

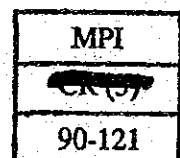
**A STUDY ON
INDUSTRIAL SUB-SECTOR
DEVELOPMENT
IN THE REPUBLIC OF INDONESIA**

Summary

FIRST YEAR FINAL REPORT

AUGUST 1990

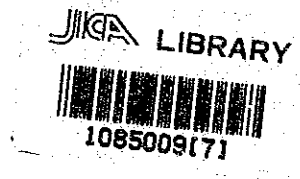
JAPAN INTERNATIONAL COOPERATION AGENCY



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国際協力事業団

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<SUMMARY AND CONCLUSIONS>

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<SUMMARY AND CONCLUSIONS>

[Summary and Conclusions]

I. Foreword

1. Background of Summary

Indonesia has been suffering from a deterioration of its international balance of payments due to the fall in oil prices which began in the mid 1980s and therefore is trying to escape from its economic dependence on oil revenues. Toward this end, it has designated the promotion of non-oil and gas (non-migas) products as one of its most important economic targets.

Indonesia has worked hard to develop its industry through the past four five-year plans (Repelita). In the fifth five-year plan (Repelita V) begun April 1989, it set for itself the target of an 8.5 percent annual growth rate in the industrial sector and the achievement of a 16.9 percent ratio of the industrial sector in the GNP by 1993. To realize this, it is giving priority to the development of its export industries.

To help in this endeavor, the Indonesian government requested the Japanese government to survey industrial fields and products which could be expected to be promising in terms of future exports and to formulate a comprehensive program for promotion of exports.

In response to this, the Japan International Cooperation Agency began a two-year survey on sectorial promotion and development plans for Indonesia starting in August 1989. This report summarizes the results of the first fiscal year survey.

2. Object and Scope

The survey has as its object the formulation of comprehensive measures for the promotion of selected industrial sectors with the intent of indicating how best to increase exports and proposes a practical program of action out of these comprehensive measures. The program is meant to be comprehensive and concentrated on which will lead to promotion of the export industries. The aim here is a systematic method for achieving this, not an ad hoc collection of measures.

Further, the survey organizes information relating to companies in both countries interested in investment or joint ventures in the industries and products covered so as to help promote joint ventures and technical tieups between Japan and Indonesia - important elements in the promotion of export industries. Another objective of the survey was the transfer of surveying techniques to the Indonesian counterparts through the implementation of the survey.

The industries and products covered in the first fiscal year were as follows:

- Handicraft industry (fashion accessories and traditional crafts)
- Rubber-based product industry (industrial rubber-based products and latex products)
- Electrical machinery industry (motors, generators, and transformers)

The survey had the following objectives:

- a. Obtaining a grasp of the current state of the selected industries and products
- b. Obtaining a grasp of the policies and measures of the government for promotion of industry and the state of the infrastructure for promotion of the selected industries

- c. Obtaining a grasp of the current state of problems in exports in the selected industries
- d. Survey of the markets and policies for the individual products
- e. Formulation of a master plan for promotion of the selected industries
- f. Organization of information for promotion of the industries, investment in the industries, and technical tieups

3. Method of Survey

The method used for the survey was as follows: the survey team first obtained a grasp of the problems in advance through information collected beforehand in Japan, drew up a general scenario of comprehensive promotional measures, then sought to verify this in a field survey.

In the formulation of the comprehensive promotional measures, the team obtained a grasp of the problems through the field survey, analyzed the same, determined the means which could be practically employed by Indonesia out of the general solutions for the problems, then prepared comprehensive proposals.

The survey included a field survey, a questionnaire survey in Japan, and surveys in third country markets. The field survey consisted of a total of 255 interviews of companies, government organizations, research organizations, etc. (131 for handicrafts, 91 for rubber-based products, and 33 for electrical machinery). At the same time, 241 questionnaires were retrieved (184 for handicrafts, 41 for rubber-based products, and 16 for electrical machinery) and analyzed.

The survey covered Jakarta and other main cities on Java island, Sumatra, Kalimantan, Sulawesi, and Bali.

On the other hand, in the Japanese survey, a questionnaire survey was run on 270 companies dealing in handicrafts, 160 in rubber-based products, and 11 in electrical machinery.

The third country surveys covered two countries in each industry out of the main Asian countries deemed to be competing with Indonesia and, further, two countries for each industry out of the advanced countries considered to be potential markets for Indonesian exports.

The comprehensive promotional measures proposed in the report were prepared based on the analysis and evaluation of these survey findings.

4. Report

The report is comprised of five sections: Summary and Conclusions, I. Review of Policies Related to Industrial Sub-sector Development, II. Handicraft Industry, III. Rubber-Based Product Industry, and IV. Electrical Machinery Industry.

II Summary of Review of Policies

1. Industrial Development Policy

The priorities of industrial development during the fifth five-year plan (Repelita V) are the increase of exports of industrial products, the building up of the industrial structure, the creation of business opportunities and employment opportunities (development of small scale industries), the development of the farm crop processing industry, the development of the plan, engineering, and electronics industries, and the promotion of the entrepreneurship.

The main policies relating to the industrial sectors covered by the survey are as follows:

1) Export targets

The government is targeting at increasing exports of industrial products by an average annual 15 percent, during which it intends to increase exports of the miscellaneous industries by 13.8%, the metal and machinery industries by 10.9%, basic chemicals by 21.9%, and small-scale industries by 21.6%. The share of exports of industrial products in all exports at the end of Repelita V is to be 59.7 percent. The target value of exports is to be over US\$18 billion.

2) Basic policies for development of export-related industries

The framework of policies includes the strengthening of competitiveness in the world market, the diversification of export products, the improvement of efficiency of the import substitution industries and promotion of an export orientation, the promotion of investment in export oriented industries, and the establishment of industrial estates for the export industries in special industries.

3) Deepening and strengthening of industrial structure

• The government is giving priority to industries with relative superiority and seeking to deepen the industrial structure for industrial structuring and to promote industrialization in the local areas and develop small scale industries.

4) Development of small scale industries

The government plans to promote small scale industries, including handicrafts, cottage industries, the informal sector, and traditional industries, through establishment of SENTRA.

It also plans to raise the capabilities and self reliance of companies, expand them in size, and increase production.

Further, it aims at the promotion of small scale industries in the local regions.

5) Acquisition and Dissemination of Technology

- The development of research facilities and the development of other industrial research and development centers and at the improvement of the capabilities of expert researchers, the increase of the role of the private sector in research and development, particularly the large corporations, and the increase of the role of the state-run companies.

- The acquisition of manufacturing and processing technology, the promotion of standardization, and the acquisition of advanced technology and high tech expertise.

- The improvement of design capabilities for factory construction, factory equipment, machinery and equipment, and plant construction.

- The improvement of the efficiency of technical transfers and dissemination

[Sectorial Policy Goals]

[1] Handicrafts and general products

The measures for the promotion of handicrafts in Indonesia are included in the measures for promotion of small-scale industries. Problems faced by small size companies include a low productivity and low level of quality and technology, insufficient quality labor, and fund constraints. The specific programs for promotion of development of small scale industries include (1) a program of improvement of productivity and quality, (2) a program for promotion of exports, (3) a program for promotion of the Bapak Angkat system, and (4) a program for development of the entrepreneurship and expert capabilities.

[2] Rubber-based products

The rubber industry is designated as a key export industry in Repelita V and rubber based products are considered products for promotion of exports. Therefore, the government has set targets for strengthening of competitiveness, diversification of export products, etc. so as to increase exports and for the promotion of export oriented foreign investment.

Further, from the viewpoint of the development of farm crops, it has set targets of the improvement of efficiency and productivity in the upstream sector, i.e., the rubber material production sector, and the promotion of the downstream sector, i.e., the rubber processing industry.

Further, with the aim of the acquisition and dissemination of technology, the government plans to strengthen research facilities, provide technical services to small and medium size companies, and promotion standardization and establishment of product standards.

[3] Electrical machinery

The electrical machinery industry is a typical import substitution type industry at the present moment, but is expected to grow to an exporting industry over several stages. Toward this end, it is necessary to improve efficiency and competitiveness by the restructuring of the industry, i.e., the optimum use of production capacities, reduction of production costs, improvement of technology, and establishment of a suitable business environment. The products covered by this survey (generators, transformers, and motors) are indispensable for the expansion of power generation and the power transmission net. In particular, important policies are for the promotion of generating machinery, transmission machinery, transformer stations, power distribution equipment, and industrial electrical machinery (generators).

2. Export and Investment Policies

From the latter period of Repelita IV (1984 to 1988), the government took positive steps to reform the structure of the economy with the aim of promotion of non-oil exports and promotion of investment through the correction of the high cost economy. The main measures were as follows:

<Repelita III>

March 31, 1983	Devaluation of rupiah (38.2 percent, local currency)
April 1983	Reevaluation of projects
January 1984	Introduction of new tax system

<Repelita IV>

April 1985	Major streamlining of import procedures (privatization of customs clearance work)
May 1986	Package of policies (promotion of exports of non-oil and gas products and promotion of investment)
September 13, 1986	Devaluation of rupiah (45 percent, local currency)
October 1986	Package of policies (easing of import restrictions as followup on devaluation of rupiah)
January 1987	Package of policies (reduction of tariffs and easing of import restrictions)
December 1987	Package of policies (export promotion, easing of import restrictions, promotion of investment, liberalization of capital market, promotion of tourism)
October 1988	Easing of restrictions in financial sector
November 1988	Package of policies (easing of restrictions in manufacturing, trade, and investment sectors and easing of restrictions in warehousing and shipping)
December 1988	Easing of restrictions for financial institutions other than banks
January 1990	Reforms of financial system (streamlining and consolidation of institutional financing and ensurement of loans for small and medium size companies)

The stronger price competitiveness accompanying the two devaluations of the rupiah and the measures to ease financing and promote exports were major factors behind the large increase in exports of Indonesia in recent years. Further, the improvements in the import system, the tax reforms, and the series of measures to ease investment restrictions led to the increase in investments from abroad starting in 1987.

[Sectorial Policies]

[1] Handicrafts

The succession of export promotion measures announced since 1986 to promote exports cover non-oil products, but do not specify those products individually. In handicrafts, the Handicraft Center of the National Agency for Export Development (NAFED) is working as the central organization for monitoring of samples in overseas markets, dispatch of import promotion missions aimed at foreign importers, sponsoring of exhibitions and business meetings, sponsoring of seminars in guidance in designs, etc.

In investments, Presidential Decree No. 21 of May 1989 designated many of the products included under handicrafts as reserved for the small scale industries, so this field is not open to foreign investment.

[2] Rubber-based products

The promotion of exports of rubber-based products is considered to have the same goals as the promotion of exports of plastics and other chemicals in the various industrial sectors of the development program. There are no policies specific to rubber. However, the export plans of Repelita V establish a target for exports of rubber-based products of an average annual 15.7%. As specific measures for promoting exports, the Industrial Product Center of the National Agency for Export Development (NAFED) will take the lead and collect and disseminate overseas information, dispatch missions overseas, receive missions from abroad, and hold seminars in Indonesia.

<Investment>

There are no restrictions on investments in the rubber-based product industry. Investment by foreign companies is possible in the framework of the current Foreign Investment Law. Foreign investment in rubber products has increased in recent years, with there in particular having been a remarkable number of investments in sports shoes in recent years.

[3] Electrical machinery

Electrical machinery was one of the sectors covered by the Deletion Programme introduced during Repelita IV. The Deletion Programme was abolished in 1990, after which the sector became one subject to export promotion.*

The export targets for 1989 to 1993 have been set at an average annual 9.7% for generators and 10.0% for transformers.

On the other hand, in the current Foreign Investment Law, electrical machinery (including parts and components) are not mentioned in the negative lists and thus there are not special institutional obstructions to investment.

3 Financial Policies

Indonesia's financial policies are based on a firm adherence to the principle of free competition based on the market principle. That is, they are based on the belief that funds are most effectively distributed through the free market.

Therefore, the government has established systems for the preferential funding of specific industrial sectors only for an extremely limited number of sectors such as food production. There are no special financial supports provided to the industrial sectors covered by this survey. (Institutional financing remains for investment funds for estates for production of rubber materials.) Therefore, while no special financial systems are available to the companies in the industrial sectors surveyed, these companies are allowed to freely raise funds in accordance with their own capabilities from either the domestic or overseas markets.

In the individual industrial sectors, there were several systems of low interest financing for small size companies with total assets of under 600 million rupiah, but these were scrapped by the package of financial policies announced January 29, 1990. Instead, a guideline was issued that banks should reserve 20% or less of the balance of their outstanding loans for financing small companies with total assets of under 600 million rupiah. This ensured the funds for loans to small size companies as in the past, but the interest rates were changed to actual market interest rates applied in accordance with the credit ratings of the companies.

Before the reforms of January 29, institutional financing was offered to small and medium size companies at advantageous conditions, i.e., companies with total assets of under 300 million rupiah were offered KIK/KMKP at 12% interest rates (loan ceiling of 30 million rupiah) and those with total assets of over 300 million rupiah to 600 million rupiah were offered KI/KMK at interest rates of 15% (loan ceiling of 150 million rupiah). and many handicraft sector companies made use of the same.

III. Problems and Summary of Survey Findings by Industrial Sectors

1. Handicraft Industry

1.1. Main Problems

1) Handicraft products are created from the culture and surroundings unique to each country and therefore great care must be taken in the formulation of measures for the promotion of production technology, product development, sales (sales channels and pricing policies), etc. and a different perspective must be used from that with other industrial products.

2) The handicraft industry includes diverse products and is spread over a wide geographical area. Further, the industry is characterized by a predominance of small scale and cottage industries. The problems include those common to these products and ones unique to individual products, so both general policies and special ones are required as well.

3) The common problems include those concerned with marketing and those concerned with production technology.

First, despite Indonesia's having domestic products and there being markets overseas, the marketing capabilities are insufficient. That is, the biggest stumbling block in exports is the lack of marketing capabilities, such as collection of market information, product development, sales promotion, and general promotion, in the small size companies, which account for the majority of the companies in the handicraft industry.

The problem in production technology is the lack of activities to raise quality levels and production adaptation capabilities required for making the products suitable for the markets of the importing countries. To raise quality levels, quality control and technical guidance are required in everything from materials to the production processes and even transport. For product adaptation, product and design development capabilities are required.

4) In addition to these main common problems, there are many unique problems facing individual products.

1.2. Summary of Survey Findings

1) Current State and Problems as Seen From Demand Side

a Indonesian handicraft industry

[1] Characteristics by region and firm scale

On the national level, there were 117,019 places of businesses employing 280,578 workers, for an average number of workers per place of business of 2.4 persons, for a per capita worker added value of 440,000 rupiah. As seen from this, the businesses are extremely small in size.

This survey took note of the characteristic of the handicraft industry as a local industry and therefore covered the regions of Jakarta, North Sumatra, South Sulawesi, Bali, Yogyakarta, and Bandung and its environs.

Clear differences according to the size of the companies and regions were shown in the export figures, access to promotional measures, reliance on the

government, and requests to the government.

A look by region shows that there were large exports from Bali and Jakarta and few exports from North Sumatra and South Sulawesi. Jogjakarta and Bandung fell in between the two groups. By company size, most of the exports were from large companies and very little from small ones, with medium size companies falling between the two again.

There is a relationship between the number of export companies and the percentage of small size companies. That is, the higher the export ratio in a region, the smaller the percentage of small size companies. Judging from the percentage of export companies and small size companies, Bali and Jakarta may be classified as advanced regions, while Jogjakarta and Bandung may be classified as intermediate ones and North Sumatra and South Sulawesi may be classified as backward ones. Access to promotional measures is easier the more advanced the region and becomes increasingly difficult with the intermediate and backward regions.

Conversely, dependence on the government is higher with the backward regions and increasing lower with the intermediate and advanced ones. Therefore, the higher the dependence on the government in a region, the more difficult the access to promotional measures and the lower the dependence in a region, the easier the access. The promotional measures desired by companies in the advanced regions are mostly marketing related, while those by companies in the backward regions are most for guidance and training.

[2] Common problems

<Business Management>

In relation to marketing, the lack of marketing capabilities may be considered to be the biggest problem obstructing exports, particularly in the case of the small size companies.

<Production Technology>

In product development, the problems are a lack of information on the markets, a lack of funds for research and development, and, as a result, difficulties in new product development.

In design, the biggest problem is the lack of information on overseas designs. In some areas, there is also a lack of awareness of the importance of design and insufficient design development capabilities. However, note should be taken that Indonesian handicrafts are highly evaluated in the consumption markets for their ethnic appeal. Other problems include a lack of basic quality control systems in the small size companies and a need for improvement of the existing quality control systems in the large and medium size companies.

[3] Problems unique to products and countermeasures for same item

In addition to common problems such as the lack of marketing capabilities, there are the following problems unique to individual products:

Traditional Handicrafts

Hand Woven Products

Fading is a problem in North Sumatra, Bali, South Sulawesi, Jogjakarta, Bandung, and other production areas. In addition, there are problems such as

defects in the fabrics arising from improper preparatory steps and in the materials themselves. Other problems are the soaring prices of materials and the insufficient supplies of materials, caused by the monopoly in the supply of cotton yarn.

Silk

The silk producing industry of South Sulawesi enjoys large expanses of land suitable for mulberry tree production and a large labor force, so, it was believed, could become a center for the supply of silk to the world. At the present time, however, there are a large number of problems. First, the cocoons are small and the length of the silk yarn short. Further, the unraveling of the silk is performed in ordinary temperature water, so there is a large loss and breakage is frequent, having a detrimental effect on quality. The looms being used are also not for silk, but for cotton. This is a major reason why high quality fabric cannot be produced.

Countermeasures would include (1) improvement of the type of silkworms, (2) improvement of the unraveling process, and (3) guidance in the weaving process. Improvement of the type of silkworms would require cooperation from the Ministry of Forestry. In the long term, consideration should be given to the spun silk concept stressed by the staff of the South Sulawesi Office of the Ministry of Industry.

Fine Bamboo Work and Plaiting

The problem with fine bamboo work and plaiting (in North Sumatra, Toraja, Bali, Jogjakarta, and Bandung) is the transportation costs. Further, there are problems in quality control such as insufficient boiling of bamboo. Stronger technical guidance is required. Reduction of transportation costs could be achieved through introduction of knockdown production.

Rattan plaiting is already an export item and there are no problems there. As to plaiting of other vegetable fibers, the basic physical properties are unknown and thus future study is required.

Ceramic Handicrafts

Ceramic handicrafts (North Sumatra, Bali, Jogjakarta, and Bandung) suffer from the problems, in production processes, of insufficient kiln sizes, insufficient temperature control, etc. and, in materials, difficulties in acquiring the top glazes. The industry has superior shaping techniques, but requires technical guidance in the production processes.

Wooden Carvings and Wood Products

The problem in the products is cracking. The reason for this is insufficient drying of the wood materials. To deal with this, drying facilities may be introduced to the UPT and KOPINKRA of the production areas.

Fashion Accessories

In the case of silverware (Bali, Jogjakarta, South Sulawesi, Bandung, and Jakarta), the manufacturers all seek the introduction of rollingators. In the importing countries, however, handicrafts are considered of value when made by hand. The conclusion of the survey team is that machinery intended for mass production would should not in principle be introduced. Problems with the jewelry include a lack of variation of size, the overly large sizes of rings, and the poor working environment. To raise the precision of processing, it will be necessary to introduce machinery for cutting, polishing, etc. and to use dust masks to improve the working environment.

For other fashion accessories (shells etc.), development of products of a higher class feel is required.

[4] Current Promotional Policies and State of Public Facilities

The measures for promotion of the handicraft industry are handled as part of the small scale industry policies. There are no promotional measures covering handicrafts alone. There is an absolute shortage in the numbers of the UPT and TPL compared with the massive number of business establishments and workers in the handicraft industry. The Balai Besar, UPT, and LIK do not seem to be functioning well. The problem is the lack of budgets. These organizations and facilities are essential for the support of small size companies, so should be strengthened and made more active.

[5] Requests to Government Facilities

The strongest request from the manufacturers is for a market information service for exports. The next is for guidance and training in quality control and for technical guidance in production and marketing. Seminars were requested less often.

There were no major differences seen in the requests according to company size, but the small size companies did request guidance and training more often, while the large and medium size companies requested overseas PR and other forms of marketing more often.

b) Handicraft industries and promotional measures of competitors

[1] Thailand

<Exports>

Thailand's exports of handicrafts rose rapidly from 1985 to 1987. It is difficult to make any direct comparisons for 1988 due to the change in the code of classification of some of the products, but overall exports increased in that year too. The main importers were the U.S., Japan, Australia, and the EC.

<Production>

The manufacturers of jewelry and wooden products are relatively large in size. There are problems in procurement of materials for ceramics and for wooden products.

<Policies>

There are no promotional policies covering the handicraft industry alone. Handicrafts are taken up on a project or program base. For example, there was the Thailand Art and Craft Year 1988 to 1989.

<Reasons for Success>

There are four main reasons for Thailand's success: (1) the superior techniques of the craftsmen and low labor costs, (2) the large contribution made by promotion of tourism in the expansion of exports, (3) the organic functioning of the policies of the Export Promotion Bureau, Industrial Promotion Bureau, Tourism Bureau, and Board of Investment in promoting exports of jewelry, and (4) the improvements made in technology for silk fabrics and designs and the appearance of champion export companies, which has begun to make Thailand recognized in the world markets.

[2] Philippines

<Exports>

Exports were stagnant from 1980 to 1985, like with overall exports of the Philippines. There was, however, an increase in exports of fashion accessories in 1986. The principle importer of Philippine handicrafts is the U.S., which holds an approximately 50 percent share. After this come Japan, West Germany, and Australia, all of which hold relatively large shares.

<Problems>

- Reliance on imports for raw materials and instability of domestic procurement
- Inability to handle large volume orders
- Widespread copying of designs and low design capabilities

[3] Japan

The Japanese handicraft industry is characterized by the very small size of the companies comprising it. The problems faced are a decline in demand and difficulties in finding successors and acquiring raw materials. A law was enacted in 1974 for the promotion of the traditional craft industries under which a Traditional Craft Industry Promotion Association was established and promotional measures taken. The promotional activities are aimed at training successors and developing demand and include mainly funding assistance and financial and tax incentives.

2) Current State and Problems as Seen From Demand Side

a. Trends in world handicraft trade and position of Indonesia

The trends in trade in handicrafts by the OECD countries are as follows:

- | | |
|----------------------|---|
| Import value: | There are differences in the rates of increase by product, but the value of imports increased in the seven years from 1980 to 1987 and there has been a clear upward trend even considering inflation rates. |
| Importing countries: | With the exception of certain products, the U.S. constitutes the biggest market and is increasing its share. Imports by Japan are also rising and that country is assuming greater importance as an import market. The EC countries mostly import from Italy and other neighboring European countries. |
| Import partners: | For some products such as embroidery, the traditional exporting countries are holding on to their shares. The Asian NIEs and ASEAN countries, in particular Thailand, have been increasing their shares. Indonesia accounts for a relatively small share compared with the other ASEAN countries, but is rising in importance both in terms of value and share. |

b. Trends in main import markets and evaluation of Indonesian handicrafts

<U.K.>

Import trends:

Imports of handicrafts by the U.K. rose from 1985 to 1988 in all both a few products. The main countries of origin were the neighboring European countries, but there was also a remarkable increase in imports from the Asian NIEs. In the ASEAN countries, the Philippines and Thailand stand at the top position in certain products. Indonesia is classified among the "other countries" in the import statistics. Its share of the U.K. market is still small.

Evaluation of importers:

Among Indonesian handicrafts, wooden handicrafts are handled the most and hand woven products the least. Indonesian handicrafts are highly evaluated for their color and ethnic appeal, but are considered as problematical in terms of the packaging and delivery.

Activities for promotion of exports by competing countries:

All the competing countries are passive, not active, when it comes to promoting exports of handicrafts to the U.K.

<U.S.>

Import trends:

Seen in the long term, the shares of imports in the U.S. market for giftware, personal accessories, wooden handicrafts, and hand woven products are increasing. The main exporting countries differ by product, but overall the high class items are from the European countries. In addition, there are imports from the Asian NIEs, Japan, Mexico, etc. As a result of the adjustment of the exchange rates since September 1985, products of Japan and the Asian NIEs have been declining in competitiveness. Thai and Philippine products have maintained their competitiveness and Chinese products have been rising in importance at a remarkable rate as well.

Evaluation of Indonesian handicraft:

Indonesian handicrafts have not established a position for themselves in the U.S. market. They are recognized by companies handling them for their exotic appeal and color. The insufficient penetration of these products in the U.S. market is believed to be due to the lack of promotion on the government level and the lack of aggressiveness on the part of the exporters on the private level.

<Japan>

Import trends:

A look at the trends in imports from 1984 to 1988 shows that there are three groups of products: products for which imports are increasing (wooden handicrafts, bamboo basketwork, and ceramics), products for which imports declined, but subsequently recovered (textile handicrafts), and products for which imports have been declining (shell

products and other basketwork). In many products, a specific country holds the largest share, such as the Philippines for shell products. The main exporters among the ASEAN countries are Thailand and the Philippines. Indonesia accounts for a small share of the imports in both value and share, but imports of certain products have newly begun and the value of imports has been steadily rising.

Evaluation of Indonesian handicraft of Japanese handicraft dealers evaluate Indonesian handicrafts as follows:

Degree of knowledge of Indonesia and competing countries:

Indonesia is considerably well known as a produce of handicrafts. Its competitors are China, Thailand, the Philippines, and India.

Promising products:

The products handled the most at the present are rattan objects and wooden products. Products showing promise for the future are rattan objects, wooden products, hand woven products, and batiks, with rattan objects being the most promising.

Evaluation of Indonesian handicraft:

The ethnic appeal is evaluated the highest, with good marks also being given to color and design. There is considered to be room for improvement in terms of delivery, durability, and quality, however.

c. Demand projections

Demand for handicrafts depends on the increase in the purchasing power of the consumer, since they are not necessities both limited consumer goods in the advanced countries. If the economies of the advanced countries continue to grow, an increase may be expected in the demand for handicrafts. However, Indonesian handicrafts still account for only a small share of the markets of the advanced countries. To increase exports, it is necessary to strengthen promotional measures and have the exporters approach the markets more aggressively.

2. Rubber-Based Product Industry

2.1. Main Problems

1) The Indonesian rubber industry has not yet advanced from a low processing industry. Over 97 percent of the natural rubber is exported in the form of primary products and less than 3 percent is used by the domestic rubber-based product manufacturing industry. The majority of the rubber-based products goes to the domestic market. Only one-third, in terms of consumption of new rubber, goes for exports. Almost all of the rubber exported is in the form of tires, tubes, and footwear. There is only limited exports of industrial rubber-based products and latex products.

2) Products for the domestic market are produced on order without use of any standards. Not only is the level of quality low, but there are also large differences in quality and specifications among the companies. There is still considerable room for improvement in making products suitable for the international market.

3) To increase exports of rubber-based products, first it is necessary to establish industrial standards for products for the domestic market with contents based on international standards. Further, it is necessary to equip testing and inspection organizations and boost their activity so as to raise the level of technology of individual companies and establish a system for support for quality control.

4) The areas requiring improvement for the promotion of Indonesia's rubber-based product manufacturing industry are as follows:

<Material Sector>

- Modernization of collection and processing system and equipment of small holders
- Modernization of processing facilities of cottage industries
- Improvement of system of import tariffs for synthetic rubber, chemicals, and other secondary materials and strengthening of domestic supply capabilities

<Rubber-Based Product Sector>

- Improvement of production technology and manufacturing facilities
- Thoroughgoing quality control
- Development of human resources
- Strengthening of overseas marketing
- Stimulation of activities of industrial organizations

<Strengthening of Public Support System>

- Establishment of comprehensive measures for promotion covering everything from materials sector to manufacture of products and overseas marketing
- Modernization of public research organizations and strengthening of mutual ties among them
- Establishment of industrial standards
- Establishment of export inspection system
- Strengthening of system of supply and education of manpower

2.2. Summary of Survey Results

1) Current State and Problems as Seen From Supply Side

a. Indonesian rubber-based product industry

Most of the companies manufacturing rubber-based products lack sufficient technology, production facilities, manpower, and export experience and knowhow. Further, almost none of them engage in quality control.

Further, due to the overall reliance on the domestic market, companies tend strongly to believe they can sell anything they produce and can wait for orders to come in before producing. They are still not very export minded.

[1] Characteristics of companies

The Indonesian companies producing rubber-based products which were surveyed can be classified into the following five types:

Type I:	Foreign capital joint ventures etc. producing industrial rubber-based products: 3, local companies producing latex products: 1
Type II:	Companies producing industrial rubber-based products: 6, latex products: 3
Type III:	Companies producing industrial rubber-based products: 7, latex products: 8
Type IV:	Companies producing industrial rubber-based products: 12, latex products: 1
Type V:	Companies producing industrial rubber-based products: 6, latex products: 1

The Type I to III companies were relatively modern in facilities, engage in process control and work control, and have good or acceptable working environments. However, the companies classified as Type IV to V have outdated facilities, extremely poor states of process control and work control, and inferior working environments. Therefore, seen overall, Type I companies already have competitiveness, so it is judged that the target for the present should be the promotion of companies with export capabilities through improvement of the technical capabilities of companies classified as Types II to III. Type III companies have to improve their production processes and introduce quality control systems.

[2] Government promotion measures

Almost all the companies manufacturing rubber-based products are medium or small in size. It is essential to improve technical competitiveness to export products, but these small and medium size companies face too many obstacles to be able to engage in R&D on their own. The possibility of private companies doing this on their own is extremely small, and there is a great need for support to the private sector from the public research institutions.

<Strengthening of Functions of Public Research Organizations>

The public research organizations all suffer from insufficient equipment, materials, and manpower and therefore cannot provide sufficient services, such as technical guidance, R&D, and quality inspections, to companies. The strengthening of the functions of the public research organizations is the most urgent and important task to be tackled for the promotion of rubber-based products.

<Establishment of Policy Coordination Function>

The rubber industry is an integral one extending from the upstream sector (materials sector) to the downstream sector (product sector). Price and nonprice competitiveness can only be achieved by strengthening and maintaining valid links at each stage. At the present time, however, there is no system for the overall coordination of industrial promotion measures among the related ministries and organizations. The government should consider the establishment of a policy coordination function - a function essential for long term economic management.

However, this type of function would probably take some to establish, so for the time being the government may select suitable organizations among existing ones, give them status as central research organizations, and strengthen the ties among organizations.

b. Industrial Situation and Promotional Measures in Competing Countries

<Malaysia>

Malaysia, the world's largest producer of natural rubber, has achieved great success in its promotion of the rubber-based product manufacturing industry as an export industry. Exports of rubber-based products grew from US\$10.67 million in 1980 to US\$40.02 million in 1988, for an average annual growth of 18.0 percent. The share of rubber materials and products in total exports rose from 27.8 percent to 32.1 percent in the same period. Among these, large growth was shown in latex products, particularly rubber gloves.

Behind the success in exports of Malaysian rubber-based products have been the industrial promotion plans implemented from the past by the Malaysian Rubber Research and Development Board (MRRDB) under the Ministry of Primary Industries etc. and the comprehensive research and development, covering everything from materials to products, by the Malaysian Rubber Institute (PRIM) under the MRRDB. PRIM, which was established in 1925, has ties with domestic research organizations, the U.K. Malaysia Rubber Research Institute, etc. and has gradually expanded the range of its research from the initial emphasis on natural rubber production to rubber consumption and final applications. At the present time, it has a large size technical center and engages in technical development and support to the private sector.

The rubber related research and development capabilities of Malaysia are evaluated as being far higher in level than in other Southeast Asian countries.

Another factor behind the development of the Malaysian rubber-based product industry has been the participation of foreign companies. PRIM produced a report on the future potential of the latex product industry in the mid-1970s based on which the government formulated measures for promotion of the industry. Since then, numerous famous international companies have invested in Malaysia.

Malaysia has designated fields for priority promotion for each of the five-year terms of the Industrial Master Plan (1986 to 1995) begun in 1986. In the five-year period from 1990, it plans to increase the sophistication of the rubber-based product industry much more.

<Thailand>

In Thailand, the Rubber Research Institute, under the Ministry of Agriculture, have overall control over both rubber materials and rubber-based products. Research and

development activities in the technical area are conducted by the Rubber Research Center under that institute. Centralized quality control over rubber materials is handled there. The Center has training facilities, primarily for natural latex, and a technical research institute. It also engages in research and development of rubber-based products.

In this way, Thailand also has an industrial promotion and research and development system covering everything from the upstream sector (materials) to the downstream sector (products), but the research and development and private sector support functions in the product sector are still inferior to those of Malaysia. As a result, Thailand exports only one-third as much rubber-based products as Malaysia and is still undeveloped in terms of technology as well. In 1989, most of the exports of rubber gloves to the U.S. market did not pass inspection in the U.S., resulting in such purchases being stopped.

2) Current State and Problems as Seen From Demand Side

a. Global trade

Most of the world's natural rubber is being produced in Southeast Asia and the rest of the Asian region. The biggest producer is Malaysia. In 1988, it produced 1.66 million tons, 32.9 percent of the total world production. At second place is Indonesia, which produced 1.24 million tons (24.5 percent) and at third place is Thailand, which produced 980,000 tons (19.3 percent). These three countries between them account for 76.8 percent of the world's total production.

Among these three countries, Thailand has displayed a high average annual growth in production of 7.6 percent in the past 10 years. Indonesia has steadily increased production by 3.2 percent, but the leader, Malaysia, has only increased production by 0.5 percent, thus leveling out.

While these three countries account for large shares of the world's exports of natural rubber, they supply different markets. That is, Malaysia exports most of its production to the EC markets, Indonesia to the U.S. market, and Thailand to the Japanese market.

A look at the share of Indonesia in exports to the OECD countries (1987) shows that its exports to the U.S. accounted for 65 percent of its total exports and exports to the EC only 19 percent. Only 8 percent of its production was exported to Japan. Indonesia has been gradually increasing its exports to Japan, in terms of the share of exports, but the share is still small. Further effort to develop the market would be desirable.

While these three countries account for a large share of the global natural rubber market, they have only small shares of the market for rubber-based products, particularly industrial rubber-based products. In the rubber-based product markets of the main consumption areas, the OECD countries, in particular the markets for industrial rubber-based products which are mostly supplied directly from the manufacturers to the users, domestic transactions and transaction within the region predominate. Further, most of the trade is among the advanced countries themselves. Outside of the advanced nations, the Asian NIEs and Malaysia have consolidated positions for themselves in the market for rubber gloves and other latex products, but that is all. The reasons for this are (1) industrial rubber-based products are primarily made of synthetic rubber and further there have been remarkable innovations made in materials in recent years and (2) user companies make tough demands on quality and delivery and in some products, such as conveyor belts, demand after sales service, so it is difficult to enter the markets just by dint of superiority as a producer of natural rubber.

However, Malaysia and Thailand have been increasing their exports, primarily of rubber gloves, and have also begun gradually entering the fields of industrial rubber-based products. There are good future prospects for exports of rubber-based products from Southeast Asia. Indonesia is behind the two countries in exports of rubber-based products, but in the future can hope to increase exports by making use of its superior position as the world's second largest producer of natural rubber and its abundant, cheap labor force.

b. Trends in main import markets and evaluation of Indonesian products

<U.S.>

Import trends:

The U.S. rubber-based product industry has seen a surge in imports in recent years.

U.S. production of key rubber-based products (industrial rubber-based products and latex products) increased an average annual 8.2 percent from the US\$640 million of 1982 to US\$1,020 million in 1988. During that time, however, imports grew from approximately US\$40 million to US\$220 million - for a high 33.6 percent average annual growth. In particular, a high 53.2 percent growth was seen in latex products, due to the surge in demand for examination gloves due to the AIDS scare.

The ASEAN countries, NIEs, and Japan together account for approximately a 60 percent share of the U.S. rubber-based product industry. They account for only a 44.9 percent share of industrial products, but a 69.1 percent share of latex products.

In Asia, the ASEAN countries have been rapidly expanding their exports to the U.S., increasing them by 57.7 percent. In particular, the growth in latex products was high. Particularly high growth has been shown by Malaysia and Thailand. Malaysia is in a superior position in the field of latex products, primarily medical use gloves, while Thailand has been steadily increasing exports of gloves and absorbers. Compared with these two countries, Indonesia's share is small. Indonesia was late in entering the market and even now is limited in the scale and types of its exports.

Evaluation of Indonesian Products

According to experts in the U.S. industry, the prospects for Indonesian products are not that dark. One of the reasons is that the Malaysia is entering a period of low growth in its natural rubber production. Also, Malaysia and Thailand are diversifying their industrialization programs, while Indonesia is expending sufficient effort in promoting the rubber industry.

The methods or efforts required for Indonesia to increase exports of rubber-based products to the U.S., according to the U.S. experts, are as follows:

- Concentration in the production and export of main products
- Concentration in products considered promising for Indonesia, these being transmission belts, hoses, pipes, and conveyor belts in the field of industrial products and medical gloves in the field of latex products.
- Hurrying with improvement of the mechanism of collection and production of natural rubber to raise the degree of trust in the same by U.S. buyers

<West Germany>

The West German rubber-based product manufacturing industry is in a mature stage of development. Production of elastomer products rose from 430,000 tons in 1985

to 452,000 tons in 1988, for an average annual growth of 1.7 percent, while sales rose from 5.9 billion marks to 6.5 billion marks, for a slow 2.9 percent growth.

The West German rubber-based product manufacturing industry traditionally has been strongly oriented to synthetic rubber. Leaving aside the rubber industry, natural rubber accounts for only 22 percent of the materials used in the manufacture of rubber-based products. The West German rubber-based product manufacturing industry is primarily interested, in materials, in various types of synthetic rubber and in improvements in methods of blending of chemicals and secondary materials.

West Germany imports little rubber-based products overall. The import ratio for some products, such as V-belts, is high, but West Germany uses domestic products for the majority of other products.

The imports of rubber-based products from Asia are primarily from Japan, South Korea, and Taiwan. There are only very little imports from elsewhere.

Naturally, West Germany knows almost nothing about Indonesian products.

<Japan>

Import trends:

Japan's rubber-based product industry may be said to be rapidly becoming increasingly dependent on imports.

One of the reasons for this is the fall in the international competitiveness of Japan's rubber-based product manufacturing industry since the appreciation of the yen. Another is the expansion in overseas production by Japanese companies. The tire industry has been investing overseas for a long time now and other industrial rubber-based product industries have recently been investing overseas at a fast rate. The motivation behind the overseas investment was first the measures to cope with the yen appreciation but recently has been increasingly measures to deal with shortages in manpower.

The Japanese rubber-based product industry, with the exception of major corporations with sophisticated equipment, suffer from a much severer shortage of manpower five to 10 years from now.

The Japanese rubber-based product market may be said to offer much higher possibilities for growth compared with western countries. However, the market is much tougher in its demands on quality, delivery, and stability of supply, so there are high obstacles to entry. As a result, Japan imports rubber-based products from only a limited number of countries and regions and has not diversified its sources of supply yet. For example, 67 percent of the imports of industrial use rubber-based products are from the U.S. and the EC.

The ASEAN countries account for a small share of the Japanese market for imported rubber-based products even today. In particular, there are only limited imports from the late-starting Indonesia, both in quality and volume.

However, there may be said to be great future possibilities for imports from Indonesia. This is because Japanese rubber-based product manufacturers list Indonesia first as a candidate for their future investment or technical tieups.

Evaluation of Indonesian Products:

Japanese rubber-based product manufacturers are very interested in Indonesia. A

considerable number of companies indicated in the survey that they would like to import products through capital, production, or technical tieups if they could find reliable partners. If progress were made in such tieups, exports to Japan would become more realistic. This would also lead to increased exports to third country markets.

Products considered promising for export to Japan were, in the field of industrial products, plate, sheets, hoses, and V-belts, which Thailand and Malaysia are currently exporting. In other fields, mention was made of household and work gloves.

In the promotion of exports to Japan, it is necessary to establish a system for export inspection in Indonesia.

3. Electrical Machinery Industry

3.1. Main Problems

1) The Indonesia electrical machinery industry has been promoted under import substitution policies in line with the comprehensive schedule for deletion programs implemented starting from the period of Repelita IV. However, the prices of products of domestic manufacturers and their nonprice competitiveness are still not strong and parts and finished goods continue to be imported in large amounts at the present time.

2) The object of this survey is to provide proposals of comprehensive programs for the development of the industry into an export industry, but for electrical machinery, in view of the rising domestic demand, it is important for the products of domestic manufacturers to be able to secure competitiveness sufficient to counter imports in some way and thus to increase their domestic sales.

In the case of electrical machinery, unlike general consumer goods, the nonprice factors (performance and quality) are more important than the price factors.

Securing competitiveness sufficient to counter imports means simultaneously to have competitiveness as export products as well.

Fortunately, the tariff rate assessed on imported parts is expected to be reduced starting in 1990. Therefore, the price competitiveness of finished products for the domestic market and exports can be expected to increase, so the improvement of technical capabilities will become the more important issue.

3) Strengthening of Linkage Industries

Electrical machinery relies not only on technology of the electrical field alone. Rather, it is essential that sufficient technical competitiveness be secured in the fields of metalworking and machining and that the overall foundation of the metal machinery industry be strengthened.

This improvement of the technical capabilities of such linkage industries is an important factor for the strengthening of the competitiveness of electrical machinery with regard to parts, components, and materials for the same as well.

4) Parts Industries

Looking at the start of production in Indonesia from the viewpoints of joint ventures and technical tieups, generators are being produced under license from other countries. Production under foreign license accounts for the mainstream of production both for motors and transformers. Further, Indonesia relies on imports for much of its key raw materials, parts, and components and prices have been rising. This is clear from the high ratio of parts in the elements of prime costs. There is no price competitiveness with respect to internal demand or export use. It is important to strengthen domestic production of materials, parts, and components. As one method for this, it is desirable to positively attract foreign manufacturers.

5) Promotion of Medium Sized Local Companies

Many of the electrical machinery manufacturers in Indonesia which are engaged in production or assembly based on technical license agreements with foreign companies were established with the purpose of a market orientation (production and sale for domestic demand).

These large companies are able to move on to exports along with the changes in the elements of comparative advantages in Indonesia, while selling to meet domestic demand, but such expectations lies in the future. Considering the magnitude of the domestic demand of Indonesia and the future development potential, investment in expansion of market-located type production would be attractive. Despite the existence of government measures for domestic production (import substitution), Indonesia is attractive for the potential size and future possibilities of the market.

Therefore, the companies which should be targeted for promotion as export companies are the medium sized firms. The promotion and development of companies free from technical licenses or restrictions on markets of sale is one method which should be considered in promotion the development of the electrical machinery industry as an export industry.

6) R&D

A tendency of overdependence on foreign technology is apparent in both foreign affiliated firms and local companies, with insufficient autonomous development of products being performed. This is due in part to the lack of manpower able to perform R&D and simultaneously to the insufficient system of support provided by official organizations.

7) Export Promotion

Field of products: Judging from the export records and production records of electrical machinery, the products in which Indonesia is judged to be strongly competitive at the present are voltmeters and transformers, while those in which it is judged to be extremely weak in competitiveness are rectifiers and generator sets. Motors, generators, welding machines, and panels fall between the two. Generators and motors are also becoming competitive in terms of volumes and some have been exported. Therefore, the export promotion activities have to include strategic promotional measures which positive promote products in the order of their potential.

Information: Industrial circles concerned in Indonesia does not have the enough ability to collect overseas technical information and overseas market information except in the case of specific large joint ventures. Therefore, it is necessary to push forward with the provision of information to the industry as a whole.

Price competitiveness: To strengthen the price competitiveness of export products, measures are necessary for reducing the cost of parts including slashing of the import tariffs.

Contributions of industrial organizations: Industrial organizations are expected to deal positively with export activities in cooperation with the government. It is also important that they participate in overseas trade fairs, dispatch missions to develop markets, and run surveys of overseas markets.

3.2. Summary of Survey Findings

1) Current State and Problems as Seen From Supply Side

a. Electrical machinery industry of Indonesia

<Problems in Standards, Testing, and Inspection>

[1] Testing and Inspection Equipment

Electrical machinery becomes a finished product only after satisfying the requirements for electrical characteristics in the final preshipment testing and inspection. Compared with mechanical testing equipment, there is a remarkable shortage of electrical testing equipment. In particular, there is almost no high voltage testing and inspection equipment in either private companies or public research institutions. The insufficient testing and inspection result in shipment of inferior products in many cases. These products suffer from oil leakage, poor insulation, etc. and have caused a loss of customer confidence in some cases.

[2] Establishment of Industrial Standards

There are three domestic standards: the SLI, SPLN, and SII, but none of these are complete and the system of standards is complicated. There have been much delays in the establishment of a unified system of standards (SNI) by the National Standards Commission and it is difficult for companies to standardize with each other. There have been delays in the unification of the systems of units (gauges, units), the underpinnings of technology. Various types of units are being used mixed together. Due to the different interpretations of the same values, there are many cases of nonintegralness of production between assembly companies and subcontractors. Even in the market the situation is the same. Bolts and nuts of different units are sold without differentiation.

[3] Research and Development Organizations

There is no central research institute specialized for electrical machinery under the Ministry of Industry. B4T just performs simple tests and has insufficient equipment. On the other hand, LMK-PLN engages mainly in research on commission from PLN and does not provide much support at all to private companies. The national universities have insufficient equipment and manpower and are not set up to provide support to business at all.

<Problems in Quality Control and R&D>

[4] Quality Control

There are few companies completely equipped with measurement equipment and jigs, the basis for quality control. Only a very small number of companies perform calibration of their measurement equipment. There are many companies which do not exercise suitable control over hazardous objects such as flammable oils, in addition to problems in quality.

[5] Quality of Domestic Parts and Components

There is a large variation in levels of quality and many parts and components which do not satisfy ratings. Insulators not meeting ratings are shipped out due to insufficient inspection and have caused a loss in confidence by customers in Indonesian parts as a whole.

[6] R&D Activities

Indonesia relies too much on technology from abroad and does not develop products on its own. The first reason for this is a shortage of manpower for taking on R&D activities. The second reason is the lack of public organizations for providing side support to R&D activities. This is particularly apparent in the fields of generators and electric motors.

[7] QC Activities

There is insufficient understanding of QC activities and specific experimental methods are not known. Further, QC activities are only effective when everyone involved in the production participates, but the central core of people for this have not been developed. There are not enough medium level technicians bridging the gap between the upper level technicians and skilled workers.

<Problems in Basic Industries>

[8] Technical Level in Metalworking

Of particular importance in metalworking in the main manufacturing processes in the electrical machinery industry are forging, heat treatment, and platework and welding. In Indonesia, very few companies have forging or heat treatment facilities. Almost all companies have imported worked components and parts. In platework and welding, there is insufficient inspection before shipment of products. There is almost no nondestructive inspection performed using X-rays etc. at the present time.

[9] Subcontracting Expenses in Cost Factors

Companies rely on imports for many of their raw materials and parts. Further, due to the lack of development of subcontractors and systems for outside orders of parts, the companies manufacture parts and components in-house. It is impossible to achieve the economy of scale, leading to a rise in the costs of the final products.

[10] Basic Industries

The subcontracting industries, raw material industries, and other basic industries are still in their infancy. It is impossible to make good quality products without good quality raw materials and parts. The development of basic industries for providing the underlying support of the electrical machinery industry is one of the most important factors in determining future industrial potential. Despite this, sufficient support is not provided by public organizations.

<Problems in Information>

[11] Technical and Product Development Information

Since there are almost no public organizations, including universities, providing technical information, Technical and product development information is generally obtained through technical tieups. There is very little independent development of products. This excessive reliance on overseas technology has effects on the sales channels of the final products as well and inhibits freedom of exports.

[12] Marketing Information

There are almost no companies positively collecting marketing information and using it for sales activities. For true exports, not reverse exports by joint ventures, the collection and analysis of overseas information are essential, but there are few organizations providing such information and what is available is not satisfactory either in terms of quality or volume.

<Problems in Manpower>

[13] Education and Training for Technicians, Skilled Workers, and Ordinary Workers

There are only a very few companies which offer systemized in-house education and training programs. Almost no companies make use of external education and training organizations. On the other hand, as the educational support hoped for by companies from the government, there is a strong demand for on-the-job-training by foreign experts.

[14] Manpower Development Organizations

University education stresses theory. On the other hand, education at the vocational schools aim at the training of technicians with practical skills. There is a large gap between the two and Indonesia has been slow to establish organizations for training intermediate level technicians such as polytechnics. There are polytechnics in the field of electronics, but the aim here is not the training of electrical engineers. Further, there are insufficient organizations for retraining the technicians and skilled workers working in companies.

[15] Insufficient Export Mind

There is low interest on the part of the managers in acquiring overseas market information or expanding exports. With the exception of a handful of companies, there is no participation in international trade fairs or visits by overseas clients as the companies have their hands full with domestic sales activities. The joint ventures rely on their parent companies completely for development of overseas markets and do not engage in autonomous efforts much at all.

b. Promotional measures of competing countries

South Korea launched a committee for the promotion of domestic production of electrical products in June 1986 and established plans for the development of individual products through the same. In particular, transformers, electrical cables, and other electrical machinery were designated as industries for rationalization. The problems in the industry are the extremely high dependence on exports, due to weak domestic demand, and therefore the unstable business position of the manufacturers. To promote exports, the government is coming out with various measures such as establishment of cooperative relations with related Japanese industrial organizations, development of markets by market survey teams, systems of funding for improvement of industrial technology, systems for certification of quality and comparison and evaluation of performance.

In Singapore, there is only a very small local production of generators. There is stable local production of motors and transformers. Reexports are increasing due to the rising domestic and overseas demand. In particular, the government is encouraging production of low output types of motors and transformers suitable for home electrical appliances and computer equipment. The government has devised measures for assisting companies to participate in international trade fairs etc. so as to increase exports. Further, the government is recommending the establishment of IPOs (international procurement offices) in multinationals in Singapore.

2) Current State and Problems as Seen From Demand Side

a. World trade

The global market for electrical machinery has been expanding. The three key markets of the U.S., Japan, and West Germany alone account for over US\$20 billion in demand a year. The market for imports in the U.S. has been growing and U.S. manufacturers have been losing price competitiveness in the field of small size electrical machinery. The West German market is seen as intensifying in competition. The main world markets for electrical machinery are the western countries, followed by the NIEs.

b. Third countries (Importers)

The main world markets for electrical machinery are the western countries, followed by Singapore, South Korea, and the other NIEs. In the U.S., there has been a remarkable surplus of imports in the electrical machinery trade since 1985. This trend is expected to continue up to 1995. Therefore, U.S. manufacturers are urgently seeking means of survival by shifting production bases to countries with low labor costs and reduce the prime costs of production by importing low cost parts and materials, so there is a possibility of Indonesia being considered for the same. West Germany imported 12 million marks worth of electrical machinery from the NIEs in 1988, but this only accounted for 1.1 percent of the value of West Germany's imports.

c. Japan

Imports increased 313 percent in 1988 compared with the previous year, but this was due to DC generators, AC generators, and small size motors, most of which came from North America and Southeast Asia. There was only a small amount of imports from Indonesia, but there is promise for the future. Imports of AC motors declined.

<Proposals>

1. Handicraft Industry

(1) Comprehensive promotion Measures

Fig.1 Overall Perspectives for Development of Handicraft Exports indicates the fundamental concept for the development of the handicraft industry as an export industry.

Promotion measures are thus summarized into the following four points:

1) To seek cooperation from foreign economic assistance organizations in the promotion of the handicraft industry for the purpose of intensifying the current promotion measures which have been undertaken by the various departments of the government of Indonesia.

2) To create marketing functions, the establishment of a Handicraft Development & Promotion (HDPC) Center in the public sector and encouragement for the establishment of Marketing Access (MA) firms in the private sector are recommended.

The functions of the suggested Handicraft Development & Promotion Center and MA firms are detailed further in Fig. 2.

3) To support R&D activities for handicraft firms, fortification and revitalization of the activities of governmental institutes related to the development of the handicraft industry are recommended.

4) To address the problems unique to each region, product and firm scale, formulation of a consistent Policy for the Development of the Handicraft Industry is suggested.

(2) Programs

Fig. 3 shows the recommended action programs for the development of the handicraft industry, from short-term, medium-term and long-term points of view.

1) Action programs recommended for the short term are the continuation and intensification of the various programs for export promotion and technical improvement through the cooperation of foreign economic cooperation agencies.

Monitoring surveys of product samples, the holding of exhibitions, the dispatch of selling missions and technical guidance by experts are expected practical activities.

2) Medium-term action programs include the following.

Strengthening of R&D services for handicraft firms by public research facilities such as PTKI and BBKB.

The details of targets and programs are to be studied further.

Establishment of a handicraft marketing center is recommended, however, further discussion and a detailed survey will be necessary on the Indonesian side to formulate a plan in terms of location, function and operation.

The development of silk worm farms and the silk industry in South Sulawesi is proposed as a project with great potential.

3) Long-term programs include a spun silk project in South Sulawesi which would be the next stage in the development of silk worm farms and the silk industry.

Fig. 1: Overall Perspectives for Development of Handicraft Exports

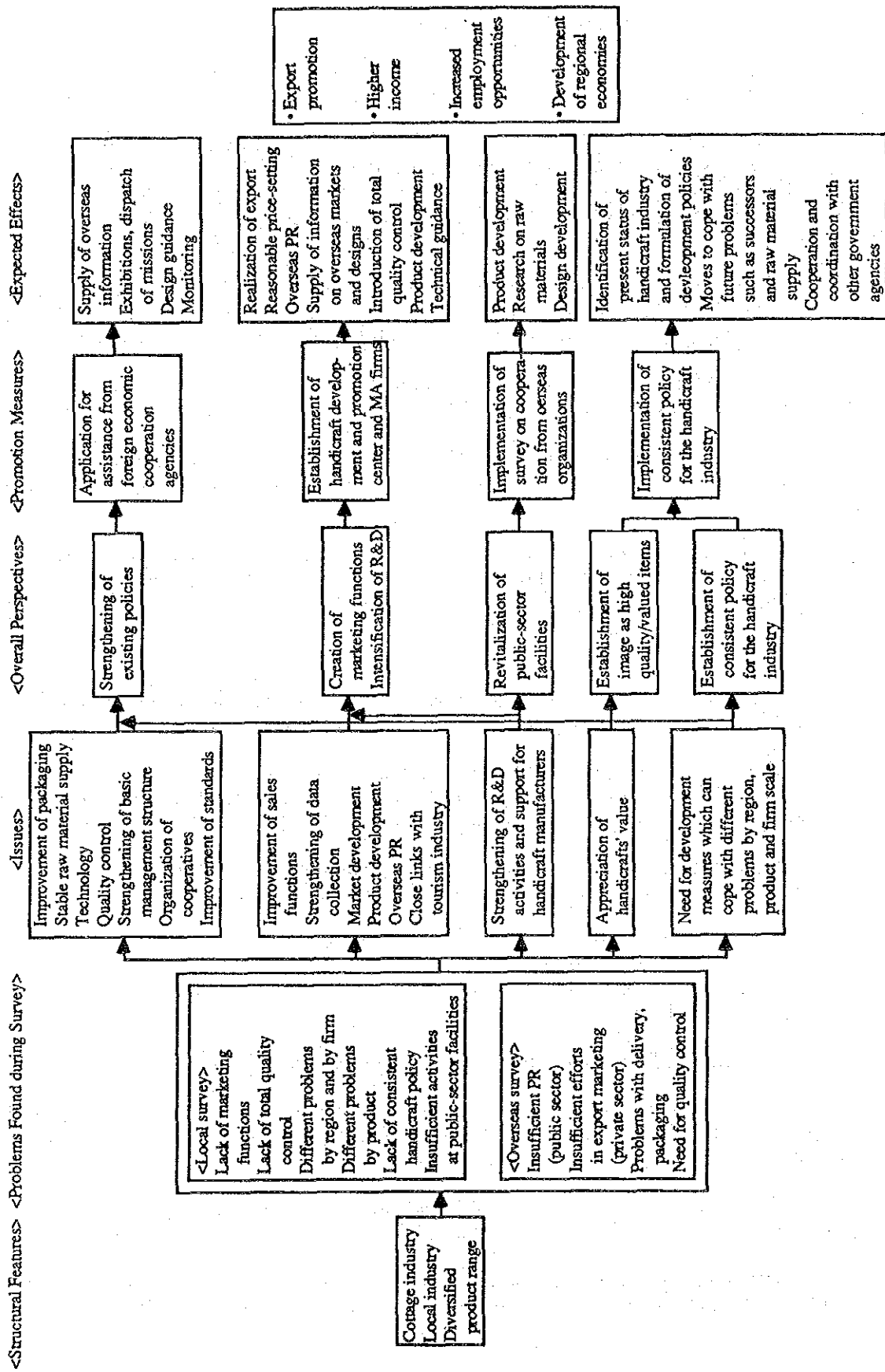
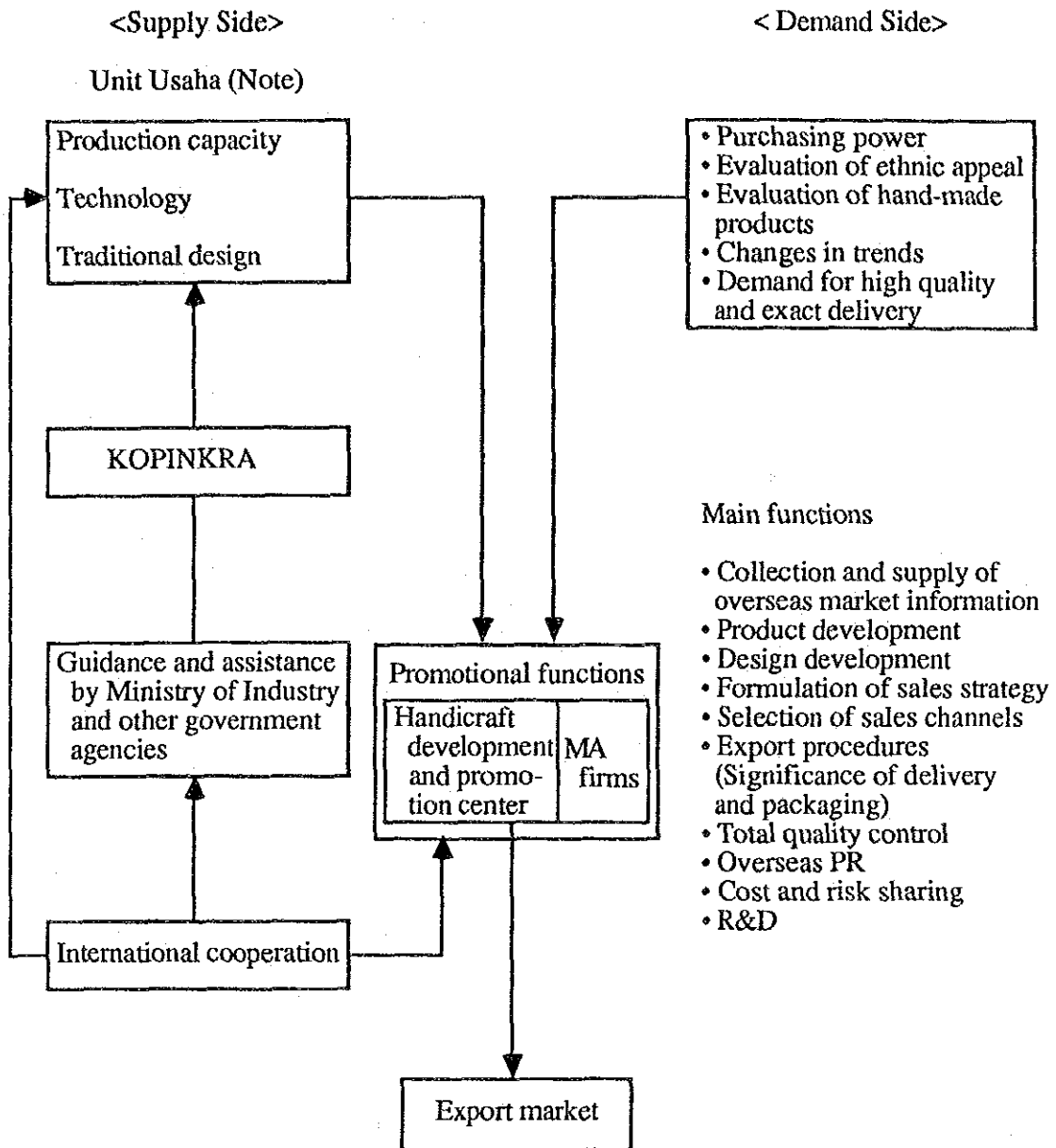


Fig. 2: Scenario for Promotion of Exports from Small and Medium-scale Handicraft Firms



(Note) Unit Usaha means production units and business entities

Fig. 3: Draft Schedule of Program for Promotion of Handicraft Industry

	0	1	2	3	4	5 years
[Short term action program]						
1.	Implementation of export promotion program (cooperative activities, monitoring surveys, dispatch of missions, etc., training in trade training center)					
2.	Implementation of technical guidance and quality control guidance programs (short term dispatch of experts and training by same)					
3.	Dispatch of private sector experts for providing technical guidance (MA companies, Koperasi, silk and hand weaves)					
	Planning			Execution		
[Medium term program]						
1.	Revitalization of public facilities (model factories in PTKI, revitalization of BBKB, etc.)					
	Advance survey		Delivery, installation			
2.	Silkworm and silk industry project (silkworm raising techniques, unraveling)		Design, tender, fabrication		Technical cooperation	
	Advance survey		Delivery, installation			
3.	Conversion of ATBMs to those for silk use and introduction of single spindle spinning machines		Design, tender, fabrication		Technical cooperation	
	Advance survey				Technical cooperation	
4.	Establishment of handicraft development and promotion center					
	Advance survey		Conversion (financing and investment)			
	Advance survey		Design, tender, construction		Technical cooperation	
[Long term program]						
	Spur silk project					
	Advance survey					

2. Rubber-Based Product Industry

(1) Comprehensive Promotion Measures

Fig. 4 is a fish bone chart of the rubber-based product industry. Though all factors from upstream to downstream are important for the development of the rubber-based product industry, priority is placed on the development of rubber products.

1) Export promotion of rubber-based products requires the increase of international competitiveness in terms of both price and non-price factors.

Quality control such as the improvement of production technology, production facilities and research and development are crucial for strengthening non-price competitiveness.

However, small-scale firms, which account for most of the rubber-based product industry in the country, do not have the capacity to achieve such quality control on their own. Therefore, at an early stage of development, full support from government organizations would be necessary.

2) Promotion of overseas marketing as well as the introduction of foreign capital and technology are given second priority after quality control. These activities may be expected by related industrial associations with the help of the government. Thus, Fig 5 shows the relationship between the creation of an official support system and issues and the effects of the relationship.

3) To increase price competitiveness, it is necessary to reduce the cost of essential chemical agents and sub materials which are the main cause of cost pressure on rubber products in the country. Solutions may be found in expansion of domestic supply and reduction of import tariff rates.

In addition to price factors, improvement of technology for mixing essential chemical agents and sub materials with rubber contributes to an advancement of non-price competitiveness. Technical support from governmental organizations is also needed in this area.

4) Consistent and comprehensive policy measures from upstream to downstream (or from material to production to export,) which coordinate the activities of relevant government offices would be required for the efficient development of the rubber-based product industry in Indonesia. For this purpose, a policy coordinating function should be established.

(2) Programs

Table 1 proposes programs and Fig. 6 shows a schedule for their implementation.

1) Short-term action programs

Technological and managerial guidance should be given to selected firms by experts for the purpose of developing leading export firms among local firms with potential for development.

Various technological cooperation projects can be arranged through enhancement of exchanges between foreign rubber-related associations and Indonesian ones. Dispatch of investment promotion missions abroad is also recommended.

2) Medium-term programs focus on the upgrading of the services offered by public research institutes. This may be the main thrust of the suggested programs. A detailed survey is to be conducted on issues such as modernization and renovation of equipment and facilities after the selection of the most suitable institute. A selected institute thus chosen will be given the status of key research institute.

3) Long-term programs are aimed toward the establishment of a policy coordinating function.

Fig. 4: Fishbone Chart of the Rubber-based Product Industry

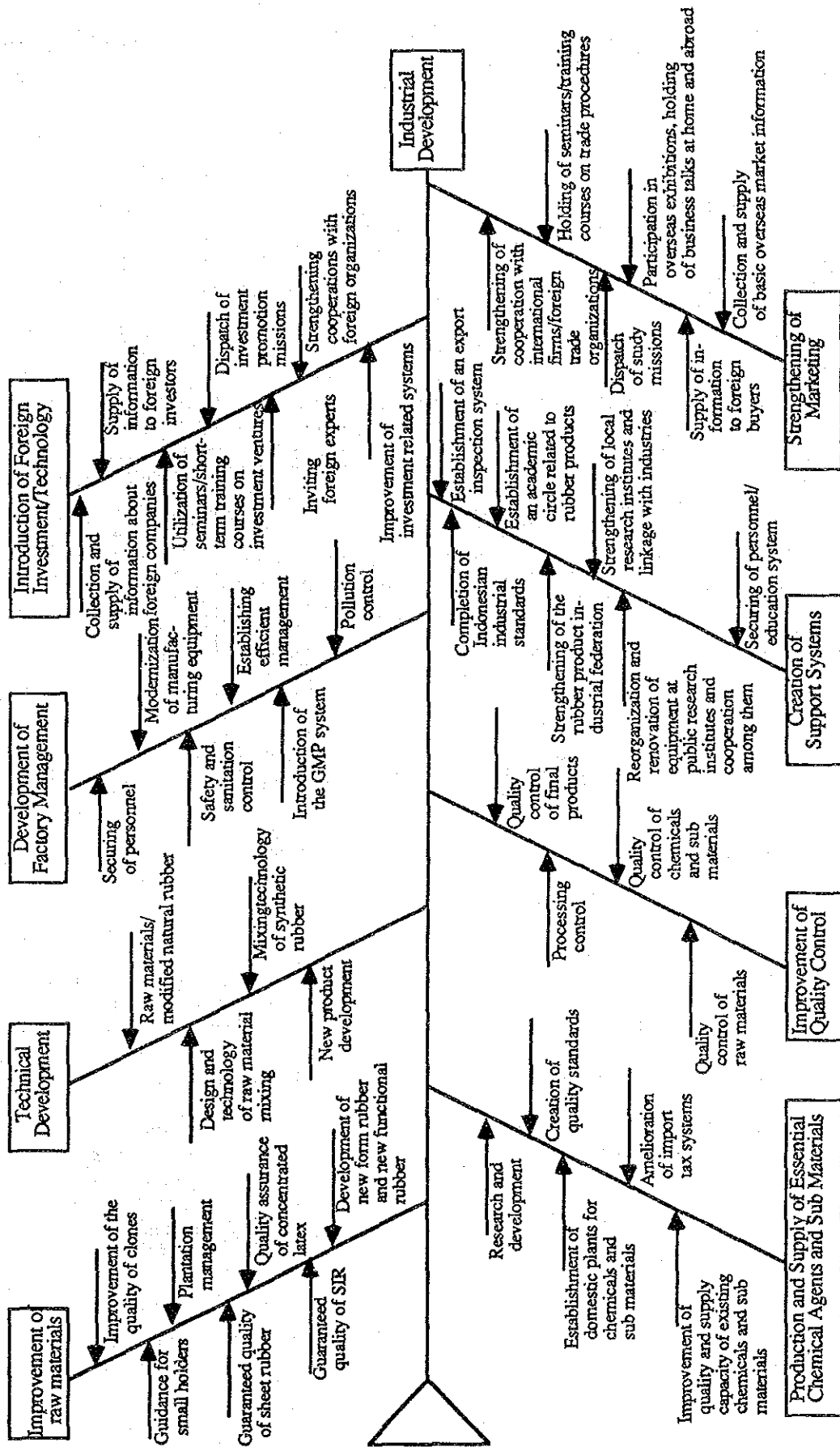


Fig. 5: Relationship between the Creation of Support Systems and Issues and Its Effect on Issues

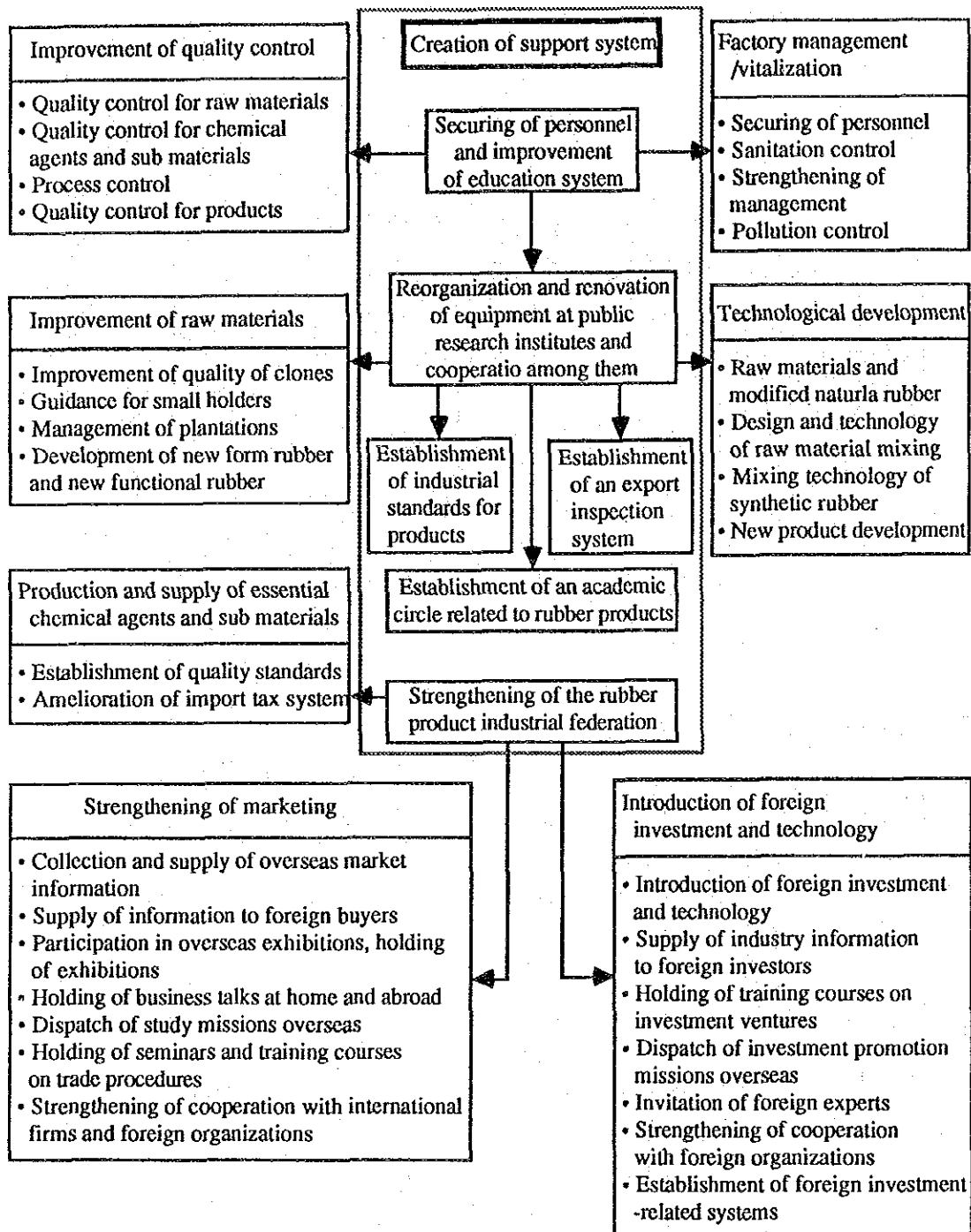
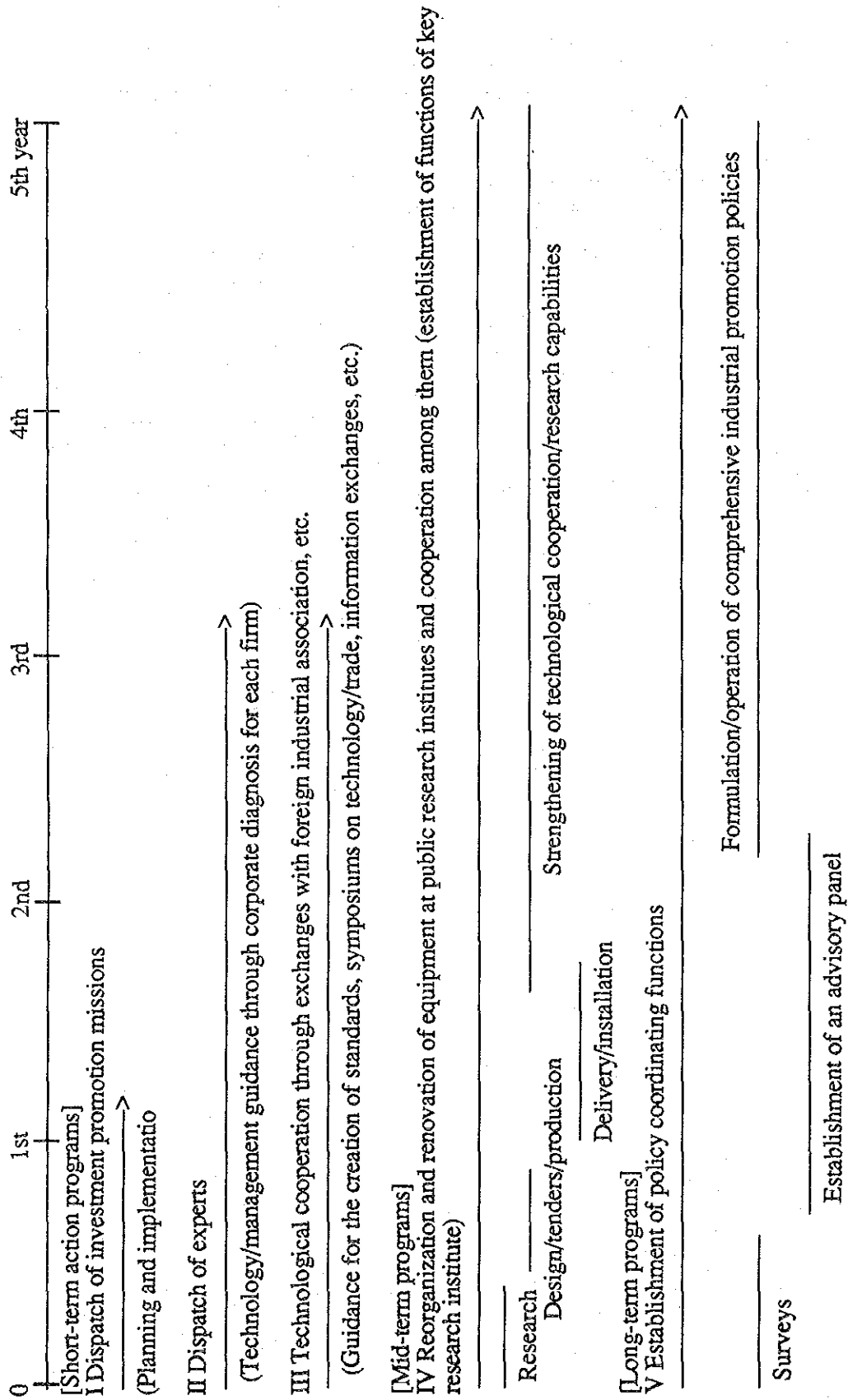


Table 1: Programs for Rubber-based Products Industries (Proposal)

Proposed programs	Details	Methods
Short-term action programs	<ul style="list-style-type: none"> • Technology and management guidance for each firm • Various technological cooperation arrangements (guidance for creation of standards, symposium on technology/trade, information exchanges, etc.) • Dispatch of investment promotion missions overseas 	<ul style="list-style-type: none"> • Guidance through foreign technology experts • Exchange with foreign industry organization • - ditto -
Mid-term programs	Reorganization and renovation of equipment at public research institutes and cooperation among them	After the selection of the most suitable organization from among existing organizations based on a detailed survey in the future, the status of key research institute shall be given to the organization and its functions be established.
Long-term programs	Establishment of policy coordinating functions	Ministries and other government agencies, local governments Public research institutes Industrial organizations

Fig. 6: Schedules for Implementation of Promotion Programs for the Rubber-based Product Industry



3. Electrical Machinery Industry

(1) Comprehensive Promotion Measures

For the Indonesian electrical machinery industry to obtain international competitiveness, it is urgent and most important to raise its level of technology. Based on this, a study was made, from the aspect of reinforcement of the competitiveness in production, of the problems faced by and countermeasures for the Indonesian electrical machinery industry discussed in the previous section and proposal was made of a program for building up an electrical machinery industry

1) Strengthening of Competitiveness in Production

It is essential to modernize the electrical machinery industry and give it export competitiveness by raising technical capabilities. Further, rationalization is sought in factory operations, including production, for realization of internationally competitive prices. From this, it is clear that the simultaneous improvement of technical capabilities and managerial capabilities is the key to promotion of the electrical machinery industry. In particular, of great importance in building the foundation for the ;em industry of Indonesia are (1) standardization of products, (2) augmentation of R&D and technology promoting activities, and (3) training of electrical and mechanical engineers.

2) Establishment of Export Strategy and Strengthening of Activities

[1] Promotion of Exports of General Use Machines

Exports should be positively promoted while dealing with domestic demand, aiming at full use of the current production capacity of the local manufacturers. In particular, focus should be on production of general use DC machines (both power generating and motors) and general use AC machines, based on the 1 to 650 kVA oil-filled transformers, 1 to 20 HP class motors, etc. in which the Indonesian electrical machinery industry is considered to be relatively competitive internationally. Demand is anticipated from the advanced industrialized nations. In particular, these machines are no longer being produced by large manufacturers in Japan. Indonesia may expect not only exports, but also domestic demand for machines for assembly into automobiles and home electric appliances in Indonesia and for welding machines and drives for various types of other machines. At the present time, the motors, generators, and other electrical machinery used for such products are mostly imported, so this would lead to import substitution.

[2] Promotion of Exports of Parts and Semifinished Goods

In parallel with exports of finished products, exports of parts and semifinished products will be encouraged. Exports of parts and semifinished goods would publicize the technical capabilities of the manufacturers. Among the companies surveyed, there are those which are importing silicon steel sheet coils, working the same into transformer parts by the latest machinery, then successfully reexporting the same. The cutting work itself of automatic cutting machines raises the added value and leads to exports. In this way, it would help promote the export of parts and semifinished products if the manufacturers were to have fields of part manufacture in which their excelled and were competitive.

[3] Positive Strengthening of Sales Activities

In tackling export promotion, the first thing to do is to maintain and increase exports to markets which have previously imported Indonesian electrical machinery

products and parts.

3) Promotion of Investment into Parts Industries

Typical parts not now being manufactured by Indonesia include flat copper wire, armatures, and high voltage insulators. In addition, Indonesia relies on imports for most of its insulating oil, insulating paper, varnish and other insulators, copper wire, and bearings. Investment will be promoted aimed at the introduction of select technology from overseas regarding these parts and components. Medium sized companies specializing in the related parts which would be willing to provide technical cooperation will be sought from not only the advanced industrialized nations, but also the various NIEs.

(2) Proposal of Programs

Summarizing the comprehensive promotion programs proposed in the previous section, specifically the following 10 programs are proposed. For their objects and detailed content, see the report IV. Electrical Machinery Industry.

- Program 1: Standardization of Products
- Program 2: Activities for Promoting R&D and Electrical Machinery Technology
- Program 3: Support Activities for the Basic Industries of Raw Materials and Parts
- Program 4: Promotion of Electrical Machinery Technicians in Supporting Facilities
- Program 5: Strengthening and Augmentation of Technician Training Organization
- Program 6: Exchange of Personnel with Overseas Research Institutes and Companies
- Program 7: Introduction of National Tests for Certification of Electrical Engineers
- Program 8: Establishment of Export Targets and Strengthening of Activities
- Program 9: Promotion of Investment in Parts Industries
- Program 10: Stimulation of Electrical Machinery Industry

(3) Priority Programs

The promotional programs proposed in the preceding section are all important for the development of Indonesia's electrical machinery industry and desirably should be implemented in a comprehensive, concentrated fashion. However, in actuality, the programs will be implemented with limited resources and manpower. In this case, it would be desirable to start preferentially with programs for which there are existing implementing organizations, which could easily be implemented, and for which there is a high degree of urgency. In consideration of this, the following four priority programs have been selected in the order of the greatest direct impact of the effects of the programs on the electrical machinery industry:

- Priority program 1: Activities for promotion of export investment
- Priority program 2: Technical assistance to individual companies by experts
- Priority program 3: Strengthening and augmentation of technical assistance activities in public organizations
- Priority program 4: Assistance for activities of organizations in electrical machinery industry

The final objective of these programs is to promote the development of the

Indonesian electrical machinery industry as an export industry, but for this it is first required to resolve problems in the technical area one by one and improve technical capabilities. The above priority program 3 "strengthening and augmentation of technical assistance activities in public organizations" aims at strengthening the basic technical capabilities with a long term perspective and is comprised of a number of basic programs of great importance in the technical area, i.e., is a comprehensive program of technology. The results will appear indirectly in the future. As opposed to this, priority program 2 "technical assistance to individual companies by experts" is a relatively short term program and should be implemented quickly in view of the current state of the electrical machinery industry of Indonesia. Its results will be direct. Priority program 4 "assistance for activities of organizations in electrical machinery industry" is a medium to long term program and calls for supporting the activities of industrial organizations to raise the level of technology and management in the industry as a whole. In particular, the industrial organization of manufacturers of electrical machinery, the APPI, should take the lead and stimulate and strengthen the organization of the industry and should launch positive initiatives for human resource development and export activities as well. By strongly implementing the above priority programs, the electrical machinery industry can be promoted and established as an export industry. This is proposed by priority program 1 "activities for promotion of export investment".

Fig. 7: Problems in Electrical Machinery Industry and Process of Priority Programs

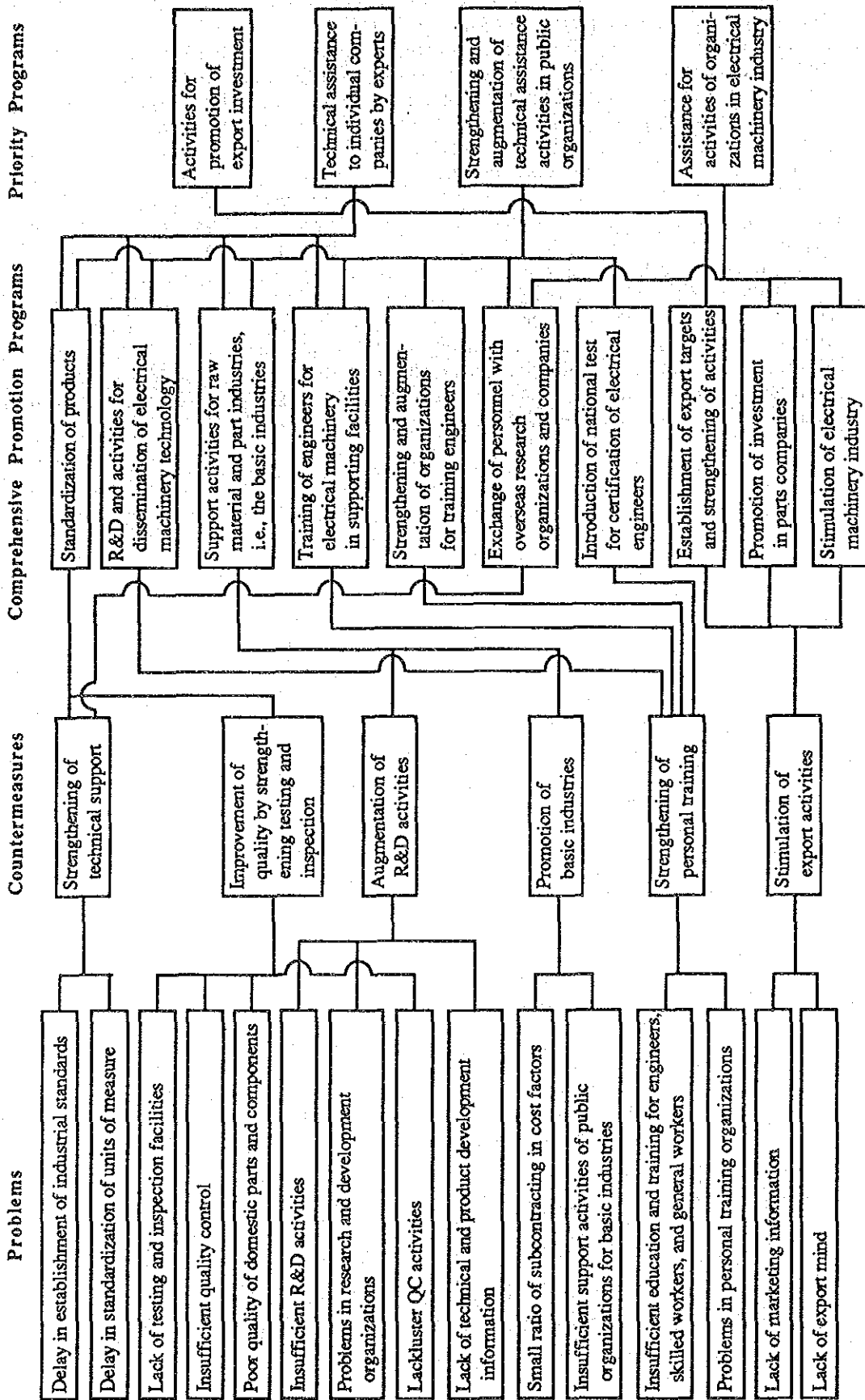
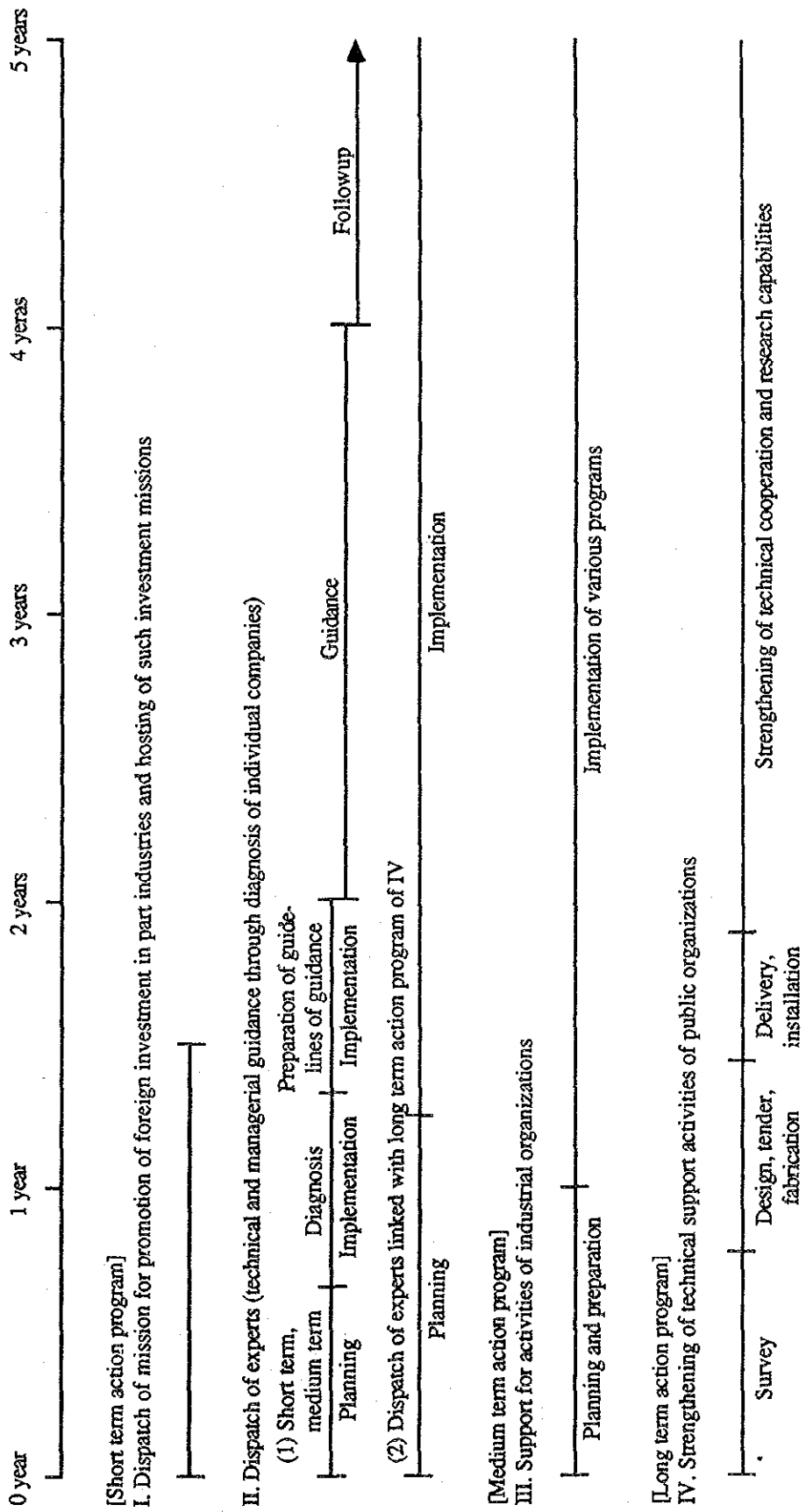


Fig. 8: Draft Schedule for Programs for Promotion of Electrical Machinery Industry



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