Chapter 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.

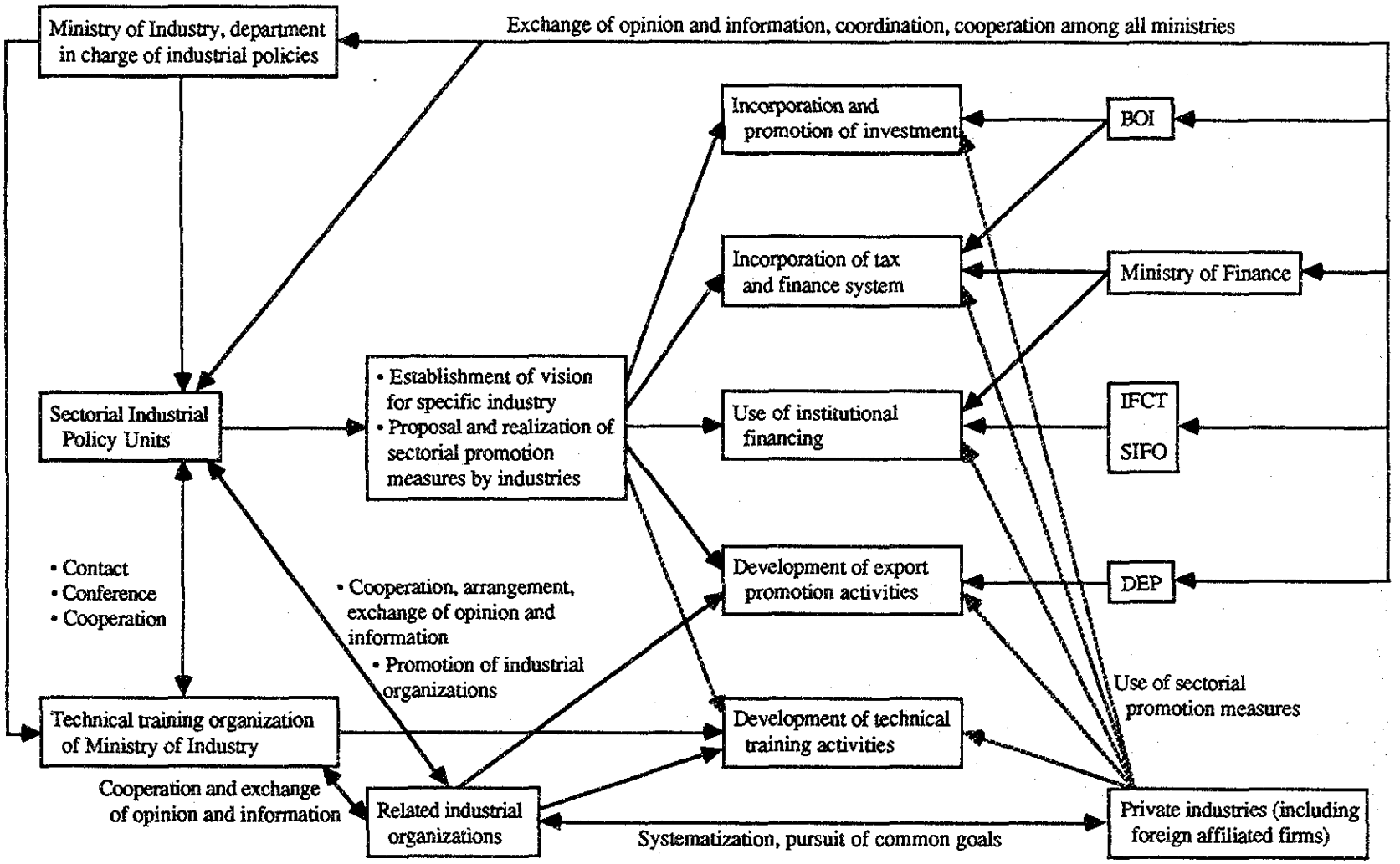
One of the important assumptions of a sectorial approach is that various promotion measures and incentives be devised concentratedly for selected "specific industrial sectors" "limited to a certain time period". This is because the "important industrial fields" of a country change with each stage of economic and industrial development and also because the concentrated application of a series of promotion measures for a limited time period is considered to give rise to greater effect.

In the formulation and implementation of sectorial industrial policies, it is essential that a clear unit and officers be placed in charge of the sector in the government agencies dealing with industrial policy. This unit and officers would maintain a constant firm grip on the state of the sector and its problems and play the central role in the formulation and realization of sectorial industrial policies.

For them to do this, the unit and officers would have to maintain constant close contact with industrial organizations, experts, related parties, etc. and continued liaison and exchanges of opinion with related government organizations (in particular the Ministry of Commerce, Ministry of Finance, BOI, Ministry of Science and Technology, etc.) and based on this establish development targets for industries, formulate promotion measures and incentives, and tackle the realization of the same. For this, the unit and officers would have to have the various types of basic knowledge relating to the sector and have a grasp of the available information and data and at the same time be familiar

government would have to endeavor that related information be centralized at that unit and officers and give the necessary authority to them for the same.

Fig. V-3. Development of Sectorial Industrial Policy Units



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.

A look at the past development processes of the industrial structures of the advanced industrialized nations and the newly industrialized economies (NIEs) shows that numerous small and medium sized enterprises have developed in parallel with the large companies, thus forming a "social division of labor" between the large companies and small and medium sized enterprises. The large companies concentrated their production in more efficient, basic fields as much as possible and left the complementary fields of business to the small and medium enterprises and subcontractors in many cases. On the other hand, small and medium sized enterprises with strong growth potential have the chance to gradually expand their business into the fields of activity of the large companies or else increase their size through development of new products or new technology and thus grow into large companies themselves. This prevents the large companies from maintaining "monopolistic" positions, thus also having the effect of maintaining the dynamism of industrial development.

Further, in recent years, the number of fields which small and medium enterprises can handle easier than large companies has increased due to the diversification of demand and preferences in the global market. Further, there are numerous fields suited to the activities of the small and medium enterprises in the numerous newly growing service industries as well. The "social division of labor" between the large companies and small and medium sized enterprises is thus moving in the direction of further development.

Today, in all of the advanced industrialized countries of the world, it is recognized that the coexistence of large companies and small and medium sized enterprises in the industrial structure, with a certain balance maintained between them, is desirable in meeting social demand and also for maintaining the vitality of industrial activity.

The following may be mentioned as the basis for existence of small and medium enterprises:

[1] Production, sales, and service activities in "gaps" (where the large companies are not active)

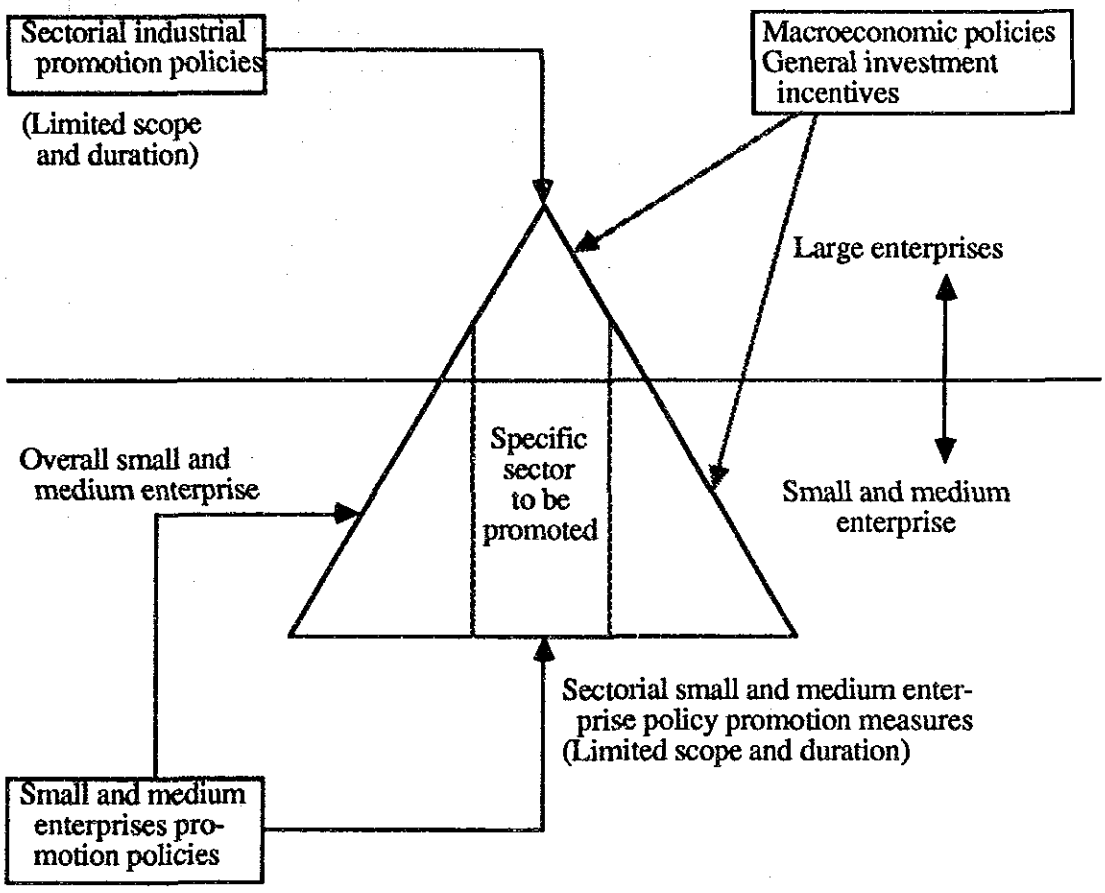
[2] So-called supporting industries such as production of parts, subcontracting of processing work, and repair of machinery and equipment (as fields of business complementing the large companies)

[3] Business in special fields such as traditional technology, new technology, and new services

[4] The role of "adjusting valves" enabling business fluctuations and market changes to be dealt with flexibly

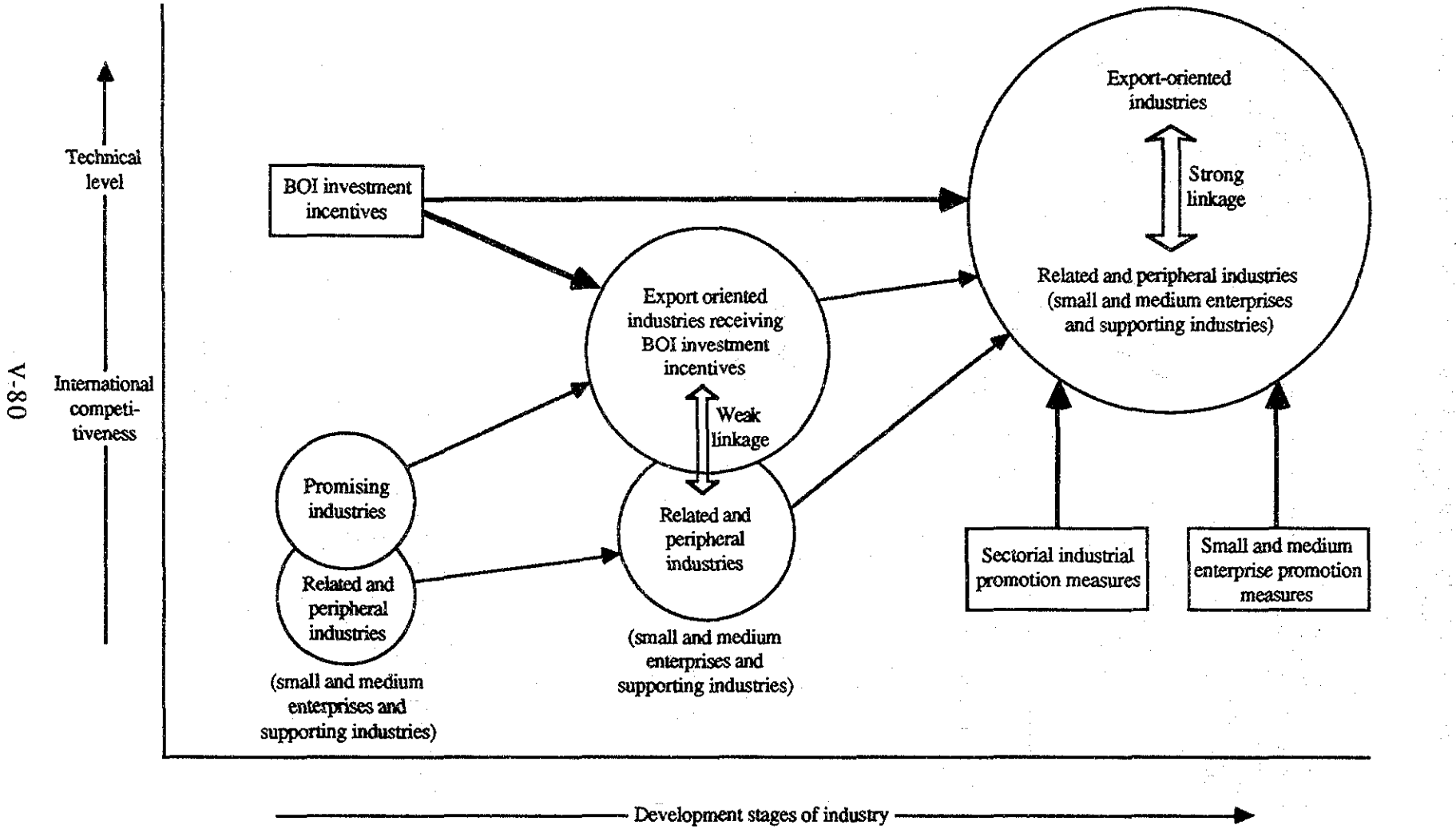
Thailand has long recognized the need for promoting small and medium sized enterprises and, primarily through the Department of Industrial Promotion (DIP) of the Ministry of Industry, has taken various measures to promote such enterprises, but the scope of these measures has been limited and one cannot say that they have been notably effective. In the future, it is considered necessary to offer tax incentives to small and medium enterprises, expand institutional financing for small and medium sized enterprises (low interest financing), expand and strengthen promotional measures for specific industries primarily comprised of small businesses, and to effectively combine all these so as to thus positively promote small and medium enterprises in much the same way as Japan, Korea, etc.

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



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

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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.

It is essential that, corresponding to the organization and functions of the policy units and officers on the government side, the interested parties relating to an industry in the private sector do their part in the formulation and realization of sectorial industrial policies. In this regard, the collection of information and opinions from private companies in that sector and the representation of these private companies in liaison, exchanges of opinion, and negotiations with the government units and officers in charge is generally the task of the industrial organizations.

Industrial organizations come in two types: those established based on some particular law and those established as desired. Among these, further, are those with specific economic or political purposes and those which are mere social clubs in nature.

Whatever the case, when a government wishes to provide support to a specific industrial sector using sectorial industrial policies, the industrial organizations in that industrial sector take on important roles and responsibilities. Looking at the experience of Japan, Korea, Taiwan, etc., it may be said that the smooth implementation of their industrial policies would not have been possible without the cooperation of the industrial organizations.

In Thailand, the industrial organizations have had little experience in positive promotion of industrial development. There have also not been that many cases of the

government promoting or making active use of industrial organizations. The Ministry of Industry should work to promote the industrial organizations and coordinate and cooperate with the same as a prior assumption in its implementation of sectorial industrial policies.

Industrial organizations generally should perform the following roles in the formulation and realization of sectorial industrial policies.

[1] The collection of information from member companies and the solicitation, summarization, and coordination of opinions

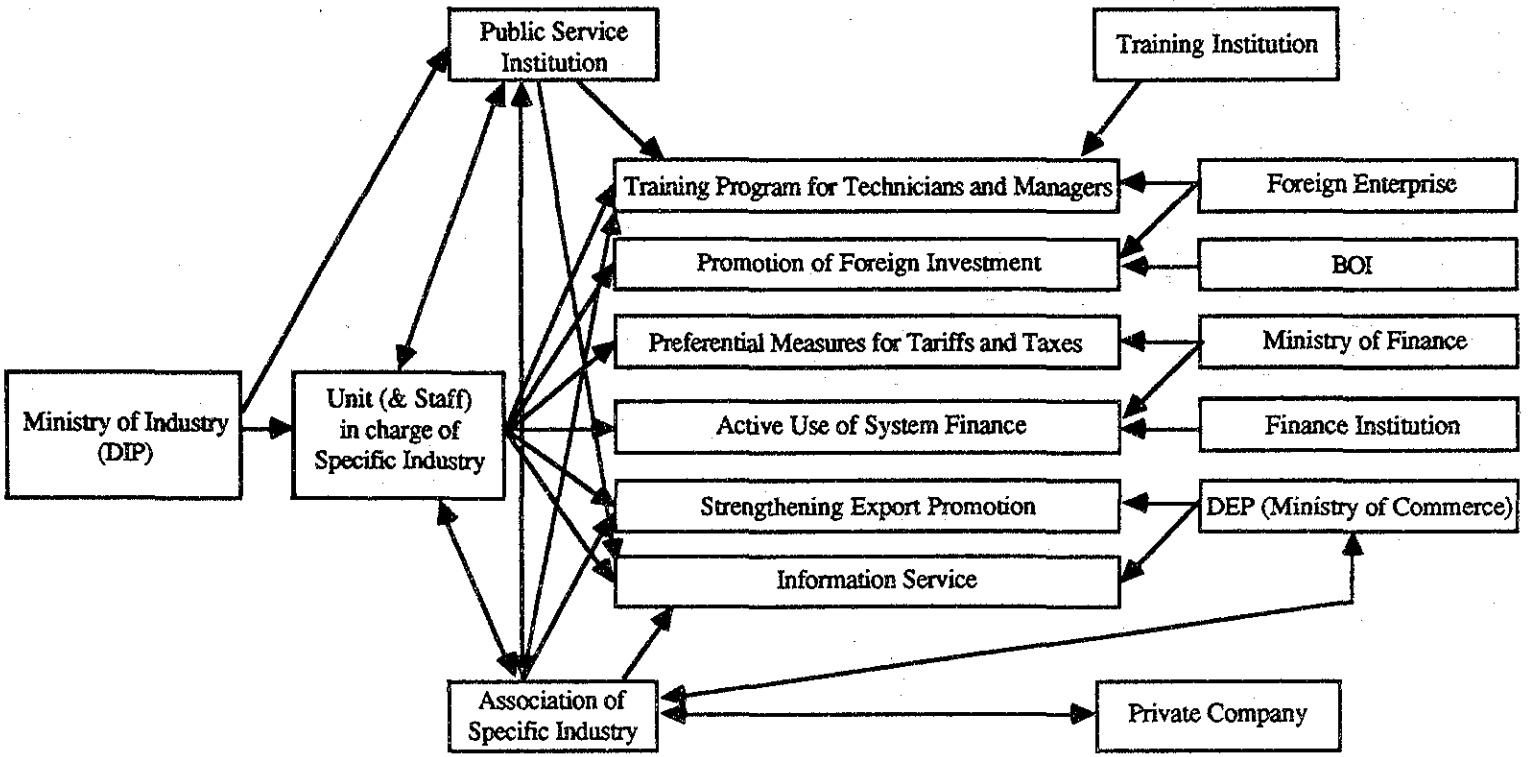
[2] Exchange of information and exchange of opinions with government agency in charge of industry and representations before the same

[3] Dissemination of necessary information to companies in industry and PR activities

[4] Liaison and exchange of information and opinions with related government organizations, industrial organizations, foreign industrial organizations, etc.

[5] Planning and implementation of actions necessary for industry

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



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.

In a free economy, industrial activity in principle relies on the effort of private companies. To promote an industry, however, or for other reasons, public institutions provide various services to private companies in many cases. The fields of services provided by public institutions differ depending on the country and industry, but in general may be considered to be as follows:

- Education and training of technicians, skilled workers, supervisors, and managers, etc.
- Research and development, technical development, experimental production
- Formulation of specifications, standards, etc.
- Inspection of the quality and performance of materials and products and certification of inspection results
- Collection and provision of related information and data
- Supply of public funds
- Authorizations, permits, and supervision of execution of laws

In general, in the initial stage of industrialization, public institutions are established by the fiscal funds of the government and provide services for free or at low cost. The services are primarily technical education and training. In the past, this type of service has been primarily provided in Thailand as well.

At the stage of more advanced industrialization, various services for the promotion of the industry, for example, establishment of specifications and standards, inspection of

materials and products, and collection of information are added and the range of services covered is expanded. In general, at this stage, services are expanded not only using fiscal funding by the government, but also funds from the private sector collected in the form of membership dues, inspection fees, usage fees, etc. The method of collecting suitable fees from beneficiaries of public services has been adopted by numerous countries based on the "principle of the beneficiaries bearing the costs".

At about the same stage, public service institutions are often established on the initiative of private companies for their common interest by investment by beneficiaries. In such a case, the government sometimes provides subsidies from fiscal funds etc. to these organizatiosn, but whatever the case, the service organizations are run autonomously as "independent accounting units" and provide services meeting the needs of the users on the ""principle of the beneficiaries bearing the costs".

The public services provided in the industrial field have to be augmented and made more sophisticated along with the development of the industry and this requires the augmentation and replacement of equipment, augmentation of staff, etc. This often cannot be done with fiscal funding alone. In such cases, the incorporation of the "principle of the beneficiaries bearing the costs" for the public services is often effective. This is because the public service institutions themselves would strive to provide excellent services so as to secure their own revenue and thus improve their facilities and staff. In other words, the "principle of the beneficiaries bearing the costs" often is beneficial for the stimulation of public institutions.

Public service institutions, which are "government organizations" established by government fiscal expenditures or foreign assistance, may introduce the "principle of the beneficiaries bearing the costs" on a step by step basis in accordance with the development of the industry covered by the services and the accompanying rise in the ability of the beneficiaries to bear the cost of the services. One may select from among the following measures for this:

1) Conversion of the government organizations themselves into "associated institutions" or "independent institutions"

2) Conversion of government organizations to "semipublic institutions" and then to "private institutions"

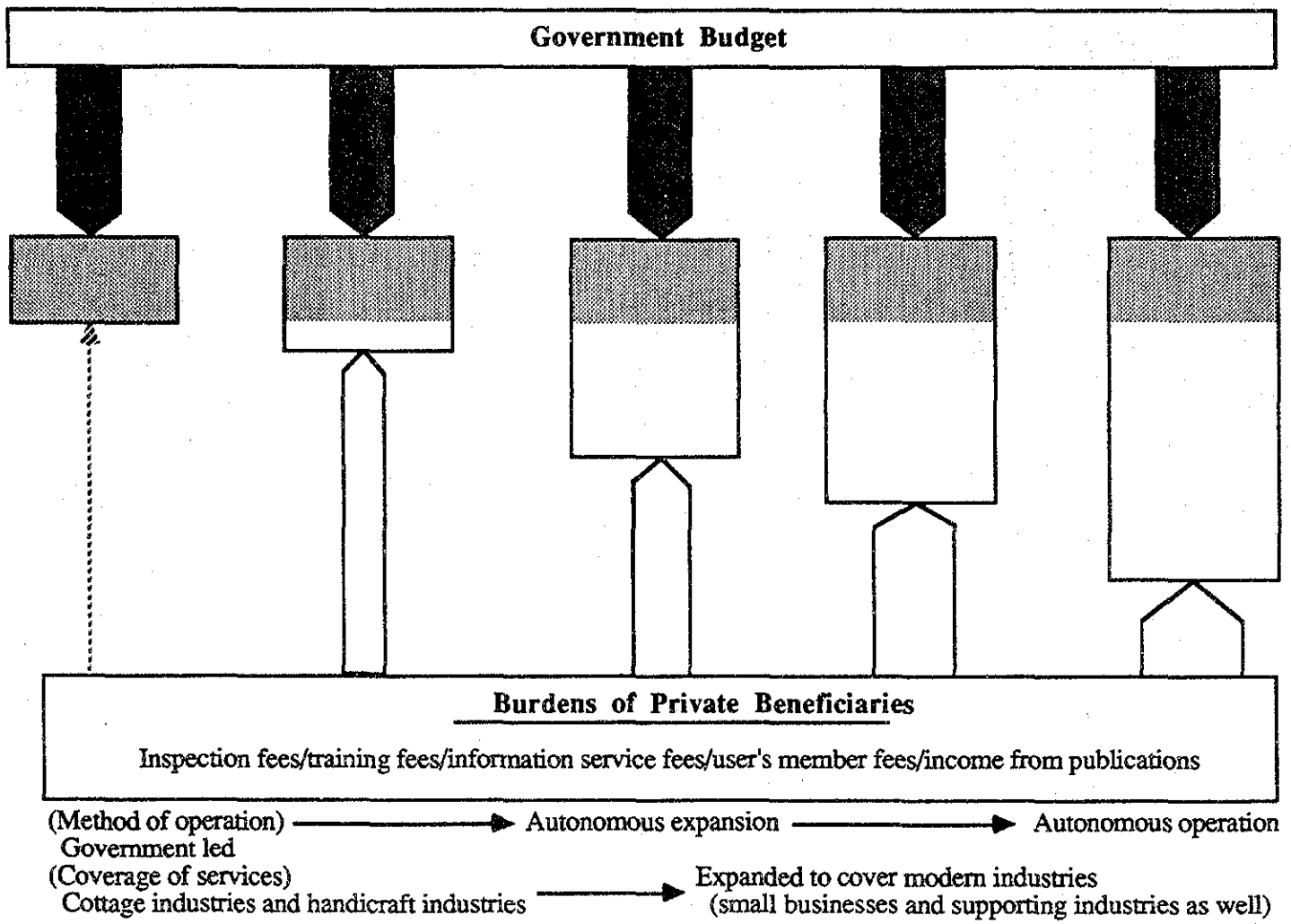
3) Establishment of "user associations" outside the government organizations, pooling funds there, and dispensing them as required

4) Having industrial organizations serve as the above "user associations"

At the present time, most of the public service institutions under the Ministry of Industry (for example, the ISD, TID, NIPC, and NEIPC) still provide free services relying on funding from the government and foreign aid. They also tend strongly to stress cottage industries and handicraft industries in their services. The services offered to small businesses in newly developing modern industries and supporting industries are insufficient in comparison with the importance of these industries.

To make effective use of or stimulate public service institutions, including new institutions scheduled to be established, it is essential to extend the coverage of services to small businesses in the fields of modern industries and to make use of the "principle of the beneficiaries bearing the costs" to enable autonomous operation and thus improvements of facilities and services as required.

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



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.

Nowhere among the world's industrialized nations or nations in the process of industrialization is there one like Thailand which is concentrating its industry in so small a region. This is due in part to the fact that Bangkok has extremely good conditions for industrial development, but is due even more so to the insufficient effort made to disperse industry to the local regions. Another reason for the weak dispersion of industries to local regions is the strong centralized nature of politics and the weak autonomy of local regions, preventing the local regions from taking initiative in attracting investment.

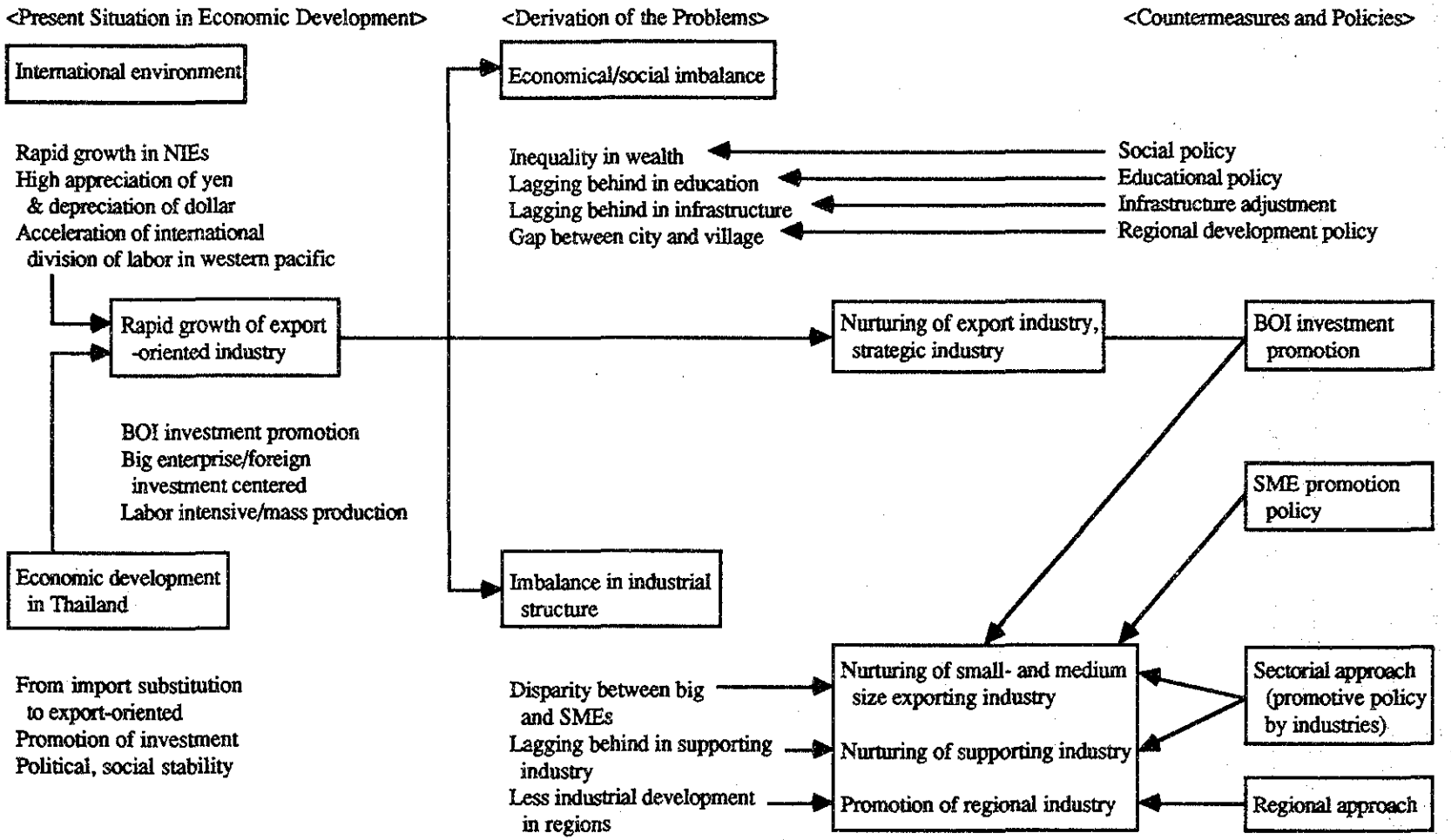
Companies do not seek location in overcrowded regions by choice. If they could obtain freight services, means of communication, power, water, etc. can be secured and manpower and labor even in regions distant from Bangkok, due to the superior conditions of the land and living expenses (in other words labor costs), companies would be sure to invest there.

To promote industrial development on a local level, it is of course necessary to build up the infrastructure and develop human resources through macro-level regional development policies. Also, it would be effective if specially generous incentives such as the BOI investment incentives were offered in the local regions. Further, to enable local initiative in attracting investment, consideration may be given to cooperation between local chambers of commerce and industry and industrial organizations with local government organizations in investment promotion activities (for example, sponsoring of investment seminars covering specific regions, preparation of investment promotion pamphlets, etc.) Further, an even greater effect could be expected if, in a way bringing all this together,

sectorial industrial policies and small and medium enterprise policies were established in a manner promoting location in regional areas by industrial sectors considered particularly suited for regional location.

The Ministry of Industry could play a major role in this regard as it has a network of offices throughout the country and service organizations (IPC) in the key cities.

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



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

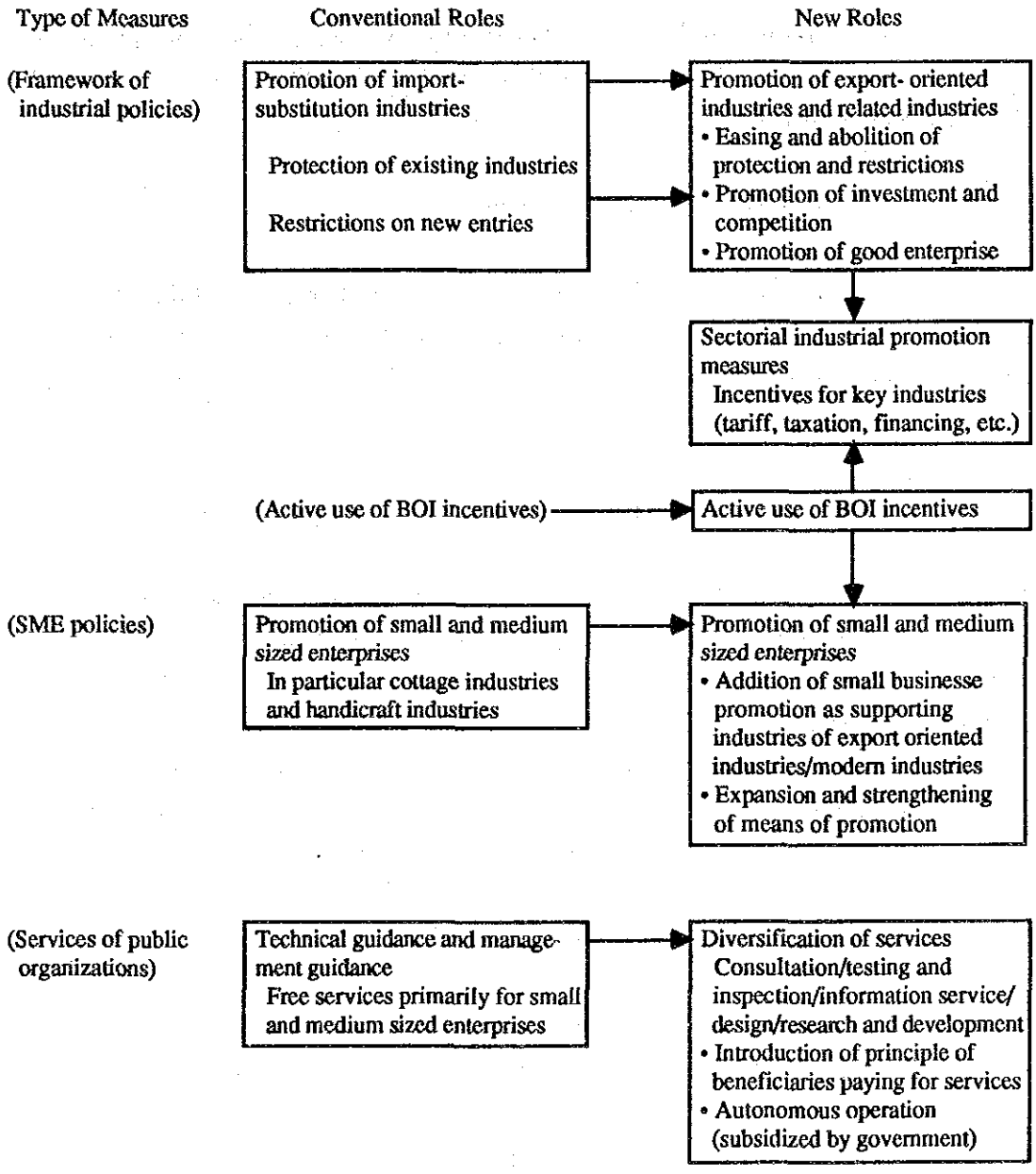
The Ministry of Industry is becoming the most important government organization in terms of the industrial development of Thailand and is being looked upon with increasingly greater expectation by the industrial world and related government organizations. In order for the Ministry of Industry to fulfill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

The Thai Ministry of Industry has played an important role in promoting import substitution type industries and introducing technology to cottage industries and handicraft industries, but it has now reached a stage where it should take on the more important, newer role of promoting export oriented industries, supporting industries and small businesses. The various economic related government organizations of Thailand recognize well that the role of the Ministry of Industry is becoming far more important than in the past and hold forth great expectations with regard to the Ministry, but, it is a fact, they have some apprehensions as to the Ministry of Industry in that it has little experience with the formulation and realization of policies and dealing with modern industries.

For the Ministry of Industry to fulfill this new role in an effective manner, the staff of the Ministry must go one step beyond their present ways of work and recognize the new role given to them and acquire the knowledge and experience necessary for performing the same. Further, they must display a spirit of challenging and resolving new problems. That is, first of all, they should recognize the need to ease up on existing protective and restrictive measures and deregulate industrial activities. Further, to help the development of export oriented industries on the stage of global markets, they must learn advanced world techniques and grasp information on the industries and markets and further must become knowledgeable as to tariff, taxation, and financial tools for resolving problems and the effectiveness of the same. In relation to this, sectorial industrial policies and small and medium enterprise policies relating to numerous industrial fields should be launched not by the political judgements of the top leaders of government, but from an accurate grasp of information and problems of the individual industrial sectors. It should be recognized that much depends on the initiative of the staff in charge in the Ministry of Industry.

Under these conditions, to make the majority of the staff of the Ministry of Industry recognize the new role of the Ministry and the importance of the same, it is necessary and would be effective to launch a campaign to revolutionize the consciousness of the staff throughout the Ministry.

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



Chapter 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.

8-1. 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 meaures 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 industy, plans for augmentation of the textile material supply sector, and the program for promotion of the plastic processing industry.

8-2. 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.

8-3. 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.

8-4. 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.

8-5. 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.

8-6. 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					
	[6] Engineer training						Δ Role of educational organizations
Toys	[1] Toy industry promotion organization			o Liaison with promotional organizations	* Improvement of safety and quality		
	[2] Promotion of joint ventures and tieups		o In particular, targeting small and medium sized enterprises				Δ Cooperation with BOI
	[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 TID	o Expansion of production capacity in local regions	o Cooperation with training organizations
	[3] Augmentation and strengthening of TID			o Private sector cooperation in augmentation of TID	* 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 cooperation 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
	[4] Occupational education and training			Δ Active use of functions of FIDC			Δ Role of educational organizations
	[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					
	[2] Plastic Industry Committee			* Exchange of opinions and information			
	[3] Program for promoting processing industry	o Mobilization of promotional means	o Development of subcontractors				
	[4] Program for promoting exports						o Cooperation with DEP
	[5] Plastic processing training institute		o Technical training for small and medium sized enterprises	o Liaison with training institutions	* Processing technology and material characteristics		
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	o Establishment of Lampang Center	
	[3] Grading of raw materials				o Cooperation of Center		
	[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
<Management>			
• 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	• Private sector oriented service activities by government organizations to raise level of skills and production and management	• 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
• Numerous manufacturers with weak funding capabilities	• Difficulties in borrowing from financial institutions • Use of high interest capital funding from financing companies etc. • Slowness in introduction of machinery corresponding to needs	• Activities for raising level of skills and management through organization of industry	• 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"
<Design and Production>			
• Lack of skill in design and processing technology	• 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	• Improvement of level of production, technology, and management through entry of foreign companies	• 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
• Lack of skill in process control	• 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	• Implementation of joint projects for training skilled workers	• 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)
<Facilities>		• Financial, tax, and tariff incentives for modernizing facilities and strengthening competitiveness	• 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
• Numerous antiquidated and ageing facilities	• 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	• Training of engineers and skilled workers	• 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
<Toy Industry as a Whole			
• Reliance on OEM and production of copies, by large enterprises as well	• Lack of stable position as export industry in medium and long term • Lack of information on foreign markets and toy industry	• Establishment and operation of organization to serve as center for organization of industry and improvement of management and technical levels	• Establishment and operation of toy industry promotion organization Establishment of organization primarily offering quality inspection functions 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)
• Numerous companies relying on foreign companies for exports as well	• Small number of companies engaged in own export efforts or market development		
• Low recognition of safety	• Blocks improvement of quality and improvement of image		
• Lack of mold and die and other peripheral supporting industries	• Numerous cases of reliance on imports for materials, parts, etc.	• Promotion of entry by foreign companies, establishment of joint ventures, technical tieups, etc. so as to raise the level of production, technology, management, and sales capabilities	• Investment promotion and joint venture and technical tieup promotion activities – 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
<Plastic Toys>			
• Dominance of OEM production by large foreign capital companies registered with BOI	• Large percentage of production of medium class products with few parts and products with low added value		
• Production of low quality products and semicopies by numerous small and medium sized manufacturers	• Almost no companies with internal development or design divisions • No information on foreign markets • Insufficient quality control systems	• Strengthening of sectorial functions of Ministry of Industry and strengthening of cooperation with related organizations	• Strengthening of administrative organization for promotion of toy industry and establishment of policy scheme – 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
<Metal Toys>			
• One company set up by investment from Hong Kong and another one in planning	• Still small level of production • Lack of interest in domestic toy manufacturers and related industries	• Strengthening of export promotion activities by Ministry of Commerce and cooperation with Ministry of Industry	• Strengthening of toy export promotion activities by Department of Export Promotion (DEP) of Ministry of Commerce – 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.
<Fabric (Stuffed Animal) Toys>			
• In small number of large sized manufacturers, dominance of OEM and production on order	• Few examples of production of products based on own development and own plans		
• In small and medium sized manufacturers, large percentage of production of copies and semicopies	• Lack of product development capabilities • Insufficient quality control and low recognition of safety	• Improvement of design and quality of tourist oriented ethnic dolls	• Technical and management guidance for improvement of ethnic dolls – Training for raising level of design and quality – Establishment of organization for development of tourist market and establishment of sales channels
• Large numbers of cottage sized enterprises making ethnic dolls for tourists in northern region etc.	• Low level of both design and quality		

3. Textiles and Garments (Second Year)

Current State of Industry	Problems	Package of Countermeasures	Programs
<Textiles>			
• Industrial structure and market	• 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)	• Augmentation and modernization of garment material supply sector	[1] Augmentation and strengthening of material supply sector • 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
• Facilities	• 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	• Expansion of garment production capabilities and training of personnel	[2] Expansion and strengthening of garment industry • 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
• Technology and information	• 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	• Insufficient knowledge on water supplies and wastewater • Fears of water shortages • Heavy funding burden in water treatment in dyeing sector	• Augmentation and strengthening of training, testing, inspection, and information functions of government organizations	[3] Augmentation and strengthening of TID and use of same • 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
<Garments>			
• Industrial structure and market	• 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	• Numerous ageing machines remaining • Scarcity of specialized machines • Shortage of maintenance personnel for machines		
• Production activities and technology	• 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	• Promotion of exports of garments and raising of added value	[4] Promotion of garment exports and improvement of image • Export promotion activities by DEP • Promotion of designs and brands (through cooperation of DEP/TID)
• Marketing	• Numerous companies grown used to subcontracting for foreign buyers • Lack of recognition of importance of designs and brands • Lack of foreign market information	• Formulation of image for future of textile industry	[5] Textile industry vision • Formulation and publitization of "textile industry vision" at TIDC

4. Wooden Furniture (Second Year)

Item	Problems	Package of Countermeasures	Programs
• Industrial structure and raw materials	• 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	• 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	[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
• Facilities	• 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		
• Technology	• 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	• 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	[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
• Marketing	• Lack of knowledge and information regarding foreign markets • Lack of product standards and design capabilities • Lack of sales effort to foreign markets	• 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	[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)
• FIDC functions	• Ageing of training machinery • Lack of technical guidance and inspection staff • Lack of budget and running expenses	• 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	[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
• Supporting industries	• High price of adhesives, paints, etc. • Poor quality of domestic metal fittings		
• Institutions and policies	• Continued unclarity of future direction of resource policies and imports and distribution of lumber	• Establishment of system for stable acquisition of raw materials	[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 prefential 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
• Summary of industry	• 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 publitization of activities of same
• State of supply and demand	• Lack of fundamental data relating to production of finished products (production capabilities, production volumes, operating rate of industry)
• Exports	• Instability of quality of finished products. Poor management of delivery commitments. Numerous intermediaries (difficulty of direct transactions)
• Production activities and technology	• 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
• Corporate management	• 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
• Raw materials	• Unstable quality of shipments of Lampang clay
• Supporting industries	• Lack of development of manufacturers of production machinery

Package of Countermeasures	Programs
• 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
• 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
• 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
• Activities for promoting exports of ceramics and for raising consciousness of production areas	• Launching of campaign for promotion of ceramic industry – Marketing activities covering key overseas markets – Sponsoring of Lampang/Chiengmai Ceramic Festival
• Mobilization of preferential measures for promotion of ceramic industry	• Special program for promotion of ceramic industry – Reduction of import tariffs – Exceptional application of investment promotion system – Positive use of institutional financing

APPENDIXES

[Appendix I] List of Companies Interviewed

[Appendix I-1] List of Companies Interviewed (Plastic Processing Industry)

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
Kang Young Electric	Home electrical applicances and plastic parts	900 of which, 100 technical staff and 50 admnistra-tive staff	• Injection molding machines 650T 1 unit 350T 1 unit 280T 1 unit • Compressed air molding machines 2 units	Almost all plastic parts are used in-house, though there are some exports to companies of the Mitsubishi Electric Group in Southeast Asia.	Established: 1964 Capital: 182 million bahts, 40% Japanese equity (30% Mitsubishi Electric, 10% Mitsubishi Corp.) Lines of production: Fans, refrigerators, televisioi sets, washing machines, well pumps. Difficult to import plastic parts in Thailand. Final products are designe and developed in Japan	Imports only for materials for use in products destined for Japan. Higher compared with Japan.
Srithai Superware	Plastic Dining-ware, industrial products, etc.	2000	• Compression molding machines 121 units • Injection molding machines 81 units	Domestic: Export: 50% (U.K., Japan)	Established: 1963 Capital: 500 bahts (became joint stock company in 1979 with capital of 200 million bahts) Largest molder of plastic in Thailand	Total amount of materials used: Growing 40% in three years
Rachtaphan Plastic Co., Ltd.	Plastic Containers	30	• Dye mixer • Injection molding machines 4 units • Blow molding machines 3 units	Only for domestic market (Mobil, Unoca/EF) (20% used in-house, 80% sold outside)	Established: 1986 (Non BOI company) Capital composition: 100% Thai, family management Lines of production: Plastic containers Sales: At time of establishement, 300,000 bahts/month, now 1 million bahts/month	Material used monthly: HDPE 10t LDPE 2t, PP 2t Purchased through sales agnets

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
Toyota Thailand	Auto-mobiles	1284+about 400 temporary workers		100% domestic market	Established: 1962 (Non BOI company) Capital: 120 millioj bahts, 59.6% Japanese equity Lines of production: Corolla, Corona, Crown, and Starlet model cars	No in-house manufacture is being done, so everything is purchased. Battery trays, wheel caps, cup plates, side molds, door handle caps, etc. are purchased locally
NHK Spring	Auto parts (plastic)	791 of which, 156 temporary workers	• Compressed air molding machines 2 units	Majority are domestic, with some exports. Exports are only of leaf springs to the U.S. and Japan.	Established: 1963 Capital composition: 85% Japanese, 15% Thai Lines of production Automobile leaf springs, coil springs, stabilizers, seats, interior parts. etc.	Total amount used a year: 406t (LDPE, HDPE)
Koolight Motorcyck Battery Co., Ltd.	Plastic parts	120	•Injection mlding machines 10 units	Domestic: 70% (direct sales, parts dealers) Exports: 30%, motorcycle batteries (Lebanon, Malaysia, Singapore, Vietnam)	Established : 1972 (Non BOI company) Lines of production: Motorcycle batteries	Total amount used a year: 120 to 180t
Sharp Appliances (Thailand) Ltd.	Home electrical appliances	Juster under 2600	• Compressed air molding machines 1 units	Of dometic sales, 5% are direct. Exports are all to Sharp of Japan. Products are sent directly to final destinations.	Established : 1987 BOI designated company Capital; 870 million bahts, 100% Japanese Lines of production: Microwave ovens, refrigerators, facsimile machines, radio cassette tape recorders, "Walkman" type portable tape recorders	ABS, PS, and PP all purchased from Japan in compound state Japanese affiliated molding company: Purchases directly from Japan Thai affiliated molding company: Imported materials from Sharp
Siam Yamaha Co., Ltd.	Plastic (motorcycle manufac-ture)	1700	•Injection molding machines 1,200t 40 units •Blow molding machines 3 to 4t 20 units	Domestic: 100% finished cars Exports: Some parts (Inodnesia, Malaysia)	Established: 1966 100% local capital	Total amount used a year: 1,000t HDPE, PP, ABS

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
Chiang Huat Plastic Factory	Processed plastic products (dialy use items)	120	• Injection molding machines 360t 1 unit • 20-220t 15unit Blow molding machines Several	Mainly domestic Exports just began this year (Malaysia, Sinagpore)	Established: 1968 Lines of production: Sundry goods, holders for small items, some industrial parts	Total amount used a year: 240t LDPE, PP, PS
Nam Ngai Hong	Processed plastic products (household products)	300	• Injection molding machines 32 units • Mixers	Domestic: 60% (wholesalers) Exports: 40% (Japan, Australia, Canada, U.K., Hong Kong)	Established: 1961 Capital: 5 millin bahts	Total amount used a year : 1,800t
Hitachi Consumer Products (Thailand)	Home electrical appliances and plastic parts	About 1200	• Injection molding machines 8 units • Compressed air molding machines 3 units • Urethan foam facilities • Painting facilities	Domestic: 70% Exports: 30% (U.S. Asean, Japan, Australia, Middle and Near East)	Establishd: 1979 (Non BOI company) Capital: 105 million bahts, previously 35 million bahts Capital composition: 49% Japanese, 51% Thai Lines of production: Refrigerators, television sets, fans, motors, electric rice cookers Sales: 1171 million bahts in 1988	Total amount used a year: 1,000t PP, PSABS, PA, polycarbonate
Thai Suzuki Motor Co., LTd.	Motorcycles	770		Domestic: 100% Past experience of spot export of 120 motorcycles to Romania	Established : 1967	Total amount used a year: 750t
Nan Mee Factory	Plastic processing (stationery)	1250	• Mixers • Injection molding machines 26 units • Extruders 3 Units • Blow molding machines 2 units • Printing machines • Pulverizing machines	Domestic: 70% (wholesalers and indepndent sales) Exports: 30%(Europe, Southeast Asia, U.S.A., Japan)	Established: 1949 Captial: 500 million bahts	Total amount used a year: 840t

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
Golden Polymer	Plastics	Over 30	•Injection molding machines 4 units •Extruders (assembly by company) •Pulverizers	Domectic: 100% (To wholesalers and directly sales in Bangkok and its environs)	Established: 1977 Capital: 4 millin bahts Lines of production: Scales, rulers, compasses, etc.	Total amount used a year: 240t
Sritong Electro Chemical Ltd.	Metal plating	250	•Injection molding machines 14 units •Pulverizers	Main export products: Nameplates, plastic plaitng, etc. to Japan Domestic sales: Sanyo, Hitachi, etc. - all production on order	Established: 1959 First in Thailand to start electrodeposition painting of aluminum plate. Lines of Production Nameplates etc.	Total amount used a year: 60t
Honda Cor. (Thailand) Bangchan General Assembly	Plastic Parts	830		Domestic : 100%	Established: 1983 Capital: 40 million bahts Lines of production: Accord 2 series, GM 4 series	
Sound & Light Electronic	Home electrical appliance parts	70 to 80	• Injection molding machines 13 units	All production goes to domestic home electrical appliance manufactureres. No direct exports	Established: 1968 Capital: 2 million bahts BOI designation Other capital not welcomed	Total amount of plastic used is about 100t a year. Almost PVC, domestic products of the same being used.
Thai Plastic & Chemical	Plastic materials	100 in main office		Sales are direct to fixed customers (currently about 200 customers)	Capital composition: 400 millin bahts (total)	Compounds are for cables, shoes, drink bottles, etc. Pharmaceutical use ones cannot be produced, so are imported from Japan.
Ruamphathana Plastic	Plastic sundry goods	60	• Injection molding machines • Pulverizers • Granulating machines	Domestic: 80 to 90% (wholesalers) Exports: 10 to 20% Basket, Bucket and other sundry goods (Middle and Near East)	Established: 1982 Capital: 160,000 bahts	Total amount used a year: 1,200t HDPE, nylon, PP Dyes are mixed in-house

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
T. Krungthai Industry	Plastic industrial parts	200	• Mixers 3 units • Injection molding machines 13 units • Printing machines • Pulverizers	Domestic: 80%, parts for home electrical applicances: Sharp, Samseng, auto parts: Nissan, Toyota, Mitsubishi, Isuzu, Suzuki Exports: 20%, sanitary goods (100% to U.S.)	Established: 1979 Capital: 20 to 40 millin bhats (90% Thai, 10% Hong Kong) BOI designated company Mainly OEM Sales: 8 to 10 million bahts/month	Main ones are ABS 30 to 40t/month (domestic) and PP 5t/month (imports) Coloring agents
Union Plastic	Plastic industrial parts	620	• Injection molding machines 52 units • Pritning machines • pulverizers	Domestic: 78%(Japanese companies: Sharp, Mitsubishi, National, HItachi, Toyota, Honda, Kawasaki) Exports: Direct 7%, indirect 15% (sanitary goods, electrical products)	Established: 1969 Capital: 1.25 million bahts Annual sales; 2.61 million bahts	LDPE, HDPE, PP, PVC, PS, ABS, PA, polycarbonate, etc. Total amount used a year : 3,120t
Thai Hoover Ind. Fac.	Plastic Processing	650	• Injection molding machines • Printing machines • Pulverizers	Domestic: 60 to 70% (Avon, Ponds, PS, Coty Kosei, Kissme, Tellme, Nutrimetri) Exports: 30 to 40%, Japan 20%, rest U.K., Inida, Malaysia, Australia, New Zealand, Singapore, Hong Kong (Cosmetic containers)	Established: 1975 Capital: 12 million bahts Annual sales: 100 million bahts Lines of production Cosmetic containers	AS (Japanese and Thai types) 20t/month PS, PCM, LDPE, HDPE, etc.
Mealamine Thai	Plastic processing (dining-ware)	30	• Compression molding machines 200t 3 units 150t 6 units 130t 3 units 100t 2 units 70t 1 unit • Printing machines • Pulverizers	Everything left t osales partner Domestic: 50% through agents and directly to department stores etc. Exports: Europe: spoons, sout ladles, etc. accounting for 60% of total, Asia: cups and saucers, Middle and Near East: same as for Thai domestic market goods	Established: 1977 Annual sales: 70 to 80 million bahts	Amount of melamine resin used: 800 to 1000t/year
Takahashi Plastic	Plastic industrial parts	300	• Injection molding machines 10 units • Printing machine	100% indirect exports	Established: 1987	PS and ABS supplies stabilized by relying 100% on imports, mostly from Japan and U.S.

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
The Century Plastic	Plastic process ing	350	• Compression molding machines 6 units • Injection moldng mahcines 50 units • Blow molding machines 4 units Pulverizers Granulators	Domestic: Majority (Home electrical applicances and motorcycles) Exports: Direct exports of 6 to 7%, Japan 100% (sanitary goods)	Established: 1965 Capital: 25 million bahts, 100% Tahi (Non BOI company) Lines of production: Household goods, industrial parts	LDPE, HDPE, PP, PS, ABS Amount used a year: about 1,700t
Pacific Plastic	Plastic materials (PS)	69		Direct sales and sales through wholesalers in ratio of 50:50 Exports: 10%	Established: 1978, participation by Thai capital becoming necessary after establishement, Siam Cement 47%, Dow 50%, others 3%	PS
Dow Chemical Pacific (Pacific Plastic)	Plastic materials			Ratio of direct to indirect 50:50 Exports: 10%	Established: 1977 Capital: 50% Thai, 50% U.S.	Has grades to meet demands of manufactureres (flame retardant plastics, shock resistant plastics, etc.)
Thai Mitsuwa	Plastic molding	205	• Injection molding machines 15 units • Printing machines • Pulverizers • Granulators • Painting facilities	Domestic: 5% motorcycle parts to Suzuki (Sharp, World Electronic, Kang Yong Thai, Suzuki) Indirect export products: Audio, VTRs, Cabinests	Established : 1987 Capital: 10 million bahts Lines of production: Audio equipment, housing goods, motorcycle parts Sales: Expanded from 5 million bahts/month to 13 million bahts/month	Amount of plastics used: 120t/month PS 60%, ABS 20%, etc. PP, POM all imported.
Reangwa Group	Plastic processing		• Injection molding machines: several large size units (made in Japan) and numerous small size units (made in Taiwan)	Export destinations: 65 countries around the world (EC32%, Middle and Near East 24%, Asia 19%, U.S. and Canada 17%, Australia 8%) Domestic sales also.	Established: 1963 by parent company (Reangwa Standard Co., Ltd.) Group as a whole produces and sells plastic household goods, home electrical applicances, and motorcycle parts.	

Company Name	Industries	Employees	Main facilities	Sales Destinations	Characteristics	Raw materialss
Union Itoh Molds	Molds	About 100	• Latest Japanese NC machine tools (costing 800 million yen)		Mold manufacturer established as joint venture between Union Plastic and Japan's Komatsugawa plastic	
World Container Parts	Plastic processing	62	• Mixers • Injection molding machines 18 units • Printing machines • Pulverizers	Mainly domestic Indirect export: spray caps etc.	Established : 1972 Capital: 250,000 bahts, 100% Thai Lines of production: Bottle lids 7.5%, cosmetic holders 60%, spary caps 7.5% toys 25%	LDPE 24t/year, HDPE 24t/year, PP 98t/year, PS 60t/year, ABS 36t
Narong Ind.	Plastic processing	573	• Mixers 3 units • Injection molding machines 23 units • Pulverizers 4 units	Domestic: 90% Exports: 10%, Malaysia, Indonesia Main export products: Cabinets, motorcycle lamp	Established: 1979 Capital: 40 million bahts Lines of production: Lamps, motorcycle spare parts, helmets, etc.	Procurement of materials: 120t/month, domestic 20%, imports 80% ABS accounts for 80%, Others include LDPE, HDPE, PP, PVC, PBS, PS, AAS, AES, etc.
DI Foundry	Casting	About 100 at Udong Thani foundry, 50 to 100 at foundries in Kongkhen and Udong Thani, less than 50 elesewhere			Formation of forum two months ago by 11 companies at foundry near Kongkhen Lines of production; Agricultural machinery and equipment parts, signal parts, water pipe parts and pump parts	
Thai Stanley Electric	Auto parts	390	•Injection M/C, 10 made in Japan, also numerous latest types of processing and inspection facilities for molding	Domestic sales: 90%, of which, less than 10% being indirect exports, also direct sales to auto makers and sales through wholesalers.	Established: 1980 Capital: 153 million bahts (49% Japanese, 51% Thai) Lines of production; Auto lamps, illumination equiment	Acrylics 16t/month, PP 10t/month, ABS 5t/month, all amount imported from Japan through trading company, not being able to be procured domestically.

[Appendix I-2] List of companies interviewed (Ceramic Industry)

No. 1

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Compound Clay	Manufacture of cermaic materials (prepared clay)	120 (Insulater products dept: 400)	Ball mill (4ton): 8 sets Filter press : 8 sets Roll crusher : 2 sets	100% Domestic market (In the past, exported to Taiwan, Malaysia, but now domestic market only)	Family management As to the technical matter: shared among sons and daughters of the owner (daughters are chemists graduated at Chulalongkorn Univ.)	Amost all of domestic supply. Oxidized alminum for insulaters is imported.
Siamraj Marketing	Manufactuer & Exporter of ceramic products	150 (manufacturing dept.)		80% for export Main market: Japan, Europe Main products: ornaments (flower vase accessesories) Buyers in Japan: Daimaru, Takashimaya, Seibu etc. (No export to U.S.A.)		Purchasing novelties from 10 companies in Lampang, Chiang Mai and Bangkok
K.T. Thai Local Products Co., Ltd.	Exporter of ceramic products	50		70-80% for export (W. Germany, Holland, France, Swizterland) U.S.A is a small market.	Handicraft of rather high quality	Thai Local Products, sister company in Chiang Mai, supplies about 80% of the ceramic products

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Siam Celadon	Manufacture of cermaic products	70	Shuttle kiln ($2m^3$) : 2sets	35% for export, but the rest 65% are purchased by foreign visiters locally.	Capital: 1 million baht Sales: 12 million baht/year Designing is made by the owner.	80 tons/month, mainly Chiang Mai clay. Raw materials for glazing is wooden ash.
Scandia Bangkok Co., Ltd.	Marketing Co.			Main market: U.S.A. & Canada 65% and the rest for Europe & Japan (Daimaru, Seibu, Odakyu)	100% Thai capital Sales:130million baht/year (12-20 million come from ceramic products) Plans to establish its own factory.	Purchasing ceramic products from 12 factories (one in Rachaburi, one in Chiang Mai and 10 in Lampang)
Premprachea's Collection	Manufacturer of ceramic products	100 (Ceramic dept: 60)	LPG Kilns $0.7m^3$: 1 set $0.2m^3$: 2 sets Electric kiln (for test) $3m^3$: 1 set Forming machine Mechanic jigger : 3 sets Mannual jigger : 3 sets Ball mill 30kg : 1 set 100kg : 1 set Pot mill : 3 sets Filter press : 1 set	80% for export Market: Japan 70% U.S.A. Europe 30% 20% for Local market (one half for foreign visiters)	Establishment: 1988 Capital: 1 million baht Sales: 3.5 - 4 million baht/month	Purchasing prepared material in powder locally. Quantity: 3 tons/month Kinds of Clay: 8 Kinds of glaze of celadon: 8 (No wooden ash) Kiln furnitures are locally supplied.

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Maerin Ceramic Fac.	Manufacture of cermaic products (visiting the factory only)		Gas kiln $3m^3$: 2sets Australian Part -1 Kiln $2m^3$: 1 set		Has intimate connection with high princess, who visits to enjoy ceramic art every summer. Tableware is all same pattern. Kind of color is 3 (brown, purple and pale blue)	
Pun Jiang	Manufacturer of ceramic products	72	Gas kiln: 3 sets	70-80% for export (Japan, U.S.A., Australia, W. Germany, Italy, Canada)	Establishement: 1973 (Non-BOI enterprise) Capital: 200 thousand baht (No foreign capital) Tableware : 20% Novelity : 80%	Chiang Mai Clay only
Chiangmai Sangkalok	Manufacturer of ceramic products	19		Selling at the showroom to visiters and whole saling to department stores in Bangkok	Establishment: 1933 Sales : 600 thousand baht/month Cost: : 20-30 thousand baht/month (No foreign capital)	Raw material cost: 4800 baht/months Owns its raw material mine.

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Thai Local Product	Manufacture of cermaic products	60	Shuttle kiln $3m^3$: 1 set $2m^3$: 1 set $0.5m^3$: 1 set	All products is sold in Bangkok	Changed production from wood carvings to ceramics 8 years ago. Only manufacturer of white ceramic ware (not of celadon) in Chinag	Lamapng Clay for white ceramics Chiang Mai clay for colored ones.
Preatpum Sangkalok Chiangmai	Manufacture of cermaic products	10	Kiln (wooden fire) : 2 sets Mannual Jigger : 5 sets	Local market (Mainly to restaurantes in Chiang Mai and Bangkok)	Establishement : 1915 Capital: 300 thousand baht (No foreign capited) Sales : 30 thousand baht/month Items of products : kitchen ware (Bouwels)	Clay from Maerim $3m^3$ x 20 tracks fire wood cost: 3000 baht/year
Thai International Handicraft	Manufacture of cermaic products	60	Shuttle kiln : 4 sets Ball mill : 3 sets	About 100% for export (through sister company in Bangkok), Market: Europe	Establishement : 1981 (in this year changed from wooden curvings to ceramics)	Lamapng Clay : 20tons/year Chiang Mai Clay : 8 ton/year
Mengrai Kilns R.O.P.	Manufacture of cermaic products (visiting the show room only)			Export market: U.S.A. 50% Japan 26% (Seibu, Takashimaya, Daimaru, etc)		

No. 5

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Sriwanna Thamsan	Manufacture of cermaic products	60 (in addition temporary workers: 20-30)	Gas kiln for biscuit : 2 sets Gas Kiln for glazing : 2 sets Wooden fire kiln for drying : 2 sets	75% for export Main market: Denmark, W. Germany, Australia Agent: Denmark, Siam Overseas, K.P. 25% for local market	Capital: 5 million baht (no foreign capital) Sales: 600 thousand baht/month	Raw material: Chiang Mai Ball Clay: 2 tons/day
Thai Cedadon Co., Ltd.	Manufacture of cermaic products	91	Gas kiln :2m^3 1set Gas/oil kiln :6m^3 1 set	30% for export 60-70% for local sale to foreign visiters. Export is effected directly to foeign retailers. Japan: Daimaru, etc.	Establishment: 1960 Capited: 6 million baht Items of products Tableware : 40% Novelity : 60% Nouthly sales: 2.4 million bahts	Clay: 20tons/month Kaolin: 1.5 tons/month Glaze is made from wooden ash
Electro-Ceramic	Manufacture of Electric Parts	300			Establishment: 1988	
Indra-Ceramic Co., Ltd.	Manufacture of cermaic products	200	Gas Kiln: 4 sets	95% for export Japan 25% U.S.A 35% E.C. 40%	Establishment: 1988 Capital: 4 million baht (No foreign capital) Items of products Novelity : 70% Tableware : 30%	Lampang Clay: 2.8ton/day Feldsper is from Chiang Mai

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Thai Ceramic Ltd.	Manufacture of cermaic products	about 100	Gas kiln : 3 sets	Direct sale and indirect sale through agents. 80% for export through agents (Europe, U.S.A., Japan, Singapore, etc)	Establishement: 1977 Capital: 200 thousand baht Item of products: Novelity (large size decorated gift items)	Lampang Clay, Feldspar, Plastic Clay from the South. Buying from Compound Clay Co., Testing to improve prepared clay.
Suthep Kamthoranee Lampang	Manufacture of cermaic products	130 - 160	Tunnel kiln Shuttle kiln	50% of novelity is exported. Owns its proper showroom in Lampang where negociation for export is carried.	Establishment: 1977 Capital: 1 million baht Items of products: Tableware & kitchenware, refractor, kiln, tile, novelity Since six years ago, started to manufacture equipment and furniture for ceramic industry.	Lamapang Clay : 80% Plastic Clay : 20% Raw material : 0.8 tons/day for novelity 3.2 tons/ day for tile
Champoo Ceramic Fac.	Manufacturer of ceramic products	70- 120	Shuttle kiln: 3 sets	25-30% is exported through agetns. Market: Singapore U.S.A., Malaysia	Establishment: 1977 Capital: 1 million baht	Import part of raw materials from Japan. 50 tons/month of Lampang stone (prepared in its own factory) Buying Ball Clay from the South and Plastic Clay from Chinag Mai

No. 7

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Thai Chareon Earthenware Silpanakorn Lamapng Co.	Manufacture of cermaic products (visiting the factory only)	110	Tunnel kiln: 4 sets	Exports to Europe & U.S.A.	At start, novelity was mian product. Afterward, mas production of talbeware and kitchenware started with success. Forming of tableware is automatic. Amendment and decoration are manual.	Raw materials are 3 or 4 kinds at least.
Chaeron Earthenware Fac.	Manufacturer of ceramic products	80-100	Shuttle kiln: 4 sets	Majority of novelity for export. Main market: Australia, Singapore, Brunei, Canada	Establishement: 1965 Capital: 50 thousand baht Joint venture with an Australian company is under consideration.	Lamapang Clay and Lampag plastic clay. Classification is not made in use for novelity and building material.
Sang Utai Ceramic	Manufacturer of ceramic products	35-40	Shuttle kiln: $2m^3$ (gas) : 1 set	5% for export (Europe) 95% for domestic market	Purchased the factory in 1988 which had been established 20 years before. Sales: 100 thousand baht/month Items of products: Majority is novelity and remaining is consturction mateirals.	8 tons/month of Lampang stone and 150 kgs/month of ball clay.

No. 8

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Kittirot Ceramic	Manufacture of cermaic products	80	Blunger : 3 sets Agitator : 1 set Kiln : 2 sets	30% for export to Europe : 2/3 to Asia : 1/3 Export is effected through trading comapnies. 70% for local market: To wholesalers in Bangkok: 70% To department stores in Lampang: 5% To department stores in Bangkok: 2% Direct sale: 5%	Establishment: 1974	10 tons/month Feldspar 400kgs/month Silica 150kgs/month Kaolin 8kgs/month Clay 500kgs/month Lime stone 100kgs/month etc.
Thai Kaolin	Miner and supplier of raw material	Mining : 10 Washing : 50		80% to Bangkok 20% to Lampang	Establishement: 1964 100% Thai capital. Plans to expand the production capapcity.	Lamapng stone

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Pra-sop-suk Ceramic	Manufacturer of ceramic products	50-60	Kiln: 9 sets (6 sets are in acutal use)	Majority is for local market. 2-3% for export	Establishment: 1982 (Non-BOI enterprise) capital: 1.3 million baht (No foreign cpatial) Items of products: Baluster : 90% Novelity : 10%	Lampang Clay and ball clay from variaous regions. 2 tons/month
Polchaikijchareon Fac.	Manufacturer of ceramic products	300	Dragon kiln : 4 sets Shuttle kiln : 3 sets Jiggers are all manual		Establishment: 1982 (No foreign capital) Items of products: Novelity & tableware	6 tons/day Lamapng clay : 90% Ball clay : 10%
Saen Oran	Manufacturer of ceramic products (visiting the facotry only)	120	Dragon kiln: 6 sets Shuttle kiln $2m^3$: 3 sets	10% for export through agents.	Establishment: 1978 Capital: Thai 100% Items of products: Insulators : 33% Tableware : 34% Novelity : 33%	5 tons/month of Lampang clay
Rama Ceramic	Manufacturer of ceramic products	120	Kiln: 4 sets	60-70% for export through agents 30% is of direct export	Establishment: 1979 Capital: 6-7 million baht Items of products: Novelity & Tableware	Lampang Clay: 100tons/month (60 tons after washing) Ball clay of Chiangmai 2-3 tons/month

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Techavichit Ceramic	Manufacturer of ceramic products	110	Dragon kiln : 6 sets Shuttle kiln : 2 sets	5% of novelity for export (no information on destination)	Establishment : 1974 Capital: Started with 50 thousand baht, 55 million baht at present Items of products: Novelity, bowels, etc	3.5 tons/day of Lamapng clay and clay from the South (10%)
Sangchai Cermaic	Manufacturer of ceramic products	200	Kiln $4m^3$: 1 set $2m^3$: 4 sts $3m^3$: 1 set $1m^3$: 2 sets $0.5m^3$: 1 set Electric kiln : 3 sets	30 - 40% for export (Europe) Local market is almost in Bangkok	Establishment: 1979 Capited: 1 million baht Items of products. Novelity (jar pot, vase) Plans to expand the capacity.	4 tons/day for dolomiteware white stonware Lampang clay : 80% Clay from the South: 20%
Ceramic Arts	Manufacturer of ceramic products	25-30	Shuttle kiln: 2 sets	Domestic market only. Main market: Bangkok and Southern regions	Establishment: 1983 Capital : Thai 100% Items of products: Novelity : 70% Tableware: 30%	

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Prasert Pottery Co., Ltd.	Manufacturer of ceramic products	20	Shuttle kiln $3m^3$: 1 set	Domestic market only Hotels : 20% Restaurants : 70% Direct sale at showroom : 10%	Establishment: 1971 Monthly sales: 80 - 90 thousand baht Items of products: Tableware and Novelity	Purchasing from Compound Clay Co., at 3300 baht/ton 4-5tons/month
Paoka Group	Manufacturer of ceramic products	68	Electric kiln for Closed firing : 2 sets Shuttle kiln: $3.3m^3$: 1 set	100% for export (U.S.A. and Europe)	Establishement: 1988 (No BOI enterprise) Captial: 6 million baht (Taiwanese capital: 49%) Items products: Dolomite gift items	Importing Dolomite clay and glaze from Taiwan
Artico Inpex Co., Ltd.	Manufacturer of ceramic dolls	160 (ceramic section: 16)	LPG gas kiln Electric kiln	100% for export U.S.A. : 65-70% W. Germany : 10% (Ceramic parts are not for sale)	Establishment: 1934 (Started to manufacture the dolls in 1984) Capital: 100% Thai Items of products: ceramic dolls (Heads, hands, legs are made of chain adressed in silk.)	Local clay

No. 12

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Sanwa Ceramic	Manufacturer of ceramic products	150	Tunnel kiln : 2 sets Shuttle kiln : 2 sets	80% for export Tableware : 80% Novelity : 20% Main market : Japan	Establishment; 1987 Capital: 22 million baht (Japanese cpaital: 49%) (BOI enterprise) Items of products: Tableware :70-80% Novelity :20-30%	2 tons/day Prepared clay imported from Japan glaze is also imported from Japan in the form of powder.
Chiang Sang	Manufacturer of ceramic products	65	Kiln: 4 sets	Export: 80 of Blue/White 10% of Benjaron Export is effected through agents	Establishment: 1961 Items of products: Novelity	20-25tons/month Prepares the raw material in its factory. Purchasing 5-10tons of clay from Compound Clay Co. at 3300 baht/ton.
Kyd Ceramic	Manufacturer of ceramic products	Factory : 160 Showroom : 9		95% for export 75% of which exported to Europe and 25% to Oceania, U.S.A. & Japan.	Establishment: 1977 Capital: 100% Thai Items of products: Animal miniatures	500-1000kgs/day of Lampang clay and Ranong Kaolin. Purchasing Feldspar and quartz from Japan. Making body mixing mateirals in factory and prepares glaze also.

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Poupee Ceramic Co., Ltd.	Manufacturer of ceramic products	32	Electric kiln: 7 sets	Very small export Local Market: Department stores and relailers	Establishment (registered) : 1989 The owner has 25 years of experience in ceramics. Items of products: Novelity	Purchasing materials from Compound Clay Co.
Sagsomboon Ceramic	Manufacturer of ceramic products		Gas kiln : 1 set	Domestic market only: wholesalers and relailers	Establishment: 6 years ago	5 tons/month pruchased from Compound Clay Co., at 3300 baht/ton
Jaroenthong Ceramic	Manufacturer of ceramic products	more than 40	Gas kiln: 2 sets	No information	Establishment: 1988 Items of products: Novelity	2-3 tons/month purchased from Compound Clay Co.
P.S.T. Ceramic	Manufacturer of Ceramic products	65	Gas kiln : 3 sets	70-80% for export through agents	Establishment: 1987 Capital: 800 thousand baht Items of products: Blue/White, tableware and gift item Sales: 40-50 thousand baht/month Plant under expansion	25-30 tons/month pruchased from Compound Clay Co.

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Tong Prasert Silpachai Ceramic	Manufacturer of ceramic products	165	Kiln $2m^3$: 2 sets $4m^3$: 1 set $8m^3$: 1 set (made in UK)	70% for export Main market France : 50% U.K. : 25% U.S.A. : 25% 30% for local market	Establishment: 1981 Capital: 500 thousand baht Items of products: Novelty (Blue/White) Sales: 1.8 million baht/month	40-50 tons/month purchased from Compound Clay Co. Pigments are imported from Japan.
Benjathansup	Manufacturer of ceramic products	about 40	Gas kiln : 3 sets Electric kiln : 1 set	Export ratio is not clarified. Export is effected through agents	Establishment : 1984 Capital: 80 thosuand baht (No BOI enterpriese) Sales: 200 thousand baht/month Items of products: Blue/White	1 ton/month purchased from Compound Clay Co.
Orn-Mapituk	Manufacturer of ceramic products	15	Gas kiln: 2 sets	Domestic market only	Establishement (regisered): 1987 Items of products: Tableware : 80% Novelity : 20%	1 ton/month pruchased from Compound Clay Co.,

Company	Classification	No. of employee	Main machinery	Sales	Features	Raw materials
Saraburo Kreong Kleob	Manufacturer of ceramic products	20	Shuttle kiln : $1m^3$ 2 sets	Domestic market mainly (to wholesaler and retrilers) Wholesales to Dusitthani Hotel. Export only through agents.	Establishment: 1973 (No BOI enterprise) Capital : 100% Thai Items of products Novelity (vase, ash tray, lamp) Tile	Using two kind of Clay: Clay purchased from Compound Clay Co., and Lampang Clay Cost: Compoud Clay 3300 baht/ton Lampang Clay: 1200 bahts/ton Making glase in factory
Nakohn Thai Ceramic	Manufacturer of ceramic products	20	kiln: $2m^3$: 1 set $1m^3$: 1 set	Exporting through Siamraj For local market: Wholesaling to retailers	Establishment: 6 - 7 years ago (No BOI enterprise) Items of products: Baluster, Tile Sales: 300 thousand baht/month	Lampang Clay (B grade). Preparing clay and glaze in factory.

[Appendix II]

QUESTIONNAIRE FOR INTERVIEW SURVEY

II-1. For: Plastic Processing Industry

Question Form for Interview Survey
(Plastic Processing Manufacturers)

No.:

Date of visit: , 1989 Time: ~

Company name: _____

Address: _____

Interviewee: _____

Visitor: _____

1. Company summary

(1) Year of establishment: _____

(2) Company falling under promotion of BOI: ☐ Yes ☐ No

(3) Foreign equity ☐ Yes ☐ No

If yes, name of country and share: _____ %

Reason for venture: _____

(4) No. of employees: _____

(5) Production items and production ratio:

1) _____ 2) _____

3) _____ 4) _____

5) _____ 6) _____

(6) Intention of new tieup with foreign capital and form of same

☐ No intention of new tieup ☐ Technical tieup ☐ OEM production

☐ Joint venture — merits expected

☐ Technical ☐ Sales channels ☐ Funding

☐ Others _____

(7) Plans for expansion of production capacity

☐ No

☐ Yes — Details: _____

Possible obstacles: _____

2. Sales

(1) Sales channels

Domestic _____ % Export _____ %

Indirect export _____ % Use of own company _____ %

(2) Main export products: _____

(3) Export destinations (name of country and ratio)

_____ % _____ %

_____ % _____ %

_____ %

(4) Export items and features of export destinations: _____

(5) Export channels

☐ Export trading company _____ %

☐ Domestic contracting manufacturer _____ %

☐ Direct exports _____ %

(Industry of importer: _____)

☐ Others _____ %

(6) Domestic sales customer: _____

(7) Details of main complaints up to now:

_____

(8) Product fields and sales channels desired to be expanded:

_____

(9) Details of activities to increase business or details of activities to obtain business:

_____

(10) Experience in participation in overseas trade fairs

☐ No

☐ Yes

— details of cooperation obtained from organizations of host country:

_____

(11) Means of acquisition of information for expansion of sales channels:

_____

(12) Obstacles in expanding sales channels:

_____

3. Research and development

(1) Product planning

❒ By own company ❒ Customer

❒ Both (own company: _____ %, customer: _____ %)

(2) Materials development

❒ By own company ❒ Customer

❒ Both (own company: _____ %, customer: _____ %)

(3) Mold and die development

❒ By own company ❒ Customer

❒ Both (own company: _____ %, customer: _____ %)

(4) Performance tests

❒ By own company ❒ Customer

❒ Both (own company: _____ %, customer: _____ %)

(5) Intention of increasing research and development

❒ Yes

❒ No (reasons or details: _____)

4. Production

(1) Summary of manufacturing facilities

1) Facilities for receipt of materials

❒ Materials tank ❒ Pneumatic conveyance facilities

2) Facilities for preparation of materials

❒ Mixers ❒ Other blenders

❒ Meters ❒ Granulating machines

3) Molding machines

	Specifications/performance	Number
❒ Compression molding machines		
❒ Injection molding machines		
❒ Extrusion molding machines		

4) Secondary molding machines

	Specifications/performance	Number
☐ Film forming machines		
☐ Sheet forming machines		
☐ Blow molding machines		
☐ Pneumatic molding machines		
☐ Extrusion lamination machines		
☐ Draw tube molding machines		
☐ Printing machines		
☐ Bagmaking machines		
☐ Others		

5) Recycling facilities ☐ Pulverizers ☐ Granulating machines

(2) Procurement of molds and dies

☐ Supplied by buyers _____% ☐ Made in-house _____%

☐ Ordered out domestically ___% ☐ Imported _____%

☐ Others (_____) _____%

(3) Raw materials: Total amount used each year:_____t

	Am't used yearly (t)	Domestic (%)	Imports (%)	Trading Co. (%)	Commercial market (%)
☐ LDPE					
☐ HDPE					
☐ PP					
☐ PVC					
☐ PS					
☐ ABS					
☐ PA					
☐ PET					
☐ Polycarbonate					
☐ Other engineering plastics					
☐ Composite materials					

(4) Adjuvants

	Am't used yearly (t)	Domestic (%)	Imports (%)	Trading Co. (%)	Commercial market (%)
☐ Coloring agents					
☐ Flame retardants					
☐ Antistatic agents					
☐ Weathering agents					
☐ Other additives					

(5) Trends in total amount of raw materials used in past three years

---

(6) Problems in acquisition of materials

☐ Securing volumes ☐ Delivery ☐ Quality ☐ Price

(7) Problems in quality of raw materials and adjuvants

☐ No

☐ Yes — 1) _____ 2) _____ 3) _____

(8) Indicators of production control used

☐ Product passing rate ☐ Rate of loss of materials

☐ Prime unit of utilities (electricity and water)

☐ Per capita productivity ☐ Others: _____

(9) Ratio of cost of materials in shipment price: _____%

(10) Method of handling burrs, defective products, etc.

☐ Mixture in virgin materials ☐ Sellling off ☐ Disposal

(11) Summary of product testing equipment

☐ Dimension measuring equipment

☐ Strength testing equipment

☐ Tensile strength ☐ Impact strength ☐ Flexural rigidity

☐ Creep ☐ Others: _____

☐ Heat performance testing equipment

☐ Resistance to heat deformation ☐ Flame resistance

☐ Others: _____

☐ Optical property testing equipment

☐ Hue ☐ Gloss

☐ Constant temperature and humidity chamber

☐ Others: _____

(12) Matters for improvement in product quality

_____

5. Labor

(1) Number of work shifts: _____ shifts/day

(2) Wage system and jobs applied to

❒ Piece rate: _____

❒ Fixed salary: _____

❒ Others (_____): _____

(3) Use of subcontractors

❒ No ❒ Yes — details: _____

(4) Use of part-time workers

❒ No ❒ Yes — details: _____

(5) Ratio of skilled workers: _____%

(6) Method of training skilled workers

❒ Only on-the-job training

❒ Others: _____

(7) Details of workers/engineers currently employed

_____

(8) State of retention of employees

_____

(9) Difficulties in securing employees

_____

6. Fund procurement etc.

(1) Use of "Small Business Financing System" of IFCT: ❒ Yes ❒ No

Reasons: _____

(2) Use of "Small Business Financing" of SIFO: ❒ Yes ❒ No

Reasons: _____

(3) Do you know of the "Financing System for Promotion of Modernization of Specified Industries" of the SIFO?

❒ Yes ❒ No

(4) Use of tariff refund system (only in case of export companies)

☐ Yes ☐ No

Reasons: _____

7. Requests to government organizations and industrial organizations

(1) _____

(2) _____

(3) _____

II-2. For : Ceramic Industry

Question Form for Interview Survey
(Ceramic Manufacturers)

No.:

Date of visit: , 1989 Time: ~

Company name: _____

Address: _____

Interviewee: _____

Visitor: _____

1. Company summary

(1) Year of establishment: _____

(2) Foreign equity ☐ Yes ☐ No

If yes, name of country and share: _____ %

Reason for venture: _____

If no, desire for venture ☐ No

☐ Yes — Desired one: _____

(3) Production items and production ratio

1) _____ % 2) _____ %

3) _____ % 4) _____ %

5) _____ %

(4) Monthly production: _____ pcs (or _____ t)

(5) Trends in production volume in past three years: _____

(6) No. of employees: _____

(7) Plans for expansion of production capacity

☐ No

☐ Yes — Method: _____

Possible obstacles: _____

2. Sales

(1) Export product ratio: _____%

(2) Export destinations (name of country and ratio)

_____% _____%

_____% _____%

_____%

(3) Export channels

❒ Export trading company _____%

❒ Domestic contracting manufacturer _____%

❒ Direct exports _____%

(Industry of importer: _____)

❒ Others _____%

(4) Domestic sales customer

❒ Wholesalers _____%

❒ Department stores _____%

❒ Retail stores _____%

❒ Direct sales _____%

❒ Others ( ) %

(5) Size of minimum lots of orders: _____

(6) State of delivery: _____

(7) Product fields and sales channels desired to be expanded:

_____

(8) Balance of orders: _____months' worth (converted into production capacity)

(9) Details of activities to increase business or details of activities to obtain business:

_____

(10) Obstacles in expanding sales channels: _____

3. Product planning

(1) State of product planning

❒ By own company ❒ Customer

❒ Both (own company: _____%, customer: _____%)

(2) Intention of increasing own planning

☐ Yes ☐ No (reason: _____)

(3) Number of planning personnel: _____

(4) Means of acquisition of information for product planning

_____

4. Production

(1) Number of personnel engaged in product design for production purpose: _____

(2) Summary of manufacturing facilities

1) Claymaking facilities: _____

2) Molding facilities: _____

3) Decoration facilities: _____

4) Firing facilities

Type	Materials used	Capacity	Firing temperature

(3) Procurement of clay

☐ Mixed by own company ☐ Purchased

☐ Both (Mixed by own company: _____%, purchased: _____%)

If purchased, amount of monthly purchases and place of purchase:

_____t _____

(4) Procurement of materials: Total amount used monthly _____t

	Production area	Am't used monthly	Unit price	Appli-cation	Place of purchase	Delivery
Feldspar						
Silica						
Kaolin						
Pottery stone						
Clay						
Talc						
Lime						

(5) Procurement of other materials

	Am't used monthly	Unit price	Domestic	Imports	Delivery
Plaster					
Pigments					
Sagger					
Shelves					

(6) Energy sources

Name	Am't used monthly	Unit price	Heating value	Application

(7) Ratio of cost of materials in shipment price: _____ %

(8) State of occurrence of defects in production process
(types of defects and rate of occurrence)

1) Molding _____ % 2) Firing _____ %

3) _____ % 4) _____ % 5) _____ %

(9) Evaluation of product

First grade _____ % Second grade _____ %

(10) Packing method

Export: _____ Domestic: _____

(11) Future matters desired to be solved

Facilities: _____

Technology: _____

5. Labor

(1) Number of work shifts: _____ shifts/day

(2) Wage system and jobs applied to

☐ Piece rate: _____

☐ Fixed salary: _____

☐ Others (_____): _____

(3) Use of subcontractors

☐ No ☐ Yes — details: _____

(4) Use of part-time workers

☐ No ☐ Yes — details: _____

(5) Method of training skilled workers

☐ Only on-the-job training

☐ Others: _____

(6) Details of workers/engineers currently employed

_____

(7) State of retention of employees

_____

(8) Difficulties in securing employees

_____

6. Fund procurement etc.

(1) Use of "Small Business Financing System" of IFCT: ☐ Yes ☐ No

Reasons: _____

(2) Use of "Small Business Financing" of SIFO: ☐ Yes ☐ No

Reasons: _____

(3) Do you know of the "Financing System for Promotion of Modernization of Specified Industries" of the SIFO?

☐ Yes ☐ No

(4) Use of tariff refund system (only in case of export companies)

☐ Yes ☐ No

Reasons: _____

7. Requests to government organizations and industrial organizations

(1) _____

(2) _____

(3) _____

[Appendix III] Japanese Companies Interested in Investment in Thailand
[Appendix III-1] Japanese Companies Interested in Investment in Thailand (Plastic Processing Industry)

Company name	Relationship with Thailand: Production base	Relationship with Thailand: Technical tie-up	Thai investment plan: (A) in planning, under planning	Thai investment plan: Object of entry	Conditions most stressed	Existence of overseas production base	Existence of interest in introduction of partner	Location of head office
Houseware								
1. Zojirushi Mahobin	Yes	—	(A)	—	Low labor costs	Yes	No	Osaka
2. Goichi	No	No	(A)	(C) (E)	Low labor costs	No	—	Osaka
3. Daiya Sangyo	No	No	(A)	(E)	Political stability and stable currency	No	Yes	Tokyo
4. Skater	No	No	(A)	(F) (H)	Political stability and low labor costs	No	Yes	Osaka
5. Rek	Yes	OEM	(A)	(D) (E) (H)	Political stability	No	No	Tokyo
6. Nissui Kogyo	No	No	(A)	(D) (E) (H)	Political stability	No	Yes	Tokyo
7. Katagi Kasei	No	No	(A)	(C) (D) (H)	Political stability and low labor costs	No	Yes	Osaka
8. Kinshi Kagaku Kogyo	No	No	(A)	(E) (G) (H)	—	No	Yes	Osaka
9. Sinko Hanga	No	No	(A)	(D) (E) (H)	Low labor costs	No	—	Osaka
10. Yoshikawakuni Kogyosho	No	No	(A)	(D) (H)	Political stability and low labor costs	No	Yes	Nara
11. Artnap	No	No	(A)	—	Political stability and low labor costs	No	—	Gifu
12. Obayashi Kagaku Kogyo	No	No	(A)	(E)	Lower labor costs	No	Yes	Osaka
13. Terahisa Sangyo	No	No	(A)	(E)	Political stability and low labor costs	No	Yes	Wakayama

Company name	Relationship with Thailand: Production base	Relationship with Thailand: Technical tie-up	Thai investment plan: (A) in planning, under planning	Thai investment plan: Object of entry	Conditions most stressed	Existence of overseas production base	Existence of interest in introduction of partner	Location of head office
Industrial Parts								
1. Kawashima Kogyosho	No	No	(A)	(H) (I)	Political stability	No	Yes	Tokyo
2. Tensho Denki Kogyo	No	Yes	(A)	—	Tariff and tax incentives	No	—	Tokyo
3. Ohara Jushi Kogyo	No	No	(A)	(F) (H) (I)	Political stability	No	Yes	Nagoya
4. Kyowa	No	No	(A)	(C)	Political stability	No	Yes	Tokyo
5. Kyoei Kogyo	No	No	(A)	(E) (I)	Political stability	Yes	Yes	Tokyo
6. Showa Plastics	No	No	(A)	(D)	Political stability	Yes	Yes	Osaka
7. Yamato Esron	No	No	(A)	(D) (H)	Political stability	Yes	Yes	Osaka
8. Kyoei Sangyo	No	No	(A)	(D) (H)	—	No	—	Shizuoka
9. Soko	No	Yes	(A)	(D) (E) (F)	Political stability	No	No	Tokyo
10. Tenma	No	—	(A)	(I)	—	Yes	—	Tokyo
11. Yamato Kako	No	Yes	(A)	(G)	Political stability	Yes	Yes	Tokyo

(C) securing local market, (D) export to third countries, (E) export to Japan, (F) dealing with yen appreciation, (G) acquisition of raw materials, (H) securing of labor force, (I) investment of parent company, (J) others

[Appendix III-2] Japanese Companies Interested in Investment in Thailand (Ceramic Industry)

Company name	Relationship with Thailand: Production base	Relationship with Thailand: Technical tie-up	Thai investment plan: (A) in planning, under planning	Thai investment plan: Object of entry	Conditions most stressed	Existence of overseas production base	Existence of interest in introduction of partner	Location of head office
1. Hishokuyaki Seitojo	Yes	Yes	(A)	(E)	Political stability	No	No	Tokoname
2. Shungyo China Co., Ltd.	No	No	(A)	(D) (F)	Political stability	No	Yes	Seto
3. Mitsubishi Corporation	Yes	Yes (OEM)	(A)	(C) (D) (E) (F) (G) (H)	Political stability	Yes	No	Tokyo
4. Nomura Boeki	Yes	No	(A)	(C) (D) (E)	Political stability	Yes	No	Tokyo
5. Moritomo Toki Mfg. Co.	No	No	(A)	(D) (F) (G)	Political stability	Yes	Yes	Owariasahi

(C) securing local market, (D) export to third countries, (E) export to Japan, (F) dealing with yen appreciation, (G) acquisition of raw materials, (H) securing of labor force, (I) investment of parent company, (J) others

[Appendix IV]

REPORT ON QUESTIONNAIRE SURVEY OF COMPANIES INTERESTED IN OVERSEAS INVESTMENT

(I) Mailing Data/Recovery Data

A breakdown of the mailing data/recovery data relating to this work is as follows:

(1) Mailing Data:

Mailing Date	Number Mailed
November 16, 1989 (Thursday)	600

(Breakdown: 300 to ceramic related companies and 300 to plastic processed product related companies)

(2) Recovery Data

1) Ceramic related companies:

Number of questionnaires recovered by normal return mail:	37
Number recovered by followup by telephone and facsimile:	43
Total	80

(Recovery rate: 27 percent)

2) Plastic processed product related companies plastic part related companies"

Number of questionnaires recovered by normal return mail:	32
Number recovered by followup by telephone and facsimile:	48
Total	80

(Recovery rate: 38 percent)

"Plastic household goods related companies

Number of questionnaires recovered by normal return mail:	20
Number recovered by followup by telephone and facsimile	22
Total	42

(Recovery rate: 47 percent)

Total of 1) and 2)

Number of questionnaires recovered by normal return mail	89
Number recovered by followup by telephone and facsimile	113
Total	202

(Recovery rate: 33.4 percent)

(II) Report on Compilation of Statistics

(1) Ceramic Related Companies

- A total of 80 companies responded. A look at these by the classification of corporations shows all were Japanese companies. Of the 80, 12 had production bases overseas, of which five had production bases in Thailand. The relationships between Thai manufacturers and these five companies were "technical tieups" in three of the cases (companies) and OEM in two of the cases (companies).

- Regarding plans for investment in Thailand in the near future, there were five companies which responded that they were 1) "planning or studying details" of the same, 11 companies which responded that they 2) "had no plans at the present time, but there is room for study in the future", 61 companies which responded that they 3) "had no plans right now", and three companies which did not respond. Seventy-six percent of the companies therefore had no plans at the present time. If one looks at this from another angle, however, one can discern the existence of a potential need of institutional investors here. On the other hand, the 16 companies (20 percent) which responded 1) or 2) actually might make investments. The products which they could produce locally include diningware, novelties, chinaware, western diningware, flower vases, glassware, etc. Regarding the objectives of such investment, of the total 36 replies, with some companies providing multiple replies, the first most prevalent was "ensurement of a labor force" (11 cases or 31 percent), the second was "exports to third countries" (nine cases or 25 percent), and the third was "dealing with the yen appreciation" and "exporting to Japan" (both six cases or 17 percent). None of the companies responded that the objective was "investment by the parent company".

- Regarding the response as to the priorities of the deciding factors in decisions on investment, 23 companies clearly indicated their priorities. The data is organized in Appended Table A. That is, conversion of the deviation of the priority into a mean index gives the following:

Arrangement by priority

1. Political stability (182 points)
2. Low labor costs (121)
3. Tax and tariff incentives (110)
4. Stability of currency (81)
5. Economic system (78)
6. Ability of local procurement of raw materials (63)
7. State of establishment of infrastructure (50)
8. Ability of local procurement of capital (14)

Further, 14 companies did not specify the order of the priorities and merely circled the factors considered important. This data is summarized at the right end of Appended Table 2. There was no deviation among priority orders, so the data was as follows:

Arrangement by priority

1. Low labor costs (11 cases)
2. Political stability (10 cases)
3. Tax and tariff incentives (3 cases)
4. Ability to locally procure raw materials (2 cases)
5. Ability to locally procure capital (one case)

   Economic system (1 case)

Responses in which the order of the deciding factors was not indicated were interpreted as indicating that the factors were equal in importance so as to join the above two sets of data. Analysis of the result gave the following priority order:

Arrangement by priority

1. Political stability (262 points)
2. Tax and tariff incentives (234)
3. Low labor costs (206)
4. Economic system (86)
5. Stability of currency (81)
6. Ability of local procurement of raw materials (79)
7. State of establishment of infrastructure (50)
8. Ability of local procurement of capital (22)

- The countries which the companies were currently considering as investment sites, other than Thailand, and the number of such cases were as follows: Malaysia: 14 cases (29 percent), Indonesia: 12 cases (24 percent), China: 9 cases (18 percent), the Philippines: 3 cases (6 percent, Sri Lanka and Taiwan: 2 cases each (each 4 percent), Brazil, Hungary, Peru, Venezuela, U.K., Australia, South Korea, Mexico, and U.S.: one case each (2 percent each), with Malaysia, Indonesia, and China being the top three countries.

- The top five matters considered current problems in Thailand's investment environment and foreign investment policy were as follows: 1) "Difficulty in securing skilled labor force" (17 cases: 17 percent), 2) "Rising labor costs" (16 cases: 16 percent), 3) "Difficulty in labor management" (13 cases: 13 percent), 4) "Apprehensions about personal safety" (11 cases: 11 percent), 5) "Insufficient infrastructure" (10 cases: 10 percent). For details, see the appended detailed data.

(2) Plastic Processed Product Related Companies

- A total of 122 companies responded (of which 80 were related to plastic parts, and 42 to plastic household goods). A look by corporate classification shows all were Japanese companies. Of the 80 companies having something to do with plastic parts, 22 had production bases overseas, of which eight already had production bases in Thailand. The relationships between Thai manufacturers and these eight companies were given as "technical tieups" in six cases (companies). Two companies did not give detailed responses.

  Of the 42 companies having something to do with plastic household goods, three already had production bases overseas, all of which were in Thailand. The relationships between Thai manufacturers and these three companies were given as "technical tieups" in two cases (companies) and "OEM" in one.

- Regarding plans for investment in Thailand in the near future, there were four parts related companies and one household goods related company, a total of five, which responded that they were 1) "planning or studying details" of the same, seven parts related companies and 12 household goods related companies, a total of 19, which responded that they 2) "had no plans at the present time, but there is room for study in the future", 54 parts related companies and 29 household goods related companies, a total of 83, which responded that they 3) "had no plans right

now", and 12 companies which did not respond. Sixty-eight percent of the companies therefore had no plans at the present time. In the same way as above, if one looks at this from another angle, one can discern the existence of a potential need of institutional investors here. On the other hand, the 24 companies (20 percent) which responded 1) or 2) actually might make investments. The products which they could produce locally include ultra-precision plastic processed products (mold designs) and other plastic processed products in the case of parts related companies and plastic injection molded products, plastic parts, melamine molded and assembled parts, melamine trays, etc. in the case of household goods related companies. Regarding the objectives of such investment, of the total 18 replies, with one company providing multiple replies, in the case of parts related companies, the first most prevalent was "exports to third countries" (five cases: 28 percent), the second was "ensurement of a labor force" , "export to Japan", and "investment of a parent company" (three cases each: 17 percent), and the third was "dealing with the yen appreciation" (two cases: 11 percent). In the case of household goods related companies, of the total 24 replies, the first most prevalent was "export to Japan" (eight cases: 33 percent), the second was "ensurement of a labor force" (seven cases: 29 percent), and the third was "export to third countries" (five cases: 21 percent).

- Regarding the response as to the priorities of the deciding factors in decisions on investment, 38 companies clearly indicated their priorities (26 parts related companies and 12 household goods related companies). The data is organized in Appended Table B and C. That is, conversion of the deviation of the priority into a mean index gives the following:

Arrangement by priority

	Parts		Household goods	
-Political stability	1	(160 points)	2	(54 points)
-Low labor costs	2	(95 points)	1	(91 points)
-Tax and tariff incentives	3	(86 points)	3	(41 points)
-Stability of currency	4	(86 points)	6	(15 points)
-Economic system	5	(84 points)	6	(15 points)
-Ability of local procurement of raw materials	6	(78 points)	4	(29 points)
-State of establishment of infrastructure	7	(72 points)	5	(27 points)
-Ability of local procurement of capital	8	(19 points)	8	(4 points)

Further, 18 companies did not specify the order of the priorities and merely circled the factors considered important (nine parts related companies and nine household goods related companies). This data is summarized at the right end of Appended Table B and C. There was no deviation among priority orders, so the data was as follows:

Arrangement by priority

	Parts		Household goods	
-Political stability	1	(7 points)	1	(7 points)
-Low labor costs	1	(7 points)	2	(6 points)
-Tax and tariff incentives	2	(3 points)	4	(0 point)
-Economic system	2	(3 points)	4	(0 point)
-State of establishment of infrastructure	3	(2 points)	4	(0 point)
-Ability of local procurement of raw materials	4	(1 points)	3	(1 point)
-Stability of currency	4	(1 points)	3	(1 point)
-Ability of local procurement of capital	5	(0 points)	4	(0 point)

Responses in which the order of the deciding factors was not indicated were interpreted as indicating that the factors were equal in importance so as to join the above two sets of data. Analysis of the result gave the following priority order:

Arrangement by priority

	Parts		Household goods	
-Political stability	1	(216 points)	2	(110 points)
-Low labor costs	2	(151 points)	1	(139 points)
-Tax and tariff incentives	3	(110 points)	3	(41 points)
-Economic system	4	(108 points)	6	(15 points)
-State of establishment of infrastructure	5	(102 points)	6	(15 points)
-Stability of currency	6	(86 points)	4	(37 points)
-Ability of local procurement of raw materials	7	(80 points)	5	(35 points)
-Ability of local procurement of capital	8	(19 points)	7	(4 points)

- The countries which the companies were currently considering as investment sites, other than Thailand, and the number of such cases were as follows: Malaysia: 17 cases (38 percent), Indonesia: 9 cases (20 percent), Philippines: 4 cases (9 percent), Singapore, China, and the U.S.: 3 cases each (7 percent each) in the case of parts related companies and Indonesia: 10 cases (31 percent,

Malaysia: 7 cases (22 percent), Singapore: 5 cases (16 percent), etc. in the case of household goods related companies, with Malaysia and Indonesia being first and second ranked.

- The top five matters considered current problems in Thailand's investment environment and foreign investment policy were as follows: 1) "Difficulty in securing skilled labor force" (18 cases: 21 percent), 2) "Insufficient infrastructure" (14 cases: 17 percent), 3) "Rising labor costs" and "Apprehensions about personal safety" (10 cases each: 12 percent each), and 5) "High import tariffs for raw materials and parts" (seven cases: 8 percent) in the case of the parts related companies and "Difficulty in securing skilled labor force" (12 cases: 21 percent), 2) "Difficulties in securing skilled labor force" (10 cases: 18 percent), 3) "Rising labor costs" (eight cases: 14 percent), 4) "Apprehensions about personal safety" (10 cases: 18 percent), and 5) "High import tariffs for raw materials and parts" and "Severeness of obligation of local procurement" (four cases each: 7 percent each). For details, see the appended detailed data.

(III) Observations

- The 6.2 percent recovery rate by return mail in the case of ceramic related companies was an extremely low figure compared with the 17.3 percent rate in the case of plastic related companies. The difference is clear too when compared with the rates for the survey last year on wooden furniture related companies (19.8 percent) and textile and apparel related companies (29.5 percent). One of the reasons behind this low rate of return is believed to be the corporate scale. In other words, the ceramic manufacturers covered by this survey were concentrated in Nagoya, Tajimi, Tokoname, Seto, and other regions and were mostly medium, small, and cottage size businesses.

  A point learned for the first time in the telephone followup was that a considerable number of companies would try to avoid having to respond when hearing the words "companies interested in overseas investment and would give as reasons the size of their businesses, e.g., "we are not the size of a company able to invest overseas", "we have our hands full with domestic business and do not have any leeway for investment", or "we have never considered investing overseas". Considerable effort was required in explaining what was wanted.

It is believed that negative responses were not given after real consideration of overseas investment, but because in many cases the companies were simply not interested or had neither the chance nor the information for studying this matter.

It is expected that the number of potential companies interested in investment would rise through the promotion of the flow of clear information on the subject.

RESULTS OF COMPILATION OF STATISTICS (BY TYPE OF COMPANY)

(Industry covered: Ceramics)

(1) Recovery Rate

No. mailed	No. Response	Recovery Rate (%)	No. Unrecovered	Rate of nonrecovery
300 cases	80	27	220	73

(2) Breakdown of responses

Question			Type of corporation: Japanese		100% foreign	over 50% foreign	Tota
1.	(1)	Yes	12				12
		No	65				65
	(2)	If yes, Name of Country	Malaysia, Taiwan, Thailand	4 each			
			Singapore, Taiwan	2 each			
			Sri Lanka, China, U.S. Indonesia, Brazil	1 each			
2.	(1)	Yes	5				5
		No	71				71
	(2)	Technical tieup:	3				3
		OEM	2				2
		No relation	69				69
3.	(1)	Planning or studying	5				5
		Margin for Study	11				11
		No	61				61
	(2)	Product Name	Diningware	3			
			Novelties	2			
			Chinaware	2			
			Western diningware, flower vases flowerpots, new ceramic products, indoor and interior items, green glass products, pots, earthenware, etc	1 each			
	(3)	Objectives	Ensurement of a labor force	11			11
			Exporting to third countries	9			9
			Dealing with the yen appreciation	6			6
			Exporting to Japan	6			6
			Ensurement of local market	3			3
			Acquisiton of raw materials	1			1

Type of corporation / Question		Japanese		100% foreign	over 50% foreign	Tota
(4)	Deciding factors in investments	(Priority order) "See Appnded Table A"				
(5)	Investment sites other than Thailand	Malaysia	14			
		Indonesia	12			
		China	9			
		Philippiines	3			
		Sri Lanka and Taiwan	2 each			
		Brazil, Hungary, Peru Venezuela, U.K., Australia, South Korea Mexco, U.S.	1 each			
4. Problems		Difficulty in securing skilled labor force	17			
		Rising labor costs	16			
		Difficulty in labor management	13			
		Apprehensions about personal safety	11			
		Insufficient infrastructure	10			
		Limitations on equity ratio	7			
		High import tariffs for raw materials and parts	7			
		Compulsory promotion of locals	4			
		Insufficient legal and tax systems	4			
		Severe export obligations	3			
		Difficulty in acquiring visas	3			
		Severe obligations of local procurement	3			
		Anti-Japanese sentiment	2			
		Labor disputes	1			
5. Desire		18				
Do not desire		17				

RESULTS OF COMPILATION OF STATISTICS (BY TYPE OF COMPANY)

(Industry covered: Plastic Processed Products - Parts)

(1) Recovery Rate

No. mailed	No. Response	Recovery Rate (%)	No. Unrecovered	Rate of nonrecovery
211 cases	80	38	131	62

(2) Breakdown of responses

Type of corporation / Question			Japanese	100% foreign	over 50% foreign	Tota
1.	(1)	Yes	22			22
		No	56			56
	(2)	If yes, Name of Country	U.S.A. 9			
			Malaysia, Singapore 7 each			
			U.K. 6			
			Taiwan, Thailand 3aach			
			South Korea, W. Germany 2 each			
			Indonesia, France 1 each			
2.	(1)	Yes	8			8
		No	70			70
	(2)	Technical tieup:	6			6
		OEM	0			0
		No relation	60			60
3.	(1)	Planning or studying	4			4
		Margin for Study	7			7
		No	60			60
	(2)	Product Name	Ultra-precision plastic formed Products (mold design), Plastic formed products, other			
	(3)	Objectives	Export to third countries 5			5
			Ensurement of a labor force 3			3
			Exporting to Japan 3			3
			Investment of parant company 3			3
			Dealing with the yen appreciation 2			2
			Ensurement of local market 1			1
			Acquisition of raw materials 1			1

Type of corporation / Question		Japanese		100% foreign	over 50% foreign	Tota
(4)	Deciding factors in investments	(Priority order) "See Appnded Table B"				
(5)	Investment sites other than Thailand	Malaysia	18			
		Indonesia	9			
		Philippiines	4			
		Singapre, China, U.S.	3 each			
		Spain, Canada, Ireland, EC, U.K.				
		Australia	1 each			
4. Problems		Difficulty in securing skilled labor force	18			
		Insufficient infrastructure	14			
		Rising labor costs	10			
		Apprehensions about personal safety	10			
		Difficulty in labor management	8			
		High import tariffs for raw materials and parts	7			
		Limitation on equity ratio	4			
		Severe obligations of local procurement	3			
		Severe export obligations	3			
		Anti-Japanese sentiment	3			
		Insufficient legal and tax systems	2			
		Difficulty in acquiring visa	1			
		Labor disputes	1			
5. Desire		11				
Do not desire		19				

RESULTS OF COMPILATION OF STATISTICS (BY TYPE OF COMPANY)

(Industry covered: Plastic Processed Products-Household Goods)

(1) Recovery Rate

No. mailed	No. Response	Recovery Rate (%)	No. Unrecovered	Rate of nonrecovery
211 cases	80	38	131	62

(2) Breakdown of responses

Type of corporation / Question			Japanese	100% foreign	over 50% foreign	Tota
1.	(1)	Yes	3			3
		No	37			37
	(2)	If yes, Name of Country	Taiwan 2 Sri Lanka, Thailand 1 each			
2.	(1)	Yes	3			3
		No	38			38
	(2)	Technical tieup:	2			2
		OEM	1			1
		No relation	32			32
3.	(1)	Planning or studying	1			1
		Margin for Study	12			12
		No	29			29
	(2)	Product Name	Plastic injection molded products, Plastic parts, melamine formed and asesmbled parts, malamine trays teacups, chopsticks, other			
	(3)	Objectives	Export to Japan 8 Ensurement of labor force 7 Exporting to third countries 5 Ensurement of local market 2 Dealing with the yen appreciation 1 Acquisition of raw materials 1			
	(4)	Deciding factors in investments	(Priority order) "See Appnded Table C"			

Question	Type of corporation	Japanese		100% foreign	over 50% foreign	Tota
	(5) Investment sites other than Thailand	Indonesia	10			
		Malaysia	7			
		Singapore	5			
		China	4			
		Taiwan	2			
		South Korea, U.S., Vietnam Philippines	1 each			
4. Problems		Difficulty in labor management	12			
		Difficulty in securing skilled lbaor force	10			
		Rising labor costs	8			
		Apprehensions about personal saftey	6			
		High import tariffs for raw materials and parts	4			
		Severe obligations of local procurement	4			
		Insufficient infrastructure	3			
		Limitations on equity ratio	2			
		Anti-Japanese sentiment	2			
		Severe export obligations	2			
		Insufficient legal and tax systems	2			
		Compulsory promotion of locals	1			
5. Desire			9			
Do not desire			13			

Appended TAble A

(Ceramics)

Unit: Figures in upper rows: case
Figures in lower rows: mean index

Priority Order no.	1	2	3	4	5	6	7	8	Circled only
1. Political stability	19	2	1	2	-	-	-	-	10
	152	14	6	10	-	-	-	-	
2. Tax and tariff incentives	-	5	17	2	5	1	-	-	3
	-	35	42	10	20	3	-	-	
3. Ability to locally procure raw materialsf	1	1	1	3	1	3	3	1	2
	8	7	6	15	4	9	6	8	
4. Ability to locally procure capital	-	-	-	-	-	2	1	6	1
	-	-	-	-	-	6	2	6	
5. Economic system	1	5	3	2	1	1	-	-	1
	8	35	18	10	4	3	-	-	
6. Stability of currency	-	5	-	5	4	1	1	-	-
	-	35	-	25	16	3	2	-	
7. Low labor costs	2	5	8	1	2	3	-	-	11
	16	35	48	5	8	9	-	-	
8. State of establishment of frastructure	-	1	3	2	1	2	2	1	-
	-	7	18	10	4	6	4	1	

Note: The mean index was calculated bymultiplying the number of cases of the first to eighth priority by an index of priority (first place: 8 points, second place: 7 points, third place: 6 points, fourth place: 4 points, fifith place: 4 points, sixth place: 3 points, seventh place: 2 points, eighth palce: 1 point) and using the result as the mean index, show in the lower rows.

(Same for appended Table B and C)

Appended TAble B

(Plastic and Related Companies)

Unit: Figures in upper rows: case
Figures in lower rows: mean index

Priority Order no.	1	2	3	4	5	6	7	8	Circled only
1. Political stability	18	1	1	-	-	1	-	-	7
	144	7	6	-	-	3	-	-	
2. Tax and tariff incentives	-	5	1	3	4	4	1	-	3
	-	35	6	15	16	12	2	-	
3. Ability to locally procure raw materialsf	-	1	3	3	4	4	2	-	1
	-	7	18	15	16	12	4	-	
4. Ability to locally procure capital	-	-	-	-	-	1	4	8	-
	-	-	-	-	-	3	8	8	
5. Economic system	-	4	3	5	2	1	1	-	3
	-	28	18	25	8	3	2	-	
6. Stability of currency	-	3	4	3	2	2	2	-	1
	-	21	24	15	8	6	4	-	
7. Low labor costs	3	1	7	2	3	-	-	-	1
	24	7	42	10	12	-	-	-	
8. State of establishment of frastructure	1	5	2	1	1	1	8	3	2
	8	35	12	5	4	3	16	3	

Appended TAble C
(Plastic Household Goods)

Unit: Figures in upper rows: case
Figures in lower rows: mean index

Priority Order no.	1	2	3	4	5	6	7	8	Circled only
1. Political stability	3	3	-	1	1	-	-	-	7
	24	21	-	5	4	-	-	-	
2. Tax and tariff incentives	1	1	3	1	-	-	1	1	-
	8	7	18	5	-	-	2	1	
3. Ability to locally procure raw materialsf	-	1	2	1	-	1	-	-	1
	-	7	12	5	-	3	-	-	
4. Ability to locally procure capital	-	-	-	-	-	-	1	2	-
	-	-	-	-	-	-	2	2	
5. Economic system	-	-	1	-	1	1	1	-	-
	-	-	6	-	4	3	2	-	
6. Stability of currency	-	1	1	2	1	-	1	-	1
	-	-	6	-	4	3	2	-	
7. Low labor costs	7	5	-	-	-	-	-	-	6
	56	35	-	-	-	-	-	-	
8. State of establishment of frastructure	-	-	-	1	1	2	-	-	-
	-	-	-	5	4	6	-	-	

[Appendix V]
Samples of Third Country Survey Plans

V-1. Plan for Survey of the Major Market

Industry Surveyed: Plastic Molding Industry
[SITC-893,
CCCN-3907,
HS-39.22, 39.23, 39.24]
The plastic molded products are limited to general use plastics and include mainly household goods and general industrial components. Special engineering plastic products are excluded.

Country (region) surveyed: U.S.

<Survey Items>
1. Summary: The results of the survey will be summarized.

2. Import Trends
The state of imports, by country, for individual items (the smallest classifications possible) will be clarified using trade statistics of the past five years, then an analysis will be made of the trends and changes in the same, including information from interviews with parties in the import industry.
In particular, clarification will be made of features of and changes in individual products and of individual producing countries in the trends in imports from the NIE's and Southeast Asian countries.

3. State of Competition
Clarification will be made of the state of competition between domestic products and import products and between import products themselves for each product line and changes in recent years, including information from interviews with related parties in the industry.
At that time, the state of competition among imports from the Asian NIE's and Southeast Asia and changes in their market shares will be touched on.

4. State of Distribution and Consumption of Thai Products and Evaluation of Those Products

Products imported from Thailand of lines generally seen on the market will be taken up and clarification will be made of the distribution channels, terms of trade, and the like for OEM products and other products (including products sold in mass merchandisers etc.) through interviews with related parties. Further, evaluations, criticisms, and future projections on the quality, design, delivery, price, sales methods, etc. of Thai products will be solicited.

5. Trends in Overseas Investment by Manufacturers

If there is a movement in the industry toward investment in Thailand and the ASEAN region, establishment of joint ventures, OEM imports of ceramic products from Thailand, etc., this will be picked up from articles in industrial journals etc. and the interviews with industrial experts. An outlook on the same will also be given.

6. Future Outlook

Based on the results of the above survey, a summary will be made of the means for improvement of the quality, design, sales method, etc. of Thai products in the ceramic product market and of problems in tieups with manufacturers. Suggestions will be made for expansion of sales in the future.

V-2. Plan for Survey of Competing Countries

Industry Surveyed: Ceramic Products

[SITC-666,
CCCN-69.11, 69.12, 69.13,
HS-69.11, 69.12, 69.13]

Specifically, the survey excludes tile and other industrial products and covers so-called household products, i.e., tableware, kitchenware, and novelty items made of earthenware, china/porcelain, and stoneware.

Country (region) surveyed: Korea

<Survey Items>

1. Summary: The results of the survey will be summarized.

2. Industrial Trends

[1] Production trends.... The trends in individual products will be clarified as much as possible for production (shipments) in the past five years.

[2] History of industry.... The background of growth of the industry, changes in the number of manufacturers, features of the size of manufacturers (number of employees per company), trends in production items, trends in exports, etc. will be summarized.

[3] Production system.... State of mechanization

[4] Labor problems.... How manufacturers are working to foster skilled workers. What kind of training centers are available for earthenware and china/porcelain engineers and summaries of the same.

[5] Raw materials.... State of domestic resources and trends in prices of imported materials and domestic raw materials

[6] Competitiveness.... What are important points of competitiveness of ceramic products of South Korea (cost, quality, design development capabilities, exports, etc.)?

[7] Standards.... Standards established and in general use and management of standards

[8] Technical capabilities.... How the capabilities are evaluated compared with the international level. What are the points behind the technical superiority of the ceramic industry of South Korea?

[9] Trends in overseas production.... Trends in investment in countries in Asian area, investment locations, motivations, items, export destinations, etc.

3. Export Marketing

[1] Changes in exports.... The trends in individual products and in export destinations, the changes in items, etc. will be clarified as much as possible based on export statistics for individual products for the past five years.

[2] Export channels.... To what extent are OEM exports going on (export destinations, features of individual products, etc.)? What kind of export channels are there in general besides OEM?

[3] Product development and design.... Whether independent development, buyer specifications, etc.

[4] Development of overseas markets and marketing activities.... Details of export promotion activities and marketing activities for key markets

[5] Competitive relationship in overseas markets.... How the competitiveness of products of South Korea are evaluated overseas. Which are the competing countries in the main markets and why.

[6] Export inspections.... Outline of inspection organizations, inspection fees, etc. for export inspections of ceramic products

4. Industrial Promotion Measures and Export Promotion Measures

In this section, clarification will be made of what kind of policies the government adopted and what kind of systems it established, on a historical basis, for the promotion of production and exports of the ceramic industry. In particular, specific consideration will be given to financial and tax incentives, technical assistance, etc. and to assistance to promote exports.

5. Future Outlook

An explanation will be made of the future outlook for the industry, covering relative changes in competitiveness with neighboring Asian countries in the future, shifts of production bases overseas, etc.

6. Case Studies of Key Companies

About five major export companies will be examined for case studies based on the following points:

[1] Histories of companies

[2] Features of management

[3] Trends in main lines of production and export

[4] State of procurement of raw materials and parts

[5] How government assistance and promotion measures are being used

[6] Export strategies

[7] Tieups with overseas companies

If there are capital or technical tieups with foreign companies, outlines of the same.

[8] If there are overseas investments (production), the background of the same, investment site, lines of production, export destinations, etc. If possible, future plans will be inquired on.

[Appendix VI]
Steering Committee Members and Study Organization

<The Role of the Steering committee>

The steering committee consists of concerned agencies in the Thai government as per the following.

The role of the steering committee is two-fold. First, the committee is expected to select their industrial sectors to be studied and to provide the information necessary for the selection. Second, the committee is to cooperate in any way it can for the smooth implementation of the study, including the provision of any available industry data.

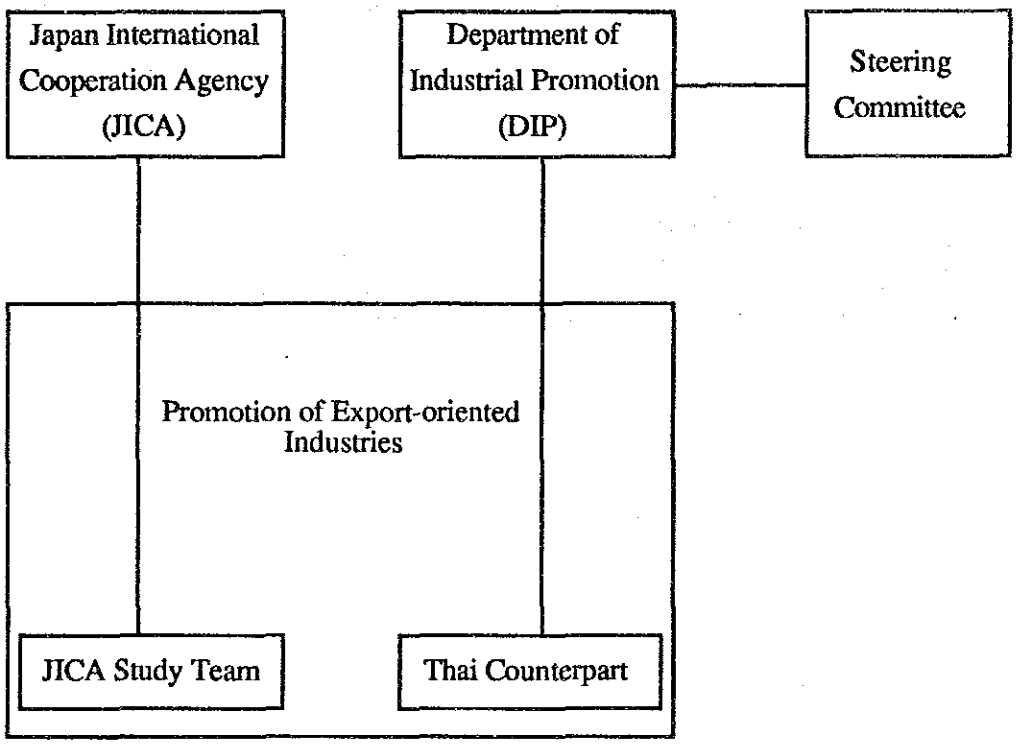
Steering Committee Members

1.	Director-General Department of Industrial Promotion (DIP)	(Chairman)
2.	Deputy Director-General (Mr. Manu Leopairote) Department of Industrial Promotion (DIP)	(Vice-Chairman)
3.	Director, Planning Division, Department of Export Promotion (DEP)	
4.	Director, Industrial Economics & Planning Division (IEPD), Office of the Permanent Secretary, Ministry of Industry	
5.	Director, Planning Division, Board of Investment (BOI)	
6.	Mr. Thamnu Vasinonda Director, Thailand Management Development and Productivity Center (TMDPC)	
7.	Dr. Damri Sukhotanang Director, The Metal-Working and Machinary Industries Development Institute (MIDI)	
8.	Chief, Industrial Planning Coordination Section, Office of the National Economic and Social Development Board (NESDB)	
9.	Representative, The Federation of Thai Industries	
10.	Director, Planning Division, Department of Industrial Promotion (DIP)	(Secretary)
11.	Director, Industrial Development Center (IDC), Department of Industrial Promotion (DIP)	(Asst. Secretary)

Advisors

1. 1st Secretary, Embassy of Japan (Mr. Shoichi Ikuta)
2. JICA Expert (Mr. Naonobu Yamazaki)
3. JICA Expert (Mr. Koki Suganuma)

Study Organization



*Study Organization is consisted of DIP, DEP, BOI, NESDB, and ATI.

[Appendix VII]

List of Counterparts from DIP

-CERAMIC-

1.	Mr. Sirichai Pothitapana	ISI
2.	Mrs. Suweena Tangposuwan	ISI
3.	Mrs. Supawan Tantitanawat	Planning Div.
4.	Mr. Surapol Tannumsang	NIPC
4.	Mr. Akradet Boonchai	NIPC

-Plastic-

1.	Mr. Pisit Eaksilp	ISI
2.	Mr. Aran Wasantakorn	ISI
3.	Mr. Virat Amornlertwit	Planning Div.
4.	Mrs. Suda Thongsri	Planning Div.
5.	Mrs. Sunimon Supangkarat	MIDI