

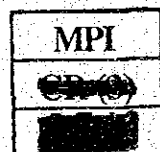
**STUDY ON INDUSTRIAL SUB-SECTOR
DEVELOPMENT IN THE REPUBLIC OF
THE PHILIPPINES**

FIRST YEAR FINAL REPORT

(SUMMARY)

April 1991

Japan International Cooperation Agency (JICA)

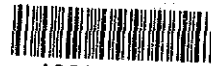


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Japan International Cooperation Agency (JICA)

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CONTENTS

I. Introduction	I-1
1. Survey Background	I-1
2. Survey Objectives	I-1
3. Industries to be Surveyed	I-1
4. Survey Items	I-2
5. Survey Methodology	I-3
6. Schedule of Surveys	I-3
II. Summary of Policy Review	II-1
1. Industrial Development Policies	II-1
2. Investment and Trade Policies	II-6
3. A Financial System for the Development of Sub-sectors	II-12
III. Summary of Sub-sector Study Results and Issues	III-1
1. Metal Engineering (Die Making for Metals)	III-1
2. Wooden Furniture Industry	III-10
3. Computer Software and Services	III-20
IV. Framework of Development Programs and Recommendation on Programs	IV-1
1. Metal Engineering (Die Making for Metals)	IV-1
2. Wooden Furniture Industry	IV-15
3. Computer Software and Services	IV-31

LIST OF FIGURES & TABLES

Table I-1	Details of Field Survey	I-4
Table I-2	Geographical Areas Covered by Field Survey	I-4
Table I-3	Details of Questionnaire Survey in Japan	I-5
Table I-4	Countries Covered by Survey of Third Countries	I-5
Fig. III-2-1	Schematic Representation of Wooden Furniture Industry Promotion	III-19
Fig. IV-1-1	Basic Concept of Development Strategy for Die-making Sub-sector	IV-9
Table IV-1-1	Objectives and Development Programs for the Die Making Industry	IV-10
Fig. IV-1-2	Die Making Industry: Development Stages and Expected Effects of Development Projects	IV-11
Table IV-1-2	Outline of Development Programs for the Die Making Industry	IV-12
Fig. IV-2-1	Problems for the Wooden Furniture Industry and the Development Plan	IV-25
Fig. IV-2-2	Wooden Furniture Sub-sector: Development Stages and Expected Effects of Development Projects	IV-26
Table IV-2-1	Outline of Development Programs for the Wooden Furniture Industry	IV-27
Table IV-2-2	Objectives and Development Programs for the Wooden Furniture Industry	IV-30
Table IV-3-1	Objectives and Development Programs for the Computer Software Industry	IV-39
Table IV-3-2	Summary of Development Program for Promotion of Computer Software Industry	IV-40
Fig. IV-3-1	Computer Software: Development Stages and Expected Effect of Each Project	IV-43
Fig. IV-3-2	Targets to Be Achieved by Software Companies	IV-44

I. Introduction

I. Introduction

This is the final report for the first year of surveys conducted under the Industrial Sub-sector Development Program in the Republic of the Philippines.

The surveys were begun in March 1990 on the basis of the Scope of the Study signed between the Department of Trade and Industry (DTI) of the Philippine government and the Japan International Cooperation Agency (JICA) on October 6, 1989. The final report was completed in April 1991.

1. Survey Background

Economic reconstruction, and particularly the repayment of external debt amounting to \$30 billion, alleviation of poverty, democratization of economy and society, enhancement of employment opportunities, and establishment of equality and social justice were some of the issues facing the Aquino administration, inaugurated in February 1986.

Accordingly, the administration drew up a medium-term (1987-1992) development plan and grappled with the restoration of social order, improvement of efficiency in the government sector, economic development in the provinces, agrarian reform, promotion of local and foreign investment, and promotion of exports centering on *non-traditional products*.

Economic recovery, increased foreign investment, and a multilateral assistance initiative with the reduction of debts as its primary object materialized during the period. However, a rebellion of part of the AFP occurred in December 1989, and natural and man-made disasters such as droughts, earthquakes, typhoons, power stoppages and the deterioration of public peace and order broke out in 1990. The Gulf crisis, which started in August, brought about higher oil product prices and less remittances from Filipinos working in the Middle East. Thus, the economic performance of the country worsened quickly.

In the future as well, industrial development and export promotion will be indispensable for the management of the country's economy, though it is hard to steer because of many restraints.

2. Survey Objectives

The surveys aim at studying and analyzing sub-sectors and products regarded as promising for export in the future and drawing up a comprehensive export promotion program. Also, as a means of promoting joint ventures and technological tie-ups between Japan and the Philippines, information about firms desiring to engage investment and joint ventures should be prepared.

It should also be noted that the implementation of these surveys should facilitate the transfer to the Philippine side of fundamental knowledge and know-how on industries, products, and the improvement of marketing methods.

3. Industries to be Surveyed

The following sub-sectors were surveyed in the first year:

Metal engineering (die making for metals)

Wooden furniture
Computer software and services

4. Survey Items

The surveys were implemented in line with the following items provided in the Scope of the Study.

- (1) Overview of the selected sub-sectors and products
 - 1) Production items in each sub-sector
 - 2) Volume and value of production and quality of products
 - 3) Volume and value of exported and imported products and their quality
 - 4) Number of firms classified by size and number of employees
 - 5) Profile of leading firms

- (2) Overview of the industrial development policies and related measures of the government as well as the infrastructure for nurturing the selected sub-sectors and products
 - 1) Administrative and policymaking organs
 - 2) Sector development
 - 3) Export promotion
 - 4) Promotion of investment and technological tie-ups
 - 5) Tax system
 - 6) Financial system

- (3) Overview of current problem areas in the selected sub-sectors and products
 - 1) Manufacturing processes
 - 2) Technological level (equipment and technology)
 - 3) Plant management and quality control
 - 4) Production development and design
 - 5) Management of firms (labor-management relations, training of employees, financial management, etc.)
 - 6) Raw material purchases and relations with supporting industries (subcontractors and parts suppliers)
 - 7) Cost analysis
 - 8) Marketing strategies

- (4) Surveys of markets and policies classified by sub-sectors and products
 - 1) Production, exports and imports by and of the specified sub-sectors and products
 - 2) Competitiveness of the specified sub-sectors and products with competing countries
 - 3) Marketability in importing countries of the sub-sectors and products

- (5) Formulation of a master plan for nurturing the selected sub-sectors and products
 - 1) Improvement of policies and systems
 - 2) Improvement of technologies
 - 3) Improvement of product and design development systems
 - 4) Improvement of quality and reduction of cost

- 5) Improvement of management and training of employees
- 6) Creation of networks for sales and marketing
- 7) Improvement of financial and taxation systems

(6) Provision of information for the promotion of investment and technological tie-ups in the selected sub-sectors and products

- 1) Compilation of a list of Japanese firms having interest in investment
- 2) Compilation of a list of Philippine firms desiring joint ventures or technological tie-ups
- 3) Collection of information about the above-mentioned firms

5. Survey Methodology

On the basis of preparatory and advance surveys conducted by JICA, the Study Team adopted a deductive approach by which hypotheses of planned scenarios which would be eventually proposed were set up in advance and verified through field surveys, etc.

Work in concrete terms was as follows:

(1) Advance preparations

- 1) Collection and analysis of existing materials and statistics
- 2) Drawing up of detailed plans for field surveys and domestic work
- 3) Preparation of an inception report and survey flowchart
- 4) Formulation of the questionnaire

(2) Field surveys

- 1) Explanation of the inception report and consultations on planned surveys
- 2) Gathering of information through interviews and discussions with related organs
- 3) Field surveys at the related firms or factories
- 4) Formulation and filing of the progress report
- 5) Filing of an interim report, discussions about the program and supplementary surveys

(3) Third country surveys

Surveys of third countries were conducted through the study of written materials and surveys commissioned through JETRO overseas offices.

(4) Domestic work

- 1) Compilation and analysis of field surveys
- 2) Compilation and analysis of third country surveys
- 3) Interviews, field surveys, questionnaires for related domestic firms and analysis of the results
- 4) Overview and study of problems in concrete terms
- 5) Formulation and study of the interim report
- 6) Preparation of a comprehensive program and compilation of the final report

6. Schedule of Surveys

First field survey

March 15 - March 29, 1990

Second field survey	June 4 - August 17, 1990
Interim consultations and supplementary surveys	November 11 - November 22, 1990
Draft final consultations	March 11 - March 19, 1991
Domestic questionnaires	June - August 1990
Third country surveys	July - September 1990

In-depth interviews were used for the field surveys. A total of 214 such interviews were made and a total of 373 questionnaires collected. A breakdown by sub-sectors is shown in Table I-1. Geographical areas covered by the field surveys in the Philippines are shown in Table I-2.

Table I-1: Details of Field Survey

Sub-sector	In-depth 1st	Interviews ^(a)			Questionnaires Collected	Remarks
		2nd	3rd			
Metal engineering	7	58	8	74 ^(b)	Complete count	
Wooden furniture	10	54	5	226 ^(c)	Sample survey ^(e)	
Computer software	10	57	5	73 ^(d)	Complete count	

- Notes: (a) In-depth interviews were conducted with private companies, a small number of institutions, universities and other organizations.
(b) A total of 120 questionnaires were distributed.
(c) A total of 350 questionnaires were distributed.
(d) A total of 140 questionnaires were distributed.
(e) The sample survey was conducted mainly on CFIP (Chamber of Furniture Industry of the Philippines) registered firms which were beginning to venture into exports.

Table I-2: Geographical Areas Covered by Field Survey

Sub-sector	Areas Covered
Metal engineering	Metro Manila, Laguna, Cebu
Wooden furniture	Metro Manila, Pampanga/Angeles, Cebu, Davao
Computer software	Metro Manila

For the efficient implementation of the field survey, the following local consultants were engaged to distribute questionnaires, assist in their completion, collect and tally them.

Metal engineering / Small Enterprises Research and Development Foundation of the Philippines
Wooden Furniture / Chamber of Furniture Industry of the Philippines
Computer Software and Services / Philippine Computer Society

Table I-3: Details of Questionnaire Survey in Japan

Sub-sector	Companies Covered	No. of Companies	Study Items
Metal engineering	Manufacturers	249	<ul style="list-style-type: none"> • Business relations with related industries and firms in the Philippines and Japan • Appraisal of Philippine-made dies and molds and expectations for them
Wooden Furniture	Manufacturers	104	<ul style="list-style-type: none"> • Problems with the products of Japanese manufacturers and the possibility of overseas investments and technological tie-ups • Possibilities for interchanges between the industries of Japan and the Philippines
Computer Software	Software Houses	296	<ul style="list-style-type: none"> • Degree of interest in business with Asian countries including the Philippines

Table I-4: Countries Covered by Survey of Third Countries

Sub-sector	Export Markets	Competing Countries
Metal Engineering		Singapore, Thailand
Wooden Furniture	U.S.	Indonesia
Computer Software	U.S., Canada	Singapore, Thailand

This survey was implemented by a joint venture formed between JETRO (Japan External Trade Organization) and Unico International Corporation. The study team was composed of the following members.

Team leader/General Affairs	Mr. Tamaichi MATSUMOTO	JETRO
Sub-leader/Export and investment promotion plan	Mr. Nobuo KOBAYASHI	"
Export industry promotion plan (metal engineering)	Mr. Masayuki SWEDA	"
" (wooden furniture)	Ms. Chieko OHGAKI	"
" (computer software)	Mr. Atsushi SUZUKI	"
Market analysis (investment promotion)	Mr. Yutaka MIYAHARA	"
Market analysis (export promotion)	Mr. Jun TSUNEKAWA	"
Sub-leader/Industrial development plan	Mr. Tetsuo INOOKA	Unico International Corp.
Industrial association development	Mr. Yoshio SATO	"
Finance and taxation system	Mr. Yasunaga TAKACHIHO	"
Business administration (metal engineering)	Mr. Takeshi INOUE	"
Production technology (")	Mr. Makoto NAGATOMO	"
" (")	Mr. Shohachi KURIHARA	"
Business administration (wooden furniture)	Mr. Hiroshi HASEGAWA	"
Production technology (")	Mr. Yoshio WATANABE	"
Business administration (computer software)	Mr. Yoshinari YAMAMOTO	"
Production technology (")	Mr. Tatsumi ARAGAKI	"

II. Summary of Policy Review

II. Summary of Policy Review

The state of the Philippines' socio economy and the direction of its economic policies fluctuate considerably. Various policies have been announced recently in connection with the structural adjustments of the economy. The policy review contained below does not refer to developments occurring after the time of writing of the report, nor developments, the impact of which were uncertain even though they were taking shape at the time of writing. Those new policy directions and subsequent changes in policy formulation will be reflected in the context of second year Report. It may be noted that the intended process for the second year study consists of providing an avenue for discussion based on the review outlined below between the Study Team and those who play a central role in the policy area.

1. Industrial Development Policies

1-1 The History and Present Direction of Industrial Development Policies

The Philippines commenced industrialization earlier than most other ASEAN members. A distinctive feature of the Philippine industrialization has been the various kinds of protective policies used as promotion measures.

In the 1970s the government pushed forward with government-led industrialization of the heavy and chemical industries. This government-led industrialization was carried out mainly by government corporations on the basis of funds from overseas loans. At the same time, the government implemented a wide range of protective and incentive measures which 1) protected domestic intermediate-good industries; 2) lowered tariffs on raw material imports; 3) imposed restrictions on new comers to the industrial sectors experiencing a surplus in production capacity; and 4) provided key industries with lower-interest finance. This resulted in an upsurge in investment in plant and equipment in designated industries and in an increase in capital equipment mainly in the food, heavy and chemical industries. Labor productivity, however, has increased only in the chemical industry, steel and iron industry.

With the exception of the food industry, all of the designated industries failed to develop into export industries. They are dependent solely on the domestic demand which existed independently from the international competition. In case the domestic demand is insufficient, the industries were operated at the lower operation rate on the basis of the domestic demand without increasing the operation rate by export. Consequently, they were not possible to later renew equipment in line with technological reforms, the effect of which was the successive aging and out-moding of equipment. This in turn made the industries less and less internationally competitive. Added to this, the high level of dependence on imports for raw materials gave rise to difficulties in the supply of raw materials when the foreign exchange became short, resulting in a slump in production. Meanwhile, the lack of linkage between these key industries and other domestic industries resulted in the fact that small and medium size businesses were limited to the local markets which existed separately from those available to larger businesses.

Independent of moves of the government-led industrialization in the heavy and chemical industries, the garments and electronics parts industries developed as export industries during this period. However, since both of these new export industries consisted largely of consignment processing exports, there was almost no improvement in capital equipment in these industries, and the only comparative advantage these industries had in the international market was a lower wage rate.

The adoption of these kinds of protective and incentive measures as part of former industrial development policy to promote development in key sectors resulted in a serious distortion in the industrial structure in the Philippines. Having reflected on the mistakes of the past, there are few people in favor of making more use of protectionist and incentive measures. Rather, the emphasis of policy is now on deregulating industries which have until now benefitted from protectionist and incentive systems.

1-2 Recommendation on Industrial Development Policies

(1) Basis of the Approach

In general, the existence and functioning of a free-competition market is a prerequisite for the new policies being adopted by the Philippines. However, in cases where developing countries set out to promote new industries, the existence of competitors which have already established a strong competitive position for themselves on the international market makes it difficult for these fledgling industries to be able to compete on an equal footing straightaway. In this situation it is necessary that, right from the beginning, these new industries try to acquire as much power as is possible so that they are able to compete successfully. One way of doing this is to receive assistance from a business in an advanced country which already has a proven record of competitiveness. Another method which may be adopted is to provide incentives for the industry to improve themselves on a public level for the duration of the early development stage. This latter method has been adopted by many developing countries while they have carried out industrialization, and has proven to be successful. It is important to learn from these examples and to examine the possibility of adoption of certain incentive measures to a certain extent.

In addition, policies which have been implemented in order to correct the distortions caused by the past policies are undoubtedly important in that they put in place conditions required for future industrial development. However, this does not necessarily constitute the establishment of conditions sufficient for carrying out industrial development. There must also be government policy measures aimed at promoting and assisting industrial development. The Philippines too is aware of the importance of such measures but, as is shown below, these attempts have been far from adequate.

1. Efforts for the reorganization of the industrial sector

Many sub-sector studies have been carried out under the sectoral approach. However, as yet no long-term direction has been set out which suggests the sectoral development strategies to be adopted.

2. Action plan for improvement of technological infrastructures

There are action plans prepared through a joint public-private sector efforts, and part of which has been put into implementation. However, the many of these plans have been suspended due to the alleged reason of difficulty in funding.

3. Improvement of infrastructure

Progress of improvement of infrastructure is quite unsatisfactory from the standpoint of the role it has to be played in pushing industrial development along. Unstable power supply, poor communications facility, and chronic traffic congestion; none of these infrastructures do meet even the present needs of social and economic level.

(2) Recommendation on an Industrial Development Strategy

With an unprecedented labor shortage in industrialized countries such as the United States, Japan and Western Europe countries, on one hand, and on grade-up of technology levels, in developing countries on the other hand, as such there is an ongoing reorganization of an industrial structure at the international level involving these countries. In the past, businesses in the developed countries regarded developing countries as potential export markets for their products. Today, however, the business in developed countries are increasingly awarding a more positive status to countries as sources of goods or semi-finished goods for their markets. In this way, the businesses are increasingly developing their activities on an international level.

The NIES in Asia were early to take steps to meet such developments as they changed over from industrialization policies through import substitution to those of export promotion, specializing in comparative advantage industries, actively introducing technology and, thus improving their productivity. They could make success of their own industrialization in such way. Developments in business activities at an international level have been taking place not only between businesses from the industrialized countries and developing countries. That is, one recent feature is that such developments have also been taking place between businesses in the Asian NIES and developing countries.

The basic strategy for industrial development in the Philippines should be, as has been the case of NIES in the past, to achieve industrialization acceptable on an international level making use of their comparative advantages in such international developments. Especially, it is important that this sort of industrialization is not achieved by only a number of large businesses which have been protected as was seen in the past, but that it is achieved as a result of a joint effort between large businesses and small and medium-size businesses, or through development of small and medium businesses. By doing so it is anticipated that most of the problems faced by the industrial sector will be resolved and the industrial sector will make a contribution towards the creation of employment. It is also expected that this approach will prove conducive to the alleviation of poverty and an increase in purchasing power.

The fostering and development of small and medium businesses is far from easy. It is a difficult task for these smaller businesses to gain access to export markets and to the upper end domestic markets. What is more, the standard of their technology, production management and management, is still not of the level required to meet the needs of these markets. They also have limited access to financial resources with which to modernize. Regardless of this, however, fostering and development of small and medium businesses is extremely important and considered to be the key to an industrial development strategy.

In order to achieve such targets, the followings are recommended, strategy commonly applicable to each sub-sector.

1. Increase opportunities to facilitate access to export markets and to demand at the upper end of domestic markets. By so doing, firstly, increase in exports, and at the same time, improve the requirements of these markets in regard to technology, production management, marketing, and management.
2. In order to comply with the needs of these markets efforts must be made at the business level to make improvements in production technology, production management, marketing, and management. This will contribute to develop markets or to promote the formation of tie-ups with overseas companies, further paving the way for undertaking independent initiatives in the future.
3. The strengthening of industry should be supported by making improvements to the infrastructure, technological infrastructure, the financial system, and the educational and vocational training system.

(3) Points for Consideration When Formulating an Industrial Development Policy

Special consideration is recommended to be given to the following points when carrying out an industrial development strategy so that the industrial development be most effective in the shortest time as possible.

1. The need for incentive measures for supporting small and medium businesses, which were not focused in former development policy, in their efforts to find their market either in export markets or the upper end domestic markets.

It is essential that certain incentive measures be adopted to help small and medium businesses make their efforts to find their markets either in export markets or upper end domestic markets, in order for them to compete on an even footing in the market. These incentive measures, however, should be applied only to those who have intention and desire to improve themselves, instead of applying to all regardless of their eagerness.

2. The importance of the implementation of the promotion measures of small and medium businesses in strategic and preferential basis

In today's climate of accumulating debt when there is no spare money around, small and medium businesses promotion policies if these are implemented across the board, cannot be expected to have much practical effect. Rather, it is necessary to shift away from providing extensive assistance to providing strategic assistance. That is to say, it is necessary to put the policy emphasis on those businesses which are eager to find their markets in overseas or the upper end domestic markets, and by doing so stimulate others.

3. Necessity of assigning a government department responsible for sectoral approach for industrial development strategy

The adoption of a sectoral approach is highly effective in that all the sector issues can be analyzed comprehensively and that measures can be formulated on a priority basis. It is considered necessary to assign a government department which are responsible for the sectoral approach, and have the capacity to formulate a comprehensive and long term vision for their sector, plan and propose policies based on the vision, and carry out an analysis of effectiveness of the policies once they have been implemented.

4. The importance of using the vitality of industries and providing assistance for strengthening the organization of industry associations

One effective means of making efficient use of international development of industrial structure being undertaken today and to utilize the vitality of the private sector based on such development, in the course of Philippines industrial development is to foster industry associations and use these as channels for coordinating the government and industry activities requesting cooperation from industry. The followings are recommended to be implemented for the purpose of fostering these kinds of industry associations: 1) the preparation of necessary legislation defining the qualification of adequate industry association for this purpose; 2) the provision of financial assistance including tax exemptions for the operation of associations; and 3) the offering of incentives to members as a means of encouraging membership.

In general, the main activities of industry associations in the Philippines are guidance and study / research activities, representation of industry interests, and coordination activities among the relevant organizations with respect to implementation of

projects. However, when considering the situation of the three sub-sectors under study and the needs in view of the development of these sub-sectors, the understanding of the actual state of the industry forms the basis of all undertakings for improvement and development, and activity for this purpose is necessary to be carried out. In addition, more intensive undertakings of the guidance and study / research activities, the representation, and the coordination activities are recommended.

In the case of the Philippines, there is a need for further study on the possibility of industry associations providing additional functions and carrying out other activities including:

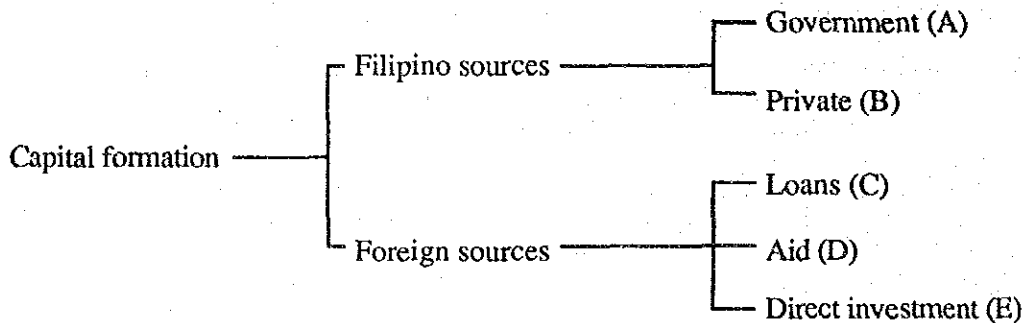
- a. In view of the inadequacy of the present financing system for small and medium businesses, to provide a base for financial guarantees loans or a mutual aid system to help with the development of the financing system.
- b. Complementing the government activities, to provide member firms with information and application assistance in relation to the various encouragement and preferential treatment programs with objective of improving management within the industry.
- c. To provide an integrated representation function of the industry and coordination function among the industry and the various government agencies as the pipeline between the industry and the government, when there are various government agencies related to this industry and they implement their policy measures individually.

2. Investment and Trade Policies

2-1 Investment Policies

(1) The Role of Private Direct Foreign Investment

For the Philippines, which has had to manage its economy while facing the heavy debt burden, direct private investment from overseas in particular has become an important element of funds for sustaining capital formation within the Philippines. It is first essential that private investment, derived from both internal and external sources, be encouraged in order to bring back buoyancy into the economy and to create an environment that is better from the standpoint of promoting exports.



Among the elements shown in the figure above, private investment (B + E) takes on a special significance. Public government investment (A) has necessarily been limited by budgetary constraints. As of the end of 1989, the current account deficit was as high as 3.3% of GNP (1.49% in 1987, 1.0% in 1988).

As for debt (C), cumulative outstanding foreign debt has gone about as far as it can go. It has stood at \$27.6 billion since the end of 1989 and this has resulted in a debt servicing ratio of 31.47%. There is not much time in which to provide a strong base which is more receptive to securing new money, comprised by debt (C) and aid (D), which is required for continuing with development.

(2) Policy Trends

While on the one hand the Philippines has turned to the adoption of a more positive stance in terms of policies welcoming foreign capital in regard to the inducement of foreign capital, it has not, on the other hand, got rid of its cautious attitude regarding investment. Specifically, the introduction of foreign capital has been selectively permitted in certain fields and regions while maintaining the principle of Filipino majority ownership.

The New Omnibus Investment Code, enacted in 1987, is a compilation of all foreign investment legislation and the various incentive systems being administered by the DTI through the BOI and the Export Processing Zone Authority.

The main thrust of the Code has been the reduction of red tape and the introduction of incentives in a move to bring the Philippines in line with other ASEAN nations. For example, a corporate income tax holiday (six years for firms with Pioneer status, four for those without) was enacted. Other measures included tax deductions for labor costs, duty-free importation of capital goods and auxiliary components for the same, and exemption from the Contractor's tax.

The main organization concerned with the introduction of foreign capital is the Industry and Investment Group contained within the DTI. The criteria for inducing desired foreign investment are set out under the following five items: 1) employment creation; 2) high local content; 3) high degree of linkage between industries; 4) support of regional dispersal policy; and 5) export orientation.

In 1990, the general trend has been for a reappraisal of foreign investment policy in a variety of forms by government-related organizations and agencies. This movement has been characterized by the cooperation of the executive branch of government, including the Houses of Congress, the Ministry of Finance and NEDA, in planning efforts. Future results of these efforts are seemed to have a major impact on the Filipino investment climate in the Philippines.

Consideration was given to measures such as the adoption of a negative list, simplification of import tariffs, expansion of areas open to foreign investment and a relaxation in restrictions on investment involving foreign capital, which are linked to a course of deregulation. On the other hand, it has been proposed that existing incentives be reduced in a series of stages. The final decision as to what specific action would be taken has been postponed from the original time of sometime between October and December 1990.

Major revisions of investment policies in the Philippines can be summarized as follows.

- Senate Bill 1276
(Senator W.E. Tanāda)
 - The restriction on debt:equity ratios for multinational corporations operating in the Philippines is strengthened to 10 percent (under previous legislation, the ratio was set at 40:60-60:40).

- Senate Bill 1558
(Senator Vicente T. Paterno)
 - The 40 percent limit on foreign equity is relaxed for specified projects.
 - 100 percent foreign ownership is allowed for export corporations (defined as those companies exporting at least 60 percent of production). This figure must be scaled back to 40 percent within 20 years, however.
 - Negative lists (entrusted to NEDA).

- Senate Bill 1562
(Senator Vicente T. Paterno)
 - Incentives for multinational corporations regional or area headquarters or regional warehouses are cut back (under BOI authority).
 - The minimum annual remittance is set for \$50,000.

- Executive Order No. 413
(signed by President Aquino,
(suspended)
July 19, 1990)
 - Import duties are to be simplified into four categories
 - 3 percent, 10 percent, 20 percent, and 30 percent

- Department of Finance
Memorandum to DTI,
July 20, 1990
 - New authorizations for tax exemptions and reductions are to be gradually scaled back.
 - BOI operations are to be expanded.
 - Foreign equity regulations are to be liberalized.

(3) Recommendation on Investment Policies

In turning to the international environment in which the Philippines finds itself, the boom in investment in the Asian region which got underway in the late 1980s started with NIES such as Taiwan, R. Korea and Hong Kong. It then gradually extended to Thailand, Malaysia, Indonesia and the Philippines. The main Asian countries and regions which were open to foreign investment wasted no time in selecting industries which were founded on comparative advantages, and, since 1985, have come up with a wide range of policies for relaxing restrictions.

The main types of measures which have been adopted include the lowering of the minimum amount of capital required for foreign investment, an expansion of areas which are open to foreign investment, a relaxation in restrictions on capital ratios, and the adoption of a negative list. Noteworthy initiatives in this area include the progress made in the improvement of the investment climates in Thailand and Malaysia. In these countries, emphasis has been placed on performance criteria.

It is in this sense that the Philippines is required to select clearer policies which take the following points into account:

1. The importance of timing in policy decision making;
2. In regard to the propriety of fading away in a bid to lead industry in a preferred direction, it is more important to adopt a more selective direction, rather than across the board measures when re-examining issues;
3. In line with the above, the functions of the Board of Investments and other government organizations should be expanded and emphasis placed on performance criteria in regard to the way in which they are run;
4. Presenting in a clear manner the policies which have been decided upon to the outside world.

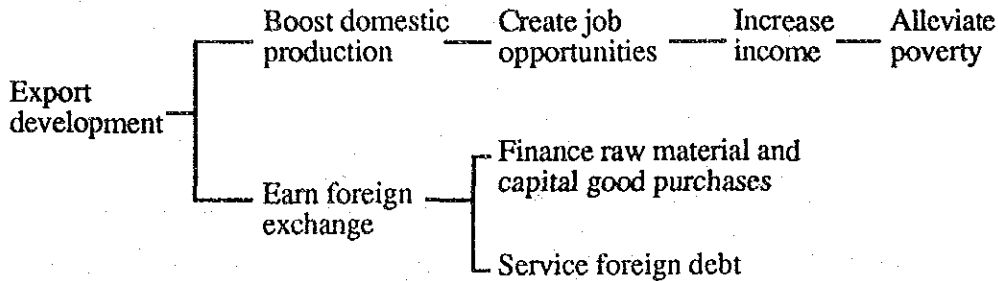
A questionnaire was carried out on businesses involved in domestic industries in Japan as one part of this study. Taking the example of the die making industry, a look at the level of interest in investing in the Philippines shows that there is a strong trend towards giving consideration to the prospect of investment in the Philippines some time in the future.

A 14-point proposal which was issued in February 1990 in Manila, by five chambers of commerce and industry around the world, including Japan, showed considerable interest in the revision of foreign investment policies. The 1990-91 period would be an extremely important time in which to make decisions concerning policy.

2-2 Trade policies

(1) Basic Policy and Export Strategy

The basic stance adopted in regard to trade policy is to develop exports as one of the chief means of economic growth and a wish to bring about the eradication of poverty and the repayment of the accumulated foreign debt through the promotion of exports.



The cultivation of international competitiveness within each industry sector is a must if growth in exports is to be achieved. This will have a considerable impact on the way in which the government formulates its economic and social policies.

In May 1989 the government announced its National Export Strategy for the 1989-92 period, thereby showing the importance of export promotion. According to this export promotion policy conceived by the government will bring about: 1) the create of employment opportunities; 2) the stimulation of industrial dispersion to the provinces; 3) the development and improvement of appropriate technology; and 4) increase in financial revenue received by the government.

The following are interwoven with export strategy:

1. A high purchasing ratio for domestically produced raw materials;
2. An expansion in production activities in regions outside the National Capital Region;
3. Greater linkage between the different industries and commodities;
4. The promotion of direct exports from provinces (central and southern Luzon, central Visaya, Leyte, Samar, northern Mindanao).

As part of this export strategy the Department of Trade and Industry has devised a policy which is aimed to bring about the development and promotion of commodities on which GSP (General System of Preference) can be applied, and of goods made specially for export, especially in the light industrial goods and processed agricultural product areas. For the government's part, this has resulted in consideration being given to encouraging to the greatest possible extent the efforts of businesses in the private sector. It is of the view that unjust intervention by the government and government-related organizations, which will deter the vitality of private enterprises, should be avoided.

(2) Towards an Improvement in the Trade Imbalance

As of the time of writing (November 1990), the Philippine Export Development Bill had already been submitted to the Congress. The bill was devised by mobilizing representatives from the Department of Trade Industry's Bureau of Export Trade Promotion who are involved in private sector trade. Parties involved in the Bill have high hopes that when the Bill is passed it will serve to spur on the government's trade promotion policy.

The main thrusts of the Bill are the reinforcement of the system of responsibility for devising and coordinating government export promotion policy, export policy which makes full use of the vitality of the private sector, and the establishment of a new fund for export development.

A trade council comprising representatives of the government and the private sector will be formed to draw up National Export Development Programs. A new nonprofit body called the Philippine Export Development Organization will be set up and collect 0.25 percent of the value of exports-imports for its funds. The funds will be disbursed to support the following:

1. Contributions to help realize product exports.
2. Feasibility studies.
3. Servicing trade inquiries.
4. Assistance in displaying products at international exhibitions and trade fairs.

Trade by the Philippines has recently expanded as increases have been recorded in both exports and imports. In 1989 both exports and imports reached the highest levels ever recorded, but the trade deficit has expanded significantly.

The reasons for this lie in the precedence given to the importing of raw materials and semi-finished products for use in export products which has accompanied growth in exports, and the continued increase in import demand for capital goods and machinery and equipment which has accompanied industrialization.

One point deserving of special attention is the downward trend which has been recorded in the growth of exports since growth hit a peak of 24% in 1988. This decrease attests to the need to develop products which have export potential and the need to strengthen the supply structure of these products.

The majority of businesses involved in exports are small and medium in size and as such are poorly off in regard to capital. The development of products requires funds, takes time, and the opening up of markets is accompanied by a certain degree of risk. Therefore, assistance by the government is required in relation to the supply of raw materials and parts, the acquisition of marketing information, and the training of personnel.

(3) Issues Faced by Philippine Firms in International Business

One task which has been shared by many businesses involved in trade in the Philippines as a result of their experiences in international trade, is the task of devoting themselves to the spirit of providing service to the customer in the ever presence of competition with their own products.

In addition, there is the need to undertake a study of the appropriateness of one's products to target markets. Effective means of obtaining information as a means of undertaking this research include: 1) making inquiries to the commercial counsellors attached to foreign diplomatic missions; 2) exhibiting goods and attending international trade fairs and expositions; 3) participating in sales promotion tours; and 4) taking trade training courses.

It is also important to remember that mutual trust and the observance of business ethics are important when involved in international trade.

Amongst complaints made by buyers who visit the Philippines are: 1) uncertainty as to whether the promised delivery dates will be strictly observed; and 2) the problem of

shipped goods varying from the samples made available at the time of contract. These both point to the problem of the need for trust.

(4) Recommendations on Trade Policies

Foreign trade promotion is part of industrial development planning and as such the types of industry and products to be targeted for export promotion should be identified and plans should be set to make the various industrial sectors competitive internationally. It is suggested, therefore, that the following points be improved or considered as measures for export development.

1) Planning of basic measures

The main responsibility of DTI/ITG is trade-related measures, while BOI administers investment-related measures. However, it is not clear which department or bureau is engaged in the planning and monitoring of basic measures for trade promotion from a national perspective. In connection with this, it is desirable that the "Export Promotion Bill" now under discussion in Congress be adopted and a special department or bureau set up.

2) From a macroeconomic viewpoint, it is necessary to improve transportation, communication and other industrial infrastructures which support export promotion in both urban and provincial areas.

3) Reduction of duties on machinery and equipment imported by producers of products for export.

4) Response to and assistance regarding inquiries on trade procedures from the provinces.

5) Transactions on a CIF basis should be developed through the expansion of the insurance business and the introduction of a system for monitoring shipping conditions and freight rates.

6) Expansion of trade training activities

Under medium and long-term plans and with PTTC as the nucleus, new courses on product development, production process control and practical management should be developed in addition to the existing courses. The objective of the expansion is not only to nurture skilled employees who are well-versed in trade but also to improve the financial strength of firms and provide information which will enable them to meet the needs of export markets.

7) Small and medium exporting firms should be nurtured and assisted through the application of the export advance system and the supply of marketing information.

3. A Financial System for the Development of Sub-sectors

3-1 Tasks Related to the Raising of Funds

(1) Raising of Funds in Financial Markets

The raising of funds in financial markets in the Philippines, including banks, capital markets and non-banking institutions is inadequate. Comprehensive measures are required to improve the situation and it is difficult to expect significant effects in the short and medium term.

1) Banks

One issue facing banks is their insufficient capacity to meet the increased demand for funds which is expected to occur from now on due to the small quantity of funds available for lending. The reasons given for this shortage of funds are: 1) lack of confidence in banks; 2) the lack of encouragement for saving; and 3) the existence of capital flight.

The following are major measures which are considered necessary for the amelioration of the situation. However, it is necessary to consider the effectiveness of these measures from the viewpoint of comprehensive financial measures.

1. An extensive re-examination of the deposit insurance system as a means of restoring the credibility of banks and securing a sufficient inflow of funds
2. More attractive interest rates which take inflation into account

It will be doubtful that these measures will have significant effects in the short term and thus it is difficult to expect improvement of the fund raising capacity of domestic financial markets in the short term. The lifting of the ban on peso financing by foreign financial organizations may be more effective than the above measures in the short term if the business climate is improved.

2) Capital markets

Among the reasons why the stock and bond markets have difficulty attracting funds from either individuals or businesses are the small number of businesses listed on the markets, the lack of range in terms of industrial sectors represented and the tendency for stock to be purchased mainly by family and friends due to fears of takeover when stocks are issued. Regarding the stock circulation, the present system is not conducive to circulation of stock to general investors because businesses are not very active in promoting widespread circulation of their stock among general investors. As for bonds, the government is virtually the only issuer of bonds (treasury bills), all of which are accepted by the central bank. Thus, the capital markets are relatively immature and it is thought that it will take a long time before they are able to take on the role of long-term fund raising.

3) Non-banking institutions

Among the various types of financing by non-banking institutions, leasing and venture capital can be regarded as the most effective means for financing sub-sector development programs. However, there are many problems involved in both types of financing as stated below and it would be difficult to vitalize them in the Philippines at the

present time. Of the two types, leasing is considered to be an effective means of fund raising for facility modernization projects when securing collateral is difficult and therefore it is recommended that further study be made on the possibility of vitalizing the leasing business.

1. Leasing

Leasing fees are very high due to the high interest rates on bank loans. A re-examination of interest rate policy is required in order to improve this situation and to promote greater use of leasing.

2. Venture capital

There are a number of reasons why venture capital does not function satisfactorily. In addition to the limitations on activities brought about by limited capital amounts, there is the immaturity of capital markets, the lack of investment opportunities, and the reluctance of small and medium businesses to have outsiders interferences in their operations.

(2) Raising of Funds Overseas

The Philippines is also facing difficulties in raising funds overseas. At the present time, raising funds from overseas sources is virtually prohibited in the Philippines except in the case of 1) direct investment and 2) aid and loans from international organizations and foreign governments. Although direct investment has increased recently, it is still insufficient. There have been situations in which private foreign financial institutions have attempted to pull out of the country during the process of rescheduling negotiations. The reason for this is difficulty with loan repayment due to the existence of an enormous accumulated debt and the high risk associated with the country due to the unstable political situation.

Five different schemes have been adopted in order to reduce the accumulated debt. While the total accumulated debt remains very high at this stage, the size of reductions in the total amount have grown. This course must be continue to be followed in the future. It may be noted that although these schemes are useful for the reduction of accumulated debt, at the same time they are a double-edged sword because they are tied to inflation. In this context, it is recommended that more effective schemes be examined.

(3) The Raising of Domestic Funds by the Government

One of tasks to be undertaken in fund raising by the government is the improvement of tax collection. At present only 10% of the taxable income are actually collected and thus it is difficult to adopt positive public fiscal policies.

3-2 Tasks Related to the Supply of Funds

(1) The Supply of Funds through Financial Markets and Tasks

Because of limited experience in the raising of funds, as discussed above, the Philippine financial markets have a limited capacity to supply funds. There are many points which must be improved if the financial markets are to function in a way which enables them to support the future growth of the economy. Particularly important is the lack of

opportunity for small and medium-sized firms to gain access to funds. In addition to the tasks related to fund raising, improvements are urgently required on the four points outlined below.

1. The collateral requirements of financial organizations

Businesses which do not have the required collateral find it extremely difficult to raise funds. This in turn prevents businesses from developing to their fullest potential. The following measures should be examined: 1) expansion of the credit guarantee system; 2) establishment of an information system for credit inquiries; and 3) introduction of supplemental measures to make up for the low credit standing of businesses by establishing organizations such as business cooperatives.

2. Low level of management efficiency among financial institutions

Improvement of the management efficiency at financial institutions is absolutely necessary to cope with the huge demand for funds. Improvement of management efficiency will lower the cost of loans and in turn may lower the interest rates on loans.

3. Insufficient availability of long-term loans

The ratio of long-term loans is as low as 10-20% of all loans. The Development Bank of the Philippines is situated as a wholesale bank for long-term financing in the Philippines financing system. In order for this system to be successful, incentives are required to encourage the commercial banks to be more positive in handling long-term loans.

4. Insufficient availability of loans for export promotion

Although there exists the packing credit system for exports, in many cases the central bank closes their windows for this credit and businesses are not able to avail themselves of this service. Actually, the unrestricted implementation of packing credit would increase the amount of money in circulation, resulting in fears of inflation. In addition, there is a limit to the amount of foreign currency which the government can make avail of. Therefore, it is desirable to ensure fund sources for this purpose. A possible means of securing fund sources is to use funds from overseas as a pump-priming measure and, following on this, to make use of the increased tax revenues derived as a result of a growth in exports.

(2) The Supply of Funds by the Government

Funds for institutional finance supplied by the government are largely derived from foreign governments and international organizations. The utilization of these funds, however, varies considerably from one source to another. Some of the negative factors responsible for this situation include: 1) the strict loan conditions such as severe collateral requirements; 2) the lack of incentives offered to financial institutions handling loans; and 3) the complexity of loan handling procedures. Since the funds available to small and medium businesses in the financial markets are limited, these sorts of problems encountered by the institutional financing system need to be resolved at the earliest possible time.

(3) Direct Loans for Businesses from Overseas Financial Institutions

Regardless of a joint venture with foreign capital or a local business, all loans taken from overseas must receive prior approval from the central bank. The central bank screens applicants very rigidly and grants approval in only a few cases. However, some improvement has been seen since the beginning of 1990, since then a more flexible stance has been adopted in regard to export businesses. If one considers the limited capacity of money markets and the government supply funds and the fact that there is little prospect of an improvement in the short or medium term, the only way open for large and medium-size businesses to raise funds on a large scale is to engage in direct investment or to make direct loans from overseas. Further improvement is necessary for the direct loan procedure in this regard.

3-3 Recommendation on Financial Policies and System for Promoting the Development of Sub-sectors

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. For small and medium size businesses, it is advisable to supply funds through institutional loan schemes by blending locally-sourced funds with low interest rate funds sourced through international cooperation. 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. From this perspective, the further study of the following is recommended as financial measures for the promotion of the sub-sectors which are composed mainly of smaller businesses.

(1) Measures for Raising the Level of Credit for Small Businesses

a) The establishment of credit-rating criteria for loans for "qualified businesses" (businesses with excellent credit standing) and the application of preferential measures

It is recommended that the preferential measures be applied to the businesses which fulfill one of the required conditions listed below, not only for the purpose of strengthening the creditworthiness of small and medium businesses, but also to provide incentives for self-improvement in the areas of technology, management, and marketing. These are: 1) relaxing loan screening criteria; and 2) securing a certain amount of funds for preferential loans. The possibility of reducing interest rates should also be examined.

1. Businesses involved in the business accreditation system etc. for the purpose of improving their fundamental business performance ;
2. Businesses located in industrial estates which have been established for the purpose of modernizing the sub-sectors;

3. Businesses participating in cooperative projects carried out in order to improve their fundamental business performance;
4. Businesses registered with the Board of Investments;
5. Businesses recommended by industry associations which are well organized and which have a good understanding of their members.

b) Examination of establishment of a credit supplementation system

It is recommended that the possibility of establishing a body with the function of supplying supplementary credit information on individual firms on the basis of the organization of industry associations or regional chambers of commerce and industry be studied. The information may be supplied by either a national body or regional units. At the same time, it is necessary to undertake a study of the feasibility of establishing a credit guarantee association which would base its activities on the information provided by the body recommended above.

In addition, the establishment of insurance companies for credit guarantee company would be advisable for the purpose of risk sharing with this credit guarantee association. It is also recommended that a study be undertaken on the possibility of the government bearing the cost of the insurance companies for credit guarantee as a kind of social expenditure for the purpose of fostering small and medium businesses. This kind of system is effective for fund raising, especially for small businesses. Comprehensive study would be required to establish such a system since there are many related issues to be resolved. The following measures would also be helpful for expanding credit:

- set up a desk for financing services in the credit guarantee association;
- establish a research section in the credit guarantee association and undertake a survey of the sectors to which businesses with excellent credit standing belong;
- develop a system to share information on problems such as bankruptcy, overdue payments, etc., among financial organizations and the credit guarantee association.

(2) The Establishment of Loans for Sub-sector Modernization

There is a need to examine the possibility of establishing a loan system to facilitate loans for the purchase of machinery and equipment for the modernization of specific sub-sectors. It is possible that this system could be funded from internal financial sources in the Philippines in conjunction with low-interest loans made available through international cooperation. The selected sub-sectors should have development targets and fulfill the following two requirements in line with the targets: 1) Establishment of a committee to set standards and give approval for the purchase of used as well as new machinery and equipment required for modernization. The committee's members should be representatives from industry and government agencies; 2) Establishment of criteria by which used and new machinery and equipment to be used for the purpose of modernization would be certified. It would also be necessary to be able to revise criteria when the need arose. Loans should be made not only for the renewal of existing equipment or for the introduction of modern machinery and equipment, but should also be used for the purchase of used machinery required for the purpose of modernization.

III. Summary of Subsector Study Results and Issues

III. Summary of Sub-sector Study Results and Issues

1. Metal Engineering (Die Making for Metals)

1-1 Summary of the Study

1-1-1 The International Development of the Parts Processing and Machinery Assembly Industries and the Die Making Industry

(1) Definition of the Dies Covered by the Study

The dies covered by the study include those dies and molds used in die casting, forging, pressing, and other types of metal engineering, i.e., those classified as "dies and molds" under the special tooling category of the International Special Tooling Association (ISTA) and which are used for metal engineering.

(2) World Trends in Die Making Industry

Worldwide die production was valued at approximately US\$39 billion in 1988 (ISTA estimates), with dies for use in metal engineering responsible for about half of this figure. The leading producing countries among ISTA members were Japan, the United States, West Germany, and Republic of Korea, in that order. ISTA estimated Japan accounted for 28% of world die/mold production, the United States 16%, and ISTA member countries in total 58%.

In Japan, more than 50% of all dies are used in metal engineering, and of this figure about 40% are used in stamping. Another 40% are used in plastics molding, with the remaining 10% for the molding of glass, rubber or other materials. The user industries for processed metal materials and metal components produced by metal engineering include the automotive industry, the electrical appliances industry, and the industrial machinery industry, with the automobile industry responsible for an especially large portion.

(3) The International Development of the User (Processing and Assembly) Industries

1) Assembly Industries

In assembly industries such as the automotive and home electrical appliance sectors, firms in the industrialized countries shifted some of their production to bases in developing countries at an early stage. In the past, most shifts of production were aimed at maintaining or expanding the market where the production facility was located, but in recent years an increasing number of such operations have been established with the objective of exporting products, mainly home electrical appliances and consumer electronics products, to third-country markets. This change in global environment for the assembly industry has resulted in a similar change for the parts industry through moves such as increased local procurement of the components needed for local assembly.

The most remarkable case of this type of international development is seen in the electrical and electronic appliance industries. In these industries, there are moves to shift from production of electrical appliances for the domestic markets to production for international markets and production of industrial equipment.

Furthermore, in advanced electronics fields such as semiconductors, production was intended expressly for export from the beginning. The U.S. semiconductor industry, for instance, has moved virtually all of its production operations to the NIES

and ASEAN countries, to an extent that today assembly plants can no longer be found in the famed Silicon Valley of San Jose, California.

In the case of the auto industry, local production in the developing countries continues to rely heavily on domestic demand, with a heavy dependence on imported components from countries such as Japan. It is, however, interesting to note that in countries such as R. Korea and Malaysia, where domestic demand has reached significant levels, production affiliates are now in the process of developing export strategies.

The NIES, once thought to be optimal locations for the establishment of assembly industry, have been hit by rapidly increasing labor costs and unfavorable exchange rate fluctuations in recent years. Consequently, an increasing number of firms which initially gave strategic precedence to the NIES are now shifting their operations to ASEAN countries.

2) Parts Industry

In response to the changes in the economic environment noted above, the following changes have occurred in the parts industry:

1. Local production of parts and components and procurement from neighboring countries are both increasing, replacing imports from the advanced nations.
2. An increasing number of companies in Japan and the other industrialized countries are viewing Asia as the most attractive parts supply base in their global strategies and thus establishing their procurement centers in the region.
3. Efforts to develop an organic linkage among heretofore independent production operations in Asia are emerging. Automobile and parts manufacturers having a wide range of tie-ups across Asia are studying the possibility of mutually complementary division of labor systems such as the so-called "Brand-to-Brand Complementation Scheme." Similar movements can be seen in the home electrical appliance and electronics fields.

One important future topic will be the reorganization of overseas production bases. It is thought that moves to put all world regions under the management of each relevant regional headquarters and link production bases in consideration of individual production elements and markets will become more evident.

Drawing special attention in these efforts towards international development in the parts industry are Japanese parts manufacturers. Even parts manufacturers in the NIES have yet to achieve adequate levels of technological sophistication. Consequently, Japanese firms, with a reputation for superior technology and responsiveness to small-lot orders and short delivery schedules, are increasingly being requested by Japanese assembly firms to accompany them in establishing overseas operations and supply parts locally. Typically this type of situation involves small and medium-sized parts manufacturers with little experience in foreign investment. In the past, these firms seldom undertook such projects unless the country in question could offer a favorable investment climate. But, in the future, it is expected that cases of overseas advance based on such requests and support from assembling firms will gradually increase.

(4) Changes in the Die Making Industry

With the growth of the assembly and processing industries, demand for dies is expected to increase even further. However, the development of die making industries in the developing countries lags behind the international development of assembling industries and moves toward localization of parts manufacturing industries. Development in this industry requires not only improved metal engineering technologies but also better design technologies, the securing of suitable die materials, and establishment of the

production management technologies required to maintain delivery schedules. Even in the NIES, there are very few die manufacturers capable of producing dies of high enough precision to satisfy the needs of the export-oriented processing and assembly industries. Sources of large and high-precision dies remains limited mainly to Japan and Western Europe.

1-1-2 Structural Changes in the Japanese Die Making Industry

In the past, the Japanese die making industry was characterized by high quality, high levels of labor productivity and short delivery schedules. These were mainly achieved by competent engineers and skilled laborers. But since many of the die manufacturers have been hard-hit by the general labor shortage, it is becoming difficult to continue local production of all kinds of dies. Production of those dies with low value added is rapidly losing its feasibility. While the die using industries are more actively advancing overseas, there are some cases where die making firms are asked by users to advance overseas, because the die making technology in the host countries lags behind significantly. Regardless of their intentions, die making firms are being forced to get involved with internationalization of business.

In the future, therefore, the Japanese die manufacturers will be forced to adopt an international strategy in which production of high value added products such as high-precision dies and sophisticated dies is concentrated in Japan and other production relocated overseas; or in which products are processed to a certain degree overseas and then sent to Japan for final finishing only.

1-1-3 Development of Die Making Industries in Neighboring Countries

Neighboring countries such as Singapore, Thailand and Malaysia have already recognized the importance of die making industry in the development of the machinery industry. Governments in each of these countries are working to support the die making industry through the promotion of investment (via the application of tax incentives), the creation of basic environmental and set up of locational conditions, and the enhancement of education and training programs.

The periods of development in the NIES differ from those in Thailand and Malaysia, and differences in the industrial development status in each country have resulted in unique patterns of development in die making industry. However, the following points should be taken into consideration when examining future policies for the Philippines.

1. In each of these countries, development of local user industries has provided the basis for die making industry development; in no case did a die industry develop with the direct objective of exports. The focusing of efforts by Singapore and Malaysia on the supply of precision dies to local export-oriented electronics industries should be of interest to the Philippines, which also have a developed electronic components industry.
2. Reevaluations of die making technology are also becoming necessary in countries such as R. Korea and Taiwan where die making industry emerged in 1960s. This is because a labor shortage has forced the Japanese die making industry to cut down the number of production items, and as a result these countries are being forced to develop the technologies needed for the local production of dies which were previously imported from Japan.
3. Foreign affiliate companies have played a major role in the development of the die making industry in each of these countries. In those nations experiencing rapid growth, however, a sizeable technological gap has appeared between foreign and local-capital

companies, and the improvement of technological standards at local firms is an important topic for future development.

4. In recent years, government policy for promotion of the die making industry has shifted from policies targeting the metal and machinery industries in general or treating it as a part of small and medium-sized business fostering policy to policies indicating sophistication of the die making as a key objective.

5. Each of these countries studied has prepared a variety of institutions, programs, and systems for the training of technicians and skilled laborers. Singapore's training programs, among them, are quite characteristic in that these have been established with the cooperation of governments and corporations in the industrialized countries as part of its efforts to promote technology transfer should be of interest to the Philippines.

1-1-4 Current State of the Philippine Die Making Industry

The roots of the Philippine die making industry can be traced to the early 1950s, and even today there are estimated to be fewer than 100 firms which can be classified as die manufacturers, whether for in-house use or outside sale. Based on the results of the questionnaire survey and interviews, only about 10 of these firms were specialized in die manufacture. This group includes most of those companies capable of producing high-grade dies such as progressive dies and precision dies for electronics, semiconductor, and electrical equipment manufacturers. Virtually all of die manufacturers are located in Manila and surrounding areas, where user industries are concentrated.

The Philippine die making industry has lagged behind in the initial phase of development, but recently signs of rapid growth have appeared. This reflects signs of growth for the processed metal materials sector, brought on by a recovery of demand in the assembly industries (automobiles, motorcycles, home electrical appliances, etc.) and an increase in local parts content, together with more active investment in the Philippines by parts industries of the industrialized countries and NIES.

(1) Industrial Structure of Die Making Industry

Philippine die manufacturers can be divided into the following three groups based on management type, technological standards, and problems currently faced:

1. Foreign affiliates or tie-ups with foreign affiliates having the potential for the fabrication of advanced dies (10-15% of total die manufacturers) ----- Group A
2. Companies engaged in die manufacture or repair based on technology obtained from foreign companies operating in the Philippines or by their own development efforts and possessing a certain degree of technological sophistication. Mostly local capital firms. (10-15%) ----- Group B
3. Those companies whose main operations at present do not include die fabrication but who are producing dies either for in-house use or for sale to customers and whose dies remain limited to simple designs (70-80%) ----- Group C

(2) Group Characteristics

1) Group A

All of these firms have in the parent company a source of advanced die technology, and the stamping machines and casting presses in use are generally new. Consequently, product level is adequate for competition on the international market. It is hoped that these firms will play a leading role in the Philippine die making industry in the future and contribute to the transfer and dissemination of technology to local companies.

The main obstacles to the expansion of operations at these firms are as follows: 1) a shortage of skilled technicians; 2) a lack of supporting industries capable of providing heat treatment and surface treatment services; and 3) restrictions on the local fund raising activities.

2) Group B

The basic similarity possessed by firms in this group is the source of their die fabrication and repair technologies. The founders or engineers who constitute the core of these companies are typically engineers who were given the opportunity to master foreign die technologies, either directly, by working for a foreign affiliate, or indirectly, through contact with a customer who possessed such technology. Their companies have carried out independent research and development in order to capitalize on this expertise. These firms are typical of Philippine die manufacturers; technological improvements, however, are limited to those conducted through contacts with customers, and the firms in this group have yet to catch up with worldwide developments in die technology.

It is hoped that companies in Group B will be able to obtain technology from foreign firms, master these know-hows, and go on to form the nucleus of the future die making industry in the Philippines. From this standpoint, the government should provide assistance for technological improvements and the modernization of facilities and place the focus of its die making industry development program on this group.

3) Group C

This group is estimated to contain by far the largest number of firms. The dies being produced are simple designs used in the production of auto parts and components for electrical products, and they are not characterized by a high degree of precision.

In the future full-fledged die manufacturers will emerge from the ranks of those companies currently producing dies and jigs for outside sale and in-house use. Technological improvements, however, will require not only technical know-how but a wide range of improvements such as greater awareness of the need for quality control, thorough training in production management know-how and methods (including delivery schedule management), and modernization of facilities.

1-1-5 Review of Die Making Industry Development Policies and Programs

(1) Lessons from Past Machinery Industry Promotion Policies

It was in the local production programs for automobiles and motorcycles which began in the early 1970s (PCMP, PMMP, and PTMP) that the promotion of the machinery industry was first taken up as a part of industrial development policy in the Philippines. Machinery industry promotion policies later designated the automobile and motorcycle industries as key sectors and proceeded in the direction of promoting peripheral industries development. At present, the Car Development Plan and Audio Visual Industry Development Plan are being implemented.

Those above mentioned local production programs at first stage ended in failure as a direct result of external factors, namely, the economic recession. At the same time, however, management of the program was hindered by the fact that the automobile industry was brought up under an umbrella of protection and suffered from economic inefficiency and a lack of international competitiveness. The program can be praised for a certain degree, however, for its promotion of linkages between the auto industry and the local parts industry and effectiveness in achieving technology transfer.

Based on these lessons, the current program incentives should be only of an extent necessary to cover the cost penalties resulting from the limited scale of local market. In

addition, restrictions regarding local content should be implemented in combination with incentives for parts exports, and efforts made to reduce the cost penalties. Protective policies and incentives should be reduced and government policy modified as needed while monitoring the effects of these measures.

(2) Metals and Engineering Industries National Action Plan, 1990-2000 and Notable Points for Implementation

The Metals and Engineering Industries National Action Plan, 1990-2000 is currently being implemented from the standpoint of machinery industry promotion.

This plan is comprehensively structured and consists of individual projects thought to be effective in promoting metals and engineering industries in the Philippines, including the die making industry. The content of the plan closely reflects the current state of the industry and its needs. But during implementation the following points should be kept in mind in order to avoid the delays in implementation seen in the past due to a lack of budgetary support.

1. Rather than implementing all necessary items with this plan, the emphasis should be laid on: paying attention to international developments in related industries and using the vitality of the private sector to supplement areas in need; and building a foundation that will allow the utilization of this type of international development.
2. In order to take advantage of private-sector vitality, activities must be begun for the strategic elements which will provide industry with an opportunity to undertake development on its own.
3. Rather than trying to raise the level of all companies, efforts should focus on the promotion of the core firms, thereby promoting vitality throughout the industry as a whole.
4. Instruction activities at individual companies combined with the creation of an infrastructure are an effective means of industrial guidance.

(3) Notable Points on Die Making Industry Promotion Policies

Virtually all of the die manufacturers engaged in production-on-order are small firms and cottage industries. In contrast, the companies placing the orders for dies and metal components including die fabrication are foreign affiliates engaged in the assembly and production of automobiles, home electrical appliances, and electronic components and large local firms previously having had tie-ups with foreign affiliates. Unless measures are taken to improve standards at the former group, the technological gap between the two will continue to increase and become established, making it difficult to expect any linkages between user industries and the die making and other peripheral industries.

From this standpoint, policies for the development of the die making industry should take into consideration the following points: 1) providing local firms with assistance for the improvement of technological and management standards; 2) expanding industrial development financing programs in order to reduce the gap with the modern industrial sectors; and 3) removing obstacles to investment in the Philippines by foreign parts and die manufacturers in order to promote local manufacturers of parts and dies through competition and tie-ups with these corporations.

(4) Roles of the Government Agency in Charge and Industry Associations

Concerning administration, there is a need for the establishment of a government agency in charge of sectoral approach. Long-term visions and corresponding policies should be comprehensively proposed for the subsectors, coupled with monitoring and modifications as necessary. In the case of the die making industry in particular, policy

proposals well balanced with needs and development of the user industries (i.e., the assembly and parts processing industries) and monitoring are necessary.

At present, MIAP (Metalworking Industries Association of the Philippines, Inc.) is the only industry association acting as a link with the administration. It is hoped that MIAP will be able to play an important role as an industry representative concerning implementation of the industrial development programs while maintaining a cooperative relationship with government bodies. However, future strengthening of the die making industry will require the consideration of numerous activities by MIAP, including the following: 1) statistical surveys for obtaining an overview of industry conditions; 2) linkages and exchanges of information with sister industries overseas; and 3) the creation of a foundation for loan guarantee and mutual aid systems.

1-2 Issues

Issues and problems facing the die making industry were examined from both supply and demand sides given the character of the die making industry as a core for linkage industries. The main problem areas uncovered were as follows:

Demand side:

1) Mass-production assembly industries such as automobiles, household electrical appliances, and general machinery remain in the initial phase of development, and market scale is limited. As a result, parts processing industry is unable to utilize merits of scale.
2) In parts sectors such as pressed parts, forged parts, and die casting parts, there is little local production of parts and components. Consequently, there is little demand for dies from these industries.

Supply side:

1) Lack of basic expertise concerning design and processing technologies; 2) shortage and ageing of facilities; 3) shortage of funds; 4) quantitative and qualitative lack of educational and vocational training facilities; 5) shortage of engineers and technicians; 6) weakness of testing and research facilities; 7) lack of a government agency dedicated to die making industry; 8) inadequate promotion policies for the die making industry; 9) low technological standards in peripheral supporting industries; and 10) lack of information, expertise, and know-how concerning marketing.

When working out solutions for these problems, the following points should be taken into consideration:

(1) The Need for Improvement of Die Making Technologies

1) The Need for Mastery of Basic Die Making Technologies

The number of firms possessing advanced die technologies is very limited. Following the mastery of basic technologies, improvements must be made in design and manufacturing technologies in addition to the adaptation of advanced technologies and the introduction of modern facilities.

2) The Need for Modernization of Facilities and Equipment

The second-hand equipment is used at Group B and C companies to a great extent, and is generally poorly maintained and of poor precision, making it incapable of providing for the future needs of the parts processing industry. The Philippine machinery industry remains underdeveloped, and regardless of what the industry decides to do in the future large amounts of new investment will be required; at present it is simply not in a position to compete freely with its foreign counterparts on the international market. Consequently, the government must provide a systematic series of incentives for the

purchase of modern machinery by local firms not only in the die making industry but throughout the machinery industry.

3) The Need to Promote Tie-Ups with Foreign Companies as a Means of Technology Transfer

Technology transfer from foreign companies will be essential to efforts to improve current technology. According to the results of a local questionnaire survey and interviews conducted by the JICA study team, 76% of die manufacturers and 65% of die users having in-house plants desired joint ventures with foreign affiliates with the objective of obtaining technology from the partner firms. Providing those companies, which constitute the nucleus of the industry, with the practical strength needed to participate in tie-ups and accept the transfer of technology at an early stage would be most effective in promoting later tie-ups.

(2) The Need to Establish a Technological Infrastructure

1) The Need to Expand the Industrial Framework for Related Technologies

Available equipment for both heat and surface treatment in the Philippines is limited mostly to technologically primitive units. Consequently, advanced dies cannot now be produced in the Philippines. Taking into account the fact that it is economically unfeasible for small and medium-sized companies to purchase facilities for heat treatment, plating, and surface treatment, which are used only occasionally, the possibility of providing such equipment in the early stages in the form of public or common facilities should be considered. Sufficient care should be paid, however, to ensure that these efforts do not hinder independent efforts by private companies in this field.

2) The Need to Increase Domestic Production of Die Materials

In areas such as the Philippines where a single die is used to produce a limited number of components, ordinary cast iron (JIS FC25 class) and ductile cast iron are suitable die materials. When promoting the domestic manufacturing of parts for automobiles and motorcycles in the future, the production of mid-sized and some larger parts will increase. Production volume will be limited due to the small market scale, but demand for relatively inexpensive die materials is expected to increase. Judging from the technological standards and facilities currently in place in the Philippine casting industry, at present there are no firms capable of manufacturing large castings without casting defects. Consequently, the automakers feel they must rely on imports from countries such as Thailand and Indonesia. It is suggested that efforts first be made to localize production of ordinary cast iron and ductile cast iron as die materials. This in turn will require the creation of government incentives.

3) The Need to Establish R&D, Testing, and Technological Guidance Organizations

MIRDC (Metals Industry Research and Development Center) is the only government R&D, testing, and technological guidance organization available for the die making and machinery industries. At present, however, this organization is plagued with numerous problems, including the fact that an excessively wide range of services is offered, resulting in overall mediocrity. Today, as the Philippine metal engineering industry begins to enter an important phase of development, the following areas should be reexamined: 1) future directions for R&D, testing, and technological guidance organizations in the metal engineering sector; 2) the functions required of MIRDC; and 3) the necessity of creating new organizations other than MIRDC in some specific areas.

4) The Need for Standardization of Dies and Die Components

In the Philippines the BPS (Bureau of Product Standards) is responsible for industrial standards and standardization. The BPS established Technical Committee (TC) 42 for the die making sector, and standards are being drawn up. Furthermore, 37 types of JIS (Japan Industrial Standards) have been adopted as PNS (Philippine National

Standard). In the future, creation of an environment providing for the actual use of these standards in business transactions and promotional activities to spread awareness of the standards will be needed.

5) The Need for Training and Securing of Engineers and Technicians

In general, die and forming engineers in the Philippines suffer from a lack of basic die-related expertise, and there is virtually no mastery of die engineering technology. What is needed today is an improvement in the skill levels of engineers and technicians currently employed in the die making industry. This will require measures such as the following: 1) opportunities for managers and persons responsible for technology development to come into contact with facilities, production technologies, quality control and management at advanced foreign companies; 2) appropriate incentives for talented engineers and skilled laborers; 3) improvements in university-level education; and 4) expansion of content at related vocational education and training institutions such as NMYC (National Manpower Youth Council), the Meralco Foundation, and Don Bosco.

2. Wooden Furniture Industry

2-1 Summary of Study

2-1-1 Current Situation of the Wooden Furniture Industry

(1) The number of furniture manufacturers in the Philippines totals approximately 15,000. More than 60 percent of these are said to be cottage industries with capital of no more than 250,000 pesos. The development of the country's wooden furniture industry has been fuelled by domestic demand. Local demand for furniture in the Philippines can be divided into two categories: those products intended for low- and middle-income groups and those intended for high-income consumers. In addition, demand from hotels and U.S. military bases throughout the Far East including the Philippines represents a large market for medium- and high-grade furniture.

(2) Structural features of the wooden furniture industry include; 1) a tendency toward specialization in carved or antique furniture, 2) a labor-intensive production on order system, 3) a wide variation in the size of manufacturers, 4) the strong tendency of small and medium enterprises in provincial areas to operate as subcontractors, and 5) a substantial volume of exports in the form of sanded frames, mainly carved chairs.

Some rattan furniture makers are attempting to develop speciality (combination) furniture or wooden furniture because of the unstable supply of good quality raw rattan.

According to BOI's sectoral development study of the furniture industry, roughly 90 percent of the rattan and cane furniture is destined for the export market, with the remaining 10 percent sold locally. This is in contrast to the case of wooden furniture, of which only 10 percent is exported and the remaining 90 percent is sold on the domestic market.

(3) Most of the wooden furniture makers export woodwork, mainly small items such as fittings, ornaments and shelves, in addition to furniture. Woodwork exports in 1988 amounted to US\$47.08 million, or 2.7 times the value of wooden furniture exports (US\$17.57 million). The main markets for Philippine-made wooden furniture include the United States, which accounts for more than 60 percent of the total, followed by Japan, Hong Kong, Australia and the United Kingdom. If the latest boom in construction of hotels and office buildings continues, manufacturers will make an effort to meet increasing domestic demand and then reduce exports.

(4) From the viewpoint of promoting export-oriented development, manufacturers can be classified into the following groups according to their location, size, production technologies and financial capabilities.

1) Group A:

Located mainly in Metro Manila and its surrounding areas, Pampanga, Bulacan, and Cebu, firms in this group produce furniture of traditional Western European or Chinese style and are particularly noted for their carving techniques. They can be divided into four sub-groups, A1 - A4, according to their size, export ratio, manufacturing technology and production facilities.

a. Group A1:

Mainly large-sized manufacturers located in Metro Manila and its surrounding areas, firms in this group are trying to produce high-grade furniture including products for export. Some firms in Cebu also fall into this group. These are

rattan furniture manufacturers who, foreseeing a future downturn in the rattan furniture market, have moved into wooden furniture.

Mechanization has progressed in this group, with the exception of the finishing process including coating, and maintenance systems for equipment are well arranged. Process supervisors and special staff for QC are responsible for quality control. Firms in this group can raise operating funds with relative ease because, in addition to their large size and sufficient collateral, most of them can get loans from parent firms or affiliated firms. Most shipments are made in the form of sanded frames.

b. Group A2:

Firms in this group are medium-sized furniture manufacturers trying to produce medium- and high-grade furniture, including products for export. They fall somewhat behind the companies in Group A1 in terms of product quality. Most are located in Metro Manila and its surrounding area, with some found in Pampanga and Cebu as well.

Compared with Group A1, machinery and equipment are generally insufficient and plant layout is not as efficient. Process supervisors or skilled workers are responsible for quality control. Operating funds tend to be insufficient, with some firms taking advantage of TLRC, IGLF or other public-sector loans. As with the A1 firms, most shipments are made in the form of sanded frames.

c. Group A3:

Firms in this group are also medium-sized furniture manufacturers trying to produce medium- and high-grade furniture including export items. The quality of their products is generally high, with some being on the same level as A1 firms. The firms in this group are located in Metro Manila and Pampanga.

Having very few machines, these firms rely on craftsmanship. Quality control is done by skilled workers (craftsmen). Shipments are mostly in the form of finished goods.

d. Group A4:

Firms in this group are small-sized manufacturers trying to produce medium- and high-grade furniture including export items. Although their exports so far have been small, their enthusiasm for expanding export in the future is strong. Firms in this group are located around Metro Manila and Pampanga.

Although they aspire to promote mechanization, their basic machinery and equipment are currently insufficient and the existing facilities are not fully utilized. Quality control is done by process supervisors or skilled workers but is limited to quality checks. Because the products are mostly simple pieces of furniture or small woodwork, shipments are relatively often in the form of finished goods.

2) Group B:

Located in Metro Manila, Cebu and Davao, firms in this group produce furniture and small interior articles for the low-priced market. Many small and medium scale enterprises are engaged in lumbering or construction and have a strong tendency to produce furniture and small interior items to utilize waste materials. They lack enthusiasm for improving the quality of their products, a factor which is crucial to the promotion of exports.

3) Group C:

This group consists of highly-mechanized wooden product divisions of large lumber companies located in Davao, a lumber trading center. Using machines, they are engaged in the mass production of furniture components and building components. For quality control and training, they use a system similar to that of A1 group firms. Because of their substantial capital, they do not find it difficult to raise operating funds.

4) Others:

Combination furniture is that using wood as a structural material and rattan, leather, marble or other materials as a surface material. Technically, it could be considered an extension of rattan or leather furniture. Most of combination furniture manufacturers are located in Metro Manila and Cebu.

(5) Poor quality, raw productivity and insufficiency of export marketing can be cited to be common problems among the firms currently producing wooden furniture.

The poor quality comes mainly from a lack of consciousness regarding quality and insufficient mastery of basic woodworking technology. The raw productivity is due to delayed modernization of factory equipment and failure to establish a production management system based on TQC. Insufficient approaches to export markets and weakness of product development ability including design hinder attempts of export marketing. The assistance of official organizations as well as self-help efforts by firms are necessary to solve these problems in the development of the industry and the promotion of exports.

(6) In the questionnaire survey, about 60% of all respondent firms cite the improvement of the financing system as an external condition for successful export promotion. Regarding industrial policy, 70 percent of all firms call for the improvement of the raw material supply system. The next most common response was guidance and training for the improvement of production technology. By group, many firms in the A3 and A4 groups request market-related training. With regard to the export policy, requests for holding of trade fairs and the collection of information about overseas products and markets are strong in all groups. In A1 and A2 groups, many firms consider the dispatch of trade missions as important as the above stated demands.

2-1-2 Policy for the Development of the Wooden Furniture Industry and Industry Associations

(1) In the 1984-87 development plan, furniture was designated as a priority export item together with clothing, electronic components and other non-traditional export items. Furniture remains a priority item in the current medium-term development plan (1987-92).

(2) The furniture industry is designated as: 1) a domestic resource utilization industry, 2) a labor-intensive industry, and 3) a short-term strategic export product.

(3) In 1987/88, the Philippine government implemented sub-sector surveys as part of its sectoral approach to economic development (10-year plan). Furniture was one of the seven industries first announced, which indicates the great expectations placed upon it.

(4) According to a DTI/BOI position paper regarding the 10-year sector development plan, annual growth of 22 percent is expected in the export of wooden furniture during the 1988-97 period. This indicates that great expectations are being placed on the industry for the earning of foreign currencies.

(5) Implementation of the 10-year development plan is behind schedule due to a shortage of financial resources and other factors. However, the above-mentioned position paper points out that the Chamber of Furniture Industries of the Philippines (CFIP) is engaged in industrial activities on a national scale. Cooperation between the government and the industry for the nurturing of the furniture industry is currently expanding.

2-1-3 Export Markets

(1) Global wooden furniture imports are expanding smoothly. According to United Nations statistics (excluding the United States), global imports of chairs and chair components in the five years between 1983 and 1987 grew by an annual average of 18.1 percent. Imports of other wooden furniture and components grew by 12.4 percent. Overall, global wooden furniture imports in 1987 totaled US\$10,853.02 million.

According to the Department of Commerce of the U.S., the U.S. in 1989 imported \$1.9 billion worth of wooden furniture.

(2) The share of Asia (including Japan, Hong Kong and R. Korea) in global furniture exports is low at 6 percent for "chairs and chair components" and 5 percent for "other wooden furniture." However, remarkable export growth has been recorded by the ASEAN nations. In the five years between 1983 and 1987, Indonesia's exports of "chairs and chair components" grew 20 times, Thailand's 11 times, and the Philippines 1.8 times. In the category "other wooden furniture and components," exports from Singapore and Thailand nearly doubled, and those from Malaysia, Indonesia and the Philippines grew at the range of three to four times.

(3) The Japanese Market

Japanese imports of finished wooden furniture in 1989 amounted to about \$500 million (a 35 percent increase over a year earlier) and imports of components amounted to around \$76.92 million (a 25 percent rise). By item, legged furniture was dominant, with chairs accounting for 34 percent and desks and tables 23 percent. Miscellaneous furniture including sideboards, chests and wardrobes accounted for 21 percent.

Vast differences in social customs, lifestyles and housing conditions can be found between Japan and other nations such as Western Europe, the U.S. and Asian Pacific regions. Therefore, a thorough grasp of the characteristics and needs of the Japanese market and careful attention to them are necessary to penetrate the market. Points to note regarding import transactions include: 1) price, 2) delivery schedules, 3) processing of claims and 4) sales promotion activities including after-sales service.

Most imports from Asia are dining-related articles, predominantly products manufactured on assignment with designs provided by Japanese firms.

In Japan, a common conception is that Philippine furniture is synonymous with rattan furniture. This indicates insufficient acknowledgement of wooden furniture. According to a questionnaire survey on the Japanese furniture industry carried out as part of this study, the evaluation of the Philippines as a production base for wooden furniture is generally low. The survey results showed that Japanese importers are of the opinion that: 1) because it is strongly oriented toward the U.S. market, the Philippines does not meet the needs of the Japanese market; 2) rattan furniture is predominant with little wooden furniture produced; 3) there is a difference in the basic perception of quality; and 4) local sub materials cannot be used for export production because of poor quality and good or high-grade sub materials must be imported. In addition, the current level of industrial technology in the Philippines is not well known and anxiety remains regarding peace and security in the country. Thus, the general opinion of the Japanese furniture industry is that the Philippines has not reached the stage where it can be regarded as an overseas production base for Japanese makers.

(4) United States

In the past, many U.S. manufacturers have been critical of imports. Recently, however, they have begun to import both parts and assembled pieces — on an OEM basis — from the Asian region. Imports of wooden furniture in 1989 amounted to \$1.9 billion with Taiwan accounting for 32.7 percent. Five major supplying nations — Taiwan, Canada, Italy, Yugoslavia and Mexico — combined accounted for 67.3 percent of total imports.

The shares of the ASEAN nations were 3.1 percent for Thailand, 2.6 percent for Singapore, 1.1 percent for Malaysia, 0.8 percent for the Philippines and 0.4 percent for Indonesia. Imports from Malaysia and Thailand have increased remarkably in recent years. Rattan furniture accounted for 75 percent of furniture imports from the Philippines.

Notable points in the imported furniture market of the U.S. are as follows:

1. Moves by the ASEAN nations toward banning the harvesting of mahogany and other varieties of high-grade lumber have resulted in fears concerning the supply of raw materials for hardwood furniture. In terms of woodwork and carving techniques, Thailand, Malaysia and Indonesia will become competitors of the Philippines.
2. The trend toward upgrading products from low-end goods has progressed in the area of ready-to-assemble furniture. For the Philippines to expand their share in this market, modernization of factories, strengthening of training for workers and practical sales promotion activities will be necessary.
3. Combination furniture is expected to become increasingly popular in the 1990s. Specialty stores will be utilized as the sales channel for combination products.
4. Scandinavian furniture is a typical example of contemporary/modern furniture. Prices vary greatly between hardwood and plywood products.

Important factors in sales promotion in the U.S. are participation in the international "High Point" furniture fair and establishment of a permanent office to be used as a base for sales promotion and market research.

2-1-4 Competing Nations in the Asian Region

(1) Thailand

The number of furniture factories registered with the Ministry of Industry has grown rapidly from 243 in 1975 to 1,270 in 1987. The Thai furniture industry began to develop its potential as an export sector in the 1970s. This came as a result of the following factors: 1) parawood first came to be used commercially as a furniture material 10 years ago; 2) the BOI designated the rubber products sector as an industry for investment promotion; and 3) the Thai government enacted a ban on the export of logs in 1977.

The mass production of furniture has a short history in Thailand and when firms seek to expand operations they find it difficult to secure manpower, particularly skilled technicians. The Thai Furniture Industry Association is proceeding with measures such as the establishment of woodworking technique courses in local middle and high schools.

In its investment incentive programs, the BOI distinguishes between rubber tree products and non-rubber tree wooden furniture. The incentives for rubber tree products

vary depending on such factors as geographical location, export ratio, industry classification, annual foreign exchange earnings or savings, and the number of employees. The incentives for manufacturers of non-rubber tree wooden furniture target those firms producing primarily for export. They vary depending on the number of years the firm has been in operation and its export ratio.

(2) Indonesia

The wooden furniture industry has recorded steady growth during the past five years. The number of furniture manufacturers grew from 154 in 1988 to 204 in 1989. Particularly remarkable is the expansion of exports, with the wooden furniture exports growing from 2,503 tons in 1987 to 13,419 tons in 1989. Behind this rapid growth are: 1) export restrictions on logs and lumber; and 2) the moving to Indonesia of furniture industries from Taiwan, Singapore and other nations in response to the export restrictions.

Among the activities of industrial organizations in the country, the development of cooperatives is notable. In August 1988, the Indonesian Furniture Industry and Handicraft Association (IFHA) was established as a link between government and private industry. IFHA is holding seminars concerning technology and business practices, publishing member directories and organizing or participating in trade fairs both inside and outside of the country. In the field of industrial development, IFHA, together with the Ministry of Industry and the Ministry of Trade, is playing a central role in urging other government agencies to promote seminars, campaigns and other regular activities concerning production, management, marketing and exhibitions.

(3) Malaysia

The wood processing industry was singled out in the 1986 Industrial Master Plan (IMP) in which a program for the development of the industry via higher added value was outlined. Firms in the wood processing industry are eligible for a pioneer certificate and an investment tax holiday. A tax deduction amounting to 40 percent of corporate income tax and 5 percent of the development tax is allowed for the first five years of operation.

An industrial estate for furniture manufacturing was established in Banting, Selangor, with the aims of promoting the development of the industry and reducing production costs through the joint utilization of facilities and lower transportation costs.

In preparation for the expected shortage of skilled labor in the industrial estate, the Malaysian Industrial Development Authority (MIDA) is planning to establish a carpentry and woodworking training course in cooperation with Italy.

To finance exports, there is an export credit refinancing scheme. Firms are eligible for low interest rate loans (4 percent as of 1989). The maximum refinancing period is four months and the loans are limited to M\$5 million per company.

(4) Republic of Korea

Seventy percent of all R. Korean furniture exports are destined for the United States and Japan and 70-80 percent of this amount is on an OEM basis. Most OEM exports to Japan are wide-variety, small-volume orders, and most of the products are small in size and unique designs. Both quality and pricing are thoroughly investigated before a decision is made.

Recently, a growing number of R. Korean firms have been inviting designers from Italy, Switzerland and Sweden and hiring local industrial design specialists in an attempt to develop new products and original designs.

In response to mounting pressure from the United States and other industrialized nations for the country to open its markets, various export assistance programs have been faded away substantially. The wooden furniture industry has thus been forced to work alone to exploit export markets. Having established basic targets of US\$500 million in exports by 1992 and a place among the top ten exporters in the world, the industry is working to: 1) facilitate the supply of raw materials; 2) promote improvement of product quality and technological development; 3) develop overseas markets; and 4) promote the specialization and affiliations in production systems.

Information concerning foreign markets is collected through participation in overseas furniture trade fairs and the dispatch of fact-finding missions abroad. In addition, market information supplied by KOTRA (the Korean Trade Center) is utilized.

2-2 Issues

(1) Increasing Quality-consciousness

Most of the wooden furniture manufactured in the Philippines has yet to reach international quality standards. However, due to insufficient research and study of export markets, manufacturers in the country are not fully aware of this fact. Increasing consciousness of quality is more important rather than technological improvement in solving this problem. In relation to expanding exports, this point cannot be emphasized enough.

Research and study on quality is necessary equally or more than study of product design for the promotion or expansion of exports. It should also be noted that product grades and quality standards differ from country to country and thus from target market to target market.

(2) Mastery of Basic Woodworking Technologies

Jointing and coating are basic woodworking technologies to be mastered for the improvement of quality and the upgrading of products. The spread of dowel jointing will become possible through efforts by furniture makers and the industry as a whole while the improvement of dowel materials and diversification of size will become possible through the cooperation of dowel suppliers. Regarding adhesives, density standards should be established to enhance bonding strength. In the area of coating, mechanization and study of paints are necessary. In sanding, a part of the coating process, it is necessary to master sanding methods in accordance with processing.

To master basic manufacturing technology for furniture and improve precision in processing and work efficiency it is necessary to continually study the basic knowledge and know-how concerning furniture manufacturing technologies from start to finish such as lumbering, drying, basic work including mechanical processing, adhesion, grinding/sanding, assembling and coating. Particularly important from the viewpoint of safety are appropriate use of jigs for basic work and operation and maintenance of machines.

(3) Introduction of Production Management Technologies

It is necessary to introduce production management technologies — technologies involved in producing a good quality product at a low cost and delivering it on schedule. This is particularly crucial in the export business where international competitiveness is important.

Directors, managers and supervisors, who form the nucleus of the company, should study practical production management (process management, work analysis, quality control, material control, transport control, cost analysis, etc.). Among the series of production management technologies, quality control is particularly important and should be dealt with immediately. The introduction of know-how regarding quality control will contribute not only to the betterment of quality but also to the improvement of worker discipline, rationalization of production processes and reduction of costs.

(4) The Need for Modernization of Facilities

To achieve uniformity of quality and improve processing precision and productivity, the modernization of facilities is required. In the Philippines, it is necessary to: 1) promote mechanization of production processes; 2) introduce comprehensive dust collection equipment/facility; and 3) improve and enhance kiln dryers. To improve the quality of export products in particular, it is crucial that kiln dryers be installed.

Manufacturers engaged in the production of traditional furniture should not depend solely on manual processing and general-purpose machines. If they introduce advanced and powerful machines for bending, copying, carving and other processes, they will be able to manufacture higher value added products, expand production volume and shorten delivery time, thus further enhancing their competitiveness. It will be necessary for small enterprises to consider joint purchasing and utilization of these facilities.

(5) Study and Facilitation of Imports of Plywood and Auxiliary Materials

Study of the quality, variety, prices and uses of plywood and auxiliary materials (adhesives, paints, metal fittings, etc.) is required for the upgrading of products and expanding export of finished goods.

Regarding auxiliary materials, it is desirable that import procurement be facilitated through a reduction of customs duties in the short term and that procurement be shifted to domestic production once local demand has grown sufficiently.

(6) Arrangement of Study and Training Systems in the Furniture Industry

Improvement of the existing curriculum and system for study and training is currently under examination centering around CFIP on the basis of the contemplated Furniture Industry Training Board.

Training facilities are currently concentrated in Metro Manila. It is desirable that basic machinery and equipment be set up in the other main furniture producing areas such as Pampanga and Cebu and that facilities for guidance on their operation be established.

(7) Enhancement of Export Marketing Activities

The Philippine wooden furniture industry, having relied for a long time on business negotiations with visiting buyers or production on order/subcontracting, has

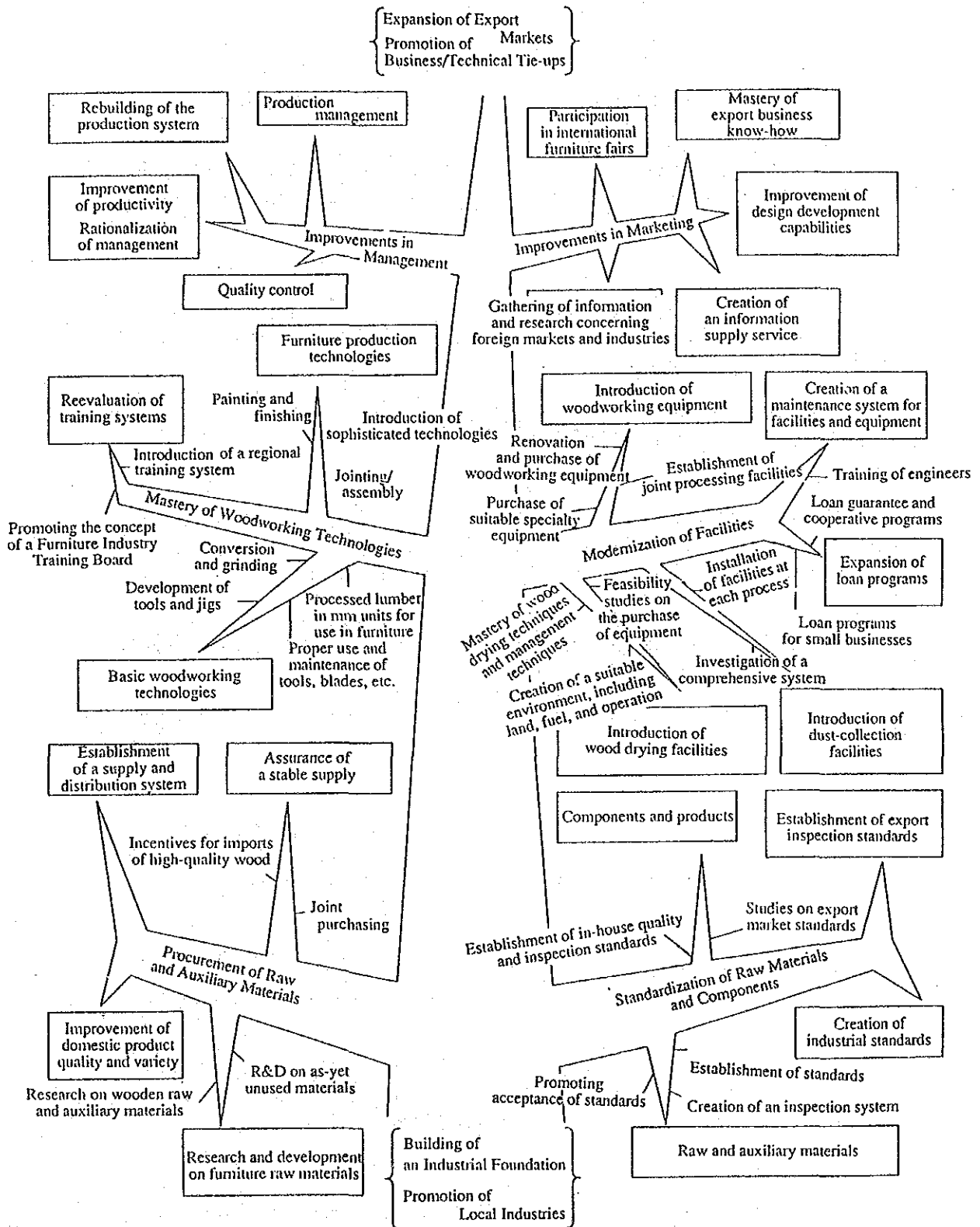
paid little attention to the development of products which meet market needs and sales promotion activities. Most firms have not even prepared company profiles or product catalogs and there are few companies with specific divisions engaged in the collection of information on overseas markets.

To carry out effective export marketing, active approaches to buyers and efforts to satisfy a variety of buyers' specifications are called for. In addition, the collection of information, research and study of export markets as well as participation in or observation of international trade fairs both inside and outside of the country are necessary. Priority in sales strategies should not be placed on short-term profits but on the improvement of quality and technologies and the expansion of markets.

(8) Improvement of Product Development Ability

The relative lack of design development ability is largely the result of the system of production on order. To improve design or product development ability, training of industrial designers who are well versed in the structure of furniture and in the limits of its manufacturing technologies is necessary in addition to research and study of designs in overseas markets and the mastery of design and drafting know-how.

Fig. III-2-1: Schematic Representation of Wooden Furniture Industry Promotion



3. Computer Software and Services

3-1 Summary of the Study

3-1-1 Current State of Computer Software Development Industry

(1) There are reportedly about 300 software development and data entry companies in the Philippines, of which there are about 150 major ones. They employ an estimated 20,000 to 30,000 workers. The industry is a new one, with most companies having been established about 10 years ago.

(2) Hardware Environment

There are about 1,000 mainframes and minicomputers installed, of which about 60 percent are IBM. While there are no official statistics, it seems that there are about 100,000 personal computers.

Computers are spreading in use to a wide range of fields such as manufacturing, distribution, finance, educational institutions, and the government sector.

(3) Software Environment

The development companies may be classified into foreign affiliates, large sized domestic companies, and independents. The work engaged in is mostly development of applications software, with some systems software. The costs required for development are one-fourth to one-fifth those of Japan. The domestic market was worth an estimated US\$10 million in 1988. Export destinations include mainly such English speaking regions like the U.S., Canada, Europe, Australia, Singapore, and Hong Kong. Exports by BOI registered companies in 1989 totaled about US\$3.48 million.

To develop the export markets, CITEM and other organizations are participating in exhibitions and dispatching missions.

(4) Data Entry

Data entry companies may be classified into specialists in offshore work, specialists in domestic work, and divisions of companies. Most of the data entry is of texts and numerals. Strong points are the low costs and the large numbers of workers familiar with English and keyboards.

They are oriented overseas stronger than software development companies, and the U.S. is the largest market, but the Caribbean countries, India, and Sri Lanka are strong rivals. Exports by BOI registered companies in 1989 totaled about US\$8.49 million.

Many companies' transactions are done using magnetic tapes or floppy disks. Only one company utilizes international telecommunications for transactions. The accuracy rate is said to be between 99.95 percent and 99.99 percent.

(5) Development Policies

The National Information Technology Plan (NITP) has been established to promote computerization, but it is not proving effective due to shortages of manpower and funds.

Software development and data entry are recognized as nonpioneer status and investment incentives are available for them. There are 16 companies registered with the BOI for software development (of which five are foreign affiliates or joint ventures) and 13 data entry companies (6).

In 1988, the Electronics Sector Plan was announced, but the government has been behind to tackle comprehensive measures for industrial promotion.

(6) Industry Organizations

Industrial organizations at present include the PCS for the information industry, the PSA for software development, PADEC for data entry, and the ITAP for hardware. Each of these organizations engage in activities such as exchanges of information and presentation of opinions, but they have not sufficiently organized or have difficulties in grasping the interests of their industries.

Future issues for consideration include obtaining grasps of the states of the industries, strengthening exchanges with corresponding overseas industries, and financial guarantee system.

3-1-2 State of Export Markets

(1) In the global computerization, computers are downsizing and information processing speeds increasingly faster. Along with this, construction of network systems and integration of different systems are becoming trends in software development, so it is expected that demand will increase for network development and systems integration.

(2) Japan

Software sales totaled about 1,800 billion yen in 1988, of which about 90 percent was developed on consignment. In the future, development will probably increase for software for work stations using UNIX as operating systems. In the field of data entry, increasing use will be made of OCRs, OMRs, and voice and image input, so demand may decline over the long term.

Japan is suffering from a shortage of SEs, SAs, and other advanced level engineers. By the beginning of the 21st century, a shortage of 970,000 engineers is anticipated.

The internationalization of the Japanese economy is being accompanied, in the software development industry, by brisker business with other countries such as consignment of work, joint development, and receipt of trainees. Many companies are interested in a division of labor with the Asian nations and some of them are interested in the Philippines, but most companies would like to know more about the Philippines due to insufficient information.

(3) U.S.

The software development market is considered to have been worth US\$24 billion in 1990. In applications software, high growth has been seen in CAI and other educational systems, engineering, and development accompanying systems integration. Further, in systems software, there has been remarkable growth in applications development support tools.

In the field of data entry, some U.S. companies have done their work in the Caribbean. These countries are competitors for the Philippines.

The U.S. companies evaluates the Filipino software development industry as having low wages for programmers, having superior programmers, and being able to assemble large numbers of programmers in short time periods. However, they also hold such negative impressions as it is difficult to have the analysis and basic design performed in the Philippines, the ability of the Philippines to manage projects is uncertain, the Philippines lacks the latest technical knowhow, and the political situation is unstable.

(4) Canada

The information service market was worth C\$4,989 million in 1989. Growth is anticipated in the future in the fields of software development and systems integration. Demand for data entry has been leveling off, but construction of data bases is seen as a promising field.

About 80 percent of the imported software is American. The Philippines and other Asian countries are not well known. However, the Canadians view the Filipino software industry favorably, considering that costs are low, programming is superior, and Filipino companies would not compete with Canadian software companies.

(5) Others

The information service market in Western Europe in 1988 was worth an estimated US\$43 billion. EDI and other network services and systems integration are considered growth fields.

Australia had a software market worth A\$2.3 billion or so in 1988. That country is tackling the promotion of its information industry to strengthen its international competitiveness and promote exports of software, but faces shortages of information engineers and therefore considers training of manpower an urgent task.

3-1-3 State of Nearby Countries

(1) Singapore

Singapore has established its National IT Plan and is tackling the promotion of its information industry. In 1989, it had 6,000 mainframes and minicomputers and 90,000 microcomputers. There are reportedly about 100 software houses and 8,300 information processing experts. Computerization is well underway, but soaring personnel costs and shortages of software engineers are posing problems. One means for promotion being used is subsidies for software houses. These subsidies are used to offset personnel costs, educational costs, and computer usage fees.

(2) Thailand

In 1989, Thailand had about 132,000 computers installed, of which about 130,000, the overwhelming majority, were personal computers. There are about 100 software houses and about 27,000 computer technicians, but many of these are data entry workers and programmers. There are some 2,000 systems analysts.

The government is trying to promote software as an export industry and will probably devise comprehensive measures for promotion in the future. Thailand has no laws for the protection of intellectual property, so the government is working to establish such laws.

(3) India

India is tackling the promotion of its software industry and exports of software. There are about 150 software houses, but most of them are small sized with annual sales of less than US\$100,000. A common way of overseas business is the dispatch of Indian programmers to overseas project sites. The low level of personnel costs is an advantage, but India lacks sufficient hardware, peripherals, and development tools and lacks the funds for software development development and marketing, it has been pointed out.

3-2 Issues

(1) Lack of Hardware

There are reportedly about 1,000 mainframes and minicomputers and about 100,000 personal computers in the Philippines as a whole. Therefore, the development environments of software development companies are not based on general-purpose machines. Further, almost all computers are used as stand alone systems.

(2) Lack of Technical Capabilities and Marketing

Most of the software companies were established about 10 years ago. At the present time, they primarily produce applications software and some systems software. Few companies are able to handle systems integration, which is a global trend. Further, the software and tools used for development are insufficiently provided.

Both the domestic market and exports are still small in scale, and marketing efforts are required.

(3) Difficulties in Capital Investment

Interest rates are high and there is a shortage of real estate and other collateral, so it is difficult to raise funds domestically and capital investment is not proceeding smoothly.

(4) Lack of Development of Infrastructure

Much more improvement is required in the telecommunications lines, both general public lines and dedicated lines, in terms of the number of lines, the quality of the lines, and facilities. A few data entry company had introduced international telecommunication facilities. In the future, immediate delivery of products will be required, so some measures have to be taken in this area.

Power supplies are unstable, making it necessary to require measures to deal with blackouts.

(5) Training of Manpower

Universities, computer schools, and the NCC serve as training organizations, but lack sufficient instructors and mainframes and their operating systems and development tools are not updated due to insufficient budgets.

Another problem is the exodus of manpower overseas in search of better job conditions.

IV. Framework of Development Programs and Recommendation on Programs

IV. Framework of Development Programs and Recommendation on Programs

1. Metal Engineering (Die Making for Metals)

1-1 Framework of Development Program for the Die Making Industry

1-1-1 Basic Perspective

(1) Breaking the Vicious Circle

Development of the die making industry must be accompanied by development in the parts processing industry, which constitutes the main source of demand for dies. In the industrialized countries in the past, growth by the parts industry has increased demand for dies and stimulated development of the necessary technologies, thereby resulting in die making industry growth. Promotion of the die making industry in countries with parts industries which are still in the development stage, on the other hand, is more difficult.

Often in developing countries, growth in the parts industry does not necessarily benefit the die making industry, while buyers continue to rely on imported dies. This situation is due both to limited demand for dies and a lack of related technology.

In the case of the Philippines, the existence of 1) a vicious circle between the lack of development of processing and assembling industries which use dies and the lack of development of the die making industry, and 2) another vicious circle between the lack of development of peripheral supporting technologies and R&D and the lack of development of the die making industry, which should spur the development of these technologies, have hindered the development of the die making industry. In order to accelerate growth in the die making industry, these vicious circles will have to be broken, i.e., the development of the processing and assembly industries will have to be promoted together with improvements in die-related technology, including peripheral technologies (Fig. IV-1-1).

(2) Interrelationship of the Die Making Industry and the Parts Industry

The Die Making Industry Development Program proposed here hopes for the development of both the die making industry and the parts industry through mutual assistance mentioned below.

1. To promote development of the Philippine processing and assembly industries while making full use of the international development process of the world processing and assembly industries.
2. To achieve the transfer of technology to the die making industry and to upgrade the industry by strengthening linkages with the local processing and assembly sectors.
3. To attempt qualitative and quantitative improvements in the parts (processing) industry based on improvements made in the die making industry.

In order to achieve this type of development, the following two points will have to be achieved:

1. To prepare an investment environment in which the Philippines is viewed as a base for international operations by the processing and assembly industries.

2. To achieve certain improvements in the areas of technology, management, and production management, thereby creating opportunities for the utilization of the Philippine die making industry as a partner by processing and assembly firms.

In addition, the following points should also be taken into consideration:

1. The importance of the contribution of foreign advanced companies
2. The importance of the promotion of local core companies
3. The importance of small business promotion policy

1-1-2 Targets of Development Program

The position of development projects in the development stage of die making industry is shown in Fig. IV-1-2.

(1) Development Stages of Die Making Industry

This development program assumes the following three stages of development for the die making industry:

First stage: The local parts industry has not yet developed, and demand for die is limited. Only a small number of die manufacturers make attempts to expand their operations, and users rely on imports or in-house fabrication for their dies. In this stage, the government should provide assistance to those firms trying to improve and expand and help them develop into firms which will become the core of the industry.

Second stage: As parts processing industries become increasingly aware of developments in the Philippine die making industry, domestic demand for dies will begin to increase. More firms will begin paying attention to die making business and embark on efforts to modernize. In this stage, the government should provide various forms of assistance to facilitate these individual efforts.

Third stage: Parts processing industries begin full development domestically. Die demand increases, and development of original technology and management techniques in die manufacturer is carried out through tie-ups with users, etc. Since commercial activities come to the fore during this stage, the government's role should be primarily to prepare a system capable of providing the various types of assistance required by individual companies during the course of their development.

In this way, from the perspective of official assistance, in the short term, it is important to 1) provide, in the first stage of development, assistance primarily to companies interested in positive growth as die making companies and 2) start work, in the official assistance considered essential in the future along with the development of the die making industry, on projects requiring massive investment, and other projects requiring the activities of numerous organizations in the preparatory stage. In the medium and long term, it is important that the support required for development of the die making industry be provided. In the second stage, it would be important to improve 1) the system for guidance of a number of new entrants into the industry, 2) the system for supply of the skilled laborers necessary for the increase in the amount of business, 3) the system for raising the funds required for the replacement and introduction of new machinery and equipment according to need, and 4) the system of supporting industries assisting the work of the many companies in the industry. Further, at the third stage, it would be necessary to ensure that the various systems continued to run well and became more sophisticated along with the development of the industry.

(2) Establishment of Targets

1) Short-term Targets

Components currently being produced in the Philippines are limited to technologically simple small and some medium-sized parts. The dies which can be procured locally are limited to punch types, bending types, and shallow-drawing types.

From the standpoint of die demand, most of the automobile assemblers with operations in the Philippines have embarked on in-house production of components and dies due to the lack of suitable domestic machining companies. It is therefore recommended that the Philippine die making industry should first set its sights on achieving the ability to satisfy such demand for auto parts etc. That is, as start term targets, it would be desirable for the industry to be able to fabricate dies 1) with high precision; 2) applicable to drawing parts with three-dimensional curved surfaces; and 3) used for fabricating medium-sized dies.

If these levels can be achieved, the fabrication of dies for large components will become technologically feasible simply through the purchase of the necessary facilities. Since the facilities for production of dies for large components require sizeable investment, however, this will be possible only after significant growth in demand. If these short-term targets can be achieved, the fabrication of dies for electrical product components will become possible, and the transition to the fabrication of molds for use in plastic molding and die-casting could then be easily achieved by improving die engineering capabilities.

2) Medium- and Long-term Targets

For the time being it is difficult to expect any sizeable increase in die demand in the Philippines. Development of the local die making industry, including the press die, molds for plastics and die-casting, is expected to proceed naturally assuming the achievement of the short-term targets and the increase of demand.

Therefore, as the medium and long term target of the die making industry, it is desirable to fabricate dies for the electronic component industry, which is currently already growing tremendously on a consignment basis in the Philippines. By achieving this, the technical level of the die making industry would be greatly improved. Further, the fact that the demand exists domestically is extremely advantageous. Unfortunately, it would not be easy by any means for this level to be achieved, judging from the current level of the Philippines. Further, there would probably be considerable hesitation among the users over switching from imports. After the short term targets are achieved, however, interest of the users in the local die companies could be expected to rise and demand to surface.

1-1-3 Framework of Development Program

In accordance with the basic perspective described above, the effective promotion of the die making industry in correspondence with the development of user industries will require following measures:

1. Improvement of production technologies and production management technologies in the die making industry
2. Promotion of the processing and assembly industries
3. Promotion of tie-ups of die making companies with advanced overseas companies
4. Establishment of a government agency for integrated basic policy planning and implementation for industry development and assistance, and strengthening of a liaison organization by the industry

In addition to these measures, the enhancement and increased effectiveness of financing system is needed for small and medium-sized business promotion.

1-2 Recommendation on Program

1-2-1 Outlines of Project

The relationship between the tasks of development and the recommended projects for the achievement of the tasks is shown in Table IV-1-1. The details, necessary conditions and recommendations for implementation of individual development projects are shown in Table IV-1-2.

(1) Establishment of Organizational Set-up of Government Agency and its Liaison System on the Industry Side

Development of the die making industry will require the strategic development of the metal engineering industry as a whole, including the processing and assembly sectors. A recommendation should thus be made to designate a specific government agency expressly for the promotion of the metal engineering sector and efforts made to achieve the inter-agency coordination required for implementation of such recommendation. Furthermore, the implementation process should be monitored and government policy modified or expanded as necessary by the agency.

In order to achieve this, it is recommended that the following projects be implemented.

-- Establishment/Assignment of Government Agency for Industry Policies Planning/Monitoring

On the industry side as well, a system is recommended to be set up to act as a link with these government activities. Existing organizations include MIAP in the metal engineering sector and various industry associations in the processing and assembly sectors. Basically, these organizations already function in this way. Hence it is important that the programs be implemented via the cooperation of these associations further, and that these associations be strengthened during the course of implementation.

(2) Improvement in Production and Management Technologies for the Die Making Industry

Rapid improvements in die technology will require the transfer of technology from foreign corporations. This type of transfer is most effective when carried out through tie-ups between individual companies. Tie-ups between local firms and foreign companies, however, presuppose a degree of technology and management capacity, or the potential for such capacity, on the part of the local firm. This project is designed to improve technological standards of existing die manufacturers at the current stage, where the domestic parts industry has not yet been developed, and thereby create a basis for the promotion of future tie-ups with foreign companies.

Given the current status of the Philippine die making industry, the following activities will be needed for the improvement of technological standards:

1. Since the orders which can be taken are limited by current quality standards, there is a lack of awareness concerning technology-related market needs. Obtaining an accurate understanding of these needs and ways of responding to them will require the diagnosis of problems at the individual company level and transfer the technology for dealing with the same. This corresponds with the need to promote core companies.

2. In addition, a team of instructors capable of carrying out the technical guidance required by the market should be nurtured in preparation for the future development of the die making sector.

3. Companies incapable of purchasing the facilities required for fabrication of sophisticated dies should be provided with financial assistance, regardless of the limited demand for such dies at present.

The following projects would be effective in implementing these activities:

1. Advisory Project for Upgrading Technology and Product Quality

This project is designed to promote core companies capable of satisfying market needs in terms of production technology, production management, and quality control. In addition, it will provide for the training of a team of technical instructors in preparation for future development.

2. Project for Suitable Modern Die Making Factory Recommendation System

Once a reasonable number of "modernized" companies have emerged to function as the core of the industry and local orders for sophisticated dies begin to increase, a system will be established to recommend as "modernized plants" those factories which have achieved certain standards. This system will: 1) facilitate user decisions concerning suppliers; and 2) act as a stimulus to modernization efforts at other firms.

3. Project for Establishment of a Metal Engineering Industrial Estate

By establishing a technological infrastructure and ensuring easy access to this infrastructure, this project will result in a greater number of modernized plants and prepare a production system capable of satisfying user needs.

4. Project for Establishment of a Die Making Industry Assistance Center

The center will purchase advanced facilities which are too expensive for individual firms to possess, provide for the training of skilled laborers in the operation of advanced machinery, and carry out technical guidance for the die making industry in areas such as die engineering.

5. Promotion of Die/Mold-Related Standardization

Efforts are needed to promote standardization, in particular the dissemination of industrial standards, and the establishment of facilities for materials testing, etc.

(3) Development Program for the Parts Processing and Assembly Industries

Past programs seeking to raise local parts content ran into the wall of economic inefficiency created by limited local demand and, in the end, resulted in the production of over priced parts. The auto industry, for instance, was required to use these costly domestic parts and as a result became unable to continue operations without excessive government protection.

This has been caused, in part, by poor strategy in policies, but also by the lack of sufficient international procurement of parts by the assembly industries, such as seen today.

Now, however, this type of international procurement of parts is being actively carried out. During implementation of this recommendation, the following points concerning domestic development by the parts processing and assembly industries should be kept in mind:

1. The international division of labor currently being instituted by the parts processing and assembly industries should be encouraged and efforts made to utilize it.

2. Policies for the protection of locally-produced products and intermediate materials should be eliminated in principle. Instead, exports should be encouraged to achieve sufficient production volume for those parts processing sectors requiring economies of scale.

3. Concerning parts production, linkages with other local industry sectors will be encouraged but not forced. This is because there was insufficient development of a domestic machinery industry as a result of the previous program of development of the heavy and chemical industries using imported capital goods and, as a result, the domestic machinery industry still cannot meet the demands for production of parts of the modern assembly industries. Further, the quality of domestic ferrous metals is poor and it is inappropriate to force their use.

(4) Activities to Promote Tie-Ups with Foreign Die Manufacturers

The promotion of tie-ups with foreign companies is the most effective means of speeding up technology transfer. It is hoped that implementation of the above-described projects will result in improved technological standards at local firms and increased local demand for dies. Based on these conditions, foreign die manufacturers will be introduced to prospective local partner firms and tie-ups between the two groups promoted.

1-2-2 Implementation Schedule and Priorities

The short-term projects can be broken down into two groups: 1) those which should be implemented immediately; and 2) those for which preparations should be begun immediately. The latter category includes those projects which will require further studies of their necessity, feasibility, and profitability during the preparatory process. In the case of the medium- and long-term projects there is no need for immediate implementation or preparations; instead, it is recommended that they be begun in accordance with the development stages of the die making industry.

In addition to these, separate studies on the possibility of establishing loan guarantee system and substantive loan programs for small and medium-sized business are also needed.

(1) Short-term Projects

1) Projects Which Should Be Implemented Immediately

1. Advisory project for upgrading technology and product quality
2. Establishment/assignment of government agency for industry policies planning/monitoring
3. Recommendation for promotion of metal worked parts export

2) Projects for Which Preparations Should be Begun Immediately

1. Establishment of a die making industry assistance center
2. Project for establishment of a metal engineering industrial estate

(2) Medium- and Long-term Projects

1. Project for suitable modern die making factory recommendation system
2. Activities to promote tie-ups with foreign die manufacturers

(3) Priority Projects

It is recommended that the following three projects be embarked upon immediately to prepare a basis for industry development.

1. Implementation of advisory project for upgrading technology and product quality

This will promote tie-ups with foreign companies and serve as a starting point for the substantial local manufacturing of dies and components. It will also provide a foundation for instruction in the areas of technology, management, and marketing.

2. Establishment/assignment of government agency for industry policies planning/monitoring

This will provide for an understanding of industry conditions, the proposal of development plans from a long-term perspective, coordination and assistance with and to the industry, and the systematic and continuous utilization of numerous foreign assistance projects. In particular, development in the die and parts sectors, which are dominated by small and medium-sized local businesses, will require a great deal more systematic and continuous assistance from the government.

3. Start of preparation activities for project for establishment of a die making industry assistance center

This center will prepare a guidance system for the technology, production management, and management necessary for the future development of the die making industry, peripheral technologies and facilities, and a technical/skills training system for the advancement of the industry. Not only would assistance be provided to existing die companies, but also the entry of new-companies into the industry would be facilitated.

The priority of each of these projects is shown in Table IV-1-1 (above).

1-2-3 Implementing System

In the past, comprehensive promotion plans have been established for several other sectors, but implementation of most of these was insufficient. It is extremely important how fully these plans are implemented.

First of all, implementation efforts should not focus on the individual programs alone. Instead, efforts should be based on an understanding of the role the projects are to play within the context of the comprehensive program and linkages established between the various projects (Table IV-1-1 and Fig. IV-1-2 above).

Next, organizations having responsibility for implementation of the program must be established. These organizations should be established in advance to facilitate the preparatory and coordination processes. Active efforts by the relevant organization will also be required for fund-raising activities.

There are numerous steps leading up to actual implementation of the program. Some of the program are mutually linked, and some are based on the completion of other program. Consequently, implementation will require the establishment of an implementation framework with appropriate management and coordination functions, and within this framework the appropriate organizations must fulfill their assigned roles in accordance with the implementation program as a whole. For implementation of the present program, it is recommended that the two organizations described below be set up as implementing organizations having promotion and coordination functions as a whole. If a government agency for machinery and metals industry policy described above is designated, however, this agency should join the general administrative bureau while at the same time supporting this bureau.

1. General administrative bureau

This bureau will follow the progress of the various projects, call up and coordinate related organizations at need, and make the necessary modifications in the projects. It is recommended that the bureau be comprised primarily of BOI and MIAP.

2. Advisory committee

To be called up periodically by the above mentioned administrative bureau. The bureau will report on its activities to the committee, which will then offer advice and support for these activities. The committee should consist of representatives from the BOI, BSMBD, BPS, DTI Planning Group, DOST, MIRDC, and industry representatives drawn from MIAP, automobile, home electrical appliance, and electronic components industries. The organizations represented on the committee should tailor their actions based on the agreements reached by the committee.

Implementation frameworks for the individual projects are shown in Table IV-1-2 (above).

Fig.IV-1-1: Basic Concept of Development Strategy for Die-making Sub-sector

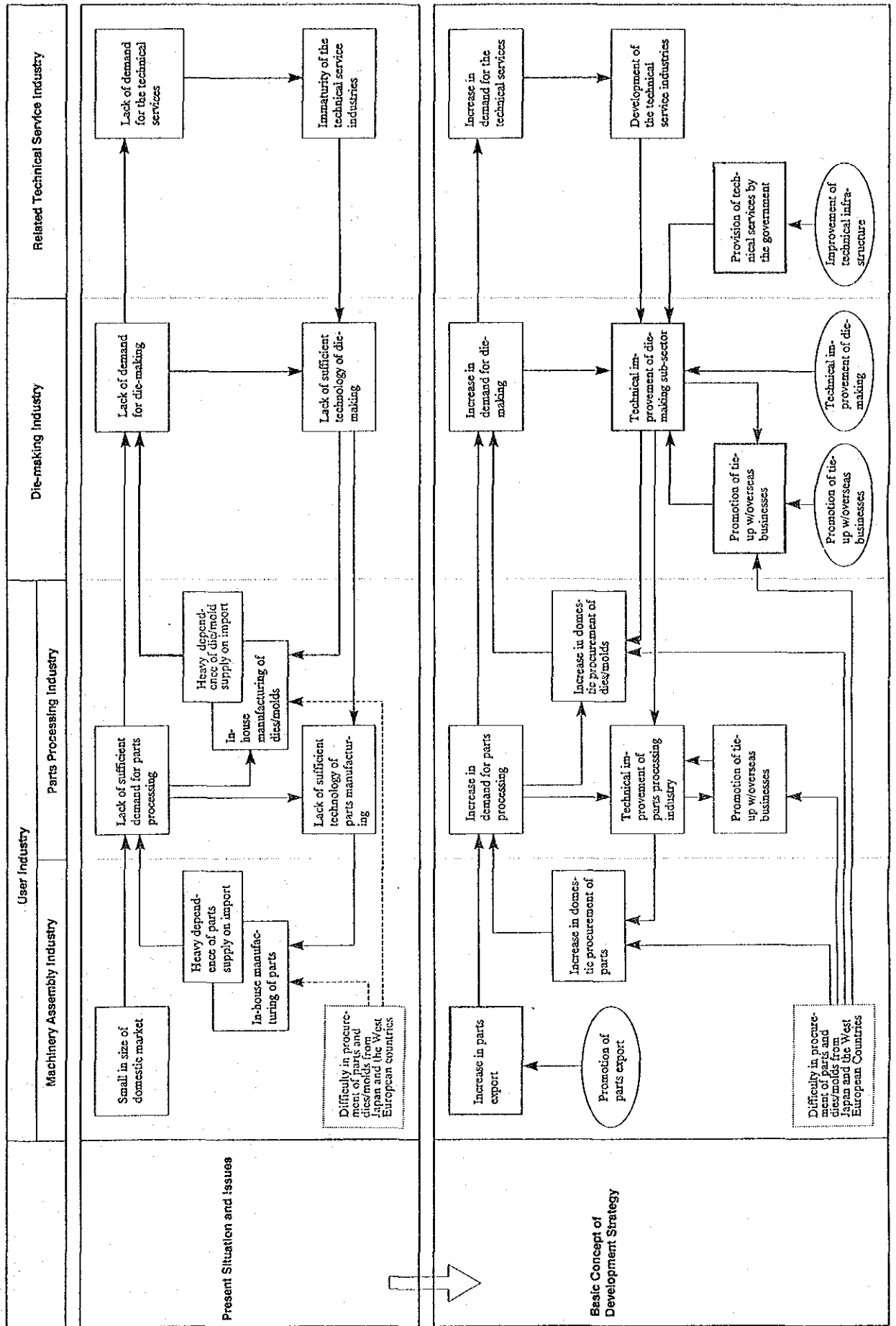


Table IV-1-1: Objectives and Development Programs for the Die Making Industry

Industry	Sub-sector issues	Effective measures	Development projects							
			Establishment/assignment of government agency for industry planning/monitoring	A**	A**	Suitable modern die-making factory recommendation system	Establishment of industrial estate for metal engineering industry	Establishment of die making industry assistance center	Promotion of die/mold related standardization	Recommendation on the promotion of exports of metal worked parts
Metals and machinery industries overall	(1) Strengthening of sectoral approach (2) Expansion of financing programs for facility modernization	Schedule	A**	C	B**	C	A	C		
		Establishment of basic sector policy and strengthening of monitoring system	X					X		
Die making industry	(1) Improvement of die making technology 1. Mastery of basic die technology	1. Provision of complementary measures for credit	X	X						
		2. Establishment of loans for modernization	X							
	2. Modernization of facilities and equipment	1. Awareness of the importance of these efforts and key points	X	X				X		
		2. Mastery of technology through individual instruction at companies	X							
		3. Promotion of core companies	X							
		4. Grade-up of the sub-sector	X	X			X			
	(2) Promotion of tie-ups with foreign firms for increasing technology transfer (3) Improvement of a technology infrastructure 1. Expansion of technical supporting services	1. Increased awareness of the importance of these efforts	X	X						
		2. Introduction of suitable facilities and equipment	X	X			X			
		3. Development of public and common facilities	X	X			X			
		4. Funding assistance	X	X			X			
3. Improvement of R&D, testing and technical guidance facilities 4. Promotion of standardization of dies and die components 5. Training of engineers and technicians	1. Development of public and common facilities	X	X			X				
	2. Promotion of private-sector firms specializing in supporting services									
	1. Increase in an instructor staff	X								
	2. Facility- and operation-related improvement					X		X		
	1. Dissemination of standards through industry's active participation	X	X					X		
Expansion of die/mold demand with the development of the parts and assembly industries	2. Enhancement of inspection systems									
	1. Increased awareness of market needs	X	X							
	2. Promotion of technology transfer	X								
Processing and assembly industries	Expansion of die/mold demand with the development of the parts and assembly industries	3. Improvement of university-level education						X		
		Greater export promotion measures	X							X

Note: 'Schedule' symbols: A = Should be implemented immediately, B = Preparations should be begun immediately, C = Medium-to long-term project, ** = Key project.

Fig. IV-1-2: Die Making Industry: Development Stages and Expected Effects of Development Projects

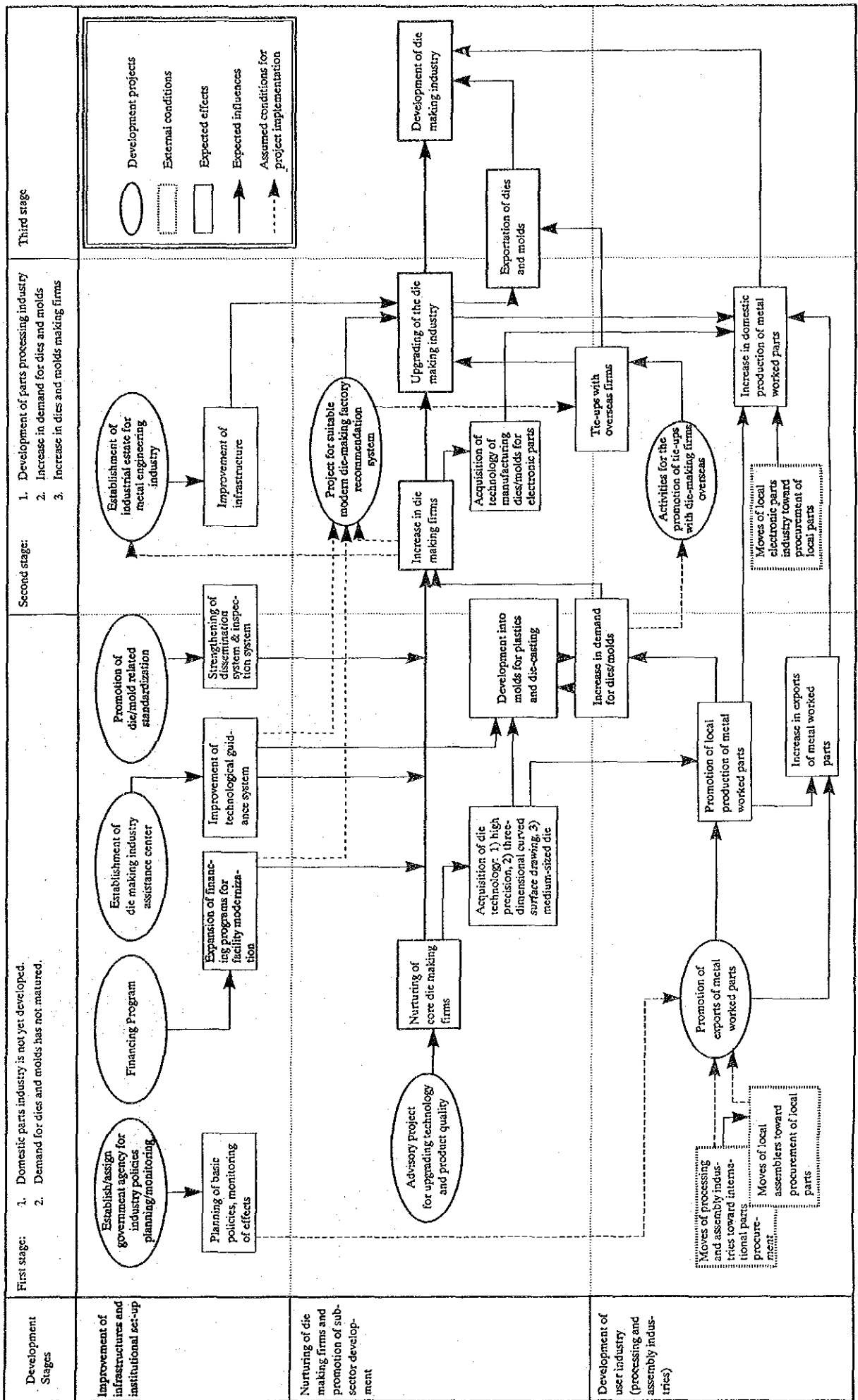


Table IV-1-2: Outline of Development Programs for the Die Making Industry (1)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
I. Establishment/assignment of government agency for industry policies planning/monitoring	<p>Assignment or establishment of government agency in charge of policies with the following functions:</p> <ol style="list-style-type: none"> 1. Planning and mapping out strategic development of the entire machinery and metal engineering industry. 2. Necessary coordination among the related government agencies and organizations. 3. Monitoring and analyzing conditions and effects of policy implementation and reflecting the results in the revision of policy. 	<ol style="list-style-type: none"> 1. Engagement of consultants to assist in the establishment of the system. 2. Assignment of engineering officers who have completed specialized courses in metal engineering and machinery industry. 3. Dispatch of administrative and engineering officers for study overseas. 4. Organization of council to draw up development plans for machinery and metals industries. 5. Regular reporting system and special research to grasp the actual situation of the sector. 	<ol style="list-style-type: none"> 1. Promotion of project: BOI 2. Implementation: BOI/Industry Group 3. Schedule: Immediate implementation is recommended. 	
II. Improvement in production and management technologies of die-making firms	<ol style="list-style-type: none"> 1. Nurturing of the potential core firms for the modern die making industry through guidance for individual firms in the improvement of production and management technologies. 2. Nurturing of local guidance staff. 3. Activities for introducing nurtured firms to domestic and overseas user enterprises. 4. Assistance for modernization of facilities of nurturing firms. 	<ol style="list-style-type: none"> 1. Formation of an appropriate advisory team by overseas experts, and a support team by domestic guidance organization. 2. In-advance setup of methods for introducing nurtured firms to domestic and overseas user enterprises. 3. In-advance setup of incentive measures for nurtured firms. 	<ol style="list-style-type: none"> 1. Promotion of project: BOI and DOST (MIRDC). 2. Implementation and coordination: Organization of secretariat by MIRDC. Establishment of promotion committee including representatives of user industries. 3. Schedule: Immediate implementation is recommended. 	<p>It is recommended that the project begin with the field of dies for pressing and precision pressing and extend to those for die casting and plastics in the future.</p>
2. Project for suitable modern die-making factory recommendation system	<p>Encouraging the firms to make efforts for technological/management improvement to obtain the eligibility to the recommendation, through:</p> <ol style="list-style-type: none"> 1. System of "modernized die-making factory" 2. Assistance for activities to introduce recommended factories to domestic and overseas users. 	<ol style="list-style-type: none"> 1. Implementation in advance of technical guidance project such as Advisory Project for Upgrading. 2. In-advance setup of a system of activities for introducing recommended factories to domestic and overseas users. 3. In-advance setup of encouragement measures should be established. 	<ol style="list-style-type: none"> 1. Promotion of project: BOI and MIRDC 2. Implementation and coordination: Secretariat and promotion committee of the Advisory Project for Upgrading is recommended to be utilized for this project. 3. Schedule: The plan should be implemented when core die-making firms have been formed, the number of die-making firms has increased and a system for technological and financial assistance has been established. 	

Table IV-1-2: Outline of Development Programs for the Die Making Industry (2)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
II. Improvement in production and management technologies of die-making firms (continued)				
3. Establishment of industrial estate for metal engineering industry	Establishment of industrial estate for the metal engineering industry with concentrating efforts of infrastructure improvement on this area.	<ol style="list-style-type: none"> 1. Sufficient in-advance study and preparatory work. 2. Sites should be selected taking into account the proximity to user enterprises. 3. Supporting service firms should be attracted. Establishment of facilities for common use should be considered, if necessary. 4. Preparation of incentive packages for tenant firms. 	<ol style="list-style-type: none"> 1. Promotion of project: BOI 2. Schedule: Work should start when demand for dies has increased and the number of die-making firms has begun to increase. However, the preparation is recommended to be begun immediately. 	
4. Establishment of die making industry assistance center	<p>Establishment of an organization to provide technological guidance and assistance in accordance with the various stages of development of the die making industry.</p> <p>Necessary functions in the initial stage are as follows:</p> <ul style="list-style-type: none"> - Holding of seminars and workshops on technology and production management for the improvement of die making technology. - Operation training, lending by the hour and guidance services for machinery and facilities whose introduction is desirable in the near future. - Facility services of highly advanced machines which currently are not used frequently, supporting technological facilities and test and inspection facilities. 	<ol style="list-style-type: none"> 1. The operation system to meet the needs of the die making industry. 2. Securing the funds for operation. 3. Adequate maintenance system of facilities and machinery and spare parts and materials supply system. 4. Training of guidance staff. 5. Appropriate location of the center in view of training, guidance and facility services. 	<ol style="list-style-type: none"> 1. Promotion of project: DOST 2. Implementation: Initially, the center should be attached to MIRDC. Establishment of operating committee reflecting the needs of the die making and user industries is indispensable. 3. Schedule: Preparation be started immediately. 	Estimated funds required (including building): 916 million yens (7.046 million U.S.dollars)
5. Promotion of die/mold related standardization	Industrial standards for dies/molds are sufficiently developed at the present stage. Dissemination system and inspection system should be improved so that these standards are actually applied.	<ol style="list-style-type: none"> 1. Active participation of the die making and die user industries. 2. BPS should assess the factors impeding the inspection system development and request various related agencies for further support, if necessary. 	<ol style="list-style-type: none"> 1. Implementation: BPS 2. Schedule: BPS is recommended to begin with the necessary action including program preparation. 	

Table IV-1-2: Outline of Development Programs for the Die Making Industry (3)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
<p>III. Recommendation on the promotion of exports of metal worked parts</p>	<p>In implementing the current production program for automobiles and electrical appliances, measures to promote exports of metal worked parts in particular should be strengthened. For instance,</p> <ul style="list-style-type: none"> - Advanced firms overseas should be encouraged to setup parts procurement centers in the Philippines. (In addition to the existing incentives, the enhancement of communication facilities and the simplification of export procedures, etc., should be considered.) - Incentives for exporting firms should be applied to enterprises attaining a local content ratio of 100%. - Encouragement of domestic production by setting incentives for those who cleared the local content target. 	<ol style="list-style-type: none"> 1. Export promotion measures and incentives measures should be limited to compensate for the cost penalties arising from the small size of the market and should gradually be reduced when cost penalties diminish due to the expansion of the market. 2. A system should be established to monitor the economic effects and social costs arising from the implementation of the program. 	<p>Schedule: Immediate implementation is recommended.</p>	
<p>IV. Activities for the promotion of tie-ups with die-making firms overseas</p>	<ol style="list-style-type: none"> 1. Formation of organization to promote tie-ups with overseas firms. 2. Continuous activities including establishment of a data base, information gathering and mission dispatch. 3. Development of personal relations through the continuous dispatch of trainees overseas. 	<ol style="list-style-type: none"> 1. Nurturing of Modern Die-making Factories through the implementation of the Advisory Project for Upgrading Technology and Product Quality, project for Suitable Modern Die-making Factory Recommendation System, and so on, is the prerequisite. 2. Support from user industries. 	<ol style="list-style-type: none"> 1. Implementation: The program should be implemented by MIAP with assistance from BOI, BETP, CITEM, and the offices of the Philippine Government abroad. Assistance by user industries is indispensable. 2. Schedule: The project should be introduced when core die-making firms have been formulated. 	