toy industry, it will be desirable for the government to form a close cooperative relationship with the industrial organizations through promotion institutions primarily engaging in safety and quality inspections. For ceramics, close cooperation with industrial organizations will be essential for the establishment and operation of the Lampang Ceramic Center.

(4) Public Service Institutions

Public service organizations offering technical training, testing, and inspection services play a major role in sectorial industrial promotion and the promotion of small and medium sized enterprises. However, to make their activities more effective, it will be essential to have a close cooperative relationship with the private industry through industrial organizations. Further, public service institutions will find it important to introduce the principle of the beneficiaries paying for services and operate as autonomously as possible.

In this respect, MIDI desirably will further expand and upgrade its current activities. The TID and FIDC will have to obtain cooperation from private industry and introduce the principle of the beneficiaries paying for services so as to augment and

strengthen their functions. In the toy, plastic processing, and ceramic industries, it would be effective to establish new public service institutions operating with close cooperation with private industry. Further, in all cases, it will be necessary to focus the areas covered by the services as much as possible to meet with the needs of private industry.

(5) Industrial Development in Local Regions

Dispersion of industrial activities now overly concentrated in the Bangkok region to the local regions is a national issue in Thailand. In this respect too, sectorial industrial policies, small business policies, and the activities of public service institutions could play key roles.

Among the industries covered by the current survey, toys (in particular fabric toys, ethnic dolls, etc.), garments, wooden furniture, and ceramics (in particular in the northern regions) may be expected to grow in the local regions. To promote this, establishment of the necessary infrastructure and development of human resources of course are preconditions, but it would be effective to mobilize powerful policy schemes and provide technical and managerial guidance as part of the industrial policies and small business policies.

(6) Others

Promotion of industries requires cooperation with related government organizations and contributions by other government agencies. In Thailand, the work relating to industrial policies is divided among the BOI, DEP, etc. For this reason alone, cooperation with these government organizations would be of decisive importance in industrial promotion. In particular, cooperation and liaison with the BOI are important for industries where investment, joint ventures, and tieups are to be promoted. For industries where the stress is on promotion of exports, close cooperation with the DEP is essential. The Ministry of Industry, which deals closely with production sides, should fully be able to achieve better coordination with these related government agencies, which has been missing up until now, by displaying a more positive stance toward cooperation and liaison with them.

Table V-3. Three Years of Programs as Seen From Framework of Industrial Policies

Industry	Programs	Sectorial industrial promotion measures	Small and medium sized enterprise policy	Public-private coordination and industrial organizations	Public service institutions	Industrial development in local regions	Others
Molds and dies	[1] Active use of MIDI functions				* Training and inspection activities		
	[2] Promotion of mold and die industrial organization			* Augmentation of forum activities	o Liaison with MIDI		
	[3] Establishment and promotion of joint venture projects	o Part of sectorial promotion measures					o Cooperation with BOI
	[4] Promotion of mold and die technicians		o Promotion of subcontractors		o Part of MIDI activities		Δ Cooperation with educational organizations
	[5] Policies for promotion of mold and die industry	* Mobilization of promotional means					Δ Role of educational organizations
	[6] Engineer training						
Toys	[1] Toy industry promotion organization			o Liaison with promotional organizations	* Improvement of safety and quality		Δ Cooperation with BOI
	[2] Promotion of joint ventures and tieups		o In particular, targeting small and medium sized enterprises				
	[3] Policy functions and schemes	* Establishment, first, of policy unit	o Promotion of medium, small and cottage enterprises				
	[4] Export promotion activities						o Cooperation with DEP
	[5] Technical and managerial guidance				o Activities of promotion organizations	o Fabric toys and ethnic dolls	

* Program to be particularly stressed, o Important program, Δ Other program to be noted

Industry	Programs	Sectorial industrial promotion measures	Small and medium sized enterprise policy	Public-private coordination and industrial organizations	Public service institutions	Industrial development in local regions	Others
Textiles and garments	[1] Augmentation of material supply sector	* Establishment of system and formulation of promotional measures					
	[2] Expansion of production capacity of garments		o Development of medium, small and cottage enterprises		o Training function of TTD	o Expansion of production capacity in local regions	o Cooperation with training organizations
	[3] Augmentation and strengthening of TTD			o Private sector co-operation in augmentation of TTD	* In particular, material supply sector		
	[4] Promotion of exports of garments						o Cooperation with DEP
	[5] Textile industry vision	o Strengthening of sectorial promotional measures					
Wooden furniture	[1] Augmentation and strengthening of FIDC			o Private sector co-operation in augmentation of FIDC	* Technical training for medium and small sized enterprises		
	[2] Upgrading of level of medium and small sized enterprises		o Realization of support measures * Tie-ups with foreign businesses			Δ Expansion of production capacity in local regions	
	[3] Promotion of joint ventures, tieups, and exports						o Cooperation with DEP/BOI Δ Role of educational organizations
	[4] Occupational education and training			Δ Active use of functions of FIDC			
	[5] Support in securing materials				Δ Technology for parawood		

* Program to be particularly stressed, o Important program, Δ Other program to be noted

Industry	Programs	Sectorial industrial promotion measures	Small and medium sized enterprise policy	Public-private coordination and industrial organizations	Public service institutions	Industrial development in local regions	Others
Plastic processing	[1] Policy unit	* Establishment of policy function		* Exchange of opinions and information			
	[2] Plastic Industry Committee						
	[3] Program for promoting processing industry	o Mobilization of promotional means	o Development of subcontractors				
	[4] Program for promoting exports						
	[5] Plastic processing training institute		o Technical training for small and medium sized enterprises	o Liaison with training institutions	* Processing technology and material characteristics		o Cooperation with DEP
Ceramics	[1] Policy unit	* Establishment of policy function		o Exchange of opinions and information			
	[2] Ceramic Center			o Grasp of industry needs	* Analysis and grading functions of Cooperation of Center	o Establishment of Lampang Center	
	[3] Grading of raw materials						
	[4] Promotional campaign			o Cooperation in campaign		o Campaign in North as well	o Cooperation with DEP etc.
	[5] Program for promoting industry	o Mobilization of promotional means	o In particular, targeting small and medium sized enterprises			* Promotion of industry in North	

* Program to be particularly stressed, o Important program, Δ Other program to be noted

Table V-4: Summary of Sectorial Report of First to Third Year Reports
1. Mold and Die Industry (First Year)

Current State of Industry	Problems	Package of Countermeasures	Comprehensive Programs
<p><Management></p> <ul style="list-style-type: none"> Numerous independent small and medium sized manufacturers slow to modernize management Insufficient information and knowledge regarding management, technology, and facilities Lack of planning in sales activities Numerous companies unskilled in book-keeping and accounting Lack of establishment of industrial organizations Difficulties in borrowing from financial institutions Use of high interest capital funding from financing companies etc. Slowness in introduction of machinery corresponding to needs Shortage of good quality engineers and skilled workers Narrow range of knowledge of related engineering Slowness in standardization Numerous companies producing based only on experience and intuition Serious misunderstanding of precision and lack of understanding of level of quality and precision Lack of concept of quality control. No knowledge of methods Long delivery periods. Nonobservance of commitments No maintenance of machine tools and measuring equipment and no periodic check of capabilities Inability to make high quality and precision molds and dies Coexistence of new and old machinery and inability to make full use of performance of new machinery Need for introduction of modern facilities and acquisition of technology even in supporting sectors <p><Design and Production></p> <ul style="list-style-type: none"> Lack of skill in design and processing technology Lack of skill in process control <p><Facilities></p> <ul style="list-style-type: none"> Numerous antiquated and ageing facilities 	<ul style="list-style-type: none"> Private sector oriented service activities by government organizations to raise level of skills and production and management Activities for raising level of skills and management through organization of industry Improvement of level of production, technology, and management through entry of foreign companies Implementation of joint projects for training skilled workers Financial, tax, and tariff incentives for modernizing facilities and strengthening competitiveness Training of engineers and skilled workers 	<ul style="list-style-type: none"> Use of MIDI functions Positive use of functions of MIDI (metalworking center) in direction leading to organization of industry and improvement of level of private small and medium sized enterprises Establishment and activities of Mold and Die Industry Association Technical training for member companies using MIDI facilities Promotion of on-the-job training using MIDI facilities Publication and distribution of "Mold and Die Journal" Promotion of establishment of joint ventures In particular, matching between foreign mold and die manufacturers and Thai mold and die users Use of BOI scheme Establishment of mold and die industrial estate in accordance with need Implementation of emergency program for training of mold and die workers In consideration of urgency of training of skilled workers, implementation of emergency training program by joint effort of MIDI and King Monkhut Institute of Technology (cooperation by Mold and Die Industry Association as well) Establishment of policy scheme for promotion of mold and die industry. Strengthening of policy functions of MIDI as well. Preferential treatment for members of Mold and Die Industry Association (in sense of promotion of organization of industry as well). Exemption of import tariffs on metalworking machinery (including inspection and testing equipment, tools, etc.) Positive application of institutional financing (in particular SIFO) to mold and die industry Augmentation of education of engineers at university and college levels In addition to the above-mentioned emergency training program, there is a great need for hurrying the augmentation of education. 	

2. Toy Industry (First Year)

Current State of Industry	Problems	Package of Countermeasures	Comprehensive Programs
<p><Toy Industry as a Whole></p> <ul style="list-style-type: none"> • Reliance on OEM and production of copies, by large enterprises as well • Numerous companies relying on foreign companies for exports as well • Low recognition of safety • Lack of mold and die and other peripheral supporting industries <p><Plastic Toys></p> <ul style="list-style-type: none"> • Dominance of OEM production by large foreign capital companies registered with BOI • Production of low quality products and semicopies by numerous small and medium sized manufacturers <p><Metal Toys></p> <ul style="list-style-type: none"> • One company set up by investment from Hong Kong and another one in planning <p><Fabric (Stuffed Animal) Toys></p> <ul style="list-style-type: none"> • In small number of large sized manufacturers, dominance of OEM and production on order • In small and medium sized manufacturers, large percentage of production of copies and semicopies • Large numbers of cottage sized enterprises making ethnic dolls for tourists in northern region etc. 	<ul style="list-style-type: none"> • Lack of stable position as export industry in medium and long term • Lack of information on foreign markets and toy industry • Small number of companies engaged in own export efforts or market development • Blocks improvement of quality and improvement of image • Numerous cases of reliance on imports for materials, parts, etc. <ul style="list-style-type: none"> • Large percentage of production of medium class products with few parts and products with low added value • Almost no companies with internal development or design divisions • No information on foreign markets • Insufficient quality control systems • Still small level of production • Lack of interest in domestic toy manufacturers and related industries • Few examples of production of products based on own development and own plans • Lack of product development capabilities • Insufficient quality control and low recognition of safety • Low level of both design and quality 	<ul style="list-style-type: none"> • Establishment and operation of organization to serve as center for organization of industry and improvement of management and technical levels • Promotion of entry by foreign companies, establishment of joint ventures, technical tie-ups, etc. so as to raise the level of production, technology, management, and sales capabilities • Strengthening of sectorial functions of Ministry of Industry and strengthening of cooperation with related organizations • Strengthening of export promotion activities by Ministry of Commerce and cooperation with Ministry of Industry • Improvement of design and quality of tourist oriented ethnic dolls 	<ul style="list-style-type: none"> • Establishment and operation of toy industry promotion organization specialized for toys and having training facilities and an information and reference function and operation of the same through government-private sector cooperation (the inspection organization conceivably would be set up by the government's providing facilities and equipment and an independent nonprofit organization operating the same) • Investment promotion and joint venture and technical tieup promotion activities <ul style="list-style-type: none"> - Dispatch of investment and joint venture promotion mission by BOI, Ministry of Industry, and toy manufacturers - Activities to attract companies by BOI and Ministry of Industry including peripheral industrial fields - Dispatch of investment and tieup missions from Japan - Matching of joint ventures among interested companies • Strengthening of administrative organization for promotion of toy industry and establishment of policy scheme <ul style="list-style-type: none"> - Establishment of sections and officials in charge in Ministry of Industry (clarification of same) - Establishment of inspection system - Assistance in organization of industry - Granting incentives to member companies of toy industry association • Strengthening of toy export promotion activities by Department of Export Promotion (DEP) of Ministry of Commerce <ul style="list-style-type: none"> - Strengthening of collection of overseas market and industry information and supply of same to industry (cooperation by above-mentioned toy industry promotion organization as well) - Increase in number of participations in trade fairs and dispatches of inspection and sales missions - Training and seminars on overseas marketing situations etc. • Technical and management guidance for improvement of ethnic dolls <ul style="list-style-type: none"> - Training for raising level of design and quality - Establishment of organization for development of tourist market and establishment of sales channels

3. Textiles and Garments (Second Year)

Current State of Industry	Problems	Package of Countermeasures	Programs
<p><Textiles></p> <ul style="list-style-type: none"> Industrial structure and market <ul style="list-style-type: none"> Monopolistic system upstream (in particular synthetic fibers) High domestic price of yarn and fabrics Insufficient supply of materials to garment sector (in volume, quality, and variety) Facilities <ul style="list-style-type: none"> Imbalance in capacity of facilities after expansion in upstream sector (spinning) and midstream sector (weaving, dyeing, etc.) Overemphasis on production of standard products Slowness in modernization of facilities Technology and information <ul style="list-style-type: none"> Slowness in obtaining specialized technology and know-how in midstream sector (weaving, dyeing, etc.) Lack of converter function Shortage of engineers and skilled workers Infrastructure <ul style="list-style-type: none"> Insufficient knowledge on water supplies and wastewater Fears of water shortages Heavy funding burden in water treatment in dyeing sector <Garments> Industrial structure and market <ul style="list-style-type: none"> Large limitations in procurement of materials (high reliance on imports) and high price as well Lack of converter function Insufficient conversion of small and medium sized enterprises (to export orientation) Underdevelopment of subcontracting companies Facilities <ul style="list-style-type: none"> Numerous ageing machines remaining Scarcity of specialized machines Shortage of maintenance personnel for machines Production activities and technology <ul style="list-style-type: none"> Lack of training function for garment production in TID Basic lack of skill in production control and process control Shortage of engineers, technicians, and pattern makers Marketing <ul style="list-style-type: none"> Numerous companies grown used to subcontracting for foreign buyers Lack of recognition of importance of designs and brands Lack of foreign market information 		<ul style="list-style-type: none"> Augmentation and modernization of garment material supply sector <ul style="list-style-type: none"> [1] Augmentation and strengthening of material supply sector <ul style="list-style-type: none"> Promotion of investment in weaving and knitting sectors Establishment of environment for investment in dyeing, printing, and finishing sectors Promotion of modernization of facilities in material supply sector (spinning, knitting, and dyeing related sectors) Encouragement of converter function Deployment of policy advisors in TIDC Expansion of garment production capabilities and training of personnel <ul style="list-style-type: none"> [2] Expansion and strengthening of garment industry <ul style="list-style-type: none"> Augmentation of textile and garment courses in public specialized schools (training of engineers) Program for training "sewing workers, cutting workers, etc." in Vocational Training Center Promotion of small and medium sized enterprises and subcontracting companies Strengthening of on-the-job training in companies Augmentation and strengthening of TID and use of same <ul style="list-style-type: none"> [3] Augmentation and strengthening of TID staff <ul style="list-style-type: none"> Strengthening of guidance ability of TID staff Establishment of guidance function relating to garment production field Sponsoring of seminars and workshops Implementation of roving guidance to companies Augmentation of testing and inspection functions (quality tests, analysis, and inspection of materials, products, etc.) Opening of testing and inspection facilities to public for use at a fee Strengthening of information function Introduction of principle of beneficiaries paying for services Promotion of exports of garments and raising of added value <ul style="list-style-type: none"> [4] Promotion of garment exports and improvement of image <ul style="list-style-type: none"> Export promotion activities by DEP Promotion of designs and brands (through cooperation of DEP/TID) Formulation of image for future of textile industry <ul style="list-style-type: none"> [5] Textile industry vision <ul style="list-style-type: none"> Formulation and publicization of "textile industry vision" at TIDC 	

4. Wooden Furniture (Second Year)

Item	Problems	Package of Countermeasures	Programs
<ul style="list-style-type: none"> Industrial structure and raw materials 	<ul style="list-style-type: none"> Lack of domestic resources Rise in price of raw materials and difficulties in acquisition Large gap in acquisition of materials and processing technology between large companies and small and medium sized companies 	<ul style="list-style-type: none"> Augmentation and strengthening of training, inspection, information, and research and development functions of government organizations In particular, strengthening and use of function of existing government organization, FIDC (Furniture Industry Development Center), in ISI of Ministry of Industry, with aim of improvement of degree of processing and added value of small and medium sized furniture manufacturers 	<ul style="list-style-type: none"> [1] Augmentation and strengthening of FIDC Strengthening of guidance capabilities of FIDC staff Sponsoring of seminars and workshops Implementation of roving guidance of companies Augmentation of testing and inspection functions (quality tests, analysis, and inspection) Opening of testing and inspection facilities to public use at a fee Research and development of parawood lumber technology Strengthening of information function Introduction of principle of beneficiaries paying for services
<ul style="list-style-type: none"> Facilities 	<ul style="list-style-type: none"> Slowness in modernization of facilities in small and medium sized enterprises Lack of drying facilities in small and medium sized enterprises Slowness in introduction of automated, specialized machines Lack of skill in storage and grinding of cutting tools 		
<ul style="list-style-type: none"> Technology 	<ul style="list-style-type: none"> Lack of skill in setting up production lines Low level of process control and quality control and shortage of personnel as well Lack of recognition regarding importance of strength Lack of drafting ability and knowledge 	<ul style="list-style-type: none"> Promotion and raising of level of small and medium sized enterprises Expanding reach of industry and stimulating industry by devising support measures for small and medium sized manufacturers weak in terms of securing raw materials and facilities and by raising the level of the manufacturers 	<ul style="list-style-type: none"> [2] Raising level of small and medium sized enterprises Promotion of cooperative businesses among small and medium sized furniture companies Promotion of modernization of facilities of small and medium sized furniture companies
<ul style="list-style-type: none"> Marketing 	<ul style="list-style-type: none"> Lack of knowledge and information regarding foreign markets Lack of product standards and design capabilities Lack of sales effort to foreign markets 	<ul style="list-style-type: none"> Raising added value and processing degree and promoting exports Raising the added value and degree of processing of wooden furniture to be exported and expanding exports by assistance with cooperation of the various related government organizations 	<ul style="list-style-type: none"> [3] Promotion of joint ventures and tieups and promotion of exports Promotion of tieups with foreign companies Export promotion activities by DEP Information activities by FIDC (mentioned above)
<ul style="list-style-type: none"> FIDC functions 	<ul style="list-style-type: none"> Ageing of training machinery Lack of technical guidance and inspection staff Lack of budget and running expenses 	<ul style="list-style-type: none"> Training of personnel in woodworking and production of wooden furniture Augmentation of woodworking related courses in vocational training schools etc. and tying in same to increase of degree of processing and added value 	<ul style="list-style-type: none"> [4] Augmentation of vocational education and training Augmentation of woodworking and furniture courses at specialized public schools (training of upper level engineers) Augmentation of woodworking course at vocational training center Strengthening of on-the-job training in companies
<ul style="list-style-type: none"> Supporting industries 	<ul style="list-style-type: none"> High price of adhesives, paints, etc. Poor quality of domestic metal fittings 		
<ul style="list-style-type: none"> Institutions and policies 	<ul style="list-style-type: none"> Continued unclarity of future direction of resource policies and imports and distribution of lumber 	<ul style="list-style-type: none"> Establishment of system for stable acquisition of raw materials 	<ul style="list-style-type: none"> [5] Support for securing raw materials Measures for stabilization of imports of logs and lumber Development of parawood lumber technology

5. Plastic Processing (Third Year)

Item	Problems
• Summary of industry	• Technical problems caused by diversification of products • Mismatch of interests of upstream sector (raw materials) and downstream sector (processing industries) • Lack of public organizations
• State of supply and demand	• The demand for plastic products includes final demand and intermediate demand. The promotion of the processing industry requires methods taken in line with the characteristics of demand • Necessity for broad range of measures to be taken with respect to intermediate demand
• Exports	• Consideration of exports divided into parts and household goods • Strengthening of relationship between assembly manufacturers and part manufacturers • Necessity for regional strategy in line with market in case of household goods
• Production activities and technology	• Lack of planning and development capabilities of numerous part manufacturers (total reliance on assembly manufacturers) • Lack of skill in molding technology • Lack of skill in secondary processing technology (lack of printing, plating, and other surface decoration technologies) • Lack of knowledge and technology in molding materials
• Corporate management	• Wide reliance on assembly manufacturers • Lack of market information in manufacturers of household goods • Limits to family run companies • Difficulties in securing personnel (engineers and management staff)
• Raw materials	• Reliance on imports for raw materials necessary for grade of industrial parts • Little hope for improvement of domestic raw material price
• Supporting industries	• Lack of personnel for maintenance and safety of processing machines
• Environmental issues	• Problems with processing of scrap plastic

Package of Countermeasures	Programs
• New establishment of function for drafting and promoting policies relating to the plastic industry	• Establishment of policy unit for plastic processing - Preparation and implementation of promotional measures - Joint work with private bodies related to plastic - Coordination with other ministries - Compilation of plastic information (statistics, industrial information, technology)
• Promotion of industrial organization and establishment of system of cooperation among related organizations	• Establishment of Plastic Industry Liaison Committee
• Formulation and implementation of preferential measures for promotion of plastic processing industry	• Program for promotion of plastic processing industry - Encouragement of indirect exports and investment by small and medium sized enterprises - Promotion of specialized mold and die, secondary processing, compound industries - Reduction of import tariffs on plastic processing machines and plastic use molds
• Collection and dissemination of overseas information relating to household use plastic products and export promotion	• DEP program for promotion of exports of household use plastic products - Survey of trends in key overseas markets for household use plastic products (including collection of samples and catalogs) - Publication of survey findings - Development of new products - Participation in overseas trade fairs by superior products - Dispatch of export missions
• Establishment of technical training organization relating to processing of plastic	• Establishment of plastic training sector in EIPC (Eastern Industrial Promotion Center) - Establishment of function for training in plastic molding and processing skills - Function for training in technology for testing and analysis of plastic materials - Function of receiving commissions of testing, analysis, research, and development of plastic materials - Function of information center Collection of outside technical information, accumulation of internal technical information, and publication of results - Introduction of principle of beneficiaries paying for services

6. Ceramics (Third Year)

Item	Problems	Package of Countermeasures	Programs
<ul style="list-style-type: none"> • Summary of industry 	<ul style="list-style-type: none"> • Little general interest in improvement of quality and market information. In particular, many problems in Lampang. • Insufficient staff and technical capabilities in NIPC etc. and insufficient publicization of activities of same 	<ul style="list-style-type: none"> • Establishment of function for drafting and promoting policies relating to ceramic industry • Establishment of policy unit for ceramic industry • Exchanges of opinions, coordination, and cooperation among ceramic related private bodies and research institutions (universities) • Exchanges of information and opinions and coordination of policies with other ministries • Compilation and provision of related information (compilation of fundamental statistics, collection of information on materials, etc.) • Support and guidance of technical training organizations • Preparation and implementation of incentives 	<ul style="list-style-type: none"> • Exchanges of information and opinions and coordination of policies with other ministries • Compilation and provision of related information (compilation of fundamental statistics, collection of information on materials, etc.) • Support and guidance of technical training organizations • Preparation and implementation of incentives
<ul style="list-style-type: none"> • State of supply and demand 	<ul style="list-style-type: none"> • Lack of fundamental data relating to production of finished products (production capabilities, production volumes, operating rate of industry) 		
<ul style="list-style-type: none"> • Exports 	<ul style="list-style-type: none"> • Instability of quality of finished products. Poor management of delivery commitments. Numerous intermediaries (difficulty of direct transactions) 		
<ul style="list-style-type: none"> • Production activities and technology 	<ul style="list-style-type: none"> • Lack of development capabilities of products for overseas markets • Unstable quality of clay made by ceramic manufacturers in Lampang • Lack of control of viscosity, moisture content, and amount of plasticizers of slip • Use of plaster molds over the limits of use. Lack of measures for increasing hardness of plaster molds • Necessity for raising productivity in painting work • Insufficient heat efficiency of Thai made shuttle kilns 	<ul style="list-style-type: none"> • Establishment of technical training organization for manufacture of ceramics • Establishment of Lampang Ceramic Center • Analysis and grading of clay (Lampang clay) • Training in manufacturing technology for ceramics • Research and development • Other training • Technical information services 	<ul style="list-style-type: none"> • Establishment of Lampang Ceramic Center • Analysis and grading of clay (Lampang clay) • Training in manufacturing technology for ceramics • Research and development • Other training • Technical information services
<ul style="list-style-type: none"> • Corporate management 	<ul style="list-style-type: none"> • Bottlenecks in expansion of production capacities of export products in small and medium sized manufacturers. For example, lack of in-house systems for training management staff and foreman class personnel and tendency of lack of skilled painting workers • Strong trend for targeting low cost and low quality markets in Lampang manufacturers 	<ul style="list-style-type: none"> • Checking and grading of clay and stabilization of quality • Preparation of system for analysis and grading of clay at NIPC • Engagement of foreign experts • Grading by cooperation with material suppliers • Establishment of material processors 	<ul style="list-style-type: none"> • Preparation of system for analysis and grading of clay at NIPC • Engagement of foreign experts • Grading by cooperation with material suppliers • Establishment of material processors
<ul style="list-style-type: none"> • Raw materials 	<ul style="list-style-type: none"> • Unstable quality of shipments of Lampang clay 	<ul style="list-style-type: none"> • Activities for promoting exports of ceramics and for raising consciousness of production areas 	<ul style="list-style-type: none"> • Launching of campaign for promotion of ceramic industry • Marketing activities covering key overseas markets • Sponsoring of Lampang/Chueingmai Ceramic Festival
<ul style="list-style-type: none"> • Supporting industries 	<ul style="list-style-type: none"> • Lack of development of manufacturers of production machinery 	<ul style="list-style-type: none"> • Mobilization of preferential measures for promotion of ceramic industry 	<ul style="list-style-type: none"> • Special program for promotion of ceramic industry • Reduction of import tariffs • Exceptional application of investment promotion system • Positive use of institutional financing

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