

That is, enterprises with a desire to enter the export market or domestic markets where a high quality is required must be strategically assisted so as to foster a group of core companies and thereby stimulate other firms.

According to the definition of small businesses in the Philippines, considerably small scale businesses are covered by the small business programs. Medium sized companies, which are playing important roles in the activities of the six sub-sectors, must also be looked at. (These companies are positioned as medium sized enterprises in the industrial structure of the Philippines, but in their relations with foreign capital affiliates, their sources of supply of technology, their fund capabilities for modernization of facilities, etc. are suitably positioned as small businesses.) In the sub-sectors surveyed, with the exception of oleochemicals, advanced companies playing central roles in the stimulation of their sub-sectors were seen, primarily among the medium sized companies. These are working positively to improve their technical capabilities, marketing, and management. Even these firms, however, lack the ability of taking on various improvements as individual companies and require government assistance. These companies have moved aggressively in their industries to form industry organizations and are taking the lead in tackling the improvement of their industries. From this viewpoint, the government should desirably establish measures which stress the activities of these industry organizations and support the independent efforts of the industries.

In consideration of the above, the areas of assistance which should be particularly stressed in the development strategies are as follows:

1. A program to be formulated and implemented by their industry organizations and run primarily by the industries themselves, for developing core companies designed to improve technical capabilities, marketing, and management in the sub-sectors.
2. A financial program aimed at modernization of facilities and focusing on small and medium-sized businesses
3. A comprehensive marketing activity package aimed at the export market, implemented under the lead of private sectors and with the comprehensive assistance of all government institutions related to trade promotion

**IV. Reorganization of Individual  
Promotional and Developmental Projects  
and Selection of Optimum Priority Projects**



## **IV. Reorganization of Individual Promotional and Developmental Projects and Selection of Optimum Priority Projects**

### **1. Reorganization of Promotional and Developmental Projects and Selection of Optimum Priority Projects**

#### **(1) Integration of Promotional and Developmental Projects**

The comprehensive development projects for each of the sub-sectors are set so as to enable effects to be realized with the greatest efficiency in view of the sub-sector. When reviewing the individual projects of the six sub-sectors surveyed, there are many development which can be reorganized in that 1) implementation covering a number of sub-sectors would be more effective and efficient than implementation covering just individual sub-sectors and 2) packaging a number of projects together would enable more comprehensive coverage. The relationship between the individual projects in the sub-sectors and the projects which can be formed by reorganization of these is shown in Table IV-1. Through this work, the numerous projects covering individual sub-sectors can be encompassed in common sub-sector projects.

#### **(2) Criteria for Selection of Optimum Priority Projects**

The following two standards are adopted in the selection of the optimum priority projects from this viewpoint:

1. The fact of being key projects in the strategy of promotion and development of the sub-sectors as seen from the effectiveness and necessity of having priority
2. The fact of being suited for priority action by the government

The key projects in the strategies of promotion and development of the individual sub-sectors have already been qualitatively selected at the stage of study of the promotional and developmental strategies of the sub-sectors (see II. 2). The socioeconomic effects which these optimum priority projects would have on the sub-sectors are attached in Annex I.

There are two major criteria for determining if a project is suited for priority action by the government. The first is that the industry itself be strongly aware of the need for implementation of the project and that the industry try to set itself up to provide cooperation in the implementation (there may also be some projects which have to be implemented even over the opposition of the industry from the standpoint of environmental protection, safety and health, protection of third parties, etc.). The second is that the industry find it difficult to implement the project on its own and require government support. This includes a need for overseas support as well.

#### **(3) Selection of Optimum Priority Projects**

##### **1) Selection of Key Projects in Promotional and Developmental Strategies**

In the promotional and developmental plans for the individual sub-sectors, the key projects have already been selected based on their importance in the strategies for promotion and development of those sub-sectors. To set criteria of importance common to and allowing comparison among sub-sectors, the socioeconomic effects have to be gauged by a common method of measurement. Here, the degrees of importance in the

individual sub-sectors, however are used as the criteria for selection and comparative study results using the common indicators (socioeconomic effects) are shown in Annex I as reference only for the finally selected projects. The projects selected here are those which meet with the following criteria:

1. Projects which are regarded as the key projects for a specific sub-sector development but which are not reorganized as the key projects commonly applicable to more than one sub-sectors
2. Reorganized projects which include key project(s) for specific sub-sector(s) development
3. Other projects which are applicable commonly to more than one sub-sectors and which play an important role in the improvement of infrastructure, technical infrastructure and investment environment essential for sub-sector development

The selected projects are shown in Table IV-2.

## 2) Selection of Projects to be led by the Government

In selecting the projects which the government should implement on a priority basis, the following points were evaluated in the key projects for the development strategy:

1. Appreciation by industry of the projects and positiveness in implementation by same
2. Necessity for government assistance, including overseas aid
- 2-1. Projects on which one cannot expect any progress through effort by the industries alone and for which progress is necessary to implement other important projects, thus requiring quick implementation
- 2-2. Projects which require assistance in public funding or technical assistance from the government or overseas

The results of the above evaluation of the projects are shown in Table IV-3.

## 3) Position of Selected Optimum Priority Projects in Promotion and Development

The position of the selected optimum priority projects in the promotion and development of the six sub-sectors surveyed is shown in Fig. IV-1.

Table IV-1: Strategic Key Projects in Each Sub-sector and Integration of the Existing Projects (1)

Purpose of Project	Wooden Furniture	Die Making for Metals	Computer Software	Stuffed Toys	Costume Jewelry	Oleochemicals	Integrated Projects
Strengthening of export marketing activities	Organization of activities to participate in foreign exhibitions		Strengthening of access to software development in the Philippines	Industry-level activities aiming at the medium/high grade product markets	Sales promotion for penetrating the class C market with products on hand		
	Information gathering and research on foreign markets/industries		Establishment of marketing companies for coping with language barriers in the Japanese market	Strengthening of sales channels, including low-price products/ products with different shipment seasons	Establishment of sales systems from buyers		Comprehensive export promotion activities
Improvement of technology/production management, marketing, and management in firms	Improvement of design development capability			Discrimination of business practices on trade	Seminars on improvement of export business practices		
	Assessing project for improvement of wooden furniture technology management	Assessing project for upgrading technology and product quality	Implementation of public projects followed by large-scale software development	Nurturing of designers and pattern makers	Improvement of design/ material development capability		
	Assistance in formation of cooperatives in specified districts	Recommendation system for suitably modernized die factories		Improvement of cost estimation methods for bidding			Development/activation of industrial associations
		Establishment of industrial estates for metal engineering		Formation of subcontracting networks	Establishment of a Cebu costume jewelry manufacturing village		
		Promotion of standardization of manufacturing processes and materials components		Joint scheme for purchase/ stock operation of materials			
		Promotion of tie-ups with foreign firms		Promotion of QC			Establishment of the central laboratory to promote QC/ standardization
		Long-term continuous dispatch of trainees overseas		Continuous dispatch of trainees overseas for job period	Engagement of inventors by foreign firms		Promotion of tie-ups with foreign firms aiming at technical transfer
			Invitation of foreign instructors and dispatch of teaching assistants overseas in industry				Long-term continuous dispatch of trainees overseas and invitation of foreign instructors



Notes:  Projects to be included in the integrated projects  Key projects in each subsector

Table IV-1: Strategic Key Projects in Each Sub-sector and Integration of the Existing Projects (2)

Purpose of Project	Wooden Furniture	Die Making for Metals	Computer Software	Stuffed Toys	Costume Jewelry	Oleochemicals	Integrated Projects
Support for improvement of industries through betterment of infrastructures, technical infrastructures, education/training systems, and financial systems	Improvement of training systems				Establishment of a promotion/assistance center in (Cebu)		Establishment of regional industrial promotion centers
		Establishment of a die-making industry assistance center	Establishment of a training center for computer software development			Establishment of a coconut R&D center	
			Introduction of testing systems for EDP engineers				
		Financial assistance	Financial assistance	Assistance for members in making loan applications			Establishment of modernization loans for subsector industrial development
		Assistance in facility procurement					
				Campaign for deterring illegal design copying	Campaign for deterring illegal design copying		Campaign for deterring illegal design copying
				Compilation of industry statistics			
			Establishment of a government section in charge of policy-making of machinery/metal industries	Cooperation with push manufacturers to improve their supply capability		Encouragement of foreign investment in costume jewelry/related parts	Comprehensive investment promotion activities
			Promotion of export of metal worked parts			Granting of the same incentives as in Malaysia	
						Elimination of obstacles to supply of coconut oil	



Notes:  Projects to be included in the integrated projects  Key projects in each subsector

Table IV-2: Integrated Key Projects Selected for Industrial Development (1)

Purpose of Project	Wooden Furniture	Die Making for Metals	Computer Software	Stuffed Toys	Costume Jewelry	Oleochemicals	Integrated Projects	
Strengthening of export marketing activities	Organization of activities to participate in foreign exhibitions		Strengthening of access to software development industries overseas	Industry-level activities aiming at the medium/high grade product markets	Sales promotion for penetrating the class C market with products on hand			
			Establishment of marketing companies for coping with language barriers in the Japanese market	Strengthening of order receiving activities including low-priced products, products in different seasons	Establishment of easier access systems from buyers		Comprehensive export promotion activities	
Improvement of technology/production management, marketing, and management in firms	Information gathering and research on foreign markets/industries			Improvement of contact windows for buyers				
	Improvement of design development capability			Dissemination of business practices on trade	Seminars on improvement of export business practices			
				Nurturing of designers and pattern makers	Improvement of design/material development capability			
				Improvement of cost estimation methods for bidding				
		Advisory project for improvement of wooden furniture technology/ management	Advisory project for upgrading technology and product quality	Implementation of public projects followed by large-scale software development	Formation of subcontracting networks	Establishment of a Cebu costume jewelry manufacturing village		Development/activation of industrial associations
		Assistance in formation of cooperatives in specified districts	Recommendation system for suitably modernized die factories		Joint scheme for purchase/stock operation of materials			
			Establishment of industrial estates for metal engineering		Promotion of QC		Establishment of the central laboratory to promote QC/standardization	
		Promotion of standardization of manufacturing processes and materials/components	Promotion of standardized products					Promotion of tie-ups with foreign firms aiming at technical transfer
		Promotion of tie-ups with foreign firms	Promotion of tie-ups with foreign firms			Encouragement of investment by foreign firms		
		Long-term continuous dispatch of trainees overseas		Continuous dispatch of trainees overseas for long periods				Long-term continuous dispatch of trainees overseas and invitation of foreign instructors
			Invitation of foreign instructors and dispatch of teachers/students overseas as trainees					

Notes:  Key projects



Table IV-2: Integrated Key Projects Selected for Industrial Development (2)

Purpose of Project	Wooden Furniture	Die Making for Metals	Computer Software	Stuffed Toys	Cosume Jewelry	Oleochemicals	Integrated Projects	
Support for improvement of industries through betterment of infrastructures, technical education/training systems, and financial systems	Improvement of training systems				Establishment of a promotion/assistance center in Cebu		Establishment of regional industrial promotion centers	
		Establishment of a die-making industry assistance center	Establishment of a training center for computer software development			Establishment of a coconut R&D center		
			Introduction of testing systems for EDP engineers					
	Financial assistance	Financial assistance	Financial assistance	Assistance for members in making loan applications			Establishment of moderation loans for subsector industrial development	
	Assistance in facility modernization							
				Campaign for deterring illegal design copying	Campaign for deterring imitation designs		Campaign for deterring illegal design copying	
				Compilation of industry statistics				
				Cooperation with plush manufacturers to improve their supply capability				
			Establishment of a government section in charge of policy-making of machinery/metal industries			Encouragement of foreign investment in costume jewelry-related parts	Granting of the same incentives as in Malaysia	Comprehensive investment promotion activities
			Promotion of export of metal worked parts				Elimination of obstacles to supply of coconut oil	

Notes:  Key projects

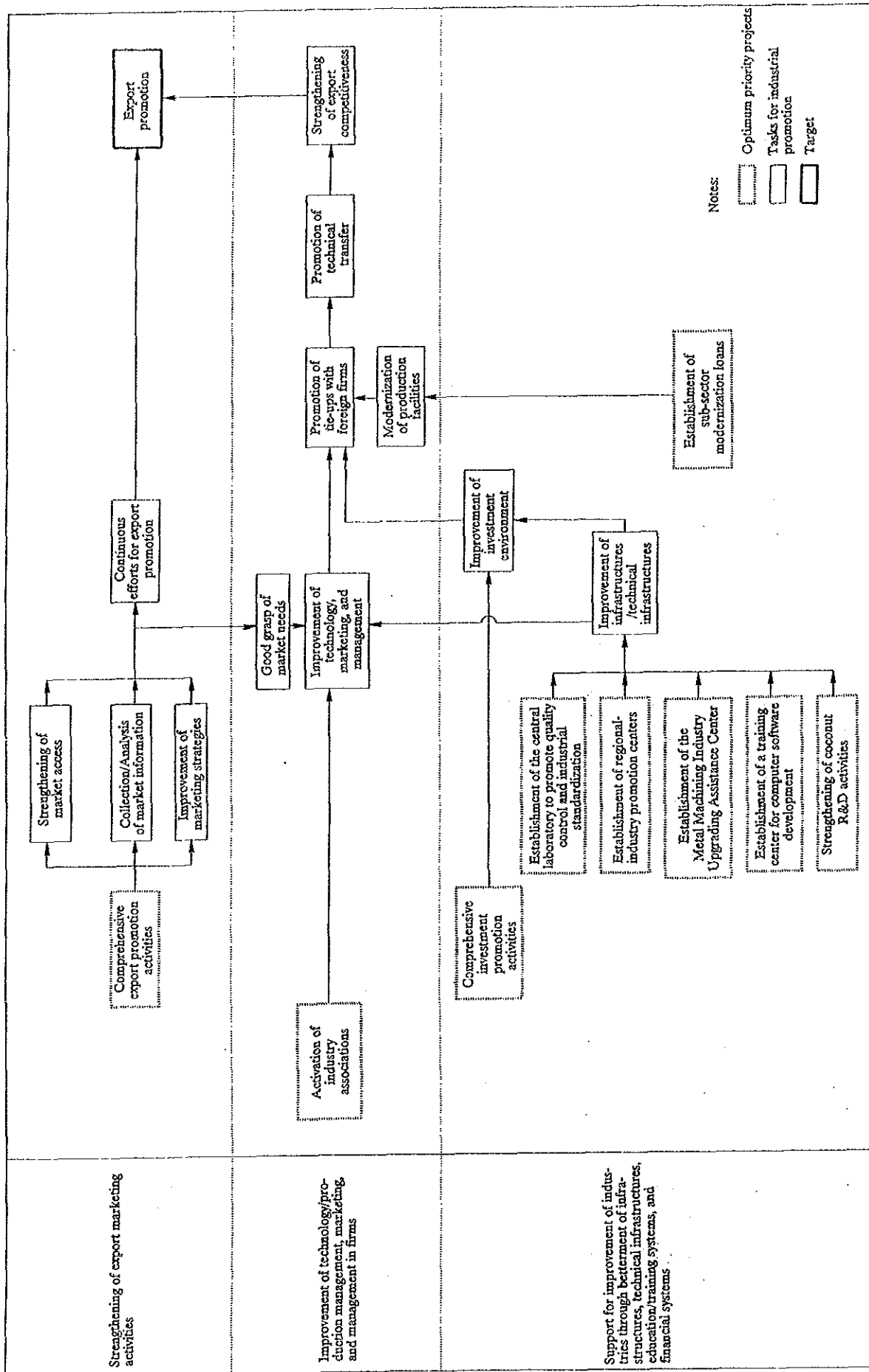
Table IV-3: Selection of the Projects to be led by the Government

	1. Industry Associations' Evaluation and Attitude to Implementation.		2. Necessity of Supports by the Government/Foreign Organizations. Key Projects to be Supported by the Government.		General Evaluation		
Projects Covering Pivotal Sub-sectors or Integrated Projects.	1) Establishment of Regional Industrial Promotion Centers.	CEBU-FAME has expressed its positive support for a promotion/assistance center in Cebu. Regional industrial promotion centers for the other sub-sectors remain to be further examined.	60	Official finance/Technical supports are effective for implementation.	80	It is necessary for the regional governments and foreign organizations to support this project.	
	2) Comprehensive Export Promotion Activities	All the sub-sectors are active and have made efforts to increase export.	100	It is indispensable for the government to support this project.	90	It is necessary to carry it out systematically based on a good grasp of market needs.	
	3) Establishment of Modernization Loans for Sub-sector Industrial Development.	The sub-sectors have recognized the necessity of such loans, but long-term funds for facilities investment are not much in demand because of a gloomy prospect of the national economy.	40	This project aims to assist smaller firms in modernizing their plants and equipment.	90	It is necessary to make preparations for this project in spite of the weak demand for long-term funds.	
	4) Establishment of the Central Laboratory to Promote QC Standardization.	Many industries, including wooden furniture and metal engineering, have recognized the necessity of the project. They intend to promote it positively.	60	The existing private or non-profit organizations have covered some limited areas. It is necessary to construct the central laboratory at the initiative of the government.	100	This project will lay a foundation for promotion of QC. It is one of the technical infrastructures to be constructed at the initiative of the government.	
	5) Development/Activation of Industry Associations.	1) The sub-sectors for wooden furniture and metal engineering expect much of this project. The toys industry has a great interest in export marketing. 2) The CFI, the MIAP's sub-committee for metal engineering, and PHILTOY are trying to organize this project.	90	1) This is the key project for industrial promotion in the areas of wooden furniture and metal engineering. 2) It should be supported by the government.	100	This is the key project to be led by the industry associations. It will lay a foundation for supplementing the other projects proposed in the sub-sectors of wooden furniture and die making for metals.	
	6) Comprehensive Investment Promotion Activities.	Many of the industries have understood that tie-ups with foreign firms would lead to development of the local firms.	60	This project entails improvement of investment environment and positive invitation of foreign potential investors. It would be difficult to carry out without support of the government.	100	This is an important project which will be effective in technical transfer and marketing.	
	7) Campaign for Detering Illegal Design Copying.	The industries have understood the necessity of this project, but it may be difficult to find out effective methods for implementation.	30	The industries should lead this project with backup of the government.	40	This is a project to be led by the industries and supported by the government.	
	Other Key Projects for Industrial Sub-sector Development.	8) Establishment of the Metal Machining Industry Upgrading Assistance Center.	1) The MIAP introduced study rooms and basic equipment for training in its office. 2) The MRDC has already worked out its plan for implementation.	90	It is necessary that the project for development/activation of industrial associations be implemented to develop some pioneer firms specialized in metal engineering.	60	This is the key project to be led by the industry associations. It will lay a foundation for implementing the other projects proposed in the sub-sectors of wooden furniture and die making for metals.
		9) Establishment of a Training Center for Computer Software Development.	The private associations have agreed on the effects of this project. An implementation plan was already made by the private sector and the NCC.	80	It is necessary for the government to support this project in a long-term perspective.	80	This is a key project to promote a knowledge-intensive industry and should be supported by the government as well as foreign organizations.
		10) Strengthening of Coconut R&D Activities	The Coconut R&D Network has been making efforts to promote local R&D of oleochemicals. It is necessary to carry out this project in close cooperation with the PCA.	70	Some oleochemical firms have also engaged in R&D of coconuts to secure their stable supply. Such efforts should be promoted nationwide.	80	The Coconut R&D Network does not have enough money to strengthen R&D activities. In the future, it is necessary for this network to promote R&D of oleochemicals without any foreign assistance.

Notes: 1. The following standards are applied to evaluate the industry's attitudes to implementation.  
a) The private sector has agreed on the necessity and effects of the project (40 points).  
b) The private sector has expressed its active supports for promotion, implementation, and management of the project (60 points).  
c) The private sector has formulated its policies for promotion, implementation, and management of the project (80 points).  
d) The private sector has made efforts to implement the project on its own (100 points).

2. The following standards are applied to evaluate the necessity of supports by the government or official finance.  
-necessary 40 points  
-fairly necessary 60 points  
-highly necessary 80 points  
-indispensable 100 points

Figure IV-1: Recommended Optimum and Priority Projects and Sub-sector Industrial Development



## 2. Outline of Optimum Priority Projects

### 2-1 Common Optimum Priority Projects

#### (1) Establishment of a Regional Industry Promotion Center

##### 1) Objectives

In relation to the main issues facing economic development in the Philippines, promotion of sub-sectors founded in regional characteristics is a key area. Planned regional development is suggested through the following three measures: 1) creation of employment opportunities; 2) regional dispersal policy; and 3) formation of an infrastructure for industrial sites.

The concept of a Regional Industry Promotion Center involves establishment of an institute to conduct research and instruction in processing and production technologies and in management expertise for specific industries for the development of industry in accordance with these regional characteristics. In those provinces with a large percentage of small businesses, this center is expected for the time being to serve as a pilot having basic necessary equipment.

Of the sub-sectors covered in the present survey, the costume jewelry industry in Cebu and the furniture industries in Pampanga and Cebu can be singled out as having strongly regional characteristics.

##### 2) Outline

The project to establish a Regional Industry Promotion Center should be applied to all local industries having the characteristics described above. In the present survey, the Promotion and Assistance Center for the Cebu Costume Jewelry Industry is recommended as the most appropriate case study among the sub-sectors studied.

The likely main activities of the Regional Industry Promotion Center will be as follows:

1. Research and extension of processing and manufacturing technologies
2. Supplementing raw materials with basic machinery, equipment and machine tools to promote the upgrading of technology and the modernization of production facilities.
3. Promotion of quality control and production management systems
4. Assistance for material, design, and product R&D
5. Instruction in practical side of export business/practices

In the costume jewelry sector, roughly 80% of all exporters and manufacturers are concentrated in Cebu. Even Manila-based firms rely on Cebu for a portion of their production.

Market development is limited by current materials, designs, and manufacturing technologies. Further market expansion and industrial development will require the introduction of metalworking processes coupled with R&D for design and materials.

The Promotion and Assistance Center for the Cebu Costume Jewelry Industry will aim to provide manufacturers and subcontractors with instruction in metalworking and other material processing technologies along with expertise in the areas of quality control and production management.

Specifically, this will involve the following measures:

- a) Installation of equipment allowing precision processing (including metals), improved product quality, and efficient production, for instruction and training manufacturers.
- b) Extending workshops on new technologies, quality control seminars, and joint training programs with the PTTC on the practical aspects of the export business, all for exporters and manufacturers.
- c) R&D work by the staff on material and processing technologies.

### 3) Requirements

In the first phase, the center should carry out intensive instruction for a period of three to five years so that manufacturers can improve export competitiveness and become capable of carrying out independent business activities.

Construction of the center and installation of the necessary equipment will require massive funds, making the cooperation and support of the central and local governments, local chambers of commerce, and the business community indispensable. Industry associations will be responsible for running the center and must be capable of making proposals, carrying out responsible activities, and cooperating.

In the case of the Promotion and Assistance Center for the Cebu Costume Jewelry Industry, the following points should also be kept in mind.

- a) The firms to receive instruction from the center include manufacturers (subcontractors) as well as exporters.
- b) Technical instruction and R&D work should emphasize products combining metals and domestically-available materials in order to distinguish the Philippine costume jewelry industry.
- c) The scope of technical instruction and R&D work, as well as the type of equipment installed, should focus on the processing of metal component parts rather than processing for product finishing.
- d) The center must have qualified staff with knowledge not only of machine operation but also of market standards for processed product quality. A qualified consultant (product specialist) should be engaged from abroad during the initial stages of operation, to train local staff as instructors and to help with the operation of the center.
- e) It is essential to hold continuing workshops and seminars for the improvement of processing technology and quality control. This must be coupled with the occasional invitation of consultants or buyers from potential export markets.

### 4) Recommendation on Implementation

#### a) Implementing System

The project will be implemented by the DTI regional office, PTTC, PDDCP, other government research and training institutes (NMYC, TLRC, etc.), local government, local chambers of commerce and industry associations. An advisory committee consisting of representatives from both the public and private sectors should be established, and the center should be operated by the third sector while keeping in close touch with both sectors.

The Promotion and Assistance Center for the Cebu Costume Jewelry Industry:

- Project promotion: To be handled by the Cebu office of DTI, or local government after the local government framework is established, on request from CEBU-FAME.

- Center operation: Government and industry will jointly establish a new, third-sector organization. The center should be operated under the supervision of an advisory committee including representatives from government agencies and the private sector.

b) Cost

Estimated funds required for construction of the Promotion and Assistance Center for the Cebu Costume Jewelry Industry

Buildings	\$1.27 million
Machinery and facilities	\$550,000
<hr/>	
Total	\$1.82 million

Note: See Table IV-4.

In the future, plans are needed to allow the center to pay for itself through its operations, but funding assistance will be needed during the initial stages. One applicable example brought up in the technical committee was the construction of a business center using a construction bond promoted by the Cebu local government. The possibility of applying to international aid schemes should also be investigated while setting up an implementing body.

c) Schedule

In the case of the Promotion and Assistance Center for the Cebu Costume Jewelry Industry, proposals by CEBU-FAME will play an important role. Assistance will also be required from DTI/BOI in Manila, the Cebu Regional Office of DTI, and the local chamber of commerce. Preparations should be begun as soon as possible.

d) Steps for Implementation

The above passages on the project for establishing a Promotion and Assistance Center for the Cebu Costume Jewelry Industry discussed the underlying concept, the operation of the center, and other key points. During implementation of the project, more detailed investigation will be needed in the areas of project content, demand for the center, necessary funding, and profitability.

For information on the necessary preparations, refer to Section IV-3 *Points to Consider During Implementation*.

5) Effects

In general, the project is expected to produce the following results:

1. Upgrading and modernization of production systems
2. Improved product quality and higher added value
3. Expanded product lines
4. Higher exports of finished products
5. More tie-ups with foreign companies

In addition, the center is expected to contribute to the upgrading of the industry through the following:

1. Technology transfer and related instruction

2. Supply of minimum equipment and tools necessary for upgrading technology
3. Material R&D
4. Instruction and training in practical aspects of the export business, quality control, etc.

**Table IV-4: Funds Required for Construction of a Promotion/Assistance Center  
for the Cebu Costume Jewelry Industry (Estimated)**

Particular	Estimate Costs	
	In mil. yens	in thousand US dollars
1. Machines and Equipments	71.6	550.8
of which:		
Plating facilities & related equipments	5.2	40.0
Press machines & related equipments	5.2	40.0
Foundry equipments & related equipments	44.0	338.5
Equipments for natural materials processing	6.7	51.5
Others	10.7	80.8
2. Construction of Buildings	165.0	1,269.2
of which:		
Office building(total area: 300 sq.m)	45.0	346.2
Factory(total floor area: 800 sq.m)	120.0	923.0
<b>Total</b>	<b>236.6</b>	<b>1,820.0</b>

Notes: Assumptions for the above cost estimate are as follows.

1. A rough estimate based on the concept shown in Table IV-6-3(machine & equipment) and Figure IV-6-1 (layout) of the second year final report.
2. Estimate as November, 1991 prices.
3. The costs of machines and equipments above are calculated on the basis of ex-factory prices of majour machines and equipments, adding packing, transportation and other costs up to the construction site. Installation is assumed to be undertaken by the Philippine side. The necessity of power-receiving facilities should be studied carefully prior to the implementaion.
4. The land for the project is assumed to be owned by the government, and costs of land aquisition and site preparation are not included in the above estimate, presuming the site is ready for construction.
5. Import tax is not included.
6. Foreign exchange rate used are;  
1 peso=4.82yens, 1 US dollar=27 pesos, 1 US dollar=130 yens

## (2) Comprehensive Export Promotion Activities

Issues facing trade promotion in the Philippines can be summed up as a nation-wide effort to improve the trade environment and develop overseas markets coupled with corporate efforts to cultivate global competitiveness and make structural improvements.

The comprehensive export promotion activities proposed here are an attempt to realize systematic export promotion with mutual linkage and coordination as part of activities by existing trade-related government agencies with cooperation between the public and private sectors.

Export promotion activities will naturally face limitations in terms of funding, personnel, and facilities at the national level and at individual government agencies. Activities undertaken by these agencies without coordination with other agencies are bound to be both inefficient and ineffective. They are also uneconomical, in the sense that overlapping portions tend to be overlooked.

Industry associations, in order to achieve maximum benefit from activities by government agencies, should submit short- and medium- to long-term visions to the government along with implementation plans. They should also prepare internal and external systems to promote these visions and utilize their mobility.

Sub-sectors requiring special attention under the comprehensive export promotion activities include wooden furniture, stuffed toys, costume jewelry (hereafter to be referred to as Group 1 sectors), and computer software.

### 1) Objectives

Exports of Group 1 products are plagued by the following problems: 1) a lack of efforts to promote products and latent export capabilities (including processing technologies, price competitiveness and the utilization of domestic resources); 2) a lack of awareness concerning overseas market characteristics and trends; and 3) inadequate practical experience in the export business as practiced internationally. In the short term, therefore, basic marketing-related problems should be worked out, while in the medium to long term the ability to develop products designed to meet market needs or create new demand should be cultivated, and a strong position established on overseas markets.

Concerning the development of computer software, it will be important to continue marketing efforts for the further expansion of orders from English-speaking countries like the U.S., Canada and Australia. The current project, however, focuses on building opportunities for development of the Japanese market, with which the industry has done little business in the past. In general, the development of business-related software for the Japanese market is hindered by language-related problems. Numerous fields, however, are not dependent on a knowledge of Japanese; examples include CAD/CAM, numerical control systems, OS conversion, and utility software. The industry must tap the Japanese market in these fields and parlay this into future development.

Concerning the present relationship between Japan and the Philippines, a number of Japanese firms have already set up local affiliates for the development of software and the acceptance of trainees. However, most Japanese companies remain unaware of the current situation in the Philippine software industry.

From these standpoints, the present project aims to build opportunities for accessing the Japanese market.



## 2) Outline

Concerning Group 1 products, the five topics listed below should be taken up immediately. Supervisory bodies (including industry associations) should exchange information, and the activities should be carried out flexibly. Strategic points for export marketing differ in each sub-sector. Details will be offered in Section 11-1, but note that it is extremely important for activities to be carried out in line with these strategic points.

### 1. Strategic exhibition in international trade fairs

Taking advantage of the opportunity provided by exhibition in overseas trade fairs, suitable approaches to target markets should be studied in advance, and activities carried out based on an exhibition strategy. In addition, special corners and demonstration corners for outstanding products should be established at FAME, a display concept planned based on themes and concepts, and efforts made to revamp presentations in order to promote innovation in processing technologies and design.

### 2. Compilation and analysis of information on overseas markets and industries

An understanding of market characteristics and trends is needed to create suitable market approaches and develop marketable products. In addition, there is a need for comparison and evaluation of competing products in order to reinforce export competitiveness.

Especially needed is micro-based information, and data gathering and research activities must be carried out periodically over a long period of time. The dispatch of fact-finding missions and observation teams in accordance with scheduled overseas trade fairs and international exchanges by industry associations are also excellent opportunities for collecting information.

### 3. Improvements in the system for responding to buyer inquiries

In order for Philippine firms to obtain a wide range of fair business opportunities, an inquiry service must be set up through tie-ups between government agencies and industry associations. Specifically, this will require: 1) enhancement of corporate data; 2) improvement of the inquiry system; 3) establishment of joint showrooms and pilot shops; and 4) compilation and distribution of company directories for each sector.

### 4. Periodic sponsoring of seminars in practical aspects of export business

Few firms are capable of export business that is successful on the global market. This is one of the factors tarnishing the image of Philippine corporations and inhibiting their non-price competitiveness.

Seminars and workshops targeting owners and employees involved in the trade business should be held periodically to improve understanding and practice of the export business.

### 5. Upgrading of product development capabilities

In addition to designs capable of satisfying market needs and trends, the development of successful products requires research and mastery of processing and manufacturing technologies taking into account product functions and material characteristics. This will require the gathering of information (regarding design, raw and

auxiliary materials, and processing technologies) and the training of designers from the standpoint of industrial design.

In the computer software field the following activities should be undertaken:

1. Dispatch of missions for Japanese market research
2. Acceptance of contact missions from Japan
3. Participation in Japanese software fairs

In particular, market research missions should be sent to Japan as soon as possible with the cooperation of the Japan Information Service Industry Association (JISA) and the Center of the International Cooperation for Computerization (CICC).

### 3) Requirements

1. The nation's comprehensive measures for trade promotion remain inadequate, and the structure of responsibility for policymaking and coordination is rather vague.

Thus it is hoped that the Export Development Bill, revised in the first half of 1991 and still under Congressional deliberation, will be adopted to smooth out implementation of trade-related policies.

2. Dependence on the U.S. and Japanese markets is very heavy. In the future, efforts should be made to expand exports to Europe, ASEAN countries, the Middle East, and Oceania.

3. In the 1960s the Philippines was counted among the top three exporters in the Asian region; today, however, it has been passed up by neighboring Asian countries.

If the Philippines is to regain its position as a leading exporter, it will have to improve its image and the image of Philippine products on the global market. Product quality at small manufacturers, which is supposedly not up to international standards, must be reviewed beginning with the stage of raw material selection. Thorough quality control must be carried out together with sales and marketing under Philippine brand names.

4. In terms of the trade business, customs procedures should be speeded up and conditions of payment and export insurance programs brought up to international standards.

### 4) Recommendation on Implementation

#### 1. Implementing System

A Government Agency Liaison Committee (tentative name) consisting of government-led agencies of the ITG Group and headed by BETP should be organized to begin work as soon as possible.

The Government Agency Liaison Committee should investigate and confirm possible directions for activities in addition to coordinating the implementation of these activities.

#### a) Committee members

BETP (chair), FTSC, CITEM, PDDCP, CITC, PTTC

#### b) Topics for discussion

- Coordination of overlapping portions of activities implemented by various agencies
- Incentives to be provided to related industry associations
- Selection of target markets
- Thoughts on overseas exhibition strategies and products to display
- Programs for the invitation and acceptance of foreign experts
- Selection of showrooms and pilot shops
- Selection of trainee for dispatch abroad
- Seminars in trade practices, specialized market product and training for management
- Miscellaneous (fundraising, labor problems, etc.)

## 2. Steps for Implementation

Concerning the implementation of export-related activities by the ITG Group, each of the agencies should work together to exchange information on planned activity content, activity results, and accumulated technologies and expertise. When portions of these activities overlap, BETP should be called in to coordinate.

The agencies are each functioning as leaders in charge of their specialties, and they have achieved some results. In some cases, however, functions remain inadequate: a service system has yet to be established and the initially hoped-for results have yet to be achieved.

With the added objective of mutually complementing these deficiencies, it is recommended that the following projects be intensively implemented as comprehensive export promotion activities.

### a) Enhancement of information supply functions (computer input of information)

Commercial attaches resident abroad should be mobilized to collect information on target markets. BETP will be responsible for managing and distributing the information.

### b) Establishment of a service system for foreign buyers

CITEM should form the focus of efforts to compile company data, prepare business directories, manage showrooms and pilot shops, handle inquiries, and create opportunities for business talks.

Pilot shops will use existing showrooms that have been renovated as well as new installations at the international and domestic airport terminals (the latter of which is the site of a DTI branch office).

### c) Strategies for exhibition in overseas exhibitions and trade fairs; organizational activities

CITEM should play the role of promoter and select products to be displayed with cooperation from industry associations. In the case of general trade fairs, the industry should participate in target markets once a year for the next three years. In the case of specialized exhibitions, the industry should participate twice a year, in the spring and fall, for the next three years.

When selecting products to display, the opinions of foreign experts should be compiled to serve as reference.

### d) Upgrading of product and design development capabilities

Workshops should be held to provide training in design development, product expertise and material processing technologies with an eye to training industrial designers.

BETP will be responsible for coordinating this project. CITC will supervise material processing technologies and technology diagnostics, while PDDCP will handle improvements in design capability.

As part of this project, foreign experts should be brought in to improve the talent of Philippine trainers and accompany staff on visits to companies for guidance.

The team of foreign experts should consist of one product consultant and one design and marketing specialist. They should spend about two months in the Philippines.

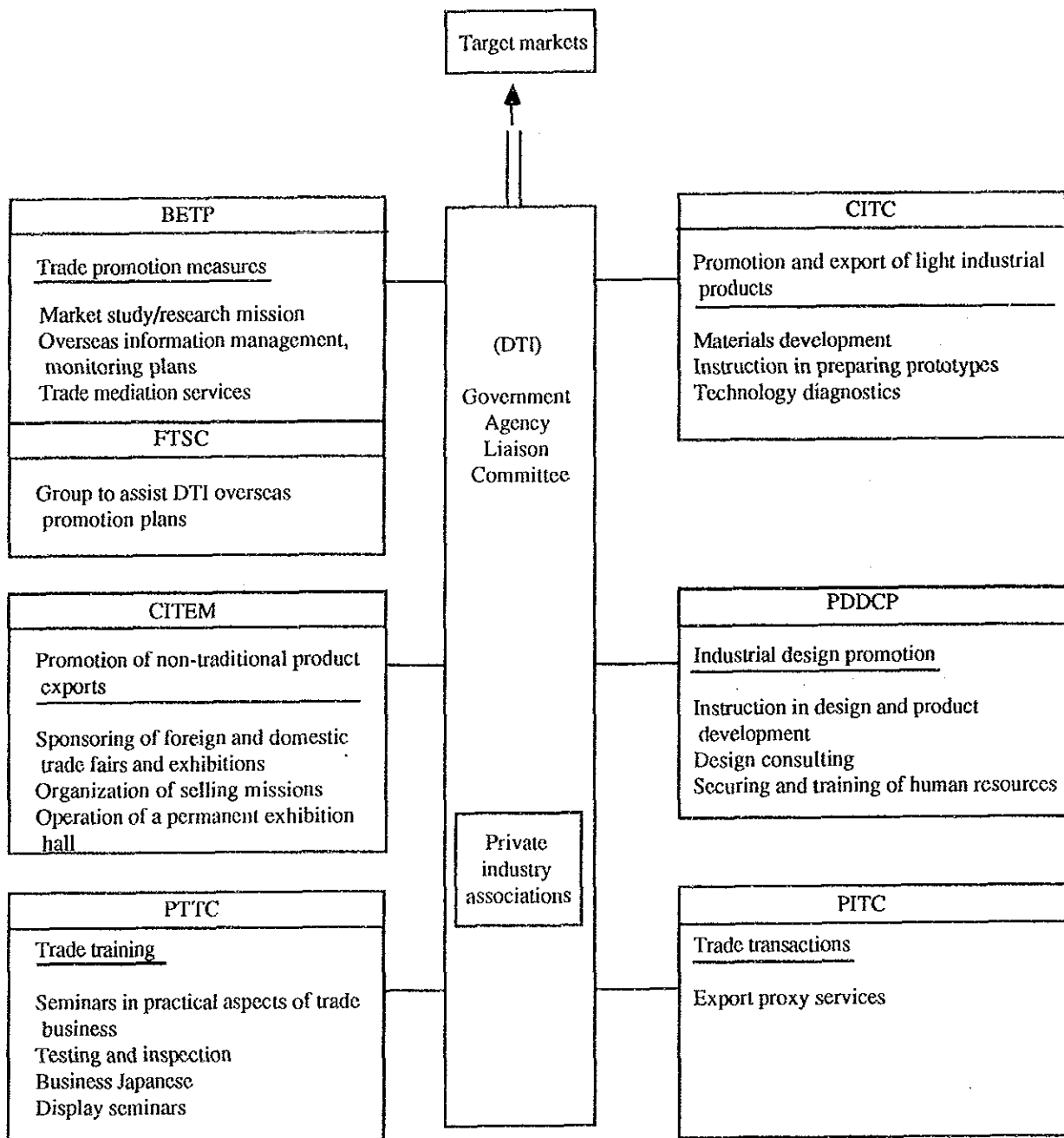
Trainees to be sent abroad for training as industrial designers should spend one to two years overseas. Two trainees should be dispatched each year for the next three years (details of this program will be determined by the Liaison Committee).

#### 5) Effects

Implementation of the above-described activities is bound to be interrelated, and the following benefits can be expected:

1. Promotion of Philippine products and improvement of their image
2. Expansion of business opportunities
3. Improved understanding of export business customs and building of partnerships with foreign companies
4. Development of products with good marketability and aggressive marketing efforts
5. Improvement of position in world markets: Better price competitiveness and higher added value (product originality, use of new processing techniques, etc.)

## Functions of Agencies in Comprehensive Export Development Activities



### (3) Establishment of Modernization Loans for Sub-Sector Industrial Development

#### 1) Objectives

Financial policies for the promotion of the selected sub-sectors must be examined from two viewpoints: 1) the raising of funds by large and medium-size businesses which will play a leading role in development of the sub-sectors; and 2) the raising of funds by the smaller businesses. The financial markets' capacity to raise and supply funds is quite limited and there is little prospect of an early improvement of this situation. Therefore, it is necessary to promote direct investment from overseas and direct loans from overseas financial institutions for large and medium size businesses. On top of this, it is necessary to support moves to provide supplemental means for the improvement of creditworthiness of each small and medium-sized business. What is most lacking in this regard is the absence of data regarding the credit standing of each business. In order to remedy this situation, it is necessary to : 1) use the accreditation and registration system applied to businesses as a substitute for data regarding the credit standing of each small and medium business; and 2) use information from industry associations and regional chambers of commerce and industry.

Among these, in regard to the point of the means for supplementation of credit, programs for supplementation of credit conditional on membership in industry organizations are being implemented, such as the export financing programs of the PCHI (Philippine Chamber of Handicraft Industries) and the FOBAP (Foreign Buyers Associations of the Philippines). Further, the CIB (Credit Information Bureau) is working to collect credit information.

At the present, almost all the newly established financial programs cover primarily export financing and other short-term financing. In each of the sub-sectors, however, the facilities owned are remarkably old and therefore their replacement and introduction of modern facilities are necessary to raise the levels of the sub-sectors. Further, due to the insufficient funding capabilities and technical capabilities, there are extremely many cases of purchases of used machinery. Further, judging from the goal of modernization of machinery, there are many examples of introduction of unsuitable machinery. This project recommends the establishment of a financing system aimed at overcoming this problem and providing assistance for suitable modernization of facilities.

All this will become increasingly necessary in the future as the sub-sectors are more actively promoted and the demand for new investment grows. At the present stage, the demand for capital is not active in any of the sub-sectors covered by the first and second year surveys and what demand there is can be basically handled by the existing systems.

#### 2) Outline

##### a) Focus and usage

The focus of the financing system should be on small and medium enterprises in sub-sectors which comply with the targets of official development programs and which satisfy the following criteria laid out in these plans:

1. Existing of appropriate committees comprising representatives of the industry and related government agencies which are able to certify used or newly constructed modernization facilities
2. Introduction of standards for certifying used or newly constructed modernization facilities and revision of these standards, if necessary.

The system would be used for supplying the funds required for the purchase of appropriate modernization machinery and equipment.

#### b) Method of financing

Although ordinary loans for purchasing may well be useful, it is recommended that a lease- or rent-to-purchase method be established. The rent-to-purchase method means that financial institutions, after lending machinery and equipment to firms for a fixed period, transfer the right of ownership to the firms. Compared with ordinary loans, the method has the following advantages:

1. With ordinary loans, it is common for the sum lent to be less than that required for the purchase of machinery and equipment and the remainder must be raised by the borrowers themselves. However, small and medium enterprises, which usually have little collateral or other concrete signs of creditworthiness, often cannot raise the funds themselves and abandon the idea of purchasing machinery and equipment. A lease-to-purchase lending scheme would solve this problem.
2. Small and medium enterprises, weak in technological ability, often cannot make appropriate selections in the purchase of machinery and equipment. Under a lease-to-purchase lending scheme, financial institutions purchase models they have chosen themselves and lend them. This means that appropriate and modern models of machinery are selected, enabling a semi-compulsory modernization of outdated machinery and equipment.

The ordinary loan method may also be applied to this financing method. In this case as well, it is desirable that financial institutions select the machinery to be purchased.

#### c) Financing terms

The leasing period should be within the life of the machinery purchased. Five to eight years may be appropriate. The life of individual machines should be fixed when a list of modern machinery to be purchased is drawn up.

#### d) Raising of original funds

A system should be established to promote active utilization of financing based on international cooperation programs. Since modern machinery will often have to be imported, the introduction of foreign currencies is thought to be necessary.

#### e) Others

The financing method should be adopted on an experimental basis at first, and, when the prospects for success have become clear, it should be switched to a stage of full-scale operation. Any reduction of customs duties on the machinery imported under this loan system will decrease the burdens on enterprises and contribute a great deal to the achievement of modernization.

It is expected to be realized in accordance with the implementation of the sub-sector development programs. Securement of funds is the fundamental requirement. It is desirable that consideration be given to these projects as soon as possible.

### 3) Requirements

1. The system must be aimed at the introduction of suitable modernized machinery and equipment and must be oriented toward those sub-sectors which meet the conditions mentioned in the section "focus and usage".
2. The system must be aimed at raising the credit of small and cottage sized enterprises and simultaneously providing incentives to individual companies for improvement of technology, management, and marketing. Also, a study is recommended on 1) easing the loan examination conditions and procedures and 2) establishing a quota for priority loans for companies which meet any of the following conditions: A study of reduction of interest rates is also considered necessary.

- a) Companies working to improve their business standing and covered under the advisory project, the system of recommended modernized factories, etc.
- b) Companies residing in industrial parks established with the aim of modernization of the sub-sectors
- c) Companies participating in projects for cooperative effort aimed at improvement of business standing
- d) Companies registered with the BOI
- e) Companies belonging to and recommended by industry organizations which are well organized and which have a strong grasp of their member firms

#### 4) Implementing System

- a) System for promotion of projects: The industries and BOI, primarily, should set down the basic directions for each sub-sector, cooperation should be obtained from technical guidance organizations related to the sub-sectors, and preparations should be made regarding the standards for certification as of used and new modernization facilities.
- b) Organization in charge of implementation: Window III of the DBP is considered suitable.
- c) Steps for implementation of project: The summaries of the projects given up to here covered the concepts of the projects and general matters to watch in their operation. Before actual implementation, it is necessary to study the feasibilities of the systems themselves in addition to setting the directions for the sub-sectors and making preparations such as of the certification standards. For the steps for this, see "IV, 3. Matters of Caution in Implementation".

#### (4) Establishment of Central Testing Laboratory for Promotion of Quality Control and Industrial Standardization

##### 1) Objectives

Among the six sub-sectors surveyed, in wooden furniture, stuffed toys, and costume jewelry, the ability to make products of a level of quality acceptable to the consumers in the overseas markets is important. For metal dies, a precision is sought sufficient for making parts - which will gradually become higher in precision in the future. To make it possible to make products of a high quality without variation, it is necessary to improve the technology and facilities inherent for the manufacture and also 1) to have a correct awareness of the levels of quality of products which would be acceptable and products which would not be acceptable in the export markets and 2) to institute quality control so as to be able to maintain the acceptable level of quality.

The quality control in these industrial sub-sectors is insufficient. Even if implemented, it only goes as far as inspection of finished and semifinished goods. The spread of TQC, or the "company wide quality control" (CWQC) now being implemented



in Japan, is important for obtaining trust in the quality of the Philippines in the export markets. Projects particularly desirable in the strategies of promotion and development of the six sub-sectors studied include 1) creating correct awareness of the quality required in the export markets through quality control seminars held for individual products and the transfer from advanced companies of the technology for the quality control for maintaining the same, 2) establishing a system for the development and dissemination of industrial standards, which would form the basis for the technical standards required when small businesses engage in quality control, and 3) while, in quality control, an accurate grasp of the indicators for quality in quality control, that is, the representative characteristics, and evaluation of the quality control are important, the public ownership of inspection facilities which individual companies would find it economically difficult to obtain on their own and making available these facilities for the use by companies.

Among these, 1) can be realized by the comprehensive export promotion program and the project for vitalization of the activities of the industry organizations while 2) can be realized by the project for vitalization of the activities of the industry organizations. This project aims at 3).

## 2) Outline

### a) Function and organizational structure

Improvement of the facilities relating to the testing and inspection of quality is required in various areas of testing and inspection as follows:

1. Testing and inspection related to the PS Certification Mark System
2. Testing and inspection related to the execution of the mandatory standards and the quality regulating law which are to be enacted.
3. Testing and inspection for the Export Inspection System proposed by this Program
4. Testing and inspection for Import Commodity Clearance
5. Testing required in research and development and technical guidance
6. Contract testing and inspection requested by manufacturers, export import traders and other

The Central Testing Laboratory proposed to be established will have the primary objective of satisfying functions 1 through 4 above which are indispensable in maintaining the system relating to standards and quality regulation. The functions 5 and 6 will be covered when there is extra capacity.

This laboratory is proposed to be started as a part of the laboratory of BPS for the time being, but it is recommended to be converted to a non-profit and the third party organization independent from BPS in the future with enactment of law for the organization. However, BPS or other appropriate government agency should maintain the supervision of the testing and inspection relating to quality regulation and its governing, including the determination of the operating policies of the Central Laboratory and coordination with the existing test and inspection laboratories.

The function of the Central Testing Laboratory is necessary to be organized first of all to be able to perform the testing and inspection relating to the standards enforced at present as mandatory standards. Conformity of the mandatory standards will be administered by the respective regulatory agencies in charge, but the testing and inspection required by the respective agencies will be undertaken primarily by this Central Testing Laboratory. That is, the existing testing and inspection laboratories will conduct the testing and inspection under the supervision of this Central Testing Laboratory and according to a commission of this Laboratory.

#### b) Facilities and equipment to be installed

These testing and inspection laboratories, in general, should have the testing capacity and coverage maintained at an internationally acceptable level. In the long run the accredited laboratories should be confined to public and neutral specialized testing and inspection organizations though use of the facilities in the private sector may be acceptable while the capacity is not sufficient. The testing and inspection laboratories belonging to DOST, as mentioned before, are mainly used for research and development and technical guidance the testing and inspection functions for quality regulation and administration are recommended to be concentrated in the Central and Regional Testing and Inspection Laboratories so as to be able to maintain the nature of impartiality. The existing BPS Laboratory will be merged with the Central Testing and Inspection Laboratory but the required equipment will be the same as that of new installation because their testing and inspection equipment are quite negligible.

#### 3) Financing for operating

The initial investment requirement is estimated as follows:

	(Unit: million yen)	
	<u>Case 1</u>	<u>Case 2</u>
Buildings and civil works	558.2	443.9
Interior works	46.7	41.8
Testing equipment	1,633.9	847.3
(sub-total	2,268.7	1,332.9)
Engineering & management expenses	667.2	334.5
Total	2,936.0	1,667.5

The Cases 1 and 2 are set with the difference in assumption on the role of 23 accredited laboratories. the Case 1 assumes that the Central Testing Laboratory handles all the required testing and inspection with abolishing any testing and inspection by the accredited laboratories whereas the Case 2 assumes that the existing public laboratories will continue their function in the testing and inspection as it is, but that of private sector will not handle the testing and inspection for the certification system any more.

The breakdown of the initial investment cost of the facilities and equipment by testing field is as follows:

	(Unit: million yen)	
	<u>Case 1</u>	<u>Case 2</u>
Testing facilities and equipment for:		
Mechanical testing	611.6	326.7
Electrical testing	651.7	300.8
Chemical testing	400.6	219.6
Total	1,663.9	847.3

#### 4) Implementation

This project is one of the projects recommended in the survey for the plans for industrial standardization and improvement of quality implemented by the JICA at the

request of the Philippine government in 1989 (organization in charge: BPS). The great scope of the activities is making it difficult for the Philippine government to carry them out on its own. As a result, activities are currently being broken down to allow partial and gradual implementation, and requests for assistance are being sent out to foreign aid sources. In general, however, it appears that more time will be required for implementation. Early implementation of this project will be crucial for most Philippine industries to achieve precise quality control and gain the trust of export buyers. In the six sub-sectors covered by the present survey as well, there is a great need for raw material inspection facilities in the oleochemicals sector, safety testing facilities, including chemical products, in the toy sector, strength testing facilities in the furniture sector, and material property testing facilities in the metal die sector.

The execution body is proposed to be BPS, and the Central Testing Laboratory is regarded as the extension of BPS laboratory for the time being. The Central Testing Laboratory is recommended to be operated as a non-profit and the independent third party organization which shall be established under the relevant law. It will be under the supervision of BPS, in such case, but operated by the Board of Directors consisting the representative of relevant government organizations and professionals assigned by the Secretary of DTI. At the same time, an advisory committee is recommended to be organized by the representatives from industry associations, PCCI, professionals, and the existing testing and inspection organizations.

For preparation of the establishment, the advisory committee is proposed to be organized by the representatives from relevant government organizations, professionals, industry associations, PCCI, and testing and inspection organizations. Under the guidance of this committee, BPS and DOST organize a project team and undertake the followings:

1. Basic design
2. Detail design
3. Establishment of the organization
4. Formulation of operation guideline

(for details, see "IV, 3. Suggested Procedure for Successful Implementation").

Implementation of everything required for this project at one time would necessitate massive funds, but quick implementation is desirable in view of the importance of the project. If doing everything at one time would be difficult, then it will be necessary to divide the project up and implement it in parts.

#### (5) Vitalization of Activities of Industry Organizations

##### 1) Objectives

When small and medium sized businesses newly enter the export markets or domestic markets where high levels of quality are demanded or try to further strengthen their sales activities there, they require assistance through certain promotional measures in bringing themselves up to a level where they can compete equally with the large companies or companies of the advanced nations in those markets.

Among the small and medium sized businesses in the Philippines, there are medium sized firms which are playing an important role in vitalizing the sub-sectors. (These companies are positioned as medium sized enterprises in the industrial structure of the Philippines, but in their relations with foreign capital affiliates, their sources of supply of technology, their fund capabilities for modernization of facilities, etc. are suitably

positioned as small businesses.) Among the sub-sectors surveyed, in the wooden furniture, metal die, stuffed toy, and costume jewelry sub-sectors, advanced companies playing central roles in the stimulation of their sub-sectors are seen, primarily among the medium sized companies. These are working positively to improve their technical capabilities, marketing, and management. Even these firms, however, lack the ability of taking on various improvements as individual companies and require government assistance. These companies have moved aggressively in their industries to form industrial organizations and are taking the lead in tackling the improvement of their industries. From this viewpoint, assistance is considered necessary so as to enable these industry organizations to push the project for promotion of the sub-sectors and through this strengthen the cohesiveness of the industry organizations themselves and in the future allow them to engage in independent efforts through their own industries.

In accordance with this objective, the following three projects for development strategies are recommended:

1. A program of building core companies designed to improve technical capabilities, marketing, and management and run primarily by the industries themselves
2. A financial program aimed at modernization of facilities and focusing on small businesses
3. A comprehensive marketing activity package aimed at the export market, implemented under the lead of private enterprises and with the comprehensive assistance of all government institutions related to trade promotion

Among these, 2) may be implemented through the project for loans for modernization for promotion of the industrial sub-sectors and 3) by the project for comprehensive promotion of exports. This project has as its objective 1).

## 2) Outline

Companies which already have a certain degree of technical expertise and which are currently producing dies for export, which expect to begin exports in the future, or which expect to begin producing dies currently being imported, would be given wide-ranging assistance in the areas of management and production technology. The guidance would be provided to engineers in a supervisory position in the companies, primarily the management. This would form a core for a modern die making industry domestically. The advanced companies forming this core could be expected to play a role as local partners in attracting part manufacturers and die companies from overseas or existing foreign affiliates. Further, another important goal would be to train domestically a guidance team with the ability to provide technical and managerial guidance to other domestic die companies. Details would be as follows:

1. National and local promotion committees will be formed centering around industry organizations and with the cooperation of technical guidance organizations. These committees will be responsible for soliciting and selecting companies to participate in the project.
2. An advisory team would be formed from experts from advanced overseas nations. The advisory team would be based in a certain technical guidance organization (for example, MIRDC, DECFI, or the later mentioned Die Making Industry Assistance Center) and would make periodic visits to the companies involved. In the roving visits, the experts would stay at the companies at least one day per visit and even more depending on need to provide a) factory diagnosis and b) consulting. The experts would not visit each company only once, but would make followup visits after two weeks to about one month. Followup guidance would also be provided about once

every two to three months subsequent to that. Overall, it would be considered effective to repeat the same guidance over about two years. Further, during this time, seminars and workshops would be held on problems considered common to the companies as learned from this guidance.

3. A support team would be formed from staff of domestic guidance organizations: The objects of the formation of the support team would be:
  - a. Support to the advisory team
  - b. Training of local guidance personnel after project
4. The factory diagnosis and guidance for the participating companies would include the following. The goals of the guidance would be to enable the participating companies to learn the points of production technology, production control technology, and managerial control for use in making exportable dies or exportable parts.
  - a. Factory layout
  - b. Replacement of machinery and equipment
  - c. Adjustment and repair of machinery and equipment
  - d. Basic technology and design
  - e. Technology for fabrication
  - f. Quality control
  - g. Control of delivery schedules
  - h. Cost control
5. Selected company representatives would be dispatched to advanced overseas companies for training. This would deepen awareness of the level of die fabrication technology, the state of production control, the state of facilities etc. overseas
6. After the implementation of this project, the national and regional promotion committees would use the core companies as models for spreading the achievements to other companies.

### 3) Requirements

To enable the achievement of the goals of the project, it is considered that at least the following requirements have to be met:

1. Formation of national promotion committee or regional promotion committees: This project would provide guidance to individual companies and at the same time, through the committees, would pinpoint problems of a nationwide or regional level, such as establishment of the infrastructure or public ownership of facilities which are absolutely required for improvement of business standing but which individual companies would find it difficult to handle on their own; and prepare and implement national or regional development plans. This would help solve problems which cannot be solved by guidance of individual companies alone.
2. Formation of suitable advisory teams and support teams: If possible, the members of the advisory teams would engage in language training and be dispatched overseas for training in advance and would deepen their awareness of the level of technology and production control aimed at so as to enable accurate transfer of technology from the support teams.

### 4) Recommendation on Implementation

1. Promotion of plan: The plan would be implemented for each individual sub-sector. The BOI and the related industries would draw up the plans and obtain the cooperation of

the technical guidance organizations relevant to the sub-sectors so as to finalize the content of the projects.

2. Implementation and adjustment: A national promotion committee and regional promotion committees would be organized to push the project forward. The national promotion committee would suitably, it is considered, be organized with the participation of representatives of the BOI, BSMBD, PTTC, and other technical guidance organizations, etc. under the leadership of the industry concerned. The regional promotion committees would be organized around the branches of the various industry organizations.

## (6) Comprehensive Investment Promotion Activities

### 1) Objectives

Direct investment by and technical tie-ups with companies from the industrialized nations is a quick and effective method of promoting sub-sector development and especially of developing export products satisfying the needs of the global market. In the late 1980s, a favorable cycle of foreign investment and export-led industrialization spread beyond the Asian NIEs to Thailand, Malaysia, Indonesia, and even the Philippines. In order to reinforce this trend and meet the increasing competition for investment from new players like China and Vietnam, efforts to promote investment must be continued and intensified. For an economic climate in which debt-induced limitations are expected to continue for some time, foreign direct investment offers a capital inflow unaccompanied by an increase in debt and is therefore very important.

Taking into account the time tables for implementation, a package of investment promotion activities should be incorporated and continued.

### 2) Outline

Specifics for the comprehensive investment promotion activities are described below.

1. Establishment or assignment of and enhancement of a government agency specializing in each strategic sub-sector

For key sub-sectors, special departments will be newly set up, or an existing department will be assigned and enhanced for this purpose within BOI.

At present, related staff in the BOI are divided into two industry groups, with an executive director presiding over each. For each sub-sector, however, there are only 2-3 personnel.

For strategic sub-sectors, a department for the comprehensive planning and monitoring of basic measures should be either newly set up or reinforced as a means of further enhancing the inter-agency committee system (technical committees, technical working groups, etc.) adopted by this study. The use of staff from the International Trade Group (ITG) of the DTI, which has supervisors for each final product, should also be considered.

2. Strengthening of ties between DTI/BOI and industry associations

DTI/BOI should take the initiative and work to strengthen ties with industry associations while promoting the sub-sector development projects.

In October 1987 DTI/BOI led the development of the so-called ten-year program, which attempted to give an industrial forecast for 52 sub-sectors for the the year 2000. This effort contained the results of 27 individual surveys.

In the present study as well, some of the industry associations from the six sub-sectors have cooperated through the technical committees, steering committees, and technical working groups as local consultants to help the study team grasp industry conditions and plan the questionnaires.

The BOI, which is responsible for industry-related information, should take the initiative in establishing and operating a liaison committee with the government. The promotion of foreign investment promotion activities would also be effective in this respect.

### 3. Collection and distribution of industry information

In the process leading up to investment, foreign corporations undertake thoroughgoing advance studies.

In the questionnaire survey designed to measure Japanese company interest in Philippine investment, respondents were most interested in factors like production costs, raw material supply, and the export capabilities of and export systems in place at Philippine companies. Considerable interest was also expressed in the new industrial parks being set up, and the rapid supply of information was thought to be effective in this respect.

As a means of distributing this information, efforts are needed to enhance current PR activities through the various media of the BOI and also through the activities of the One Stop Action Center.

### 4. Collection of data on companies interested in receiving investment

Foreign investors are very interested in seeing data by industry.

Stronger ties with industry associations and stronger linkages between the efforts to establish product-based company lists by the ITG Group (BETP and CITEM in particular) are thought to be effective. Effective utilization of this report will also be necessary.

### 5. Monitoring and overseas promotion of successful investment projects

Successful instances of foreign investment in the Philippines should be monitored and used to promote the country's overseas image and attract new investment. The staff needed to collect such case histories should be drawn from those personnel whose job responsibilities were lightened by the government's plan to relax restrictions.

In connection with this, the establishment of regional extension offices for the BOI has been promoted since 1988. As of 1991 offices had been set up in Cebu, Davao, Cagayan de Oro, Legaspi and Iloilo. It would be effective to have each office monitor successful case histories in its district.

### 6. Communication with investing firms

When revising existing programs, the Philippine government traditionally sends out a circular to foreign chambers of commerce located in Manila and monitors the views

of policy clients at public hearings. These activities should be carried out on a more regular, planned basis.

#### 7. Dispatch and acceptance of missions

Foreign investors continue to show a high degree of interest in the Philippines. Japanese investors are no exception, as evidenced by the acceptance of missions from a private Japanese bank that had established ties with the BOI in 1989 and from the ASEAN Centre during the period Jan - Mar 1992

When such missions visit the Philippines, it would be effective to provide them with specific information or hold seminars on industrial parks and production costs. The establishment of a forum in which potential, industry-specific matchups between industry associations or interested companies could be tried out is also recommended.

#### 3) Requirements

1. DTI/BOI must take advantage of the interest being expressed in Asia and the Philippines by foreign investors during the early 1990s and emphasize timing.
2. Government keynote policies to relax restrictions must be continued as an integrated package. The major revisions in foreign investment policy expected to take place in 1992 should not just be announced individually but instead promoted intensively as an integrated package at an appropriate time in an effort to improve foreign investor confidence.
3. Functions for the comprehensive planning and monitoring of basic policies for strategic sub-sectors should be enhanced.

When the responsibilities of several departments overlap, an inter-agency committee is generally set up. Although this type of committee is effective in going beyond the framework of existing organizations and achieving comprehensive coordination. However, coordination tends to be limited to within the committee, and often is not reflected in the actual measures taken by related agencies.

Instead, separate departments should be established for each industrial sub-sector. These departments should have a comprehensive, long-term vision, should plan and propose policies based on this vision, and should be capable of analyzing the results of the measures that are implemented. At the very least, these departments should have an understanding of industry structure and industry-related statistics as well as related policies, regulations, programs and the effectiveness of each.

#### 4) Recommendation on Implementation

##### 1. Implementing System and Schedule

The project should be carried out as soon as possible centering on DTI/BOI.

The BOI has already set aside staff to supervise each sub-sector, and it plays the most important role among government agencies for supervising industrial development. At its inception in 1968, the BOI was under the authority of the president, but in 1987 it was incorporated into the Industry and Investment Group of the DTI (Administrative Code, 1987).



The main role of the BOI as set out in this code is to promote investment in the Philippines while formulating and coordinating medium- and long-term industrialization programs with other government agencies in accordance with national development policies and priorities. Its responsibilities include the authorization of investment projects, company registration and monitoring, the distribution of incentives, and the development of policies to improve the investment climate.

The BOI consists of three organizations: 1) a Service Support Group, 2) Industry Group A, and 3) Industry Group B. BOI's current staff (as of November 1991) is only 344, considerably less than the 417 Plantilla position. Its 1991 budget was 50.14 million pesos.

BOI activities of a strongly restrictive nature, such as investment authorization and the determination of which firms are to receive incentives, are gradually losing their importance as deregulation proceeds. Given current conditions, a reshuffling of personnel should be considered.

## 2. Steps for Implementation

### a) Proposal and monitoring of sub-sector development policies

Monitoring by the technical working groups, which began based on the results of the first-year study, should become an established practice. For key sub-sectors, the functions of specialized departments within the BOI should be enhanced.

An organization should be set up to allow DTI/BOI to conduct sub-sector surveys under its own initiative. Plans should be drawn up for the selection of sub-sectors for continued surveys and monitoring.

The enhancement of functions of specialized departments within the BOI will contribute to the strengthening of ties between the BOI and industry associations, the collection of industry-related information, and overseas PR efforts. In this area international assistance is being offered by the World Bank and the IFC.

### b) Dispatch and acceptance of missions

The nations to be targeted for investment attraction are Japan, Taiwan, the R. Korea, the U.S. and the U.K. A system should be established to allow the dispatch of 10-12 missions and the acceptance of about 20 missions each year.

Concerning relations with Japan, cooperative ties have been established with private banks and BOI tie-up partners, local chambers of commerce, the ASEAN Centre, and JETRO, and these ties are praised for having a strong sense of direction.

### c) Strengthening of ties with potential investors

The Philippine investment environment has undergone dramatic changes, as evidenced by the Foreign Investment Act of 1991, and corporate needs are also growing more diverse. Therefore, foreign experts, including Japanese, should be dispatched to the BOI on a continual basis to offer advice on investment policy.

Investment advisors have already been sent by Germany and Japan (dispatched by JICA in October 1989). In 1992, new advisors are scheduled to arrive from Australia and the U.S. The BOI is also working to have similar consultants dispatched from Taiwan and the R. Korea.

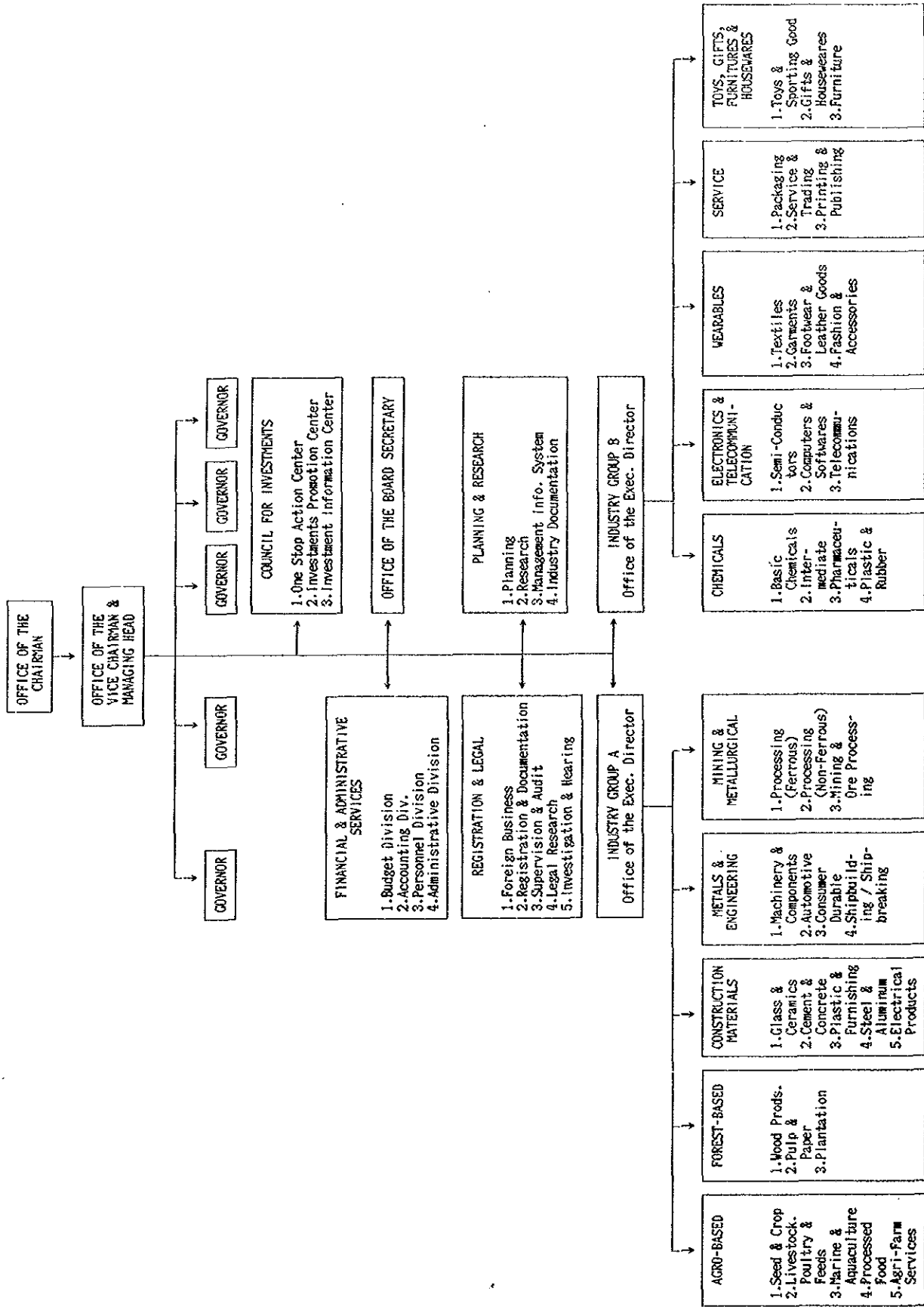
#### 5) Effects

1. By actively working to attract foreign investment, the Philippines will escape the current cycle of low growth — low savings rates — sluggish capital formation. The attraction of export-oriented companies will also help to reduce the country's foreign debt burden.

2. By continuing the across-the-board policy of relaxing government restrictions, the Philippines will improve its image as an investment destination and accelerate industrial development.

3. The promotion of foreign investment will result in the comprehensive transfer of business resources, including access to export markets as well as capital and technology.

Figure IV-2: Organization Chart of the BOI



## 2-2 Individual Optimum Priority Projects

### (1) Establishment of a Metal-Machining Industry Upgrading Assistance Center

#### 1) Objectives

Recently signs of growth have been shown for the parts industry and especially the processed metal materials sector, brought on by a recovery of demand in such assembly industry as auto and home electrical appliance and an increase in local parts content. Another factor has been active local purchasing of metal components by foreign-affiliate assembly firms. Although Philippine die making industry remains in the initial stages of development, they are showing rapid growth against the backdrop of these developments. In addition, die and mold manufacturers from Japan, R. Korea and Taiwan are moving to invest in the Philippines, some local firms are beginning to produce assembly and welding jigs for automobiles and motorcycles, and a growing number of companies are fabricating their own dies and molds for the production of small stamped parts, again for automobiles and motorcycles.

Promotion of the die making industry would be helped by the establishment of an organization to provide technical instruction and assistance suited to each phase of development. MIRDC is the only government R&D, testing, and technology guidance organization available for the metal and machinery industries. During recent years, however, an increasingly wide range of demands on its services has made it unable to adequately cope with today's needs from the standpoint of die making industry promotion.

This project will establish an organization to provide technical assistance for machining sector development with the objective of leading the development of the die making sector, which has yet to differentiate itself from the machining sector. The Center will be characterized by the ability to change its role in accordance with the stage of development of the Philippine die making industry. In addition, it should stress the ability to support industry, i.e., to begin with machining and then provide technical guidance, guided processing services, and shared service facilities for die making in particular, rather than emphasizing R&D for metal engineering in general, which is the basic function of MIRDC.

#### 2) Outline

In terms of facilities, the Center will purchase advanced equipment that is impossible for companies to purchase on their own and offer this up for common use. It will also train technicians capable of operating advanced machinery and offer instruction in die and mold design and other aspects of die making technology. Further services to be provided on a daily basis will include materials testing, chemical analysis, various types of metalworking, measurement, technical consulting and training.

The main services to be provided according to the stage of industrial development are shown below. (From the standpoint of private sector development, it would be favorable to discontinue these services once private firms specializing therein have been established. From then on, the facilities should be used for training only.)

##### 1. Initial phase

- a) Sponsoring of workshops on die making technology and production management for upgrading machining

- b) Training and instruction in the operation of machinery and equipment which will be required for modernization
- c) Services using machinery and equipment which are used by companies only infrequently or which are too expensive for companies to acquire individually
- d) Services which are difficult to provide on a private basis, such as heat treatment, surface treatment, and other supporting technical service facilities and testing and inspection facilities

## 2. Intermediate phase and later

- a) Training in the use of widely-used facilities and equipment
- b) Training in the use of related service facilities and testing and inspection facilities
- c) Enhancement of consulting services
- d) Assimilation of technologies and R&D for new technologies

## 3) Requirements

In order to achieve the goals set out by this project, the following requirements must be satisfied:

1. Establishment of a system enabling the needs of the machinery processing and die making industries to be met at all times, and specifically the ability to deal with a changing role as mentioned above.
2. Establishment of a system enabling the Center to cover not only the initial investment but also operating expenses.
3. Adequate maintenance of machinery and equipment, with suitable replenishment of spare parts, materials, etc.
4. Training of an instructor pool to meet die making industry demands. When the domestic instructor staff is insufficient, foreign instructors should be employed.
5. Land suitable for use in training, guided processing, etc.
6. Suspension of any services which the private sector can handle and where competition is evident.

## 4) Recommendation on Implementation

### a) Implementing System

DOST (MIRDC) should be responsible for planning and proposals. Since the organization in charge of managing the project must be capable of responding to the changing needs of the die making industry, it should be either attached to or altogether separate from MIRDC. In principle it should be financially independent, and its operation should be handled by a committee reflecting the views of the die making industry, user industries and MIAP.

On the other hand, MIRDC 1) has technical staff with certain experience, 2) has already installed general-purpose machinery, and 3) is operated as a public corporation. Considering the fact that it is financially independent to a certain extent, the Center should be started out attached to the MIRDC and, if there is no other suitable organization, could later be made independent as necessary.

### Notes:

1. Concerning the division of roles with existing technical guidance and training organizations: The Center is intended to 1) transfer practical technology rooted in basic die making technology, 2) provide technical training in machining operations for die making, and 3) provide common service facilities. Therefore, training is more specialized

than the instruction in general machining operations provided by NMYC and CITC. It also differs in that it involves the training of personnel who are already able to operate general-purpose machinery. The goals overlap many of those of the instruction in machining currently aimed at by MIRDC. However, if the effort was nothing more than an enhancement of existing MIRDC functions it would be difficult to modify existing facilities, which have become too broad in scope, to a facility layout focusing on dies and molds and the upgrading of machining. It would also be difficult to expect flexibility in services. Therefore, the Center should be either attached to or altogether separate from MIRDC.

2. Concerning Center operation: As mentioned above, the functions of the Center resemble the current functions of the MIRDC to a considerable extent, but there are certain operation-related problems in the existing MIRDC organization. These are as follows:

- a. The areas covered by MIRDC are too broad, extending over all fields of machinery and metals. It is therefore impossible MIRDC to provide concentrated services to specific fields. It is also difficult to expect MIRDC to be able to provide finely-tuned services.
- b. Regarding the upgrading of facilities, MIRDC facilities are too general-purpose in nature, and it would be difficult to change over to a facility layout designed specifically for dies and molds.
- c. The Center would stress the ability to support industry, i.e., to provide technical instruction, guided processing services, and shared service facilities, rather than R&D, which is the basic function of MIRDC.

From these standpoints, it is desirable that the Center be an independent organization which has sufficient facilities, decides on its own policies of operation, and provides practical services.

b) Equipment and Cost

When considering machinery and equipment, it is necessary to take into account the following views of the functions of the Center as stated above:

- a. For the time being, efforts should concentrate on medium-sized or smaller dies. No consideration should be given to large dies.
- b. Installation of general-purpose machine tools and other equipment which individual firms already own, or equipment already owned by research and technical instruction organizations and intended for the metal and machinery industry in general, should be avoided whenever possible. The main components should be equipment for the upgrading of machining and specialized equipment required for future die making activities in the Philippines. (For details on necessary facilities and equipment, please refer to Section III-6-4 of the first-year final report.)

Following is an estimated breakdown of the necessary funds. Details are given in Table IV-5.

1. Equipment and facilities costs	\$5,246,000
2. Building construction costs	\$1,800,000
<hr/>	
Total	\$7,046,000

c) Schedule

It would be desirable to establish the Center as soon as possible, given the present stage in which many die using companies are beginning to look for suitable die

manufacturers, to induce development of the die making industry. However, it will also be necessary to train a corps of instructors. On the other hand, several steps, involving study and arrangements for agreement or authorization of related organizations, would be necessary before implementation. At the very least, preparations should be begun immediately.

#### d) Steps for Implementation

When implementing the project, the project concept described above should be broken down further, and preparations such as feasibility studies and basic design begun. For more information on the necessary preparations, please refer to IV-3 Matters of Caution in Implementation.

In addition, this project will require massive funds, and it may be difficult to implement all at once. If this is the case, its scope should be broken down, and the gradual purchase of equipment should be considered.

Note: Concerning this project, MIAP is already considering a project to establish a center with help from the Technological University of the Philippines (TUP). It also plans to designate METFI as one of the supervisory organizations for this project.

#### 5) Effects

1. Contribution to the development of user industries supporting the export industries, including supporting industries (to be achieved through the direct effects listed below)
2. Promotion of basic die design technologies (molding machine types and specifications, die structure and functions, processed material characteristics, etc.) at die manufacturers and upgrading of manufacturing and production management technologies throughout the die making industry
3. Promotion of acceptance of methods of using advanced facilities and the training of technicians able to operate these facilities
4. Improvement of the corporate environment through enhancement of the technology infrastructure and supporting service technologies
5. Support for new entries into the die making industry

**Table IV-5: Funds Required for Construction of the Metal Machining  
Industry Upgrading Assistance Center (Estimated)**

Particular	Estimated Costs	
	in million yens	in thousand US dollars
1. Machines and Equipment	682	(5,246)
Of which:		
Machine tools	470	(3,615)
Measuring instruments	50	( 385)
Heat treatment facilities	60	( 462)
CAD/CAM	13	( 100)
Wiring/piping/material handling facilities	89	( 684)
2. Construction of Buildings	234	(1,800)
Of which:		
Office building (2 stories, total floor area: 600 sq.m)	90	( 692)
Factory (2 buildings, total floor area: 960 sq.m)	144	(1,108)
<b>Total</b>	<b>916</b>	<b>(7,046)</b>

Notes: Assumptions for the above cost estimate are as follows.

1. A rough estimate based on the concept shown in Table III-6-4 (machines and equipment) and Figure III-6-2 (layout) of the first year final report.
2. Estimate as of November, 1990.
3. The costs of machines and equipment above are calculated on the basis of ex-factory prices of major machines and equipment, adding packing, transportation and other costs up to the construction site. Installation is assumed to be undertaken by the Philippine side. The necessity of power-receiving facilities should be studied carefully prior to the implementation.
4. The land for the project is assumed to be owned by the government, and costs of land acquisition and site preparation are not included in the above estimate, presuming the site is ready for construction.
5. Import tax is not included.
6. Foreign exchange rates used are;  
    1 peso=4.82 yens, 1 US dollar=27 pesos, 1 US dollar=130 yens



## (2) Establishment of a Training Center for Computer Software Development

### 1) Objectives

The shortage of software development engineers in the advanced industrialized nations is severe at the SE/SA level, but the Philippine industry has not been able to respond to this need in particular in the area of development technology. The current software development exports of the Philippines are primarily of the programming level. The industry cannot handle development as a whole. The Computer Software Development and Technology Institute (below referred to merely as the "institute") would have as its main object the training of the advanced level software engineers which the Philippines now lacks and the improvement of the country's capability in exporting software development. ( )

Further, it would have as one of its major objectives language and other training to assist in the development of the Japanese market, which is a promising market for software development exports but which the Philippines cannot handle much at all due to language problems.

In the institute, courses would be set up for the IT experts now in companies and the government. Further, instructors would also be trained so as to help the promotion of the entire information industry.

### 2) Outline

An institute would be established which could handle the following matters required by the software development industry of the Philippines:

1. Provision of basic development technology and advanced technical information
2. In consideration of the shortage of opportunities for advanced software development, provision of a facility for technical training instead. ( )
3. In consideration of the fact that the facilities and the development tools and other aspects of the development environment are not of a level enabling advanced software development work to be handled, provision of a development environment which meets such requirements.
4. Provision of an R&D function which can contribute to the computerization of the Philippines.
5. Provision of a facility for the language and business training required for doing business in the Japanese computer software development market.

Therefore, the following would be offered:

1. Additional education for graduates of university computer related courses, computer schools, etc.
2. Technical training for engineers in the software industry.
3. Facilities and development tools and other aspects of the development environment suitable for the level of training required.
4. Training of instructors ( )

In the beginning, the main object would be training and the institute would train instructors for development engineers, computer education organizations, the government, and the private sector. At the same time, it would provide consulting services for software development and facilities and development tools for outside use. In the future, further, it would desirably add functions such as:

1. Training of R&D staff able to develop software in the institute
2. Provision of computer-related management education and consultancy services to the industries.
3. Software development including joint venture with the private sector and universities.

Further, the institute would have to study whether to serve as the center for a system of sharing of mainframes together with the universities, NCC, etc. and whether to serve as the center for running the later mentioned EDP testing system.

#### i) Outline of training

1. Training with aim of compensating for deficiencies in and strengthening presently existing educational organizations: The training would be offered to graduates of computer related courses and graduates of computer schools. It would have as its aim training engineers which have sufficiently mastered basic technology and training instructors, which are in short supply in educational organizations, the government, and the private sector. The course would include:

- a. Computer architecture (in particular design of basic software and analysis of functions)
- b. Advanced programming languages (for example, PROLOG and LISP)
- c. The latest related knowledge such as in artificial intelligence and neurocomputers
- d. Information network technology
- e. Data base technology

2. It would also have as its object improving the abilities of system engineers already having a certain degree of experience in the software development industry and training system designers or system developers. The course would include:

- a. Latest knowledge about the businesses of computer users such as finance, distribution, and manufacture.
- b. Latest technology in data communications
- c. Systems design, specifications and evaluation
- d. Specialized knowledge relating to product development in specific fields (MIS, CIM, etc.)
- e. Process and quality control technology in software development.

The course would be made available to large numbers of people by being held not only at the institute, but also through seminars in regional areas. The course would include practical training and, in particular, would offer practical training in companies for trainees who have never experienced actual work in such companies.

#### ii) Facilities

What facilities, development tools, etc. are required should be studied in accordance with the nature of the training offered, but desirably the institute would be equipped with not only sufficient mainframes, minicomputers, personal computers, and other hardware, but also would construct a system able to be accessed from the outside with the aim of open utilization of the facilities. Further, suitable plans are required so that the basic software is constantly updated and so that development tools, CAI, and other software can be purchased.

#### iii) Training of Staff and Instructors

In the initial stage, it will be necessary to focus on the training of the staff of the institute as well. In some cases, promising people would be dispatched overseas for certain periods and upon their return home would be appointed as instructors.

Further, the early instructors could be hired from various aid organizations of other countries and brought over from abroad or could be secured from among cooperating people already active in the actual industry who would offer the courses as part time instructors.

### 3) Requirements

1. There are already large number of private computer schools. Further, the NCC is training information engineers for government organizations. Therefore, consideration must be given so that the institute does not compete with these. A cooperative relationship with educational organizations would be desirable.
2. A suitable composition of instructors including instructors invited from overseas.
3. The functions required of the institute would change along with the progress made in computerization in the country, the development of the software development industry, and changes in the international information industry. To enable such needs to be fully reflected in the operation of the institute, it is necessary to organize a suitable operating committee which would include mainly representatives of reflected industries and also of related government organizations.

### 4) Recommendation on Implementation

#### a) Implementing System

1. Promotion of plan: The NCC/ITCC would take the lead and form the above-noted promotion committee, which is to include the private sector, after consultation with the industry. The promotion committees would desirably take charge of the planning and recommendations.
2. Implementation: The institute desirably would be run by an operating committee evolved from the above promotion committee.

b) Implementing period: It is necessary to start preparations for this project quickly in view of the fact that numerous preparations are required, such as the allocation of funds, the hiring of instructors, and purchasing of facilities (see "IV, 3. Matters of Caution in Implementation").

#### c) Example of schedule of implementation

##### Phase 1

1. Establishment of promotion committee: The committee would perform the following work on:
  2. Determination of persons covered and setting of contents of course
  3. Selection of places of installation and required equipment and materials (at this time, the study will be made differentiating between equipment and materials considered the minimum necessary for the start and equipment and materials necessary in the future stages of development)
  4. Calculation of initial purchasing funds and operating expenses and funding plans
  5. Presentation of proposals to related organizations
  6. Correction and decision on proposals
  7. Establishment of operating committee

Phase 2

1. Recruiting of instructors (domestic and foreign) and staff
2. Receipt of equipment and materials
3. Training and orientation of instructors and staff
4. Start of operations (full time/part time)
5. Augmentation and improvement of course

Phase 3

1. Holding of seminars in regional areas
2. Start of software development, consultations, data bases, and other services
3. Receipt of trainees from third countries
4. Establishment of network with other educational institutions

5) Estimate of Required Funds

The estimated required funds and operating funds are shown in Tables IV-6 and 7.

6) Alternative Proposal for Facilities and Operation

The main function of the NCC is to implement the computerization of government organizations. Its subsidiary organization, the NCI, is in charge of the training of computer related personnel for the government. Currently, the NCC plans to move the NCI on to the UP campus and expand it there. The NCC/NCI is currently oriented toward government organizations, but may be said to be the only organization in the Philippines which has sufficient facilities and manpower for the promotion of computerization. In the above proposal, the institute was studied as an organization separate from the NCC/NCI so as to enable the wishes of the private industry to be sufficiently reflected, but it is possible to consider it as an attached institute so as to make active use of the facilities and human resources of the NCC/NCI.

In this case, however,

1. Efforts must be made to establish an operating organization that includes private sector representatives who can help the organization reflect industry needs; and
2. Consideration must be given to the matter of remuneration so as to prevent the drain of talent - a matter of concern in the case of a government organization.

**Table IV-6: Installation Costs of a Training Center for  
Computer Software Development (Estimated)**

Particular	Estimate Costs	
	in million yens	in thousand US dollars
<b>Installation costs</b>		
1. Computer Basic Architecture	110	846
2. Peripherals, Work Stations, Personal Computers & Softwares	30	231
3. Other Equipment	30	231
<b>Total</b>	<b>170</b>	<b>1,308</b>

Notes: Assumptions for the above cost estimate are as follows.

1. A rough estimate based on basic system architecture including 1 mainframe, 1 DASD and 30 terminals. The concept is shown in Figure IV-3
2. Softwares: OS, compilers & application softwares such as database.
3. Other equipments: air conditions, teaching materials, others.
4. Estimate as of April, 1992 prices.
5. The costs of machines and equipment above are calculated on the basis of ex-factory prices adding packing, transportation and other costs up to the site. Installation is assumed to be undertaken by the Philippine side. The necessity of power-receiving facilities should be studied carefully prior to the implementation.
6. The land and the building for the projects assumed to be owned by the government, and costs of land and construction are not included in the above estimate.
7. Import tax is not included.
8. Foreign exchange rates used are;  
1 peso=5.2 yens, 1 US dollar=25 pesos, 1 US dollar=130 yens.

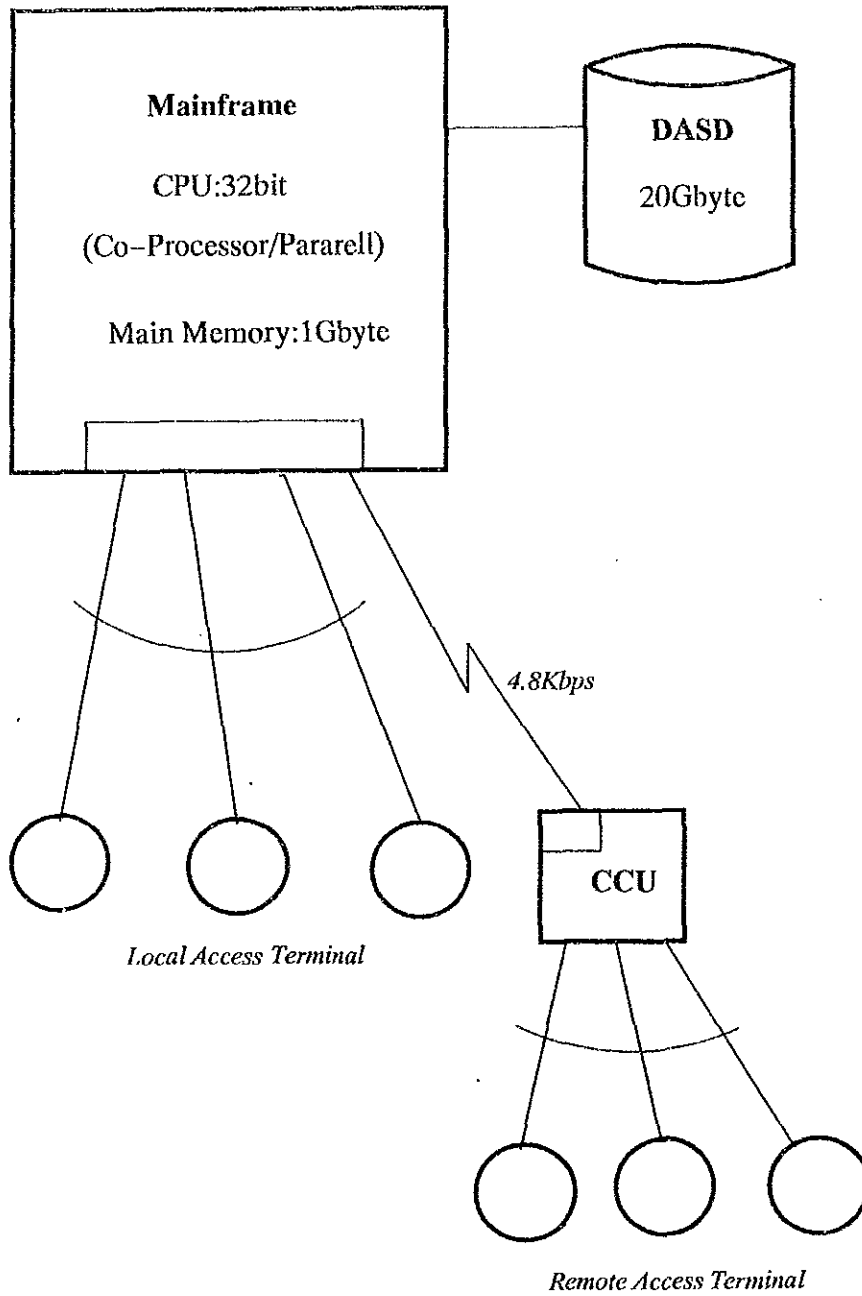
**Table IV-7: Operational Costs of a Training center  
for Computer Software Development (Estimated)**

Particular	Estimate Costs	
	in million yens	in thousand US dollars
Management costs (a year)		
1. Direct labor costs	5	38
2. General management costs	4	31
3. Repair & maintenance (include utilities)	24	185
<b>Total</b>	<b>33</b>	<b>254</b>

Notes: Assumptions for the above cost estimate are as follows.

1. The above estimate is the least management cost for operating and maintaining the basic system architecture.
2. Estimated labor cost is based on 6 faculties including the head of office and 5 assistance staffs.
3. Costs of depreciation, inviting teachers (Philippines and foreign), R&D and dispatching overseas are not included in the above estimate.
4. Foreign exchange rates used are;  
1 peso = 5.2 yens, 1 US dollar = 25 pesos, 1 US dollar = 130 yens.

**Figure IV-3: Training Center for Computer Software Development**  
Basic Systems Architecture



### (3) Strengthening of Coconut R&D Activities

#### 1) Objectives

R&D in oleochemicals is generally conducted independently by private companies. Large amounts of money are invested in basic research, development of new products, and establishment of manufacturing technologies. Much of the results, however, are patented and a considerable time is taken before the patents are disclosed to the public. Further, in the Philippines, foreign affiliated manufacturers rely on their parent companies for management and technical strategies and engage in their own R&D in only a few cases.

On the other hand, the ITDI has been engaged in R&D activities as a public organization, but has concentrated on research into basic technology and has not yet reached the point where it can fully meet the needs for R&D in the industry.

There is a need for R&D in oleochemicals in the Philippines in two areas, discussed below. This project is aimed at strengthening R&D activities for coconuts so as to meet the needs for R&D in these areas. The first area where R&D is needed is in relation to the industrial utilization of coconuts and coconut oil, primarily oleochemicals, aimed not at catching up with and doing on a small scale what the advanced companies are already doing, but at what single companies would find difficult to do alone or what only the Philippines could do. This includes the following for the time being:

1. Development of new applications for the coconut to reduce coconut oil production costs, including use of husks and nuts as well as use of copra meal for feeds
2. Research on the substitution of coconut oil derivatives for imports in areas where imported products or products using imported raw materials are being utilized. (example: import substitution through reduction of DOP production cost)
3. Research on substitution of domestically available materials, except coconut oil derivatives which are used in the Philippine oleochemical industry.
4. Research on applications for surfactants in Philippine indigenous industries or industrial fields which have been neglected in the industrialized countries (surfactants for the textile industry, anti mold agents, etc.)
5. Development of new applications for alkyls which are not being effectively used. (particularly, C<sub>8</sub> and C<sub>10</sub> fatty acid)
6. Research on manufacturing technologies for small-scale production of oleochemical products
7. Use of spent catalysts, fatty acids and alcohol residues

The second area is in relation to the stable supply of the coconut raw material and concerns economic research relating to the cultivation and utilization of coconuts, including research and experiments on cultivation of coconuts (development and evaluation of hybrids, in particular) and intercrops.

At the present time, in the Philippines, a coconut R&D network is being formed among the DTI, DOST, DA, and other related governmental departments, universities, and the private sector for the purpose of comprehensive R&D activities in the coconut related industries. Due to the shortage of funds for its activities, however, the network is not active much at all.

This project has as its object the strengthening of the R&D activities currently in this state of affairs and the contribution to the rebuilding and development of the coconut sector, which has a major impact on the economic activities of the Philippines.



## 2) Outline

As a first stage, the R&D needs would be efficiently met by organizing the R&D activities of the existing institutions. Further, the participation of overseas researchers would be obtained in the process of selection of the R&D themes and the implementation of the R&D so as to make these more sophisticated. Further, when progress has been made in organizing the R&D activities, the system for combining these into a R&D sector would be strengthened.

### (First Stage)

1. A survey would be run for formulating plans for selection of systematic R&D themes fully reflecting the R&D needs mentioned earlier and for studying the systems, manpower, equipment and facilities, research funding, etc. required in implementation of those themes.
2. Based on the above results, implementing systems would be set up for each theme and the progress in the same would be monitored.

### (Second Stage)

1. At the stage when the R&D system is operating continuously, R&D functions would be organized for each of the area relating to coconut cultivation, the area relating to processing and utilization, the area relating to the economy and markets, and other areas and functions for a unified organization would be established. This would help raise the efficiency of the R&D activities.
2. The organizations for the individual areas would be further made integral and a coconut R&D center would be established.
3. Researchers from overseas would be hired so as to enable coconut related R&D to be performed from an international perspective. At the same time, this would raise the sophistication of the R&D activities.

## 3) Requirements

To achieve the objective of the R&D activities of this project, it is considered that at least the following requirements must be met:

1. When implementing comprehensive R&D activities, the agreement of the numerous related organizations (government organizations, the industrial world, universities) would be required regarding funding, personnel, operating organization, etc. The existing Coconut R&D Network was organized for performing such comprehensive R&D activities. The member organizations must cooperate so that the network always maintains a grasp of the existing projects.

For example, for the active use of the findings of the PCA SCFDP, the ITDI CMD (Chemical & Minerals Division), the Soil Research Center, etc., centralization in this R&D Network would be desirable.

2. Studies are required on how to secure sustained operating funds.

## 4) Recommendation on Implementation

1. Promotion of project: The DOST would be used as the promoting organization for the project, and the Coconut R&D Network would take the lead in studying the details of the implementation.

2. Implementation of project: The DOST would be used as the implementing authority for the project, while the actual operation would be by a promotion council based on the Coconut R&D Network.

3. At the stage of establishment of the R&D Center, a study of the feasibility and other preparations would be necessary. See "IV, 3. Matters of Caution in Implementation". In the case of setting up the center, the equipment and materials required, limited to the area of oleo chemicals, are estimated to be as shown in Table IV-8.

The funds required for the construction of the center are estimated as follows (for details, see Table IV-8, unit: US\$1000):

Cost of constructing buildings:	2,307 (floor area 2000 m <sup>2</sup> )
Cost of equipment and facilities	4,250
<hr/>	
Total	6,557

(Note) Starting September 1992, a "Joint Study Project on Upgrading of Agri-Industrial Chemicals Research & Development" is scheduled to be implemented by the JICA for the ITDI. This project includes, in the area of coconut related oleochemicals, the development of technology for manufacturing chemical products from coconut oil. This calls for the transfer of technology for manufacturing detergents and other fatty acid derivatives (metal soap etc.) from coconut oil and redevelopment of the same as technology suited to the manufacturing conditions in the Philippines. This is in line with research into manufacturing technology for small scale production of oleochemical products - one of the R&D themes which should be tackled by the Philippines, mentioned earlier. In the coconut related field of the Philippines, cumulative research and development is considered necessary and, at the same time, it is necessary for the R&D Network to have a firm grasp of the necessity of this theme and to move forward with it in an organized, sustained manner. This project must be implemented toward this end.

4. Other scheduled projects related to oleochemical R&D include CMD-ITDI and ESEP (Engineering and Science Education Project; funded by the World Bank), the former having already been implemented.

#### 5) Effects

1. An increase in farmer's income can be expected through research on the improvement of the productivity of coconuts.
2. Through the dissemination of research results, local oleochemical manufacturers can reduce R&D costs.
3. If the project produces research results, positive effects can be expected in exports of coconut products, including oleochemicals, and on foreign investment in the oleochemical sector due to higher international confidence in the Philippine coconut and oleochemical industries.
4. Decline in imports of oleochemicals

**Table IV-8: Oleochemical Equipment to be Introduced at a Coconut R&D Center**

Equipment	Specification	Set
1 Hydrolysis Apparatus	5l, Max. 200deg.C/50kg/cm2	1
2 Hydrogenation Apparatus	5l, Max. 250deg.C/50kg/cm2	1
3 High Pressure Apparatus	500ml, Max. 300deg.C/200kg/cm2	1
4 Reactor (Sulphation)		1
5 Reactor (Esterification)	5l, Max. 260deg.C	1
6 Reactor (Esterification)	1l, Max. 260deg.C	1
7 Distillation Apparatus Set	Ho-C-500	1
8 Vacuum Distillation Apparatus Set	HPC-A-1500B, concentric column	1
9 Fractional Distillation Apparatus Set	HPC-A-1500B, packed column	1
10 Molecular Distillation Apparatus Set		1
11 Soap-making Equipment		1
12 Analytical Instruments		1
(1) Gas Chromatograph	GC-14A, a.500, GC-14AHF-SC	2
(2) Infrared Spectrophotometer	FTIR-8501	1
(3) UV-VIS Spectrometer		1
(4) NIR Spectrometer		1
(5) Atomic Absorption Flame Emission Spectrometer		1
(6) X-ray Fluorescence Spectrometer		1
(7) NMR Spectrometer		1
(8) GC-MS QP 1000 EX		1
(9) Thermogravimetric analyzer		1
(10) High pressure liquid chromatograph Fluorescence Detector	a.1100, SPD-M6A	1
(11) Balance (Analytical)	a.40	2
(12) Balance (Direct Reading)	400g, 0.01g, a.12	4
(13) Water Softener		2
(14) Water Distillation Apparatus		1
(15) Detergent Test Apparatus		1
(16) Surface Tensionmeter		1
<b>Total Cost (Estimated)</b>	<b>US\$4,250,000</b>	

- Notes:
1. The above list does not include equipment for use in reserach and development of coconuts.
  2. It is necessary to avoid introducing the same equipment which is to be given by the related projects described in the report. It is also necessary to consider whether testing equipment for coconut oil should be added or not.

### 3. Suggested Procedures for Successful Implementation of Projects/Programs

#### (1) Suggested Procedure for Successful Implementation

In implementation, it is necessary to make certain preparations for each of the plans. The matters to be prepared differ for each type of plan. In particular, the thorough preparatory actions are essential for the facilitation of development programs, which require a large amount of investment.

##### a) Establishment of Implementing Organization

In implementing this type of program, several studies should be performed spanning the steps mentioned below and consensus or authorization of the relevant organizations must be obtained. Therefore, in going ahead with such a program, it is first of all necessary to establish an implementing organization with sufficient ability to obtain the assistance of organizations experienced in implementing similar program in the past or make use of consultants with extensive experience in this field.

##### b) Preparation of Detailed Program

The study is carried out in the preparatory phase of the Detailed Program, to formulate the basis of program implementation, which will be required in the succeeding steps of implementation to optimize the program. It includes the examination of financial arrangement to ensure the required investment, with formulating the action program for it.

At the same time, the adequate operation organization is examined among the relevant organizations formulating the execution program to establish it, aiming at efficient use of the facilities to achieve the objectives set for the program. The execution program should contains the followings, which are extremely important in smooth and successful implementation of the program:

1. Drafting a specific assignment of key staffs of the operation organization with consensus of the relevant organizations on this assignment.
2. Determining the type of operation organization in terms of administrative and operational view point; for example, government organization, public corporation, neutral third party organization, and non-profit based organization in private sector, etc.
3. Determining the government office in charge of controlling the organization, and formulating the specific way to control and support the organization.
4. Obtaining the consensus of the concerned industrial associations with respect to the way for the industry to support the operation continuously, and formulating the specific way of support.
5. Determining the financial plan of the operation organization focusing on the specific measures to ensure the self-liquidity of the operation, and to compensate the shortage of operational costs in case the self-liquidation is found difficult.
6. Formulating the plan to ensure the required number of qualified staffs, and measures to avoid the job-hopping of these staffs with specific way to secure the adequate budgeting for this purpose.

##### c) Basic Design Study

The basic design study will formulate the optimum program through examination of feasibility of the program itself, and formulation and examination of alternative

implement plans. The following points are necessary to be clarified by the basic design study:

1. Basic design (including envisioned scale of demand)
2. Required investment cost
3. Feasibility of the program from the economic and technical points of view
4. Financial plan
5. Operational setup

d) Equipment and Materials Specifications Study

The adequate equipment and materials are selected and the following points are clarified in the specifications study:

1. System and layout of the facilities and equipment
2. Specifications and required number of the individual equipment and materials
3. Cost estimation
4. Specific procedures, etc. of delivery and installation of the equipment and material
5. Maintenance system

e) Preparatory Work for Procurement of Equipment and Materials

f) Procurement of Equipment and Materials, and Construction Work Control

(2) Implementation of the Program with Delay in the Original Plan

1. Ensuring the necessary fund,
2. Ensuring the necessary staffs because of delay/difficulty in budgeting and/or fostering qualified engineers,
3. Authorization for revision of the system, and establishment of new organization, etc., and
4. Necessary budgeting, and resultant difficulty in operation cashflow, etc.

Even if such is the case, it is recommended to set to work as soon as possible, starting with the items possible to be set to work.

(3) Necessity of Modification of Original Plan to Ensure the Implementation Schedule

The program components presented in the original program are the optimum ones after scrutinized from the possible alternatives. However, if there are any impediment factors for the planned schedule including difficulty in ensuring finance, and limitation of available funds, it is recommended to examine the optimum programs under existence of such factors.

If the installation is limited to a part of the required functions under limited fund available, for example, it is recommended to examine the way to implement it step by step utilizing the existing facilities and function presented in this supplementary information.

## **Annex**



## Annex 1: Socioeconomic Effects of Selected Projects

### 1) Foreword

Accurate measurement of what kind of effects the implementation of individual promotional and developmental projects have on social and economic development is extremely difficult. The object of this survey in particular is to present a master plan for the promotion and development of the subsectors surveyed. The details required for implementation of it still have to be determined in the future process of the survey leading up to the implementation. In addition, the system of industrial statistics forming the basis of assumptions of the survey is insufficient for analysis on a subsector level and, on top of this, data is slow in being collected. Therefore, sometimes estimates are made based on the general understanding of the industries or data of other countries has to be used instead. The following trial calculations provides certain indicators for judging the comparative (mutually relative) effects of the projects. Note that many assumptions and guesses were made in the process of estimation. In making any absolute evaluations, details of the projects must be further finalized in advance.

To obtain a comprehensive grasp of the social and economic effects of the projects, generally use is made of a cost-benefit analysis, but due to the difficulty in quantitatively determining the costs and benefits for each project, here the socioeconomic effects of the subsector promotion were first determined as the socioeconomic effects a unit increase of production has in a subsector. Next, a comparison was made of the increase in benefits over the present caused by a percent increase in level of production in the subsectors.

### 2) Socioeconomic Effects of Promotion and Development of Subsector

The results of a determination of the socioeconomic effects of subsector promotion and development are shown in Tables A-1 to A-6. These effects show the effects, inclusive of the ripple effects on related subsectors, accompanying a one million peso increase in production activities in a subsector expected as a result of the promotion and development of that subsector. No allusion is made as to how much of an absolute increase in the production activities may be expected in that subsector or a comparative ease of increasing production activities among subsectors.

#### a) Die Making Industry

The die making industry must rely almost entirely on imports for its raw materials, machinery, and equipment in order to fabricate molds and dies of a quality expected by its users due to the lack of development of what may be called "modern" machinery and metal industries in the Philippines. Therefore, almost no primary ripple effect can be expected in these industries. Even so, the secondary and further ripple effects come to 616,000 pesos. Further, domestic production of various parts currently being imported and required for the fabrication of automobiles, electrical appliances, etc. would become possible, which would lead to an increase of production in the parts processing industries (about 2.9 times the value of shipments of dies). Still further, the parts processing industries could be expected to have a ripple effect of their related industries (1,268,000 pesos) and other forward linkage effects (ripple effects on user industries) would be great. In addition, in die fabrication technology, use is made of much basic technology required for the development of the metalworking technology. The transfer of technology for die fabrication would contribute to improvement of the technology of the metalworking industry as a whole. Further, die technology for the metalworking sector could be applied as mold technology for the plastics sector as well.



Along with this, outside effects such as the possibility of domestic production of plastics-use molds could also be expected.

Since parts are not now being processed domestically, no dies are being imported and an increase in domestic production of dies would have almost no effect in the import substitution of dies. The import substitution effect of parts arising due to an increase in production of parts, however, could be expected to be 2.85 million pesos. In this case, however, it would be necessary to import the raw materials, machinery, equipment, etc. for the molds and dies and their parts and so the effect of conserving foreign currency would be reduced by that amount or 2.07 million pesos. In particular, in a country like the Philippines where the final demand for automobiles, electrical appliances, etc. is small, the increase in production of parts would be small compared with the increase in imports of machinery etc. and therefore there would be only a small net effect of savings of foreign currency. In addition to the dies for the domestic parts manufacturing industries, however, there is a possibility in the future of exports of dies by a setup wherein the rough finishing work is done in the Philippines and the final finishing processes are done in Japan.

In terms of job creation, rather than employment in the subsector, there would be a greater increase in employment in the parts processing industries where a related increase in production could be expected.

#### b) Stuffed Toy Industry

In the case of the stuffed toy industry, due to the use of imported plush, the ripple effect on the raw material industries would be only 33,000 pesos for the time being. Judging from the current level of the domestic plush manufacturers, the domestic supply of raw materials will probably be extremely limited for the time being. In the future, however, it is expected that a considerable proportion of the materials will be procured domestically. Even in this case, domestic plush manufacturers (including weaving to finishing) will have to rely almost completely on imports for their own raw materials. Domestic production of plush raw materials probably cannot be expected even in the future in view of the size of the domestic market. As another outside effect, if existing plush manufacturers currently considering the export markets as their main clients could increase their production of plush for a domestic stuffed toy industry, they would be able to secure that much stabler a market, which in turn would contribute to stronger export capabilities of plush.

The stuffed toy industry is primarily an export-oriented industry, so an increase in production would signify an increase in exports, but since the industry relies on imports for almost all the necessary raw materials, the foreign currency which could be earned would be cancelled out by the amount expended for imports of raw materials and therefore would total only 2.5 million pesos. If the use of domestic plush increases, however, the foreign currency generating effect would become that much greater. In addition, export competitiveness of plush would be strengthened and an increase of exports could be expected.

The increase in stuffed toy production could be expected to be accompanied by a job creating effect only in the stuffed toy industry, inclusive of subcontractors. Further, only 3.2 jobs a year would be created per million peso annual increase in production. In the materials industry (plush manufacturers), even if use of domestically made plush increases in the future, not much of an increase in employment could be expected due to the large surplus facility capacity per unit employer.

#### c) Wooden Furniture Industry

The wooden furniture industry uses mostly domestically produced lumber as its raw materials, so an increase in production in that industry could be expected to have a ripple effect on the lumber industry and forestry sector (585,000 pesos). As opposed to this, there would be little of a ripple effect on auxiliary materials, the majority of which are currently imported. Adding the secondary and further ripple effects, the total effect would be 648,000 pesos. The wooden furniture being made is either consumed in the domestic market or exported as is without further processing, so no forward linkage effect can be expected.

Note that when the technical capabilities are improved in the future and shipments of furniture to the export market, which are currently made in a sanded frame state, can be made as final products, this would contribute to an increase in the domestic added value.

About 10 percent of the total production of the wooden furniture industry is currently destined for export. In implementing the promotional and development plans, no increase in domestic demand has been envisioned. All of the increase in production is considered to be for the export market. The increase in export-oriented production would be accompanied by an increase in imports of auxiliary materials (158,000 pesos), so the foreign currency earned by an increase in exports would be reduced to that amount and come to 842,000 pesos.

The employment inducing effect accompanying an increase in wooden furniture production could be expected to be 5.8 and 9.4 jobs in the wooden furniture industry sector and the lumber industry and forestry sector, respectively. The wooden furniture industry, however, has surplus facility capabilities and until that is completely absorbed, the job creating effect would be limited to the equivalent of 2.3 jobs in outside contracting costs per annual million peso increased production.

#### d) Computer Software Development Industry

The backward linkage effect (ripple effect on raw material industries) of computer software development and the data entry industry would in major part be that accompanying the use of computer hardware. In the case of the Philippines, however, all of the hardware is imported, so the ripple effect on domestic industry would be limited to the knockdown production, sale, and repair of hardware, the use of supplies, the communications network and the accompanying service sector, and the sector for education and training of programmers, SE's, SA's, and other technical personnel. The scale of the same would also not be that great, it is believed.

The forward linkage effect (ripple effect on user sector) would be the ripple effect due to computer software being developed and data being entered domestically. At the present time, however, the subsector is export-oriented. Even if computer software was not developed domestically, the users (most financial and life insurance-related sectors) could farm out the development overseas, in which case no ripple effect could be expected.

This subsector is an export industry. Any increase in production (software development and data entry) accompanying implementation of the promotional and development plans would be for the export markets. Since all of the hardware used, however, would be imported, the amount of foreign currency earned along with the exports would be reduced out by that amount (however, there is a considerable surplus capacity in the currently owned hardware and it is inconceivable that an increase of development work would necessarily led directly to an increase in hardware).

When development technology is improved in the future, import substitution can be expected for that part of the domestic user demand for software development which overseas development companies are currently relied on for.

The job creation effect would be almost completely limited to the subsector. It would be 13.71 jobs a year for software development and 26.09 jobs for data entry.

#### e) Costume Jewelry Industry

The costume jewelry industry uses domestic resources for its raw materials. There may be a ripple effect on the sectors which collect the materials, such as the forestry sector and the fishery sector, but 40 percent of the input is labor, so the ripple effect on the raw material sector, inclusive of the secondary and further ripple effects, would be a small 147,000 pesos. Imports are relied on for the metal settings etc. The percentage of imported settings will increase more and more and the percentage of domestically produced natural materials will fall if the medium and high grade product markets are focused on in the future.

The products are all final products, so no forward linkage ripple effect can be expected.

The increase in production of costume jewelry would be substantially 100 percent for exports, so a foreign currency generating effect could be expected, but part of this would be cancelled out by the accompanying imports of settings, so the result would be 950,000 pesos. Along with the increasing focus on the medium and high grade product markets in the future, the unit price of exports will rise, but the percentage of imports of settings will also increase. Import substitution can be expected if overseas setting manufacturers are enticed to the Philippines.

An employment inducement effect can be expected in this subsector and the material gathering sectors, but the effect in the material gathering sectors would be small and the overall effect would be 28.7 jobs a year. Further, if the target markets change in the future and the metalworking sector increases in importance, the job creating ripple effect on the material gathering sectors will become even smaller. This subsector is a labor intensive industry, so an employment inducement effect can be expected if overseas setting manufacturers are persuaded to invest in the Philippines.

#### f) Oleochemical Industry

The oleo chemical industry uses mainly coconut oil as its raw material. The production of coconut oil may be expected to have a ripple effect (total 520,000 pesos) on the coconut production sector. If the secondary and further effects are added, the total will come to 815,000 pesos.

The oleo chemical industry of the Philippines primarily engages in the production of basic substances. While there is a possibility of production of derivatives, since 1) the domestic market is small and 2) the investment environment (including technical infrastructure) is not sufficient, there is a lack of incentive to investment for the export markets and thus there are little prospects that this will happen. Not much can be expected in the way of forward linkage effects (ripple effects on user industries).

If production of the oleo chemical industry increases, there is a good chance of: 1) exports or 2) substitution of petrochemical products previously produced domestically. Whatever the case, this would have a foreign currency earning or saving effect. Imports, however, would have to be relied on for almost all the chemicals needed for the

production and that increase would cancel out 223,000 pesos of this, so the overall foreign currency earned would come to 777,000 pesos.

An employment inducing effect may be expected in the coconut oil refining sector and the coconut production sector, but this would be relatively small. Also, it is estimated that there is a potential surplus labor force in the coconut production sector and there are doubts as to if the effect would surface as new employment (though it would lead to a rise in the income of the workers in this sector by that amount).

A comparison of the social and economic effects of the promotion and development of the subsectors is shown in Table A-7 and the social and economic effects of the priority projects are shown in Table A-8.

**Table A-1: Expected Socioeconomic Effects of Increases In Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Die Making for Metals**

Type of Effects	Effects per 1 million pesos increase in annual production	Remarks
1) Spread effects on :	(Unit : thousand pesos)	
a) Raw material industries	Primary spread effects: minimal Secondary & further spread effects: 616	
b) Users industries	Parts processing industries: 2,850 Secondary & further spread effects: 1,268 Total 4,118	Calculation based on the amount of metal processing products shipments per amount of die and mold shipments in Japan (1984).
2) Earning/saving effects of foreign currencies	Decrease in parts import: 2,850 Increase in machinery & raw materials imports for die making: - 650 Increase in machinery & raw materials for parts manufacturing: - 1,425 Net effects 775	In addition, there is a possibility in the future of exports of dies and mold by a setup wherein the final finishing processes are done in developed countries.
3) Effects on induction of employments	(Unit: person-year)	
	Die making industry 2.29 Parts processing industry 10.26 Other industries 2.61 Total 13.82	
4) Other effects	Contribute to technology upgrading of whole metal engineering industry. Promote local production of dies for plastic molding.	

Notes: 1. The primary spread effects from the sector to related sectors are estimated based on the average cost composition. The secondary spread effects from the sector and related sectors are estimated based on Matrix of Inverse Coefficients (66 x 66) of 'The Interindustry Accounts of the Philippines 1983 update'. In addition, 'Annual Survey of Establishments, 1986' is used for calculating the effects on induction of employment.

2. Estimated average cost composition:

Raw materials	49.0%
Labor	8.0%
Depreciation & maintenance	24.0%
Sales & management	1.0%
Profit	18.0%
<b>Total</b>	<b>100.0%</b>

**Table A-2: Expected Socioeconomic Effects of Increases in Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Stuffed Toys**

Type of Effects	Effects per 1 million pesos increase in annual production	Remarks
1) Spread effects on:	(Unit : thousand pesos)	
a) Raw material industries	Almost all main raw materials are imported, therefore the spread effect will be much limited.: 33	If the local plush is used entirely by the industry, the spread effects would be 698,000 pesos (In the plush manufacturing sector, the primary and the secondary spread effects would be 563,000 and 135,000 pesos respectively.)
b) Users industries	Minimal	
2) Earning/saving effects of foreign currencies	Increase in exports: 1,000 <u>Increase in raw materials imports: -750</u> Net effects: 250	More use of local plush will suppress the imports of raw materials up to 187,000 pesos (The net effects will be increased to 813,000 pesos). And strengthening export competitiveness of plush might increase the amount of export.
3) Effects on induction of employments	(Unit: person-year) Stuffed toys sector: 3.12 <u>Other sectors: 0.07</u> Total 3.19	
4) Other external effects	Usage of local plush will increase, thus export competitiveness of plush will be strengthened.	

Notes: 1. See Table A-1 note 1.

2. Estimated average cost composition:

Raw materials	75.0% ( of which, plush 75% )
Labor	8.7%
<u>Others</u>	<u>16.3%</u>
Total	100.0%

**Table A-3: Expected Socioeconomic Effects of Increases in Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Wooden Furniture**

Type of Effects	Effects per 1 million pesos increase in annual production	Remarks
1) Spread effects on:		
	(Unit : thousand peso)	
a) Raw material industries	Lumber & forestry sector: 585 <u>Other industrial sectors: 63</u> Total 648	
b) Users industries	Minimal	
2) Earning /saving effects of foreign currencies	Increase in furniture exports: 1,000 Increase in auxiliary materials imports: <u>-158</u> Net effects 842	
	(Unit: person·year)	
3) Effects on induction of employments	Wooden furniture sector: 5.84 Lumber & forestry sector: 9.40 <u>Other industrial sectors: 0.73</u> Total 15.97	The industry has surplus facility capabilities and the job creating would be limited to outside contracting costs. (2.34 person·year)

Notes: 1. See Table A-1 note 1.

2. Estimated average cost composition:

Raw materials(direct & indirect):	37.3%	(wood 78.7%)
Labor(direct, indirect & outside contracting):	43.5%	(contracting cost 31.0%)
Utility:	2.9%	
Maintenance:	6.1%	
Depreciation:	7.8%	
<u>Others</u>	<u>2.4%</u>	
Total	100.0%	

**Table A-4: Expected Socioeconomic Effects of Increases in Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Computer Software**

Type of Effects	Effects per 1 million pesos increase in annual production		Remarks
1) Spread effects on:	(Unit : thousand pesos)		
a) Raw material industries	Minimal		
b) Users industries	Minimal		
2) Earning/Saving effects of foreign currencies	Increase in	Software development      Data entry	There is a considerable surplus capacity in the currently owned hardware, therefore, imports of hardware will be less.  When development technology is improved in the future, import substitution can be expected for the part of software development ordered out to foreign firms.
	Software exports:	1,000      1,000	
	Hardware imports:	-150      - 200	
	Net effects	850      800	
3) Effects on induction of employments	(Unit: person·year)		
	Software development	13.71	
	Data entry	26.09	
4) Other effects	Contribute to promotion of computerization of the Philippines.		

Notes: 1. See Table A-1 note 1.

2. Estimated average cost composition:

	Software development	Data entry
Labor	48.0%	60.0%
Depreciating & leasing of hardware	15.0%	20.0%
Others	30.0%	15.0%
Profit	7.0%	5.0%
Total	100.0%	100.0%



**Table A-5: Expected Socioeconomic Effects of Increases in Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Costume Jewelry**

Type of Effects	Effects per 1 million pesos increase in annual production	Remarks
1) Spread effects on:	(Unit : thousand pesos)	
a) Raw material industries	Forest sector: 30 Fishery sector: 70 <u>Other industrial sectors: 47</u> Total 147	The percentage of imported parts will increase and spread effects for parts will decrease if the upper class markets are focused on. However, if the metal parts are produced locally, the spread effect will increase.
b) Users industries	Minimal	
2) Earning/saving effects of foreign currencies	Increase in exports: 1,000 Increase in imports of metal parts & others : <u>-50</u> Net effects 950	If the industry shifts it's target market to the upper class, the percentage of imported parts increase. If these parts are produced locally, the percentage decrease.
3) Effects on induction of employments	(Unit: person·year)	
	Costume jewelry 26.67 Lumber 0.48 Fishery 1.46 <u>Other industrial sectors 0.10</u> Total 28.71	

Notes: 1. See Table A-1 note 1.

2. Estimated average cost composition:

Raw materials	
Natural:	10.0%
Imported parts (metal):	5.0%
Labor	40.0%
Machine & equipment	1.0%
Others	30.0%
<u>Profit</u>	<u>14.0%</u>
Total	100.0%

**Table A-6: Expected Socioeconomic Effects of Increases in Production as a Result of  
the Promotion and Development of the Project  
Sub-sector: Oleochemicals**

Type of Effects	Effects per 1 million pesos increase in annual production	Remarks
1) Spread effects on:		
	(Unit : thousand pesos)	
a) Raw material industries	Coconut oil and coconut production sector: 520 <u>Other industrial sectors: 295</u> Total 815	
b) Users industries	Minimal	
2) Earning/saving effects of foreign currencies	Increase in exports and import substitution: 1,000 <u>Increase in auxiliary materials imports: -223</u> Net effects 777	Import of raw materials of petrochemical products will be decreased by import substitution of Oleochemicals. (Better effect is expected due to that substitution rate for petrochemical is larger than that for oleochemical.)
	(Unit: person-year)	
3) Effects on induction of employments	Oleochemical sector: 3.24 Coconut oil & coconut production sectors: 0.28 <u>Other industrial sectors: 0.61</u> Total 4.13	

Notes: 1. See Table A-1 note 1.

2. Estimated average cost composition:

Raw materials:	74.3%	(coconut oil 70%, auxiliary materials 30%)
Labor(direct & indirect):	13.6%	
Utility:	2.5%	
Maintenance:	2.1%	
Depreciation:	3.0%	
<u>Others</u>	<u>4.5%</u>	
Total	100.0%	

**Table A-7: Estimation of Socioeconomic Effects in Each Sub-sector**

Assumption Subsectors	Increase of Production of 1 mil. pesos			Increase of Export of 20%			Increase of Export of 40%			Reference *2)		
	*1) Induction of Production (1,000 pesos)	Earning/Saving of Foreign Currencies (1,000 pesos)	Induction of Employment (persons /year)	*1) Induction of Production (1 mil. pesos)	Earning/Saving of Foreign Currencies (1 mil. pesos)	Induction of Employment (persons /year)	*1) Induction of Production (1 mil. pesos)	Earning/Saving of Foreign Currencies (1 mil. pesos)	Induction of Employment (persons /year)	(a) Philippine Exports	(b) World Exports	(c) Share
Wooden Furniture	1.648	842	16.0	213.6	109.1	2.074	427.2	218.2	4.147	(a) 475 (1988), 548 (1990) (b) 347.03 (1988) *3 (c) n. a.		n. a.
Die Making for Metals	5.734	775	13.8	1.344.7	181.7	3.236	2.690.4	363.6	6.475	(a) 1.173 (1990) *4 (b) 1.054.688 (1988) (c) n. a.		(a) n. a. (b) About 10% z.
Computer Software	1.000	850	13.7	81.0	68.9	1.110	162.0	137.7	2.219	(a) 137 (1988) *3, 405 (1990) (b) 47.520 (1990) (c) n. a.		n. a.
Stuffed Toys	1.033	250	3.2	66.3	16.1	205	132.6	32.1	411	(a) 176 (1989), 321 (1990) (b) 49,178 (1990) (c) 0.7% (1990)		(1980-1987) (a) -1.5% z. (b) 14.3% z.
Costume Jewelry	1.147	950	28.7	201.9	157.2	5.051	403.7	334.4	10.102	(a) 516 (1988), 875 (1989), 880 (1990) (b) 51,308 (1988) (c) 1.0% (1988)		(1983-1988) (a) 27.3% z. (b) 24.2% z.
Oleochemicals	1.815	777	4.1	432.8	206.7	1.091	965.6	413.4	2.161	(a) 1.958 (1988), 1.802 (1989), 1.830 (1990) (b) n. a. (c) n. a.		(1980-1990) (a) -2.3% z. (b) n. a.

Notes: \*1) Including its own sub-sector  
\*2) Unit: (a) 1 mil. pesos  
(b) 1 mil. pesos  
(c) % / year, 1 U.S. dollar = 27 pesos

\*3) Estimates for 1987

\*4) Estimated demand of dies and molds for 1986, on the assumption that they accounted for 20% of the production of electric/transportation machinery.

**Table A-8: Evaluation and Socioeconomic Effects of Top Priority Projects**

Project	Purpose of Project	Evaluation as Gov't-led Project	Socioeconomic Effects					Assumption for Estimating Effects	
			Induction of Production (1 mil. pesos)	Earning/Saving of Foreign Currencies (1 mil. pesos)	Induction of Employment (persons/year)	Increase of Export (%)	Effect Rates (%)	Effect Rates (%)	
								Effect Rates (%)	
1. All-out export promotion efforts.	Strengthening of export marketing activities.	270	152.7	105.5	2,362	20% 20% 10% 40%	20% 20% 10% 40%	0.25	
2. Development/activation of industrial associations.	Improvement of technology/production management, marketing, and management in firms.	290	531.6	120.0	2,215	20% 10%	20% 10%	0.60	
3. Establishment of the central laboratory to promote QC/standardization.		250 *	88.6	20.0	359	20% 10%	20% 10%	0.10	
4. Establishment of a training center for computer software development.		280	64.8	55.1	388	40%	40%	0.40	
5. Establishment of regional industrial promotion centers.		220	166.2	110.5	2,850	20% 20%	20% 20%	0.40	
6. Establishment of the Machinery Processing Industry Upgrading Assistance Center.	Support for improvement of industries through betterment of infrastructures, technical infrastructures, education/training systems, and financial systems.	250	269.0	36.4	647	10%	10%	0.40	
7. Strengthening of coconut R&D activities.		210	36.2	15.5	82	5%	5%	0.30	
8. All-out efforts for investment promotion.		220 *	217.6	73.4	1,749	20% 20% 10%	20% 20% 10%	0.20	
9. Establishment of modernization loans for sub-sector industrial development.		220	177.2	40.0	738	20% 10%	20% 10%	0.20	

Note: \*) These projects cannot be evaluated in the same criteria since they are to be led by the government.

## Annex 2: Assumptions in Estimate of Costs of Project for Establishing Central Laboratory for Promotion of Quality Control and Industrial Standardization

1. **Contract System:** The contracts were assumed to be full package contracts for each project. The costs of the equipment and facilities included design, engineering, fabrication, adjustment, packaging, and transport up to the port of loading and assumed FOB at the port of loading. The local installation work would, it was presumed, be handled by the Philippine government side. The suppliers of the equipment and facilities, it was considered, would provide guidance in installation, make the test runs, and, further, provide training in basic technical matters in the training of the staff.
2. **Base Year for Calculating Prices:** The prices were calculated based on prices as of September 1989.
3. **Currency and Conversion Rates:** It was decided to indicate both the local currency portions and foreign currency portions in Japanese yen. The conversion rate with the peso used was 1 peso = 6.61 yen.
4. **Level of Estimate of Required Funds:** The requisite funds are a rough estimate based on market prices based on the plans for the facility and the list and summary of the facilities and equipment.

### 5. Conditions in Adding Items

- (1) **Costs of Land Acquisition and Costs of Preparation:** The land for the implementation of the projects, it is assumed, will be owned by the Philippine government and will have already been prepared as a site for construction. Therefore, no land acquisition costs or preparation costs have been included in the calculations.
- (2) **Building Construction Costs:** The cost of building construction in the case where it is necessary to construct new buildings or expand existing ones was calculated on the basis of the following unit costs of construction. The unit costs of construction were obtained by adding to the estimated unit costs of the Department of Trade and Industry a rough estimate of the funds required for special specifications for projects where an increase in the foreign currency costs is expected due to those special specifications. The estimated unit costs of construction per unit area are as follows:

Metro Manila region:	17,000 P/m <sup>2</sup> (interior work unit cost 3,000 P/m <sup>2</sup> )
Cebu region:	16,000 P/m <sup>2</sup> (interior work unit cost 3,000 P/m <sup>2</sup> )
Cagayan de Oro region:	14,000 P/m <sup>2</sup> (interior work unit cost 3,000 P/m <sup>2</sup> )
Davao region:	14,000 P/m <sup>2</sup> (interior work unit cost 3,000 P/m <sup>2</sup> )

Note that attention must be paid to the special nature of the facilities of the buildings, i.e., the costs for installation of facilities and equipment and the power facilities. Special study is required before implementation.

- (3) **Testing and Measuring Equipment and Facilities:** The purchasing cost of the imported equipment is assumed to be the FOB estimate in port. Note that the "other" item includes the overseas shipping cost, the marine insurance cost, the local unloading cost, the inland shipping cost, the cost of installation of the facilities and equipment, the technical guidance charges, the costs of spare parts for repairs, the software costs, and other extra costs.

- (4) Interest During Construction Period: Interest during the construction period was calculated and entered for parts of the project where the from the loading on ships to the start of operation would be one year or more.
- (5) Import Duties: As of the time of the field survey, a 20 percent import duty was applied to equipment and facilities in the Philippines. In the import of the present test facilities, however, it was assumed that the import duties would be waived.

Table A-9: Equipment List of General Testing Laboratory (1)

Name	Quantity	Name	Quantity	Name	Quantity
<u>1. Testing Equipment</u>		<u>Non destructive examination</u>		<u>Resistance</u>	
1-1 Mechanical		X-ray projector	1	Precision wheatstone bridge	3
<u>Dimension</u>		Ultrasonic thickness meter	1	Precision double bridge	1
Long tape	1 set	Others	1 set	Others	1 set
Ruler	1 set	<u>Preparation</u>		<u>Temperature measurement</u>	
Caliper	1 set	Band saw	1	Digital thermometer	2
Micrometer	1 set	Mechanical sander	1	Hybrid recorder	3
Thread gauge	1 set	Vice	1	Others	1 set
Profile projector	1 set	Jack	1	<u>Thermal</u>	
Others	1 set	Others	1 set	Temp/humichamber	1 set
Balance	1 set	<u>Thermal</u>		Temperature chamber	1 set
Balance	1 set	High temperature chamber	1		
Balance table		<u>Specific equipment</u>		<u>Light</u>	
<u>Tensile property</u>		High pressure water pump	1	Photometric integrated sphere	1
Autograph	1 set	Battery life tester	1	Photometric measuring system	1
Universal testing machine	1 set	Boil test apparatus	1	Flux meter	1 set
Schopper tensile testing equipment	1	Moisture meter	1	Standard lamp of flux	3
Others	1 set	Water bath	1	Endurance test rack	1 set
<u>Impact</u>		Tire endurance testing machine	1	Others	1 set
Pendulum impact tester	1	Others	1 set	<u>Wave form</u>	
Others	1 set	<u>1-2 Electrical</u>		Oscilloscope	2
<u>Hardness</u>		<u>Basic equipment</u>		Frequency meter	1 set
Hardness tester (Vickers)	1	Watt-meter	1 set	Others	1 set
Others	1 set	Voltmeter	1 set	<u>Power supply</u>	
<u>Compression</u>		Ammeter	1 set	Voltage regulator	1 set
Hydraulic tester	1	Digital multimeter	1 set	DC power supply source	1 set
Others	1 set	Insulation resistance meter	3	Volt slider	1 set
<u>Torsion</u>		Digital power meter	1	Pulse generator	1 set
Torque meter	1 set	Dielectric strength tester	5	Others	1 set
Others	1 set	Others	1 set	<u>Endurance</u>	
<u>Vibration</u>		<u>Dimension</u>		Life test rack	1
Vibration tester	1	Long tape	1 set	Endurance test apparatus	1 set
Others	1 set	Ruler	1 set	Switch endurance tester	1
<u>Friction</u>		Caliper	1 set	Others	1 set
Friction testing machine	1	Micrometer	1 set	<u>Specific equipment</u>	
Others	1 set	Automatic indicator	1 set	Safety tool kit	1 set
<u>Optical</u>		Thickness gauge	1 set	Test corner	1
Light projection unit	1	Lampholder gauge	1	Ball pressure test apparatus	2
Others	1 set	Starterholder gauge	1	Glow wire test apparatus	1
		Others	1 set	Flame test hood	1
				Impact test apparatus	1
				Tumbling barrel	1

**Table A-9: Equipment List of General Testing Laboratory (2)**

Name	Quantity	Name	Quantity	Name	Quantity
Artificial rain drop test apparatus	1	Others	1 set	Variable resistor	1 set
Dust chamber	1			Variable resistor	
Others	1 set	2-3 Volume		Electrical power measurement	
1-3 Chemical		Standard flask	1 set	AC/DC power comparator	1
Basic equipment		Standard pipette	1 set	Measuring set for power meter source	1
Muffle furnace	2	Standard burette	1 set	Digital power meter	1 set
Hot plate	2	Standard tank	1 set	Others	1 set
Temperature oven	2	Others		Capacitance measurement	
Water bath	1	2-4 Force		Standard capacitor	1 set
pH meter	1	Standard proving ring	1 set	Digital LCR meter	1
Others	1 set	Load cell	1 set	Others	1 set
Analysis equipment		Others			
UV-VIS spectrophotometer	1	2-5 Pressure		2-8 Temperature	
Tubidimeter	1	Deadweight piston gauge	1 set	Comparative calibration equipment	1
Karl Fischer titrating apparatus	1	Liquid column pressure gauge	1 set	Thermocouple/resistance auto	1 set
Atomic absorption spectrophotometer	1	Others	1 set	Calibration system	1
Others	1 set	2-6 Photometry		Saltmeter bath	1
Physical testing		Standard radiant detector	1	Others	1 set
Dimension measuring equipment	1 set	Spectral radio meter	1 set		
Balance	1 set	Flux meter	1 set	3 Office equipment	
Balance table	1 set	Photometric bench	1	3-1 Testing and calibration room	
Sharp impact tester	1	Standard lamp	1 set	Testing table	30
Isot impact tester	1	Others	1 set	Working desk	35
Accelerated aging test apparatus	1	2-7 Electrical		Data cabinet	30
Others	1 set	DC voltage and current measurement		Tool locker	15
Facility		Standard coil	5	Blackboard	5
Table center	6	Voltage standard	1	Shelf	15
Sink	5	Differential voltmeter	1	Chair	55
Fume hood	3	Others	1 set		
Storage cabinet	2	AC voltage and current measurement		3-2 Office room	
Glasswear	1 set	AC/DC comparator	1	Desk	50
Others	1 set	AC standard voltage source	1	Chair	50
2. Metrological equipment		Others	1 set	File cabinet	20
2-1 Length		Resistance calibration system		Locker	20
Standard scale	1 set	D.C.C.B	1	Shelf	10
Comparator for scale	1	Extender	1	Blackboard	2
Gauge block	1 set	Others	1 set	Copying machine	1
Electronic micrometer	1	High resistance calibration system		Typewriter	1
Others	1 set	High resistance measuring set	1	Others	1
2-2 Mass		Resistance transfer standard	1 set	3-3 Testing/calibration staff room	
Standard weight	1 set	Others	1 set	Desk	20
Precision hand operated balance	1			Chair	20
Direct reading balance	1 set			File cabinet	10
Balance table	1 set			Shelf	10
				Blackboard	2



Table A-9: Equipment List of General Testing Laboratory (3)

Name	Quantity	Name	Quantity	Name	Quantity
3-4 Information service room					
Computer	1 set				
Copying machine	1				
Work table	5				
Desk	3				
Chair	3				
Blackboard	1				
Others	1 set				
3-5 Director room					
Desk	1				
Chair	1				
Desk for secretary	1				
Chair for secretary	1				
Typewriter	1				
Others	1 set				
3-6 Meeting room					
Table	10				
Chair	21				
3-7 Automobile					
Wagon for factory inspection	1				
Wagon for calibration service	1				
3-8 Others					
Test drainage treatment system	1				
Power generator	1				







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