suffering. Tieups with firms from these countries, or the promotion of their foreign investment in the Philippines, could help to bring in necessary technology.

6. Penetration of the Class A market based on tieups with the local fine jewelry industry

Many of the craftsmen employed in the Philippine fine jewelry industry have high skills levels. If their skills could be utilized in the production of costume jewelry, penetration of the Class A market would also be possible. There are significant differences between the two sectors, however, and while tieups might be possible on an individual level the fine jewelry industry would be hard-pressed to find compelling reasons for promotion of industry-level tieups.

For the Philippine costume jewelry industry to make use of the existing infrastructure and grow, a reasonable target for the coming years would be the penetration of the Class C market followed by penetration of the Class B market, the latter through the transfer of technology and expertise.

(2) Basic Perspective on Development Strategies

In addition to the international market and industry trends described above, the current limitations and future potential of Philippine industry must also be taken into consideration. In this sense, what types of strategies would be effective in achieving the development targets?

As already discussed above, the use of current operations as a base for penetration of Class C markets followed by tieups with foreign corporations to break into Class B markets is thought to be a reasonable target. This objective would necessitate the following short- and mid- to long-term strategies.

Short-term strategy: Development based on existing capabilities. Class C markets are to be penetrated by making full use of current capabilities while preparations are begun to allow product development in the future.

Medium- and long-term strategy: Taking advantage of the country's abundant supplies of low-cost labor and shells, efforts should be made to attract costume jewelry manufacturers, partially or wholly, from countries facing rising labor costs. This will not only expand the target markets to export but also transfer technology to local companies and promote the establishment of supporting industries.

The future penetration of Class A markets by Philippine firms is assumed as a result of these strategies.

(3) Recommendation on Development Programs

1) Framework of the development programs

Realizing the above strategies will require implementation of the following programs:

1. Joint Export Sales Promotion and Assistance Program: sales promotion and assistance program for those manufacturers who, despite having products capable of penetrating Class C markets, have been unable to sell them

a. Sales Promotion Project for Penetrating the Class C Market with Products on Hand
b. Improvement of the System for Easy Access from Buyers

2. Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector: program to create the necessary conditions for penetration of the Class B market

a. Project to Improve Design and Materials Development Capability
b. Establishment of the Promotion and Assistance Center for Cebu C/J Industry
c. Project to Deter Design Imitation
d. Seminars on Improvement of Export Trade Business Practice
e. Construction of the Cebu Costume Jewelry Manufacturing Village

3. Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers

Of the above, 2. and 3. should be considered in terms of programs for the continuous improvement of local companies.

5-2 Recommendation on Implementation of Development Programs

(1) Introduction

During implementation of the development programs, special attention should be paid to the following areas.

First of all, it will be important not to focus on individual projects but rather to understand the role that each will play within the framework of the whole and assure that adequate linkage is achieved.

Next, a structure must be set up to take responsibility for implementation. This must be done in advance to assure that the preparatory and coordinating stages progress smoothly. This kind of supervisory body is also needed to promote efficient fundraising.

The following section will discuss linkages between the functions of each project and suggest the overall results that could be gained through their implementation. Suggestions will also be made concerning the order and timing of implementation. Finally, the question of how to set up an implementing structure will be discussed.

(2) Development Stages of Costume Jewelry Industry and Necessity for Implementation of Programs in Accordance with Stages

This development program assumes the following two phases of development for the costume jewelry industry.

1. The first involves preparation for future development, while at the same time making efforts to develop new markets using existing products, made from natural materials such as wood and shells, and existing production technologies and designs. The markets which can realistically be targeted using current designs, production techniques and materials are limited. Unless metalworking techniques are improved to expand the possibilities for design and materials development, penetration of Class C markets on any scale will be difficult. Tieups with foreign costume jewelry firms are thought to be the most effective means of achieving this goal, but Philippine manufacturers have yet to reach the stage where they can be attractive partners. In this phase, therefore, they must 1) make full use of existing capabilities to boost exports; and 2) develop designs and materials and master the basic material processing technologies needed for future development.

2. In the second phase of development, based on tieups with foreign firms, the potential of the Philippines as a costume jewelry production center should be developed, with care

taken to attract buyers for the Class B and Class C markets as well. Foreign manufacturers should be attracted and linkages promoted with local firms based on the material processing technologies mastered in the first stage. As a result, the Philippines will gain a factory-based production system suited to use by foreign firms and other export markets, and at the same time local firms will be able to access high-quality raw materials and processing technologies while developing traditional manual techniques. The end result will be the stamping out of unique characteristics for the Philippines as a production center for costume jewelry.

In terms of government assistance, the following measures will be needed in the short term to correspond with the first stage of development described above: 1) assistance for export marketing to develop Class C market; 2) assistance for exporter efforts to develop designs and materials; and 3) assistance for structural improvements in technology and management at manufacturers and subcontractors. Activities must also be started to promote the attraction of foreign costume jewelry firms and producers of related metal components, who will provide the foundation for the second stage of development. Finally, although current demand in funds is limited, preparations should be begun for an effective fundraising system in preparation for the time when new investment starts to become more active.

This aid should be continued into the second stage of development and enhanced in accordance with industry growth.

(3) Necessity of Bringing out Comprehensive Effect by Efficient Implementation of Related Programs

1) Linkages Among Marketing Assistance Measures

Marketing activities are not limited to sales promotion alone. A comprehensive range of activities, including the collection and analysis of market information, product development, advertising and promotion, and reinforcement of market access, is needed.

"Sales Promotion Project for Penetrating the Class C Market with Products on Hand" is designed to aggressively promote existing product lines, which have yet to be noticed, in new markets and establish a system for the gathering of market-related information. "Project to Improve Design and Materials Development Capability" aims at creating a system for helping companies to analyze market information and develop new products through the enhancement of PDDCP functions and, if possible, the creation of a design research committee comprising representatives from fashion-related sectors. Reinforced market access will require comprehensive adoption of the following measures: 1) "Sales Promotion Project for Penetrating the Class C Market with Products on Hand", which aims at developing new buyers; 2) "Improvement of the System for Easy Access from Buyers", which is to be developed through CITEM and utilized to bring about results in sales promotion and other promotional activities; and 3)"Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers", which should be utilized together with linkages with local firms to penetrate the sales channels developed by these firms in the past.

2) Linkages Among Measures to Assist Structural Improvements at Individual Corporations (Design, Processing Technologies, Management, etc.)

Two types of assistance are needed for structural improvements at individual corporations: 1) measures targeting exporters; and 2) measures targeting manufacturers and subcontractors.

To achieve constitutional improvement of export businesses it is necessary to provide aid for design research as well as research into uses and processing technology for new materials in order to enhance design through "Project to Improve Design and Materials Development Capability". "Seminars on Improvement of Export Trade Business Practice" should teach export business methods for gaining confidence in the export market.

Improved processing technologies are especially needed at the latter group of firms. In this sense, it is hoped that "Establishment of the Promotion and Assistance Center for Cebu C/J Industry" will help firms to master the metal component processing technologies which are essential to future development. This Center will also be able to provide instruction in quality control and production management, both of which are essential for manufacturers and subcontractors, and promote the modernization of the costume jewelry industry. In addition to improved production and management, "Construction of the Cebu Costume Jewelry Manufacturing Village" aims to modernize the subcontracting sector through improvements in the working environment and utility facilities. It is hoped that this project will facilitate communication between subcontractors and their customers and allow stabilization of the electrical power supply and reduction of vulnerability to climate, both of which have hurt efforts to be punctual delivery time and establish quality control.

(4) Recommendation on Implementation Schedule and Priorities

1) Introduction

The "short-term projects" listed below are those which should be begun, or those for which preparations should be begun, immediately; the "projects for which preparations are to be begun immediately" are those for which such factors as necessity, practicality, and profitability should be studied further during preparatory stages. The "medium- and long-term projects" are those which need not be begun immediately, but which should be carried out in accordance with the growth of the costume jewelry industry.

In addition to these projects, the possibility of establishing a credit guarantee system and a development finance system for small and medium-sized businesses should be examined separately.

2) Short-Term Projects

a) Projects to be implemented immediately

1. Sales Promotion Project for Penetrating the Class C Market with Products on Hand
2. Improvement of the System for Easy Access from Buyers (excluding the establishment of a pilot shop and showroom)
3. Project to Improve Design and Materials Development Capability
4. Project to Deter Design Imitation
5. Seminars on Improvement of Export Trade Business Practice

b) Projects for which preparations are to be begun immediately

1. Establishment of the Promotion and Assistance Center for Cebu C/J Industry
2. Construction of the Cebu Costume Jewelry Manufacturing Village (only as a pilot project)

3) Medium- and Long-Term Projects

1. Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers
2. Construction of the Cebu Costume Jewelry Manufacturing Village
3. Improvement of the System for Easy Access from Buyers (establishment of a pilot shop and showroom)

4) Priority Projects

All of the above projects can play an important role in accordance with the local industry's stage of development. However, if financial or structural problems prevent the implementation of all projects, it will be necessary to limit efforts to those fields with a pressing need for government assistance. Later on, the private sector will have to be relied upon to create a suitable structure on its own.

If this in fact is the case, work on the following two projects should be started immediately to establish a beachhead for industrial development.

1. Project to Improve Design and Materials Development Capability

This project will nurture the skills needed to respond to the design, material, and quality-related demands of the Class B and C markets that the industry must aim for in the future. By expanding the functions of the PDDCP and creating a design research committee consisting of representatives from fashion-related industries, this project will serve as a powerful boost to future research on design trends and functions of existing material R&D centers such as MIRDC, ITDI and FPRDI.

2. Establishment of the Promotion and Assistance Center for Cebu C/J Industry

In contrast to the first project, which focuses mainly on the export sector of the costume jewelry industry, this project will provide assistance for improvements in production technology and production management by Cebu manufacturers and subcontractors so that they can keep up with export sector development.

These two projects can be expected to work together to bring about industry-wide improvements.

(5) Recommendation for Implementing System

Many steps will be required before actual implementation, and some of the individual projects will be interrelated or will be based on the implementation of other projects. Therefore, the creation of an implementing structure with monitoring and coordinating functions is essential. It is also important that the bodies within this structure carry out their individual tasks in line with an overall program. The following two organizations are suggested as potential candidates for such a structure.

1. General Secretariat

This body's tasks will be to follow the progress of each project, call up and coordinate related organizations, and carry out modifications to projects as necessary. It should be centered around DTI/BOI, CEBU-FAME and FAMA-PHIL.

2. Advisory Committee

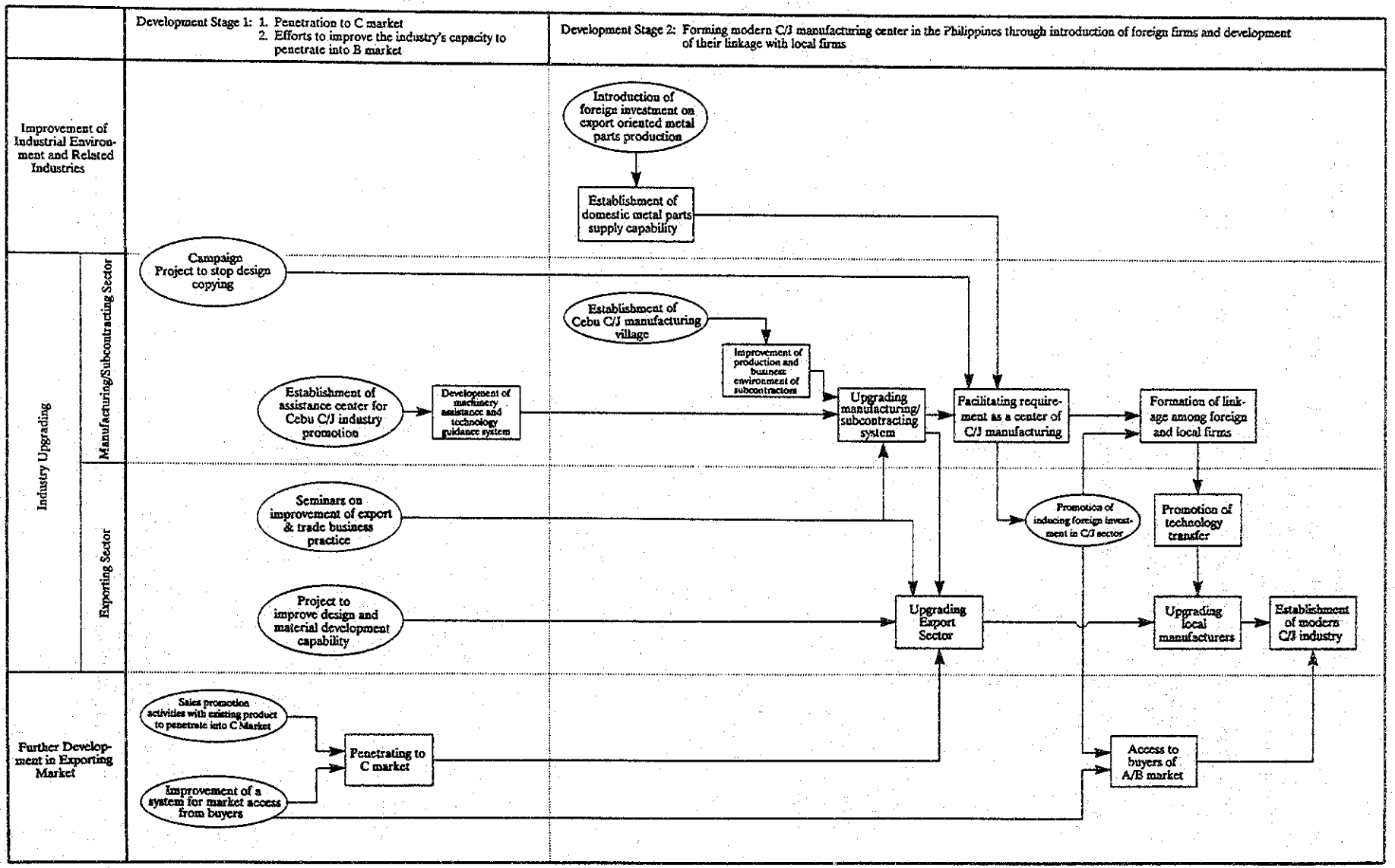
This body will be responsible for providing advice and assistance for the activities of the general secretariat. It should be based around CEBU-FAME and FAMA-PHIL and should include representatives from BOI, BSMBD, BETP, CITEM, DTI Regional Groups, and PDDCP. Representatives should work to ensure that their organizations act in accordance with the items agreed on by the committee.

The following short-term projects are those which could be implemented either through minor improvements in existing activities or with little additional funding. It is suggested that the industry begin work on them immediately, either on its own or with the coordinated assistance of related organizations.

1. Sales Promotion Project for Penetrating the Class C Market with Products on Hand
2. Improvement of the System for Easy Access from Buyers (excluding the establishment of a pilot shop and showroom)
3. Project to Deter Design Imitation

Implementation structures for individual projects will be discussed in Chapter 6.

Figure IV-5-1: Development Stages of Costume Jewelry Industry and Expected Effects of Development Projects



6. Development Programs for Costume Jewelry Industry

6-1 Joint Export Sales Promotion and Assistance Program

The major export-sales promotion activities, which are expected to be effective under the present conditions of sub sectors are the following two besides the marketing efforts being undertaken by individual firms; 1) export sales promotion focusing on penetration into Class C markets with products which are on hand but whose potentiality is not realized yet, and 2) improvement of inquiry handling and liaison services for inquires from potential buyers/foreign manufactures seeking tie-ups with Philippine exporters/manufacturers. The former is needed immediately to realize the existing potentiality of the Philippines, while the latter forms the basis to tap the fruits of future marketing efforts.

Tie-ups with foreign costume jewelry firms, for example through manufacturing contracts on a consignment basis, are certainly the most desirable way to promote exports and technology transfer. However, given the present situation of the Philippine costume jewelry industry it will be hard to attract potential foreign partners, since almost no technological basis for metal working exists in this sub-sector. Therefore, the Philippine costume jewelry industry as a whole is recommended to tackle improvements in their technical and managerial performance initially to attract such potential partners. At the same time, improvement of handling services for inquires from buyers/manufactures abroad will contribute to assist promotion of such tie-ups even in the initial stage, for those who already have capability to proceed with such tie-ups.

(1) Sales Promotion Project for Penetrating the Class C Market with Products on Hand

1) Outline of project

a) Outline

Products currently being exported to the United States and other markets are mainly low-end items targeting the Class D market. The buyers of these products requires low costs at first, making it impossible for Philippine manufacturers to utilize their substantial expertise in design and material development. Buyers view the Philippines simply as a supply source of Class D products which feature natural materials, and they come to the Philippines only when they need to import such products. Those buyers, who plan to import products targeting markets other than D markets, go to other sources, each of which are characterized by products for a specific market.

The objective of this project is to improve conditions and attract buyers of Class B/C products to the Philippines, by showing the capability of Philippine industry to manufacture these products.

b) Project details

Making most of the current sales promotion opportunities, the Philippine capability to export Class C products must be publicized. Following sales promotion activities it is recommended to focus solely on materials and products with unique designs, which were not exposed to the current buyers and can be targeted to C markets.

1. Attaching a special display corner to trade fairs, featuring these products
2. Advance publicity for the new display to buyers
3. Discounts on exhibition fees for the display
4. Selection of qualified products to display at the corner

2) Requirements of project

1. This project is to be undertaken under the leadership of the industrial associations. The cost required for the project should be partly borne by direct beneficiaries while the remaining portion is to be taken on by the industry, since industry as a whole is the indirect beneficiary from the sales promotion.

2. The key to the successful operation of the project is to attract buyer's interest in the display corner. To avoid diminishing the attractiveness of the corner to potential buyers, therefore, selection of appropriate products is essential. Establishment of an evaluation committee is necessary with involvement of buyers, representatives and/or consultants from potential export market, in addition to the representatives from the industry. If it is feared that the corner fails to appeal then the corner should be canceled.

3. Adequate market analysis is also essential for the industry to keep the corner attractive to the potential buyers. The market information required for the analysis of market trends includes that on color and design trends, prices, preferences on materials and their level of processing qualities, etc., by target consumers in the market. This information should be collected and kept by an appropriate organization, including one in Cebu, for use by the industry.

4. Since the fair itself is a chance to exhibit prospective products to markets, a system to process inquiries from potential buyers adequately is essential for following up the promotion activities. Simultaneous implementation of a project, "Improvement of the System for Easy Access from Buyers" is indispensable in this context.

5. Measures need to be taken to protect the products from being copied illegally. "Project to Deter Design Imitation" also needs to be realized simultaneously.

3) Reference matters in implementation of project

1. Contact with the buyers currently interested in Philippine costume jewelry is not sufficient, in that they are mainly those who are seeking for products targeted to D markets, and not C markets. The followings may be effective in this regard:

   a) Attaching the display corner at the fair in Hong Kong
   b) Attaching the display corner at the Trade Center in Taiwan
   c) Direct mail to potential buyers/distributors in Japan, including apparel distributors who handle costume jewelry attached to licensed brand names
   d) Use of video films showing potential Philippine products

   The fairs opened for foreign costume jewelry exporters held in Japan, are limited (See, Chapter 1. 1-2).

2. Various kinds of events to attract the potential buyers together with opening and operation of the corner will be effective so long as the cost for the events can be compensated by benefits. The products matching C markets at present, however, may be only those from the limited number of exporters, and therefore, promotion measures should be limited to those with better cost performance.

4) Recommendations on implementation

1. Promotion of project: CEBU-FAME, with assistance from CITEM

2. Operation of project: CITEM with full support from CEBU-FAME and FAMA-PHIL

(2) Improvement of the System for Easy Access from Buyers

1) Outline of project

a) Outline

Since most current buyers who are interested in Philippine products, know about available products new inquiries might be minimal at present. However, inquiries will increase in the future in accordance with 1) intensive sales promotion efforts to penetrate into the Class C markets, as recommended in the above, 2) further increase in labor costs as well as labor shortage in Japan and NIEs which are the major manufacturing countries of costume jewelry.

In order to meet such needs, and maximize benefits of sales promotion efforts, it is recommended to improve the existing system for handling buyers' incoming inquiries so that 1) potential buyers and foreign manufacturers who are looking for tie-ups with Philippine manufacturers, can easily find out the appropriate access route/liaison services to Philippine industry, and 2) these inquiries can be handled adequately so that appropriate partners for orders or tie ups are found.

b) Project details

1. Upgrading of company data base for inquiries from foreign buyers: upgrading of the EXPONET (Export Assistant Network) through the joint work of relevant government agencies and the industry. The data to be upgraded includes;

   - General information of the firms with experience of and potentiality for export
   - PR data of these firms for inquiries from buyers, including product catalogs, price lists, business practices (minimum lot requirement, delivery terms, communication facilities, etc.) and records of export experience

2. Improvement of a service system for inquires from buyers/manufacturers abroad, which is operated independently by each of relevant government agencies such as BETP, CITEM and BOI, etc.

3. Operation of a show room and/or pilot shop:

   - to change buyers' understanding on Philippine products especially focusing on the appeal of Class C products in the short term; and further product development in the long term
   - to obtain data on evaluation of newly developed design and materials from the responses of buyers and foreign visitors to the display of Philippine products in the room/shop

2) Reference matters in implementation of project

1. Possible procedures for improvement of the service system for buyer's inquiries is as follows:

   i) Establish a committee to coordinate the relevant government agencies/organizations including the industrial association, create a definite liaison office for buyers attaching it to one of them, and take joint responsibility in operating the office.

Further, reach an agreement among the above for cooperating by fulfilling responsibilities to be assigned to respective agencies/organizations.

ii) The coordination committee should design the system so that respective agencies/organizations are able to handle inquiries they receive adequately, in addition to the system for the liaison service to handle inquiries received directly.

2. To make sure that all the inquiries are handled adequately by the said agency/organization, the relevant organization/agency and private sector entities are to be informed of the creation a clearly defined liaison service of the relevant organizations/agencies and private sector entities include,

   i) Potential buyers, and their associations, etc.
   ii) Philippine government offices abroad
   iii) Guests at joint marketing activities of the industry association

3. The operation should be based partly on payment from beneficiaries of the project. It should be operated by a registration fee of registered firms on the manufacturer data base.

4. The shops and/or show rooms must be established at places convenient for transportation, and attracting visitors; and provide various kinds of products sufficient to attract the customers, in line with newly developed product concepts or design themes. The ideal places to set up such shops and show rooms include;

- International air ports
- Advanced shopping zones in cities, where fashion trends originate

Thus, the operation of such shop/show rooms will be very costly. It is, therefore, necessary to operate it jointly with other fashion oriented industries to reduce the cost burden, and to make it more attractive through a variety of products, offered at the same time.

Further, it would not be recommendable to launch such operations at present without upgrading product lines, since the current product line of the Philippine costume jewelry industry is insufficient to attract new buyers even with the above efforts.

3) Recommendations on implementation

a) Promotion of project:

1. This project should be basically promoted by private sector, CEBU-FAME in cooperation with FAMA-PHIL in the case of costume jewelry sub-sector. However, since the same type of project is applicable to other sub-sectors, which need an increase access to export markets, CITEM is recommended to take initiatives in coordinating the cooperation among the government agencies and industrial associations, with full support from the private sector.

2. Immediate implementation is recommended except for opening and operation of pilot shops/show rooms.

b) Operation of project: It is recommended that the inquiry handling office be attached to CITEM with a coordination committee for BETP, CITEM, BOI, CEBU-FAME and FAMA-PHIL.

6-2 Program for Upgrading Existing Costume Jewelry Export/ Manufacturing Sector

No matter what marketing efforts are made, it will be difficult to expect substantial new demand, given the current product line, which can only be handled in D markets where demand is not large. Further development of product lines, which is the prerequisite for penetration to Class C and B markets, requires intensive efforts for upgrading design, materials used, processing technologies, trade business practices and market trend analysis.

It would be extremely difficult to develop any of these capabilities in a short term. One of the most efficient methods for upgrading the technology level of the Philippine costume jewelry industry would be to attract foreign producers for tie-ups with local exporters/manufacturers, and promote linkages among them. However, again, the present technological/managerial level of Philippine costume jewelry industry is still far from attracting such potential partners.

This program is to upgrade the technology/managerial levels of the Philippine costume jewelry industry and so aim at future possible of tie-ups with advanced firms abroad, and further development of the industry as a reputable costume jewelry supply base for the world.

The major areas to be upgraded for this purpose are;

1. Design and material development capability
2. Material processing technology especially of metals
3. Business ethic focussing on design copying
4. Export trade business practices
5. Subcontractor system

Even in stages where the tie-ups with foreign manufacturers can not be expected, efforts for upgrading the industry will contribute to penetrate to certain segments of the Class C market in combination with the export sales promotion program already described.

(1) Project to Improve Design and Materials Development Capability

1) Outline of project

a) Outline

This project is to expand and strengthen the functions of PDDCP, the PDDCP is 1) to play a leading role in the area of design information gathering and analysis, design development, and materials development, and 2) to be opened to the private sector to stimulate the PDDCP's efforts.

b) Project details

1. Assignment of costume jewelry design to specific staff(s) as a part of apparel and fashion division of PDDCP

2. The costume jewelry specific division is in charge of the following:

   i) Collection, analysis and distribution of costume jewelry design information
   ii) R & D on new materials and application technology for costume jewelry in cooperation with other R & D institutes (e.g., MIRDC, ITDI, and FPRDI, etc.) and

the Promotion and Assistance Center for the Cebu Costume Jewelry Industry which is recommended in the forthcoming section

iii) Training of costume jewelry designers

3. Strengthening of the Cebu representative office of PDDCP to carry out design promotion and material development activities with emphasis on the Cebu costume jewelry industry including the following:
   - Assign a design staff whose function is costume jewelry design specific
   - Expose the design staff to the international market

2) Requirements of project

1. The current function of PDDCP does not include that of material development. Most of the designers in the PDDCP are only engaged in drawing illustrations without sufficient knowledge of materials used and production process. Designing capabilities industry needs now are in industrial designing, including development of designed product based on the feature of materials used and products. This project assumes the expansion of PDDCP's function in this field.

2. To support and advise the activities of the PDDCP's staff for costume jewelry, establishment of a National Design Study Committee is recommended by leading designers from fashion oriented industries, including apparel, bags, shoes, and hat industries, etc. involving designers from professional designer training schools and design research institutes. The committee can contribute to national design development not only of costume jewelry, but also of other fashion oriented industries.

3. For the development of the costume jewelry industry in the Philippines, the operation of this project in Cebu is essential. Almost no fashion oriented industry exists in Cebu at present, though industries needed to orient them to fashion trends exist. Involvement of such Cebu-based industries is indispensable in this regard. Support from the Cebu Chamber of Commerce and Industry, CEBU-FAME, and the regional government is a minimum requirement for promotion of this project.

3) Reference matters in implementation of project

The major functions expected of the National Fashion Design Study Committee are be as follows:

1. Collection, analysis and publication of updated world fashion trends
2. Basic study on world trends of fashion and their coordinate patterns
3. Study on world fine jewelry design and processing technology

4) Recommendations on implementation

1. Promotion of project: PDDCP with request from CEBU-FAME and FAMA-PHIL

2. Operation of project: PDDCP involving fashion related industries and organizations in the National Fashion Design Study Committee.

(2) Establishment of the Promotion and Assistance Center for Cebu C/J Industry

1) Outline of project

a) Outline

A center will be established to assist costume jewelry manufacturers and subcontractors in the Cebu area in improving technology and management. The recommended promotion and assistance center is expected to contribute to the upgrading of the industry by;

1. Technology transfer and training of technologies
2. Providing machine and equipment which are basic requirement in upgrading the technology
3. R & D on materials development
4. Training in the field of export business practices, quality control, etc.

b) Project details

1. Construction of the center with equipment capable of contributing to processing accuracy (including metals), improved quality, and more efficient operation being to be installed for use in instruction and use by the manufacturers.

2. Extending workshops for exporters/manufacturers on new technologies, seminars in quality control, and joint training programs with PTTC in Manila on export trade practices.

3. R & D works by the staff on materials and processing technologies

2) Requirements of project

1. The guidance extended by the center should cover not only that for exporters but also that for manufacturers (subcontractors).

2. The technical guidance and R & D work should put emphasis on combination products of metals and materials available domestically to characterize Philippine costume jewelry industry.

3. The scope of technical guidance and R & D work as well as equipment installed, should be especially focused on processing of metal component parts, rather than processing for product finishing.

4. The center is must have qualified staff who have sufficient knowledge not only of machine operation but also of the quality of processed products required in the market. A qualified consultant (product specialist) is recommended to be engaged from abroad in the initial stage of operation, for local staff training as instructors in the future, in addition to the operation of the center.

5. It is essential to have continual workshops and seminars effectively for improvement of processing technology and quality control, in additions to occasional invitation of consultants or buyers from potential export market.

3) Reference matters in implementation of project

1. Examples of facilities and equipment to be installed in the center:

- Large scale dryer for materials drying
- Dying tank facility
- Rubber casting facility
- Pressing facility
- Plating facility

For more detail, see Table IV-6-3.

2. Self-liquidated operation will be difficult; appropriate financing sources will be required to ensure operation. The estimated construction costs and machinery and equipment costs are given in Table IV-6-4.

4) Recommendations on implementation

1. Promotion of project: Cebu regional office of DTI, or Cebu regional government after establishment of regional government, with request from CEBU-FAME

2. Operation of the center: Creation of new organization jointly by government and private sector for the operation as a third sector organization. The center should be operated under the supervision of an Advisory Committee involving representatives from government agencies and the private sector.

(3) Project to Deter Design Imitation (Campaign Project to Stop Design Copying)

1) Outline of project

a) Outline

In the case of Philippines, and especially of the Cebu costume jewelry industry, designs are easily copied, since they share the same subcontractors. So far, no effective measure has been taken to stop such action. Although this problem also exists in industrialized nations, the Philippines have been flooded by imitation products, doing great harm to the country's image as a producer. It also discourages manufacturers from paying large fees for the use of foreign designs and discourages design promotion activities in the Philippines.

This project involves a campaign to increase awareness of the need to prevent imitation designs. Although legal regulations would appear to have a strong deterrent force, in fact there are many technical difficulties associated with registering a design, and processing court actions under the regulations takes a long time, hindering their effectiveness. Apart from legal preparations, this project involves a campaign designed to increase awareness of the need for restraint.

b) Project details

It is recommended to include the following activities in the campaign;

1. Formation of a conference to discuss measures for prevention of design copying comprising as many exporters, manufacturers, and subcontractors as possible. A minimal fee may be charged for members which would fund television advertisements and posters to introduce the association and appeal to people in deterring from illegal design copying. Membership cards given to the member firms are to be displayed at their factories and retail outlets as evidence of their concern over copying.

2. Encouraging industrial association members to avoid subcontracting with non-members of the conference.

3. Subsidizing litigation costs with conference and industrial association's funds to encourage law suits against offending parties as frequently as possible regardless of the actual effectiveness of such law suits. A campaign should be carried out with the publications of the conference and industrial associations on illegality of design copying when litigation is in progress.

2) Requirements of project

1. The most important point in this campaign is not to win cases, but to publicize the illegality of design copying as much as possible. The campaign will be more effective if it is carried out together with as many other industrial associations related to designing as possible.

2. The following government support is necessary to encourage the campaign:
   - Participation in the conference
   - Campaign through the various government publications

3) Recommendations on implementation

1. Promotion of project: CEBU-FAME and FAMA-PHIL

2. Implementation of project: Council against Illegal Design Copying formulated under the leadership of private sector with support from government sector

(4) Seminars on Improvement of Export Trade Business Practice

1) Outline of project

a) Outline

Export business practices of Philippine firms are not highly rated by buyers, engaged in export business with Philippine exporters. This is especially true in the case of trade with small and medium firms. Basically, there is not yet sufficient understanding on business rules to be complied with. Problems include delay in delivery, discrepancies with counter samples shown at the time of contract, insufficient communication when encountering difficulties to fulfill contracted terms, etc. Some problems may have arisen because of factors outside of their control. Nevertheless, the firms need to do better in avoiding possible loss to customers. Even if most exporters do business appropriately, failure to comply with the above rules by a limited number of exporters has damaged the reputation of Philippine export businesses.

This project aims to promote a thorough understanding of export business practices especially among MCSMEs which intend to engage in export either directly or indirectly through sub-contracting, so improve the reputation of Philippine firms in the export market.

b) Product details

Periodical seminars and workshops to managers and responsible staff, on export business practices, to include the following:

1. Basic points of export business practice and rules to be complied with by exporters
2. Case studies of damage to the reputation of exporters, and possible countermeasures
   -Delay in delivery
   -Discrepancy with samples shown at the time of contract

-Costing and discount practices
-Design copying
-Force irresistibility

3. Access to potential buyers

2) Requirements of project

1. Lecturers of the seminars and workshops need to have sufficient experience in export trade with Philippine costume jewelry exporters. These include buyers, buying agents and foreign consultants, etc.

2. The seminars should be held also in Cebu. The seminars be held both for exporters and for manufacturers (subcontractors), and the each contents should be adjusted to meet the actual situation of them.

3) Reference matters in implementation of project

Since the course is not a basic course it should be operated by payment from beneficiaries, though government assistance for the venue and lecturers is recommended in view of export industry promotion aspects.

4) Recommendations on implementation

1. Promotion of project: PTTC in cooperation with CEBU-FAME and FAMA-PHIL

2. Operation of project: PTTC in cooperation with CEBU-FAME and FAMA-PHIL

(5) Construction of the Cebu Costume Jewelry Manufacturing Village

1) Outline of project

Small companies and cottage industries currently operating individually should be brought together in a certain location to achieve the following benefits: (1) improved working environment; (2) a better business environments; (3) more efficient subcontracting; and (4) waste treatment and other environmental measures.

Manufacturers located in Cebu are operate with inferior working conditions. Employees have little enthusiasm for their work, and efforts to improve efficiency are hindered. In addition, safety factors are seldom taken into consideration. The floor easily becomes dirty due to the large quantities of waste products produced.

Improvement of the working environment will also help to improve quality control. Collection of operations in a single location providing communications facilities, emergency generators, and waste treatment will improve ties with contractors, help to prevent delivery delays resulting from power outages, and reduce pollution.

The gathering in one location of numerous subcontractors, each specializing in a certain process, will make it easy for manufacturers (contractors) to place orders. Under the present situation, work must be sent from one location to the next to proceed to the next process.

If future efforts to attract foreign corporations are successful, these villages will also be effective in forming links with such firms.

2) Requirements of project

1. The concept of a costume jewelry manufacturers' village is indispensable in the process of modernization of the industry. However, at the present time, the manufacturers will not understand the necessity of this upgrading of their business environment, as long as their business is operated within the linkage system among local manufacturers/exporters. This project will not be viable until they have improved their business performance to a certain extent, and realized the necessity of developing business agreements with foreign manufacturers to upgrade their business further.

2. In the initial stage, a pilot operation will be useful to show the effectiveness of the "manufacturing village" concept in modernizing the subcontractor sector. A construction site adjacent to the Promotion and Assistance Center is recommended for the initial pilot village to make use of the facilities available at the center.

3) Recommendations on implementation

1. Promotion of project: Regional government and BOI

2. Operation of project: An operation company in the third sector. Subsidy by the government will be necessary for operation.

6-3 Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers

1) Outline of project

The Philippine costume jewelry industry lacks several conditions required for penetration of Class B/C markets, which are already large in size and expected to grow even further. These include:

1. Metal materials and related design and processing technologies
2. Metal components
3. Production management and quality control

Formation of a modern costume jewelry industry will require overcoming these problems so that Class B/C buyers can be satisfied by Philippine suppliers. Transfer of the necessary technology will require the attraction of leading costume jewelry manufacturers from abroad and the formation of linkages between these firms and local subcontractors. When buyers begin to turn their attention to these advanced companies, the the Philippine industry as a certain producing center will also receive its share of attention.

In addition, the attraction of export-oriented foreign metal components companies will make it possible to obtain metal components locally.

2) Requirements of project

To attract the foreign investments both in costume jewelry assembling/manufacturing and metal parts production, abundant and not costly labor or sub-contractors network, which is qualified for manufacturing parts used for export grade products, is indispensable. These skills/experiences are mainly focus on metal parts processing, which are not available in Cebu at present. Further, the sub-contractors are required to strictly observe contract terms, especially in quality control and delivery timing, which is not the case with present sub-contractors. Thus, the acquisition of metal

processing technology and improvement of their business performance including raising their quality consciousness is necessary.

In this connection, implementation of "Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector" is essential.

3) Recommendations on implementation

Promotion of project: BOI

Table IV-6-1: Objectives and Development Programs for Costume Jewelry Industry

Promotion Objectives	Effective Measures	Development Project							
		Sales Promotion Project for Penetrating the Class C Market	Improvement of the System for Easy Access from Buyers	Project to Improve Design and Material Development Capability	Establishment of the Promotion and Assistance Center for Cebu C/J Industry	Campaign Project to Deter Design Imitation	Seminars on Improvement of Export Trade Business Practice	Construction of the Cebu Costume Jewelry Manufacturing Village	Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers
Schedule		A	A/C [1]	A**	B**	A	A	B/C [2]	C
(1) Penetration to New Market 1. Full Utilization of Existing Potentiality	1. Attracting new (potential) buyers	×							
	2. Improvement of route for inquires from buyers		×						
	3. Improvement of information gathering system	×							
2. Upgrade Product Development and Marketing Capabilities of Export Sector	1. Upgrading PDDCP's assistance capability for design/material development			×	×				
	2. Establishment of assisting system for market information analysis and product development among fashion related industries			×	×				
	3. Appeal to new market	×			×			×	×
	4. Improvement of route for inquires from buyers		×						
	5. Improvement of raw material supplying system								×
	6. Establishment of rule of export business					×	×		
(2) Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector 1. Acquisition of Process Technology and Production Management Technology	1. Acquisition of basic metal processing technology				×				
	2. Promotion of understanding the necessities of quality control and process technology				×		×	×	×
	3. Technology transfer from advanced foreign firm								×
2. Improvement of Working Condition and Infrastructure	1. Improvement of productivity with introducing machinery and equipments				×				
	2. Improvement of communication between orderer and sub-contractor							×	
	3. Stabilities of electricity supply							×	
	4. Supply the working condition will not be influenced by weather							×	

Notes: "Schedule" symbols: A = Should be implemented immediately, B = Preparations should be begun immediately, C = Medium- to long-term project, ** = Key project
1) [A] = not include opening and operating pilot shop or show room. 2) [B] = as pilot project only.

Table IV-6-2: Outline of Development Programs for Costume Jewelry Industry (1)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
I. Joint Export Sales Promotion and Assistance Program				
1. Sales promotion project for penetrating the Class C market with products on hand	Export sales promotion focusing on C market with the products on hand but hasn't been able to penetrate the market because of inadequate sales promotion. 1. Attaching a special display corner to trade fairs, featuring these products. 2. Advance publicity appealing the new corner to buyers. 3. Discount on exhibition fees for the corner. 4. Selection of qualified products to display at the corner.	1. The associations should jointly undertake this project. The cost should be burden partly by beneficiaries. 2. Selection of the appropriate products. The display corner should be cancel when the products are not found. 3. Gathering and accumulating market information for adequate analysis (especially in Cebu). 4. "Improvement of the System for Easy Access from Buyers" project is indispensable. 5. "Project to Deter Design Imitation" is also necessary to be tackled.	1. Promotion of project: (CEBU-FAME with assistance from CITEM. 2. Operation of project: CITEM with full support from CEBU-FAME and FAMA-PHIL. 3. Schedule: Immediate implementation is recommended.	
2. Improvement of the system for easy access from buyers	The inquiries will increase in the future in accordance with intensive sales promotion. It is recommended to improve the system of handling buyers' inquiry so that buyers can easily find appropriate access, and these inquiries be handled adequately and effectively. 1. Upgrading of company data base for inquiry from foreign buyers. 2. Improvement of a service system for inquiries. 3. Operation of show room and/or pilot shop.		1. Promotion of project: CITEM with full support from CEBU-FAME and FAMA-PHIL. 2. Operation of project: The inquiry service office set up in CITEM with establishment of coordination committee from BETP, CITEM, BOI, CEBU-FAME, FAMA-PHIL. 3. Schedule: Immediate implementation is recommended. However, showroom/pilot shop is recommended to be operated with other fashion oriented industries.	

Table IV-6-2: Outline of Development Programs for Costume Jewelry Industry (2)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
II. Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector				
1. Project to improve design and materials development capability	This project is to expand and strengthen the functions of PDDCP, the PDDCP is 1) to play a leading role in the areas of design information gathering and analysis, design development, and materials development, and 2) to be opened to the private sector to stimulate the PDDCP's efforts. 1. Assignment of costume jewelry design to specific staff(s) as a part of apparel and fashion division of PDDCP. 2. The strengthening function of costume jewelry specific staff. Functions are: 1) collection, analysis and distribution of information 2) R & D on development of new materials 3) training of costume jewelry designers. 3. Strengthening of Cebu representatives of PDDCP.	1. The expansion of PDDCP's function in development of design and materials. 2. To support and advise the activities of the PDDCP's staff for costume jewelry, establishment of a National Design Study Committee is recommended by leading designers from fashion oriented industries. 3. Support from the Cebu Chamber of Commerce and Industry, CEBU-FAME, and the regional government.	1. Promotion of project: CEBU regional office of DTI with request from CEBU-FAME. 2. Operation of project: Creation of new organization jointly by government and private sector for the operation as a third sector organization. The center should be operated under the supervision of an Advisory Committee involving representatives from government agencies and the private sector. 3. Schedule: Immediate preparation is recommended.	

Table IV-6-2: Outline of Development Programs for Costume Jewelry Industry (3)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
II. Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector (continued)				
2. Establishment of the promotion and assistance center for Cebu C/J industry	The recommended promotion and assistance center is expected to contribute to the upgrading of the industry by; 1. technology transfer and training of technologies 2. providing machine and equipment which are basic requirement in upgrading the technology 3. R & D on materials development 4. training in the field of export business practices, quality control, etc.	1. The guidance should cover not only that for exporters but also that for manufacturers (subcontractors). 2. The technical guidance and R & D work should put emphasis on combination products of metals and materials. 3. The scope of technical guidance and R & D work as well as equipment of metal component parts, rather than processing for product finishing. 4. The center must have qualified staff who have sufficient knowledge not only of machine operation but also of the quality of processed products required in the market. 5. Invitation of consultants or buyers from potential export market.	1. Promotion of project: CEBU regional office of DTI with request from CEBU-FAME. 2. Operation of project: Creation of new organization jointly by government and private sector for the operation as a third sector organization. The center should be operated under the supervision of an Advisory Committee involving representatives from government agencies and the private sector. 3. Schedule: Immediate preparation is recommended.	Estimate funds required: 236 million yens (1.82 million U.S. dollars)
3. Project to deter design imitation	This project involves a campaign to increase awareness of the need to prevent imitation designs. 1. Formation of a conference to discuss measures for prevention of design copying. 2. Encouraging industrial association members to avoid subcontracting with non-members of the conference. 3. Subsidizing litigation costs with conference and industrial association's funds to encourage law suits against offending parties.	1. The most important point is not to win cases, but to publicize the illegality of design copying as much as possible. 2. Participation in the conference. Campaign through the various government publications.	1. Promotion of project: CEBU-FAME and FAMA-PHIL. 2. Implementation of project: Council against Illegal Design Copying.	

Table IV-6-2: Outline of Development Programs for Costume Jewelry Industry (4)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
II. Program for Upgrading Existing Costume Jewelry Export/Manufacturing Sector (continued)				
4. Seminars on improvement of export trade business practice	Seminar and workshops for improving export business practices. 1. Basic points of export business practice and rules to be complied with by exporters. 2. Case studies of damage to the reputation of exporters, and possible countermeasures. 3. Access to potential buyers.	1. Lecturers of the seminars and workshops need to have sufficient experience in export trade with Philippine costume jewelry exporters. These include buyers, buying agents and foreign consultants, etc. 2. The seminars should be held also in Cebu. The seminars should be held both for exporters and manufacturers (sub-contractors)	1. Promotion of project: PTTC in cooperation with CEBU-FAME and FAMA-PHIL. 2. Operation of project: PTTC in cooperation with CEBU-FAME and FAMA-PHIL. 3. Schedule: Immediate implementation is recommended.	
5. Construction of the Cebu costume jewelry manufacturing village	Sub-contractors should be brought together in a certain location and establish common working place to achieve the following benefits: (1) improved working environment, (2) a better business environment, (3) more efficient subcontracting, and (4) waste treatment and other environmental measures.	1. The concept of a costume jewelry manufacturers' village is indispensable in the process of modernization of the industry. However, at the present time, the manufacturers will not understand the necessity of this upgrading of their business environment. This project will not be viable when these conditions are met. 2. In the initial stage, a pilot operation will be useful to show the effectiveness of the "manufacturing village" concept in modernizing the subcontractor sector. A construction site adjacent to the Cebu C/J Promotion and Assistance Center.	1. Promotion of project: Regional government and BOI 2. Operation of project: An operation company in the third sector. Subsidy by the government will be necessary for operation. 3. Schedule: It should be implemented when necessity of the project is realized in the process of modernization in the industry.	

Table IV-6-2: Outline of Development Programs for Costume Jewelry Industry (5)

Programs & project	Outline of project	Requirements of project	Recommendation on implementation	Remarks
III. Program to Encourage Investment by Foreign Costume Jewelry Manufacturers and Related Parts Producers				
	To attract the foreign investments both in costume jewelry assembling/manufacturing and metal parts production, to improve local metal parts supplying system and to transfer technology from foreign firms to local firms.	Local firms should be improve their business conditions to form linkages with foreign investing firms.	1. Promotion of project: BOI	

Table IV-6-3: List of Proposed Machinary and Equipment for Promation and Assistance Center for Cebu C/J Industry (1)

	Name of Machinary & Equipment	Number
1.	Plating facilities	
	1)Gold oxide plating	1
	2)Vacuum plating	1
	3)Nickel plating	1
	4)Chrome plating	1
	5)Gold, silver, rhodium plating	1
	6)Copper, yellow copper, zinc plating	1
	7)Non-conductive(non-metal) plating	1
2.	Press machines	
	1)Hand eccentric press	3
	2)Foot press	1
	3)Power press	1
	4)Universal lathe, milling machine	2
3.	Fundry equipments & metal processing machines	
	1)Rubber casting machine	1
	2)Lost wax casting machine	1
	3)Electrical dust collector	10
	4)Electrical flexible motor	10
	4)Hand flexible motor	10
	6)Reduction roller	4
	7)Wire drawing bench	1
	8)Ultrasonic cleaning kit	1
	9)Anvil with wooden base	2
	10)Metal forging stand	1

Table IV-6-3: List of Proposed Machinary and Equipment for Promation and Assistance Center for Cebu C/J Industry (2)

	Name of Machinary & Equipment	Number
4.	Equipments for natural materials processing	
	1)Dryer facilities	1
	2)Dyeing facilities	1
	3)Bench grainder	10
	4)Beading machine	1
	5)Zigsaw machine	3
	6)Band saw	1
	7)Circular saw	1
	9)Spray gun(with conpressor)	2
	10)Drilling machine	2
5.	Others	
	1)Metal carving desk	10
	2)Metal carving tools(file,plier,etc.)	10
	3)Wax carving tools	10
	4)Blower burner	10
	5)Bench vice	10
	6)Engraving machine	5
	7)Buste	5
	9)Design block	5
	10)Micro sand blaster	2
	11)Steel stamps alphbet,figures straight & for ring	1
	12)Beam scale	2
	13)Balance scale	2
	14)Silding caliper	10
	15)Tumblers	5
	16)Magnetic abrasives	5
	17)Mini drilling machine	5

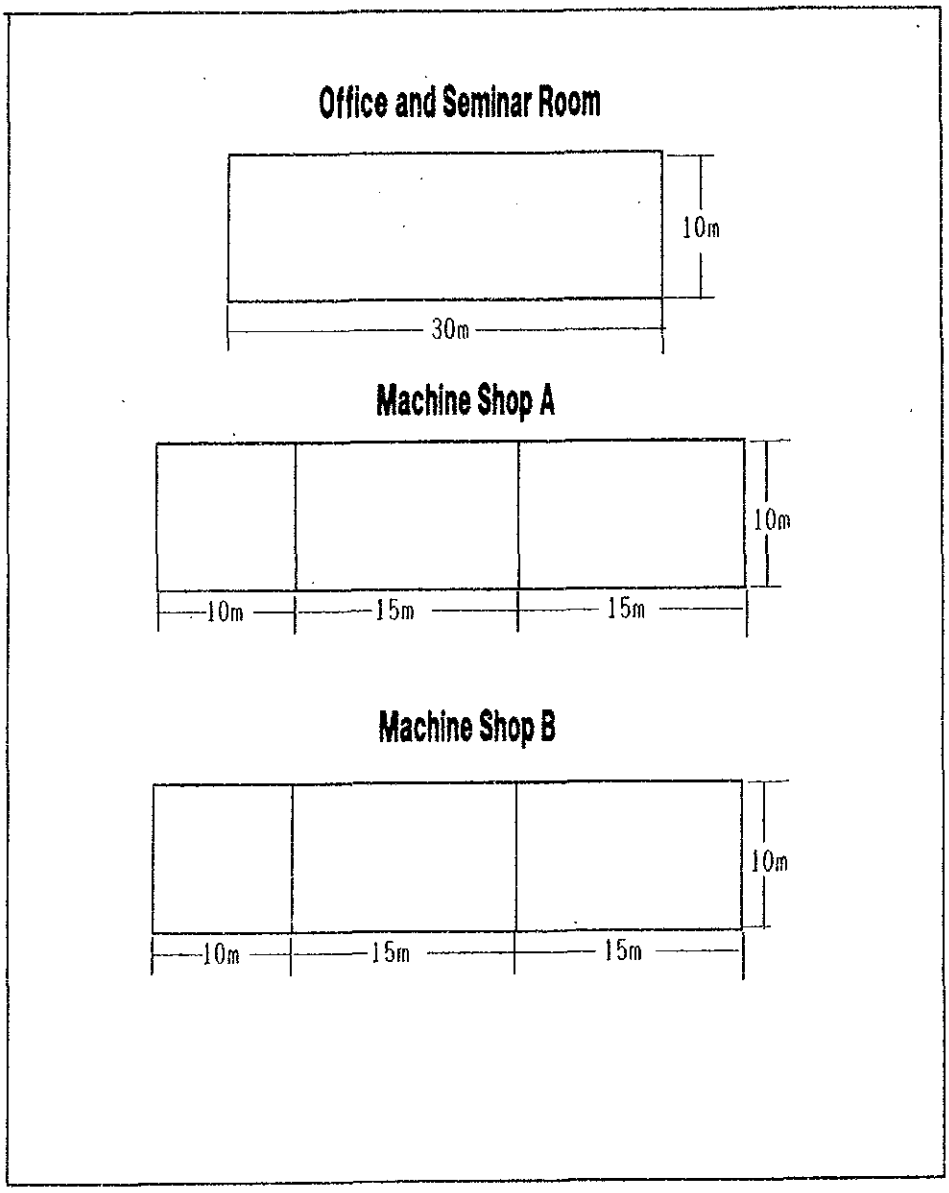
Table IV-6-4: Funds Required for Construction of Promotion and Assistance Center for Cebu C/J Industry

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

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

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

Figure IV-6-1: Sample Layout of Promotion and Assistance Center of Cebu C/J Industry



Annex IV-1. Survey on Interest in Costume Jewelry Imports at Japanese Firms

(1) Survey Outline

1) Objectives

The survey will study current imports by the Japanese costume jewelry industry together with future plans. It will also discuss approaches to the Japanese market.

Concerning the Philippines, current imports and areas for study will be probed. Recommendations will be offered concerning Philippine exports to Japan and ways of approaching Japanese corporations.

2) Corporations surveyed

151 assemblers and wholesalers likely to conduct import transactions and having technical guidance skills were surveyed. These firms were selected with the assistance of the Tokyo Costume Jewelry Manufacturers Cooperative Association, the Tokyo Accessory Wholesalers Association, the Tokyo Soshohin's Cooperative Association, and the Japan General Merchandise Promotion Center.

3) Methodology

Questionnaires were distributed by mail, and follow-up calls were made.

4) Period

June 17 - July 31, 1991

(2) Response

50 of the 151 firms (33.1%) completed and returned the questionnaires.

(3) Profile of Responding Firms

1) Type of business

See Table AIV-1-1.

2) Number of employees

See Table AIV-1-2.

3) Capital

See Table AIV-1-3.

4) Annual sales

See Table AIV-1-4.

5) Leading materials and products

Companies were asked to list their three leading products and materials. In terms of materials, metal-plated products were indicated by 28 firms (20.1%), followed by

artificial pearl (17 firms, or 12.2%), gold and platinum (14 firms, or 10.0%), and natural materials (excluding pearl, tortoiseshell, and coral) (14 firms, or 10.0%).

In terms of product categories, earrings were the most common (27 firms, or 23.0%), followed by necklaces (17 firms, or 14.5%), brooches (11 firms, or 9.4%), and hair accessories (11 firms, or 9.4%). 18 of the responding firms, or 36% of the total, handled a full range of costume jewelry (see Table AIV-1-5).

6) Leading retailers (sales channels)

24 of the firms (27.0%) indicated that accessory boutiques were their main retail outlets, followed by department stores, noted by 21 firms (23.6%). That no firm indicated "non-store sales" was due to the presence of numerous low-priced items, which are difficult to sell through such channels.

(4) Outline of the Japanese Survey

38 of the Japanese assemblers and wholesalers (76.0%) were currently engaged in imports. Of the 123 transactions described, 68 were with Asian nations, 36 were with European countries, and 16 were with the United States. Most of the transactions involved finished products, and licensed production usually used materials and parts supplied from Japan.

1) Current import transactions

Transactions with Asian nations:

Taiwan and Hong Kong were the most common partners, with 18 transactions each, followed by Korea with 11, the Philippines with 10, Thailand with five, and Indonesia with four.

Imports from the five countries/regions other than the Philippines were mainly finished products imported for their "low production costs." Licensed production agreements had been signed with firms in Taiwan and the R. Korea. In the case of the Philippines, products, semi-finished products, and parts were imported mainly because of the local "materials" in use.

Transactions with European nations:

The leading partners were Italy, with 14 transactions, France with nine, Germany with seven, and Austria with four.

Reasons given for transactions with Italy included "design," "technology," and "low production costs." Factors indicated for the other three countries were "design," "technology," and "materials."

As for character of imported products from the Europe, -- gold products from Italy, precious metal, precious metal-plated and glass products from Germany, crystal glass products from Austria, and the full range of accessories from France depending on their production in neighboring countries.

Transactions with the United States:

Finished products covering the full range of accessories, including rings, are the main imports, although parts imports and licensed production are also seen.

2) Problems in import transactions; future plans

The leading exporter-related problems indicated by Japanese firms were "insufficient quality control" (25.7%), "uncertain delivery schedules" (24.3%), and an "inability to produce in small lots and short cycles" (17.2%).

Other comments included the following:

- Quick, finely-tuned responses to fashion trends are needed, and this will require flexible manufacturing both in Japan and abroad.
- We are not considering the import of finished products, but if suitable materials or parts were available, they would be given consideration. In such cases, flexible production with various items and small lots and short delivery times would be favorable.

The following comments were limited to the Philippines.

- Poor plating of metal accessories makes it difficult to purchase finished goods. Some of the products using natural materials were quite attractive and of good quality. Given current Japanese fashion trends, however, they were thought to have little marketability.
- Although there were no particular problems with product quality, facsimile transmissions were often left unanswered, and in many cases firms who had placed orders via express mail still had to wait 20 days for the arrival of their orders. If such problems could be eliminated, we would like to do more business with Philippine firms.
- No plans to import because of the country's political instability.

13 of the responding firms (26%) indicated that they had no plans for imports of any type. Roughly 20 firms (about 40%) indicated that they had no plans for importing materials (parts), importing finished products, and licensed production, respectively. Those firms indicating the possibility of plans or studying such plans will be discussed below.

Imports of materials (parts):

18 firms (36.0%) gave positive responses, while another 11 (22%) indicated that such plans were being studied or might be studied in the future. However, necessary conditions included competitive pricing, quality, delivery time, and product originality.

Imports of finished products:

16 firms (32.0%) gave positive responses, while another 14 (28%) indicated that such plans were being studied or might be studied in the future. Necessary conditions included competitive design, pricing, the resolution of communication-related problems, building of mutual trust, and product originality.

Licensed production:

6 firms (12.0%) gave positive responses, while another 12 (24%) indicated that such plans were being studied or might be studied in the future. Necessary conditions were the same as those noted for Japanese suppliers, namely, quality standards on a par with Japanese manufacturers, shorter delivery times, small-lot production, low costs, and the ability to entrust production of original products.

Finally, Japanese firms indicated the following types of information were necessary when considering import transactions with Philippine firms: "production costs," 26.2%; "the raw material situation," 25.0%; "local company information," 16.2%; and "the export environment," 13.8%.

Table AIV-1-1: Type of Business

		No.	%
(1)	Parts Manufacturers	0	0.0
(2)	Manufacturers/Wholesalers, Assemblers	24	47.0
(3)	Material Wholesalers	1	2.0
(4)	Wholesalers	17	33.3
(5)	Manufacture and Direct sales	5	9.8
(6)	Other	4	7.8
	Total(Includes multiple responses)	51	100.0

Table AIV-1-2: Number of Employees (Including Privately-owned Companies)

		No.	%
(1)	0–10	15	30.0
(2)	11–20	11	22.0
(3)	21–30	13	26.0
(4)	31–50	2	4.0
(5)	51–100	3	6.0
(6)	101 and over	4	8.0
(7)	No Response	2	4.0
	Total	50	100.0

Table AIV-1-3: Capital

	(Yen)	No.	%
(1)	Under 5 million	8	16.0
(2)	5 to 10 million	10	20.0
(3)	10 to 25 million	16	32.0
(4)	25 to 50 million	7	14.0
(5)	50 to 100 million	1	2.0
(6)	100 million and over	5	10.0
(7)	No Response	3	6.0
	Total	50	100.0

Table AIV-1-4: Annual Sales

	(Yen)	No.	%
(1)	Under 100 million	4	8.0
(2)	100 to 250 million	9	18.0
(3)	250 to 500 million	11	22.0
(4)	500 million to 1 billion	12	24.0
(5)	1.0 to 2.5 billion	6	12.0
(6)	2.5 to 5.0 billion	3	6.0
(7)	5.0 billion and over	2	4.0
(8)	No Response	3	6.0
	Total	50	100.0

Table AIV-1-5: Leading Materials and Products

	No.	%
Materials		
(1) Gold, Platinum	14	10.0
(2) Silver	12	8.6
(3) Metal-Plated	28	20.1
(4) Diamonds	3	2.1
(5) Other Gemstones	6	4.3
(6) Pearls	3	2.1
(7) Artificial Pearls	17	12.2
(8) Tortoiseshell	1	0.7
(9) Coral	1	0.7
(10) Cloisonne	1	0.7
(11) Glass	10	7.2
(12) Plastic	13	9.4
(13) Other Natural Materials	14	10.0
(14) Other Synthetic/Artificial Materials	13	9.4
(15) Other	3	2.1
of which:		
-Brass chain	(1)	-
-Fabric	(1)	-
-Leather	(1)	-
Total (Including multiple responses)	139	100.0
Products		
(1) Necklaces	17	14.5
(2) Earrings	27	23.0
(3) Pendants	9	7.7
(4) Bracelets	1	0.9
(5) Brooches	11	9.4
(6) Rings	10	8.5
(7) Corsages	5	4.3
(8) Hair Accessories	11	9.4
(9) Total of (1) to (6)	18	15.4
(10) Other	8	6.8
of which:		
-Key Holders	(1)	-
-Women's Belts	(1)	-
-Pierced Earrings	(3)	-
-Buttons	(1)	-
-Scarves	(1)	-
-Materials	(1)	-
Total (Including multiple responses)	117	100.0

Table AIV-1-6: Leading Retailers (Sales Channels)

		No.	%
(1)	Department Stores	21	23.6
(2)	Super Stores	11	12.4
(3)	Precious Metal Boutiques	4	4.5
(4)	Accessory Boutiques	24	27.0
(5)	Variety/Fancy Shops	3	3.4
(6)	Western Clothing Stores/Boutiques	4	4.5
(7)	Mail Order Sales	5	5.6
(8)	Other Non-Store Sales	0	0.0
(9)	Other	14	15.7
	of which:		
	-Wholesalers	(10)	
	-Exporters	(1)	
	-Manufacturers	(3)	
(10)	No Response	3	3.4
Total (including multiple responses)		89	100.0

Table AIV-1-7: Exporter-related Problems with Import Transactions

		No.	%
(1)	Inability to satisfy specifications	1	1.4
(2)	Inability to carry out small-lot, short-cycle production	12	17.2
(3)	Uncertain delivery times	17	24.3
(4)	Communication problems (Lack of response to inquiries concerning production and shipment conditions)	5	7.2
(5)	Inadequate quality control	18	25.7
(6)	Unsatisfactory response to claims	4	5.7
(7)	Other differences in business practices	3	4.3
(8)	Other cultural differences	7	10.0
(9)	Difficulty in finding a good local partner	2	2.9
(10)	Other (High price)	1	1.5
Total (including multiple responses)		70	100.0

Table AIV-1-8: Plans for Future Import Transactions

Imports of Materials (Parts)		No.	%
(1)	Will pursue aggressively	18	36.0
(2)	Currently being studied	6	12.0
(3)	May be studied (Assuming certain conditons are met)*	5	10.0
(4)	No such plans at present	21	42.0
(5)	No response	0	0.0
	Total	50	100.0

Note:* Conditions: Price, quality, delevery time, availability of original products

Imports of Finished Products		No.	%
(1)	Will pursue aggressively	16	32.0
(2)	Currently being studied	6	12.0
(3)	May be studied (Assuming certain conditons are met)*	8	16.0
(4)	No such plans at present	19	38.0
(5)	No response	1	2.0
	Total	50	100.0

Note *Conditions: Good design, reasonable price, mutural trust, availability of original products, resolution of communication problems and differences with consumer taste

Licensed production		No.	%
(1)	Will pursue aggressively	6	12.0
(2)	Currently being studied	3	6.0
(3)	May be studied (Assuming certain conditons are met)*	9	18.0
(4)	No such plans at present	24	48.0
(5)	No response	8	16.0
	Total	50	100.0

Note * Conditions: Quality standard on a par with Japanese manufacturers, shorter delivery times, small-lot production, higher degree of completion than Japanese products, low cost, ability to entrust production of original goods

Table AIV-1-9: Information Needed When Considering Imports from the Philippines (or Licensed Production)

		No.	%
(1)	Raw material situation	20	25.0
(2)	Wages	4	5.0
(3)	Production costs	21	26.2
(4)	Information on local companies	13	16.2
(5)	Export environment	11	13.8
(6)	Investment incentives	1	1.3
(7)	Investment climate in export processing zones	2	2.5
(8)	Political and economic conditions	6	7.5
(9)	Other (one firm had been told that Philippine products were of poor quality)	2	2.5
Total(includes multiple responces)		80	100

Annex IV-2. Summary of Questionnaire Survey of Costume Jewelry Industry in the Philippines

A questionnaire survey of costume jewelry industry in the Philippines was carried out between June and July 1991 to understand the actual situation of the industry.

(1) Information Covered by the Survey

Profile of firms, Production, Finance, Problem of Industry, Assistance by the Government and Industry Associations

(2) Survey Method

The questionnaire survey was carried out on assignment by CEBU-FAME and FAMA-PHIL, the industrial organization of the industry. Both organizations had responsibilities on distribution and collection of the questionnaire sheets to the members of each associations and others.

The regional distribution of the respondent firms is as follows:

Cebu 226
of which: Exporters 52
Manufacturers 174
Metro Manila 24

Overall analysis

1. Year of establishment

The 78% of manufactures and exporting firms are established in the 1980's. The average year of establishment of firms in Cebu is 1984, while firms in Manila is 1985. (See Table AIV-2-1)

2. Number of employees

The distribution of the number of employees of the 250 responding companies was on Table AIV-2-2. The average number of employees in Cebu is 22, while the number in Manila is 88.

3. Total Sales in the latest fiscal year

The 79% of exporting and manufacturing firms has the total sales of less than 1 million peso. (See Table AIV-2-3)

4. Export Items (See Table AIV-2-4)

5. Export Destination (See Table AIV-2-5)

6. Materials used for costume jewelry (See Table AIV-2-6)

7. Number of equipment used (See Table AIV-2-7)

8. Fund Raising

   "Bank" is the most popular funding source among exporters while "Relatives and Friends" is the major funding source for manufacturers in Cebu. (See Table AIV-2-8)

9. Problems of the industry

   The common problems of the industry is "Difficulties in raising funds" and "Difficulties in overseas marketing". (See Table AIV-2-9)

10. Assistance by the Government and associations (See Table AIV-2-10)

Table AIV-2-1: Year of Establishment

				(# of response)	
	Avg. Year	under 1975	1976–1980	1981–1985	1986–1991
Manila based firms	1985	1	1	9	8
Cebu based firms	1984	11	38	64	111
of which					
Exporters	1984	5	4	16	25
Manufacturers	1984	6	34	48	86

Table AIV-2-2: Number of Employees

						(# of response)	
	Average	1–10	11–20	21–30	31–40	41–50	over 51
Manila based firms	88	0	5	0	1	2	15
Cebu based firms	22	123	59	20	7	2	15
of which							
Exporters	49	14	13	12	2	2	12
Manufacturers	13	109	46	8	5	0	3

Table AIV-2-3: Total Sales in the Latest Fiscal Year

						(# of response)	
Sales (Million Peso)	Average	under 1.0	1.1–5.0	5.1–10.0	10.1–15.0	15.1–20.0	over 20.1
Manila based firms	7.8	3	8	6	3	0	2
Cebu based firms	2.1	181	10	9	2	3	4
of which							
Exporters	9.2	16	8	9	2	3	4
Manufacturers	0.2	165	2	0	0	0	0

Table AIV-2-4: Export Items by Exporters

	(# of response)			
	Manila based firms		Cebu based firms	
Earring	22	92%	50	96%
Brooch	19	79%	44	85%
Necklace	20	83%	49	94%
Ring	7	29%	16	31%
Pendant	13	54%	30	58%
Hair ornament	20	83%	44	85%
Bracelet	16	67%	41	79%
Bangle	16	67%	43	83%
Cuffs/Tie-pin	1	4%	5	10%
Others	9	38%	13	25%

Table AIV-2-5: Export Destination

	(# of response)			
	Manila based firms		Cebu based firms	
U.S.	23	96%	44	85%
Canada	13	54%	28	54%
Japan	19	79%	27	52%
Australia	15	63%	22	42%
Europe	21	88%	42	81%
Middle East	6	25%	10	19%
Other	8	33%	10	19%

Table AIV-2-6: Material Used for Costume Jewelry

	(# of response)			
	Manila based firms		Cebu based firms	
Shell	17	71%	112	50%
Coconut shell	17	71%	125	56%
Horn	14	58%	66	30%
Bone	11	46%	61	27%
Woods	19	79%	156	70%
Beads	20	83%	110	50%
Metal	17	71%	57	26%
Ceramics	3	13%	34	15%
Plastics	13	54%	41	18%
Coral	8	33%	41	18%
Precious stone	3	13%	10	5%
Others	16	67%	43	19%

Table AIV-2-7: Number of Equipment Used

(# of equipment)

	Manila based firms	Cebu based Exporters	Cebu based Manufacturers	Total
Bench grinders	108	331	1,632	2,071
Bench drills	34	110	298	442
Multiple drills	19	34	222	275
Tumblers	26	39	64	129

Table AIV-2-8: Fund Raising

(# of response)

	Manila based firms	Cebu based Exporters	Cebu based Manufacturers
Bank	11	28	7
Official funds	0	4	5
Financing company	2	6	29
Cooperative	1	0	17
Relative & friends	9	15	82
Others	6	27	88

Table AIV-2-9: Problems of the Industry

(# of response)

	Manila based firms	Cebu based Exporters	Cebu based Manufacturers	Total
Shortage of				
materials/parts	9	15	87	111
skilled workers	6	8	55	69
original design	6	10	38	54
equipments	7	17	52	76
vocational school	7	13	17	37
Difficulties in				
overseas marketing	11	26	27	64
quality control	5	13	33	51
manufacturing	4	8	16	28
fund raising	13	12	116	141
High duty for import	9	24	11	44
Others	3	4	49	56

Table AIV-2-10: Assistance by the Government and Associations

(# of response)

	Manila based firms	Cebu based Exporters	Cebu based Manufacturers	Total
Reduction of duties	14	37	55	106
Reduction of sales tax	7	15	25	47
Assistance in marketing	10	26	128	164
Paticipation in tade fairs	14	25	24	63
Establishment of training system	13	20	73	106
Implementation of safty measures	1	2	23	26
Introducing modern equipments	9	24	93	126
Improvement of material supply	5	11	50	66
Collection of information	6	19	15	40
Others	3	4	12	19

Annex IV-3. The Japanese Costume Jewelry Industry

I Industry Structure

1. Distribution

In the typical distribution route for accessories, materials from raw material manufacturers or trading firms are processed into parts by parts manufacturers. These parts are then assembled by assembler/manufacturers for shipment to wholesalers, retailers and consumers. (See Fig. AIV-3-1)

Assembler/manufacturers and wholesalers import both finished and semi-finished products.

2. Production

Assembler/manufacturers remain heavily dependent on manual labor. They have very low rates of mechanization, under a production system based on the division of labor mainly for final assembly, the attachment of price tags, and packaging.

Since they have no special in-house processing equipment, assembler/manufacturers guarantee the quality of their products by maintaining skilled subcontractors for brazing and carving and by keeping high standards for the quality of metal plating. Customers receive a quality guarantee in the form of naming for specified products and the use of stamps on certain areas. Therefore, the major problem in maintaining quality is in securing reliable, skilled subcontractors. This requires a steady supply of orders.

Some parts manufacturers have invested in mass-production facilities for machining or plating (used in making chains, etc.).

3. Wholesalers

(1) Functions

Wholesalers are usually responsible for the following functions in the distribution of products.

- Merchandising
  1) Product planning and development
  2) Purchasing and arranging product ranges
  3) Sales and distribution
- Physical distribution
  1) Storage
  2) Transport and delivery
- Supplemental functions
  1) Financing
  2) Bearing of risks
  3) Supply of market information
  4) Retailer guidance
  5) Producer guidance

Two important reasons for the existence of wholesalers are as follows: 1) in terms of production, the large number of small manufacturers; and 2) in the retail field, the large number of small retailers and shops selling accessories as a side-line business.

(2) Characteristics by Company Size

Wholesalers can be characterized by company size as shown below. (See Table AIV-3-1)

A. Large wholesalers

Companies in this group were once small and medium-sized businesses that underwent expansion during Japan's period of high economic growth.

They differ from conventional wholesalers in several important ways. Namely, they have expanded their market shares while at the same time: 1) hiring expert staff and creating design and research divisions; 2) creating modernized management organizations; and 3) organizing a streamlined system of distribution.

B. Medium-sized wholesalers

Firms in this group have at least 50 employees and act as leaders for the wholesale industry.

Their main customers are department stores in large cities, and their products target younger to middle-aged women. The firms make efforts to provide full product lineups and original designs.

Characteristics of these companies include the following: 1) the ability to develop new products; 2) the ability to manage risks involved in production and sales; 3) the ability to identify emerging consumer needs; and 4) the ability to predict future hit products. They actively gather foreign market information and purchase products on trips to Europe and the United States, which are made by owners and managers three to four times a year. Most owners combine an excellent feel for their products with management and marketing expertise, and the majority of firms are financially very sound in terms of profitability, financial structure, and internal fundraising capabilities.

C. Small wholesalers

These firms supervise distribution in the accessory industry. However, their financial foundations are weak overall, and most have yet to modernize key functions like information, planning, and sales.

(3) Supply Sources

Suppliers for accessory wholesalers can be broken down into domestic and foreign sources. Domestic sources include assembler/manufacturers and subcontractors (including craftsmen). All three categories of wholesalers do business with the assembler/manufacturers. Business with subcontractors is mainly limited to large and medium-sized wholesalers because of the substantial operating capital (for product storage, etc.) and risks entailed in ordering and purchasing a wide variety of products.

Foreign suppliers can be divided into industrialized nations (i.e., Europe and the United States) and Southeast Asian countries. Generally, upmarket goods are purchased from the former group, while inexpensive items (including materials and production on specification) are imported from countries like Hong Kong, the Philippines, Thailand and India. Virtually all foreign purchases are made by the large and medium-sized wholesalers.

A. Relationship with the assembler/manufacturers

The relationship between wholesalers and the assembler/manufacturers is a horizontal one. There are two common situations, one in which the wholesaler has its own design division and the two parties study potential designs before the order is placed; and one in which the order is made based on samples provided by the assembler/manufacturer. The latter case accounts for the great majority of orders.

Consequently, larger wholesalers emphasize product originality and make efforts to enhance in-house planning capabilities. Smaller wholesalers, when selecting items, emphasize factors like fashionability, originality, and whether or not they can obtain the product before their competitors.

Although the assembler/manufacturers establish the retail prices for their own products, margins are usually determined on the basis of negotiations.

B. Relationship with subcontractors

Like the assembler/manufacturers, wholesalers sometimes have their own subcontractors and craftsmen in an attempt to improve design originality. This is especially true of wholesalers trying to strengthen their product planning and development divisions. For example, a large wholesaler may view its relationship with its subcontractors as a "group bound together by a common fate" and reinforce ties with clothly affiliated firms and companies under its exclusive control based on contracts for guaranteed purchases.

Most wholesalers, however, provide no assistance for their subcontractors. A small group provide help in the form of a steady supply of orders, design information, and metal dies. Very few relationships are characterized by a strong sense of exclusivity, with the accompanying financial assistance, advances for wages and materials, etc.

4. Retailers

Retailers Handling Jewelry

- Department stores
  - Jewelry and precious metal counters(upper floor such as fifth or sixth floor)
  - Ordinary accessory counters (ground/first floor)
- Boutiques
  - Jewelry and precious metal boutiques
  - Watch stores
  - Accessory boutiques
    - Sales of other products as well
    - Sales of only one item
  - Clothing boutiques
  - Do-It-Yourself shops
  - Variety shops
  - Fancy shops
  - Secondhand merchandise shops
  - Volume sales outlets
  - Direct mail sales
  - Door-to-door sales
  - Beauty shops

Sales and purchasing by retailers have the following characteristics. (See Table A IV-3-2)

A. Department stores

- In department stores, accessories tend to be located on the first floor, which has the highest sales efficiency. Typically they are placed in the line of traffic to leading product counters or with related items such as cosmetics or clothing. Product lines and typical price ranges are gradually moving up.

- Department stores purchase about 75% of their merchandise from specialized wholesalers, with whom they have dealt for many years and have stable business relations.

  In transactions between department stores and wholesalers, the wholesaler controls everything from product planning and development to sales strategies and must bear inventory risks as well. Consequently, wholesalers dispatch female sales personnel to department store floors to identify which products are selling well, and this information is reflected in planning. Wholesalers are responsible for the wages of these personnel, display cases and other promotional costs, inventory loss, unsold stock, and product planning and development costs. In addition, they pay the department stores a commission of about 38% on all sales.

B. Boutiques

- Boutiques now make their own decisions about which products to handle. Although the risks are high, so are the margins. Fashion trends and the short life cycle of accessories result in severe demand fluctuations, and advanced sales strategies are required.

- Boutiques use a wide variety of suppliers in order to increase the volume and comprehensiveness of their lineups, but recently they have started to concentrate their orders with a small number of firms. Many boutiques have cut the number of suppliers per item to about 5-10.

  In general, transactions between boutiques and wholesalers are based on purchasing contracts. The wholesale price depends on which party is to bear the risks for unsold merchandise, but typical figures are in the range of 50-63 for a retail price of 100.

  Exhibitions are another commonly-used method of purchasing for boutiques, many of which are increasingly using these opportunities to promote ties with manufacturer/wholesalers and assembler/manufacturers. Some regular chain stores work together with these firms on new products in order to achieve more original designs and ideas. Some of the boutiques building chains and having adequate capital are fulfilling the same role as wholesalers.

- Clothing boutiques purchase a high percentage (61.3%) of their merchandise from wholesalers dealing mainly in accessories, followed by "total fashion" trading firms. Movement from one supplier to another is less than would be expected, with fixed, stable relationships being the norm.

C. Volume sales stores

- In the past, supermarkets and volume sales stores dealing mainly in clothing handled accessories on a spot basis as seasonal products or loss leaders, but in recent years many stores have established permanent counters for accessories. In addition, some of the volume sales stores have set up independently their fashion accessory divisions to allow them to carry out their own sales campaigns.

• Although supermarkets and volume sales outlets dealing mainly in clothing source 40.4% of their merchandise from specialized wholesalers, purchases from manufacturer/wholesalers are rapidly increasing. Although assembler/manufacturers supply some of the products which are sold at bargain prices or as seasonal loss leaders, purchases from these firms have not been especially noteworthy.

D. Other shops (variety shops, fancy shops, etc.)

• Purchasing by these shops closely resembles the pattern for boutiques, with most purchases being made from total fashion trading firms and specialized wholesalers. The more rural the location of the store, the more likely it is to purchase from total fashion concerns. In addition, buyers from these shops go to wholesaler's shops and purchase what they need. Cash and carry wholesalers are also used on occasion.

• Following are some of the reasons why these stores have come to deal in accessories: 1) the small size and light weight of these products eliminates the need for a large sales area or costly equipment; 2) prices are quite low overall, which means purchases can be made without laying out large amounts of capital; 3) many of the products are very attractive, which improves store image and drawing power; and 4) employees are already familiar with the products, which makes sales easy. In the future, it is expected that separate sales corners will be established for accessories, either as related products or on their own, and an increasing number of retailers will turn to the sale of accessories as a side-line activity.

II Product Development

Information gathering and product planning are the two critical conditions for product development.

1. Information Gathering

Information can be divided into two types: information about the past and present; and information about the future. Current information covers such topics as which products are selling and which are in vogue. Once the season ends, this information is stored for future reference.

The typical means of obtaining current information are listed below.

• **Point-of-sales information from the retailer**: Current sales figures, conversations with customers, and other information from urban department stores is important for identifying domestic consumer trends for manufacturing and planning.
• **Information from manufacturers and producing districts**: Prices, product movement, and new product information from manufacturer-sponsored exhibitions.
• **Information on competing products**: Often used in planning that is based on competing products; the source of imitation goods.
• **Consumer surveys**: Some of the larger wholesalers gather a wide range of information concerning art, entertainment, manners and customs, lifestyles of food, clothing and housing from various trade publications and fashion magazines.

Means of obtaining "future information" are shown below.

• Foreign fashion information: Information from Europe and the United States in indispensable in identifying new fashion trends. Many wholesalers actively gather foreign fashion information through numerous trips abroad and participation in foreign trade fairs and exhibitions.

• Local fashion information: Information concerning future fashion trends is gathered through reports by the Japan Fashion Color Association and fashion magazines.

2. Product Planning

Only companies that are powerful wholesalers and that are of a certain size have established their own planning rooms and employ their own designers. Though there are some small and medium-scale wholesalers which have managers or business managers carry out product planning on top of their other work, there are many which do not carry out any product planning at all.

As well as signifying an insufficiency in product planning capacity, it also makes it nearly impossible to have the funding capacity and sales capacity for guaranteeing such things as minimum lots requested by subcontracting manufacturers and a wide range of small lot items as requested by retailers. As a result, the fundamental line of thinking adopted by these small and medium-scale wholesalers is to select products planned by assembly manufacturers in line with the company's own product range philosophy.

The planning room of larger wholesalers generally serves as a development mechanism. It is staffed by one manager and between 2 and 8 designers who are engaged in design work. In addition to producing production designs, the main functions of these designers include surveying overseas fashions, forecasting which products will sell well, setting sales prices, preparing for exhibitions, compiling catalogs, and producing planning reports.

Product development may be divided into the following two main categories.

[1] Creating fashionable and original products which will stimulate demand, and making new plans for novel idea products.
[2] Planning products by using information on overseas fashions ahead of other companies.

It is usual for wholesalers to be involved in aspects ranging from sales through to design planning and material planning. The task of actually turning these plans into products is left up to subcontracting manufacturers.

3. Market Segmentation and Sales Strategies

When establishing target markets for a new product, two market segmentation criteria are used: age group and lifestyle.

In terms of age, the market is broadly divided into four groups: under-20, 20-25, 25-30, and over 30. Although some companies cover all four groups, most focus their planning efforts on either the younger or older segments.

In terms of lifestyles, the market can be broken down into resort, city and social or casual, town and social. However, the market is awash in similar products, and just as with other fashion products consumer drawing power is not especially strong.

The following should serve as reference in determining criteria for market segmentation: 1) demographic statistics (age, income, occupation, life cycle, etc.); 2) intended use (time, place, and occasion); 3) lifestyle (city, resort, etc.); and 4) taste or sensibility (European, American, etc.).

Next, a combination or combinations must be selected from the market segments created based on these criteria. This selection will have a great impact on future operations.

After market segmentation, the compatibility of a company's products in the selected target market must be analyzed and discussed. Specific topics for analysis include: 1) market size and potential for growth; 2) product quality and pricing; 3) sales channels (department stores, boutiques, etc.); and 4) advertising and sales budgets.

Competing firms and their products must also be taken into consideration. Specifically, the following aspects of competing firms should be thoroughly investigated: 1) past performance; 2) past strategies; and 3) strategies with future potential.

Table AIV-3-1: Characteristics of Accessory Wholesalers

	Planning-oriented wholesalers		Destributing-oriented wholesalers	
Type	Type A(Large)	Type B(Medium-Sized)	Type C(Small)	Type D(Micro)
Items	Jewelry, Semi-jewelry, Fancy goods, Licenced production	Semi-jewelry, Fancy items	Semi-jewelry, Fancy items	Semi-jewelry
Planning	Engaged in product planning and design development	Engaged in product planning and design development	Some product planning	No product planning
Production	Some in-house production, and also use exclusive outside supplier	Use non-exclusive outside supplier only	No production	No production
Buyers	Department store, Butique	Department store, Butique	Boutiques Side-line Business	Boutiques Side-line Business
Risk	Production/Sales risks	Production/Sales risks	Sales risk	Sales risk
Brands	Yes	Yes	Yes	No

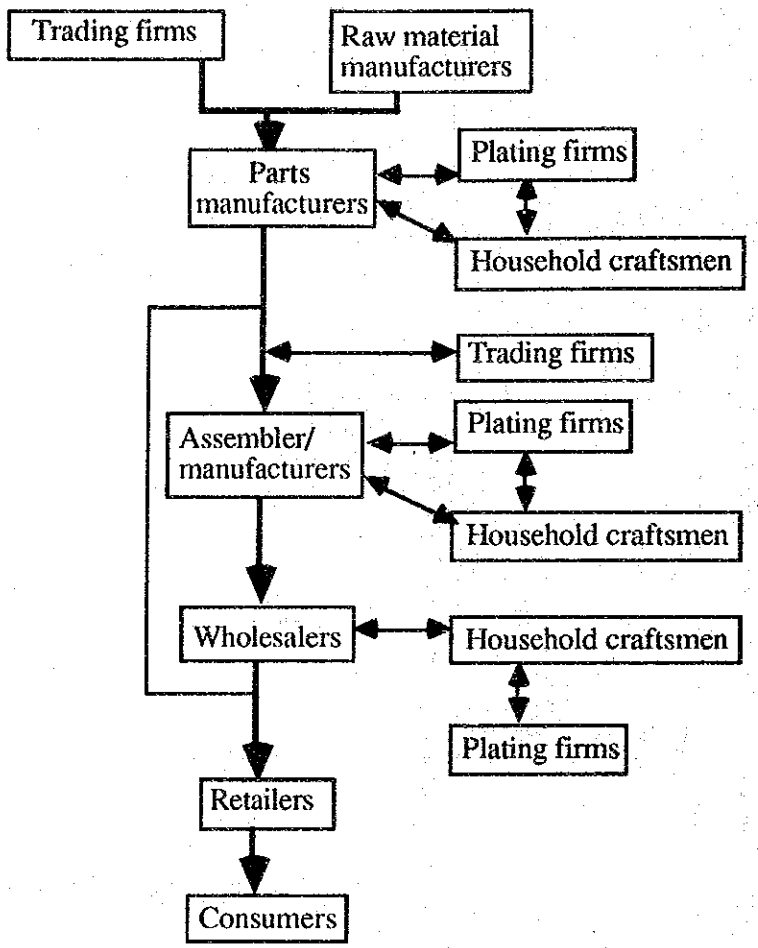
Source: Tokyo Costume Jewelry Manufacturers Cooperative Association

Table AIV-3-2: Supply Source for Retailers

Source / Retailer	Assembler/ manufacturers	Manufacturer/ wholesalers	"Total fashion" trading firms	Specialized wholesalers	Cash wholesalers	Importers
Department stores	0	9.2	9.6	74.8	0	6.4
Boutiques	12.3	47.8	18.5	16.8	4.6	0
Boutiques & clothing store	0	10.8	21	61.3	6.9	0
Supermarkets & volume sales outlets	18.8	23	10.2	40.4	7.6	0
Other	8.6	16.4	39.6	29.6	5.8	0

Based on interviews with two to three retailer from each group in the Tokyo area

Figure AIV-3-1: Accessory Production and Distribution Structure



Source: Tokyo Costume Jewelry Manufacturers Cooperative Association

Annex IV-4. The Korean Costume Jewelry Industry

Note: This information is based on data gained from a 1988 survey (JETRO Import Survey Series, 1988). A few revisions have been made where updated information has been received.

(1) Overview of the Industry

In 1987 there were 86 fashion accessories makers. The majority of these were small businesses conducting manual production. As many as 39.7 percent of all enterprises employed five people or fewer, 60.6 percent employed ten people or fewer and 90.7 percent of businesses employed 50 people or fewer. Not more than 5.4 percent of businesses employed 100 people or more (See Table A IV-4-1). Accessories manufacturers are largely concentrated in three regions, 31 in Seoul, 35 in Busan and 13 in Teagu.

The Korean United Federation of Industrial Artists deals with issues effecting the whole industry such as exports and domestic sales, technological development, procurement of raw materials, securing skilled workers, and vocational training. It also promotes exchange of information between businesses. In 1987, 86 accessories businesses were members of the federation. There are 427 member firms in total.

Traditionally, manual production has been the major production method. However in recent years the use of machines in production has grown as a result of increased demand and the development of the machinery industry (See Table A IV-4-2).

In 1985 the mechanization ratio for 89.4 percent of firms who made craft work using gems was lower than 20 percent. Only 10.6 percent of them had a mechanization ratio of over 40 percent. Base-metal accessory makers with a mechanization ratio of over 40 percent amounted to 52.4 percent of the total, and 45.3 percent of firms had achieved a mechanization ratio of over 60 percent.

(2) Exports

Exports for immitation jewelry are growing every year. Exports in 1984 jumped 31.9 percent on the previous year to $71.69 million. Exports were $101.21 million in 1985 up 41.2 percent, $143.02 million in 1986, up 41.3 percent and $194.62 in 1987, up 36.1 percent.

In 1986 exports to the U.S. totaled $80.76 million, 56.5 percent of the total. Exports to Japan accounted for 11.1 percent of exports at $15.88 million, exports to the U.K. 6.1 percent at $8.65 million, to (West) Germany 4.8 percent at $6.80 million and to France 3.7 percent at $5.31 million.

Necklaces (including earings) account for the bulk of exports. However the proportion of total exports that these occupy is falling gradually year by year. In 1985 necklaces accounted for 75 percent of all exports. It had fallen to 65 percent in 1986, and 63 percent in 1987 (Federation estimates). The biggest export items to the U.S. are necklaces, bracelets and earrings, to Japan amethyst rings, and to France and other European markets metal earings.

Korean products, particularly its inexpensive base-metal items, are considered by overseas traders to be on competing terms with products made in Taiwan and Hong Kong in terms of quality and price. However designs are considered not to be as diverse and the Korean industry not adequately able to respond to small lot orders in comparision to these countries.

Exports can be divided into direct exports by individual makers and exports through exporting agencies (Korean federation of handicraft industry cooperatives, and the Korea Trading International Inc.). In 1980 exports conducted through exporting agencies amounted to $1.20 million. Under the present system, exports of accessories (excluding chains) must receive the prior recommendation of the Korean federation of handicraft industry cooperatives. Exporters of chains must voluntarily restrain exports to regions where exports for the previous fiscal year exceeded $1 milion.

(3) Issues in Domestic Production and Distribution

Due to the prevalence of small lot production in the industry, the distribution channels for fashion accessory are manifold. The federation has established a joint exhibition and sales center run directly by producers. By selling direct to consumers, mark-ups in the distribution system are avoided and sales slumps overcome. The federation runs two such centers in Seoul, one in Dejeon and one in Cheju.

There are a number of problems with production technology and quality. One of these is the unevenness of the surface of wire rods resulting from inadequate vacuum heat treating facilities. Hand operated machines are used in the manufacture and processing of chains, producing considerable unevenness. There is also a need to improve plating technology for the improvement of quality. Other important issues in the industry are new product development activities and the fostering of a sense of the designs popular in the international market.

As the industry is largely comprised of small businesses keeping raw materials in stock is difficult and problems often occur due to the fact that a wide range materials are procured in small quantities. High tariffs on imports of certain materials such as sea shells in an obstacle to smooth procurement. Securing skilled workers is also very difficult due to the fact that , as in other countries, wages in the costume jewelry manufacturing industry are lower than in other industries and working conditions worse.

(4) Industrial Development and Export Promotion Policies

Because fashion is becoming more and more upmarket, demand for accessories is expected to expand and the industry is regarded as having promise as a high value-added industry. It is thus expected that greater emphasis will be placed on the development of this industry in government and private sector policy.

With the aim of improving quality and increasing exports of accessories, the government has strengthened its support for designated specialized makers in the form of financial support, and guidance on management, technology and design. The organization responsible for the implementation of these support measures is the Korea Small and Medium Industry Promotion Corp.. In addition to it's head office in Seoul, it has 8 offices and 1 training center in R. Korea and three overseas offices (Germany, Japan, U.S.A.). Detailed guidance and consulting relating to the development of industry in the particular area is offered.

Between 1980 and 1989 an average of 35 firms per year were designated and there are plans to designate 20 firms per year between 1991 and 1993. The incentives which will be given special mention are 1) low interest financing for capital investment and working capital (At the time of writing in 1991, financing at 8 % interest per year was available for capital investment over 8 years and for driving capital over 3 years. This is in comparison to the 11% interest charged on the open market.), and 2) help with organization of and subsidies for (firms to cover 20-30%) the invitation of foreign experts and the sending of research students overseas, where these activities would be connected

with improving technology and introducing advanced technology. These incentives applied to designated makers for a period of five years.

The government is conducting activities for the promotion of cooperation in producing districts appropriate to the charcteristics of the particular district. There are examples of producing centers being estabished in housing complexes. Factories are concentrated in certain areas and activities such as the joint use of facilities and storage of materials as well as joint sales of products are conducted. At present, there are seven producing districts involved in crafts, including Kyungju.

As measures to develop the costume industry as an export industry, there are plans to strengthen design development and technological guidance as well as improve the exports inspection system.

In concrete terms, firms exporting over $200,000 worth of base metal chains or over $100,000 worth of other art objects will be made exempt form exports inspections. Export inspections are conducted by the miscellaneous products testing and examination institute.

Guidance in design development will be given in respect of 30 items per year till 1993 through the design and packaging center. The Korean government plans to introduce quality labeling with the aim of achieving consumer protection and improving quality.

Table AIV-4-1: Costume Jewelry Industry in R. Korea:
Distribution by Firm Size

Capital(mil. won)	%	No. of Employee	%
under 5	8.3	below 5	39.7
5 – 10	12	6 – 10	20.9
10 – 25	14.6	10 – 20	16.4
25 – 50	25	21 – 50	13.7
50 – 100	13.3	50 – 100	3.9
over 100	25.9	above 100	5.4
Total	100	Total	100

Source: Korean federation of handicraft industry Cooperatives

Table AIV-4-2: Rate of Mechanization in Manufacturers

(1985)

	under 20%	20 – 40%	40 – 60%
Craftwork using gems	89.4	10.6	–
Base metal costume jewelry	2.3	52.4	45.3

Source: Korean federation of handicraft industry Cooperatives

V. Oleochemicals

V. Oleochemicals

1. The Oleochemical Product Market and Internationalization of the Oleochemical Industry

1-1 Definition of Oleochemical Industry and Raw Materials/Products

(1) The Oil and Fat Industry and Oleochemical Industry

The oleochemical industry is a chemical industry which uses animal/vegetable oils and fats as raw materials. Animal/vegetable oils and fats are used as 1) edible and industrial use as they are, or after refining, 2) edible use after processing (processed products), 3) products after chemical processing (oleochemicals).

In the oleochemicals, applications are different in accordance with the number of carbon chains contained in the alkyl radical of fatty acids. The raw materials in large volumes in the oleochemical industry include beef tallow, lard, coconut oil, palm oil and palm kernel oil, etc.

The oleochemical industry produces fatty acids, glycerol, methyl esters and fatty alcohols as basic oleochemicals as well as various kinds of derivatives from these basic oleochemicals. (Refer to Fig. V-1-1.) Some derivatives are used as finished products and others are as intermediates for finished products. Although in many cases the oleochemical industry refers only to the production of basic oleochemicals, this survey covers a wide range of fields, as shown in Fig. V-1-1.

(2) The Coconut Oil-Based Oleochemical Industry

Fig. V-1-2 shows oleochemicals which uses coconut oil as a raw material. The coconut oil-based oleochemical industry was developed for the utilization of C_8, C_{12} and C_{14}. The demand areas for these are in a wide range and account for the majority of oleochemicals, as shown in Fig. V-1-2.

The chemical composition of palm kernel oil is similar to that of coconut oil. The difference between the two is the fact that coconut oil contains a large volume of C_8 and C_{10} while palm kernel oil contains C_{18}. However, this difference is very marginal. As a result, basic oleochemicals and derivatives produced from coconut oil compete with those manufactured from palm kernel oil.

1-2 The Oleochemical Product Market and Outline of the Industry

(1) Outline

The main finished products in the oleochemical industry can be divided into the following two categories.

1. Household soaps and detergents and toiletries:
   Soaps, detergents, shampoos, etc.

2. Industrial fine chemicals such as surfactants, additives, stabilizers, etc., which make use of surface activity and other functions:
   Surfactants for industrial use, additives for plastics, additives for food processing, industrial agents

These products are based on 1) fatty acids, 2) methyl esters, 3) fatty alcohols and 4) basic oleochemicals including glycerol as by-products from these production process. Intermediate derivative products are derived from the basic oleochemicals and are used as they are or as materials for finished products. The following is an outlook of the changes in global demand for finished products and basic oleochemicals.

Because the production of basic oleochemicals is a kind of capital-intensive industries, economies of scale apply. As a result, in many cases production of basic oleochemicals takes place in the countries where the raw materials are produced in order to make large-scale production possible. For this reason, production bases have been concentrated in the countries which have advantages in terms of the procurement of raw materials. The following is an analysis of industrial development based on the situation of raw material supply.

(2) Demand and Supply for Finished and Intermediate Products

It is estimated that the a total of 1,241,000 metric tons (MT) of soap was produced in industrialized countries (U.S., Western Europe, Japan) in 1990, a total of 229,500 MT exported and 136,200 MT imported. Although production over the last five years has stagnated, the annual rate of growth of both imports and exports was 6.6%. Moreover total consumption of soap in industrialized countries stood at 1,089,000 MT in 1990 after having shown an annual rate of decrease of 1.8% over the last five years. Soap consumption per capita in that year was 1.5kg, with this showing decline in Western Europe and the U.S. and stagnation in Japan.

Total production of synthetic detergents in industrialized countries in 1990 is estimated at 13,698,000 MT, total exports at 1,160,500 MT and total imports at 1,147,300 MT. Production in the last five years has grown at an annual rate of 2.1%. The annual rate of growth of exports was as much as 9.6%, and imports a remarkable 19.5%. Imports over the past five years has almost doubled. Consumption of synthetic detergents in industrialized countries in 1990 was 13,678,000 MT, after having grown at an annual rate of 2.6% over the last five years. Annual per capita consumption of synthetic detergents varies considerably according to the region. In Western Europe and the U.S. 22.3kg per capita is consumed annually and the figure for Japan is 8.0 kg. In each region consumption is growing.

Estimates for 1990 show that a total of 622,100 MT of shampoo was produced in industrialized countries, total exports were 78,900 MT and total imports 67,700 MT. Production has grown at an annual rate of 5.9% over the last five years. Annual growth in both exports and imports of shampoo remained at 4.8%, lower than that for soap and synthetic detergents. On the other hand, consumption of shampoo in industrialized countries was 607,000 MT in 1990, and growth over the last five years was 5.8% per annum. Annual per capita consumption was 0.8kg, and, like synthetic detergents, is on the rise in each region.

Total production of surfactants in industrialized countries in 1990 is estimated at 7,972,000 MT, total exports at 306,000 MT and total imports at 48,600 MT. The annual rate of growth over the past five years was 6.5% for production, 2% for exports and 9.7% for imports. Total consumption of surfactants in industrialized countries in 1990 was 7,407,000 MT, and showed an annual rate of growth of 4.2% in the last five years.

(3) Demand and Supply for Basic Oleochemicals

Estimates for world production of basic oleochemicals for 1990 show that 2,130,000 MT of fatty acids, 563,000 MT of glycerol, 855,000 MT of fatty alcohol,

450,000 MT of fatty acid methyl esters and 425,000 MT of fatty amines were produced. Fatty alcohol, fatty acid methyl esters and fatty amines have shown high rates of growth, at annual rate of 2.5% for fatty alcohol and fatty acid methyl esters, 4.3 percent for fatty amines.

It is estimated that 2,037,000 MT of fatty acids, 360,000 MT of glycerol and 850,000 MT of fatty alcohol were consumed worldwide in that same year. Compared with 1985, the consumption volume of fatty acids, glycerol and fatty alcohols grew at annual rate of 2.5%, 2% and 2.9% respectively. The growth in consumption volumes for each of these outstripped growth in production. (refer to Table V-1-2 and V-1-3)

1) Fatty acids

The production volume of fatty acids grew 6.5% in five years to 2,130,000 MT. Of this, 900,000 MT were produced in Western Europe, 580,000 MT in the U.S., 307,000 MT in Japan, 223,000 MT in Southeast Asia, and 120,000 MT in other countries. Production capacity in Western Europe is 910,000 MT, 857,000 MT in the U.S., 291,000 MT in Japan, 193,000 MT in Malaysia, and 78,000 MT in Indonesia, 2,329,000 MT in total. Western European and Japanese plants are currently operating at full capacity.

In 1990 the global consumption volume of fatty acids was 2,037,000 MT. In the past five years it was increased by 12.5%. Region by region, it is estimated that 953,000 MT of fatty acids was consumed in Western Europe, 800,000 MT in the U.S., and 284,000 MT in Japan. The annual growth in consumption was most marked in Japan where the figure was 4.8%.

In Western Europe and the U.S. over 40% of fatty acids are used in alkali metal salts and around 20% in fatty amine derivatives. Fatty acids are also used in esters, heavy metal salts, and monomer/ dimer/ trimer acids. In Japan fatty acids are mainly used in soaps, detergents, metallic soaps (including PVC), rubber processing agents, synthetic surfactants and lubricating oils and greases.

2) Glycerol

Production volumes of glycerol increased 6.2% in five years to 563,000 MT. Of this, 218,000 MT were produced in Western Europe, 144,000 MT in the U.S., 52,000 MT in Japan, and 149,000 MT in other countries. Production capacity of glycerol is estimated at 650,000 MT. Of this, production capacity of natural glycerol is estimated to be 470,000 MT.

In 1990, world consumption of glycerol was 360,000 MT. In the past five years it was increased by 10.1%. It is estimated that 160,000 MT of glycerol was consumed in Western Europe, 152,000 MT in the U.S., and 48,000 MT in Japan. As was the case with fatty acids, consumption volume of glycerol showed a higher rate of growth in Japan.

Drugs and personal care products are overwhelmingly the greatest users of glycerol. Of all glycerol consumed, 31.5% is used in the manufacture of these products. In Western Europe and the U.S. tabacco/triacetin is the next largest demand areas for glycerol. In Japan this is alkyd resins. (refer to Table V-1-4)

3) Fatty alcohols

Production volumes of fatty alcohols increased 12.5% in five years to 855,000 MT. Region by region, 440,000 MT was produced in the U.S., 265,000 MT in Western

Europe, 106,000 MT in Japan, and 44,000 MT was produced in Asia. Production volumes in Asia has grown 25.7% from 1985. Total production capacity of fatty alcohols is estimated to be 1,250,000 MT and production capacity of natural alcohols to occupy 580,000 MT of this.

The growth rate of alcohol production, including synthetic alcohols, was 1,2% for Western Europe, 2.6% for the U.S. and 7.3% for Asia.

In 1990, world consumption of fatty alcohols was 850,000 MT and increased by 12.5% for the past five years. It is estimated that 280,000 MT was consumed in Western Europe, 455,000 MT in the U.S., and 110,000 MT in Japan. Consumption is tending to increase in Southeast Asia following an increase in production there.

Most fatty alcohols are used as surfactants including ASs (alkyl sulfate salts), AEs (alkyl polyoxyethylene ethers), and AESs (alkyl polyoxyethylene sulfate salts) to produce detergents and cosmetic products.

4) Fatty acid methyl esters

Production of fatty acid methyl esters was 450,000 MT after having grown 12.5% in five years. Production in Western Europe was 225,000 MT, 99,000 MT in the U.S. and 126,000 MT in Asia and Oceania. Production in Asia and Oceania increased 2.5 fold on 1985.

In recent years demand for fatty acid methyl esters as an intermediate products in the production of fatty alcohols, alkanolamides, α-sulfonated methyl esters and sucrose esters, and others, has increased. Fatty acid methyl esters are consumed mostly for fatty alcohols because they can be derived at lower cost in this manufacturing process. It is forecast that the consumption of methyl esters will grow considerably in the future as demand for fatty alcohols increases. Demand for α-sulfonated methyl esters and sucrose monoesters as intermediate products has also been on the increase in recent years. The former is used as surfactants for detergents and the latter as emulsifiers, wetting agents, lubricants, plasticizers and defoaming agents in foods, cosmetics and drugs. Research into the possibility of its use as a substitute for diesel fuel is being conducted in the Philippines, South Africa and Malaysia.

5) Fatty amines

Production of fatty amines reached 425,000 MT, having grown as much as 21.4% in five years. 175,000 MT were produced in the U.S., 140,000 MT in Western Europe, 70,000 MT in Asia and 40,000 MT in other countries. Production volumes in Asia increased 40% from 1985.

Demand for fatty amines and their derivatives as both final products and intermediate products in various industries has been growing. In the U.S. fabric softeners account for almost half the consumption volume of these. They are also used as asphalt emulsifiers and petroleum additives.

(4) Demand and Supply for Raw Materials

Raw materials for oleochemicals are animal/vegetable oils and fats. Coconut oil and palm kernel oil, which have the same characteristics and uses because of the similarity of their chemical compositions, are in direct competition with one another in the global oil and fat markets.

Production of palm kernel oil was a marginal 600,000 MT in 1981 while production of coconut oil was 2.89 million MT. However, palm kernel oil production grew steadily through the 1980s by an average annual rate of 6.4 percent while coconut oil production stagnated during the decade. In 1990, production of coconut oil and palm kernel oil was recorded at 3.29 million MT and 1.43 million MT respectively. Although palm kernel oil production depends on palm oil production, palm kernel oil production has shown a 2.5-fold increase in the past ten years, doubling its share in the total production of the two oils. C.A. Houston & Associates forecasts (in the "INFORM" magazine) that palm kernel oil production will continue to grow at an average annual rate of five percent in the 1990s.

Coconut oil production in the Philippines has peaked every five years. The latest peak in production was reached in 1986, so the next peak is expected to come in 1991. Given the current situation, however, it appears unlikely that coconut oil production will reach a new peak in 1991. According to the forecast by C.A. Houston & Associates, coconut oil production will rise at an annual rate of 1 percent in the 1990s.

Coconut oil and palm kernel oil production is concentrated in Southeast Asia; the Philippine and Indonesia account for more than 60 percent of the world's total coconut oil production, while Malaysia and Indonesia account for 70 percent of global palm kernel oil production. As of 1988, the export/production ratio of coconut oil and palm kernel oil was 52 percent and 68 percent respectively.

The export/production ratio of palm kernel oil is expected to further increase in the coming years. C. A. Houston & Associates estimates the export/production ratio of coconut oil in the year 2000 at 45 percent and that of palm kernel oil at 76 percent.

A comparison of monthly average per-MT international prices (CIF price, Rotterdam) of coconut oil and palm kernel oil shows that the price of palm kernel oil was higher than that of coconut oil from the middle to the end of the 1970s while coconut oil prices have become higher since the beginning of the 1980s. The fluctuation in coconut oil prices was significantly larger than that in palm kernel oil prices in the 1970s and 1980s.

In Malaysia, oil palm estates started in 1917. Since then, oil palm plantations have rapidly expanded to 1.984 million hectares (ha) in 1990, when the production of the palm oil reached 6.095 million MT, representing a productivity rate of 3.1 MT/ha. Productivity is forecast to further increase because of the scheduled large-scale replanting of aging palm trees with lower productivity, as well as an expected expansion of cultivation areas.

In the Philippines, however, the production system is still based on small farmers and estate cultivation and replanting are inadequate. As a result, the productivity of coconut oil production in the Philippines remained low through the 1980s, with the average annual production at a marginal 0.7 MT/ha between 1985 and 1989.

(5) International Developments

The world's major oleochemical manufacturers are currently moving their production bases from their own countries to Southeast Asia and expanding their production of basic oleochemicals and derivatives.

Malaysia is becoming the world's greatest supplier of fatty acids. In 1980 Acidchem began its operations in Malaysia, and subsequently another 6 firms entered the production. In 1989 production capacity in Malaysia was 160,000 MT and the operating rates of plants was more than 90%. The Malaysian government has approved production expansion plans for five firms as well as the production plans of three firms who will newly enter the field. Annual production capacity is thus expected to grow to 370,000 MT within two or three years.

Up to the 1970s the world's fatty acid market was divided into three different regions centering around Western Europe, the U.S. and Japan and there was, broadly, a balance between supply and demand in each of the regions. In the 1980s, however, a number of large scale fatty acid plants were built in Malaysia. These plants used palm oil and palm kernel oil as raw materials. When large quantities of products from these plants began to be exported to Western Europe and the U.S. as well as Japan, it has become necessary to consider demand and supply of oleochemicals in the context of the world market beyond each region. At present, as well as the production expansion plans already approved by the Malaysian government, there are additional plans which, if approved, would increase annual production a further 210,000 MT to 580,000 MT. Production capacity would thus be at the same level as that in the U.S. It is expected that the majority of the fatty acids produced in Malaysia will be exported. Malaysia can thus be said to have an extremely large influence in the world market.

In recent years, fatty acid production has also increased countries including Indonesia and India. In Indonesia in 1990 Cisadane Raya constructed a plant with the capacity to produce 50,000 MT of fatty acids annually from palm oil, palm kernel oil, and coconut oil, and Sumi Asih built a plant with an annual production capacity of 18,000 MT which will use palm oil and palm kernel oil as raw materials.

Production of fatty alcohols is expected to increase even more than that of fatty acids in Southeast Asia in the future. Malaysia will be at the center of this production. In 1990 Kao Corp. and Palmco built a plant in Malaysia with an annual production of 30,000 MT and in 1991 Henkel, New Japan Chemical and Lucky Group (R. Korea) completed a plant with the same capacity. In 1992 P&G and FELDA are expected to begin operations at their 40,000 MT capacity plant.

In Indonesia, Vista/Sinar Mas completed a 30,000 MT annual capacity plant which will use palm oil and palm kernel oil in 1990.

In the Philippines Cocochem is planning to expand production capacity by 30,000 MT based on coconut oil.

It is estimated that the world's present natural fatty alcohol production capacity stands at 522,000 MT. This is expected to increase 240,000 MT to 762,000 MT by the end of 1992. It will exceed the production capacity of synthetic alcohols which is around 700,000 MT at present. Although there is a possibility that the supply and demand balance will be upset by the rapid increase in production, it is forecast that in the long-term demand will equal supply and indeed that the trend of increasing production of natural fatty alcohols will continue.

Tendencies toward expanding production of glycerol in Southeast Asia can also be seen. In 1991 Unichema built a glycerol refining plant in Taiwan in addition to its fatty acid plant. Sakamoto Yakuhin Kogyo Co. Ltd. has been refining glycerol in the Philippines since 1990. The company purchases crude glycerol from local fatty acid firms, exporting most of this to Japan after refining.

However, unlike fatty acids, the demand for glycerol is limited. Unless new applicaitons for glycerol are developed in the future, a considerable oversupply will result from increased production of fatty acids, methyl esters and fatty alcohols in Southeast Asia. Therefore, a development of application technology for glycerol is required.

In addition to basic oleochemicals such as fatty acids, fatty alcohols and refined glycerol, production of intermediate derivatives is also expanding. Kao Corp. has been producing mono alkyl phosphates (MAP) in the Philippines and exporting them to Japan since 1987. In 1990 it also began production of tertiary amines there. Annual production capacity is 5,000 MT and exports are made to Japan as well as Western Europe and Southeast Asia. Kawaken Fine Chemicals Co. Ltd also produces 1,000 MT of alkanolamides from methyl esters annually in the Philippines and exports to China and Western Europe. In 1992 Asahi Denka Kogyo Co. Ltd and Riken Vitamin Co. Ltd will begin production of monoglycerides in Malaysia separately. It is planned that high purity monoglycerides will be produced and exported to Japan. The proportion of overseas production is expected to increase if production lots for intermediate derivatives are consolidated. (refer to Table V-1-5 and V-1-6)

1-3 The Japanese Market and Oleochemical Industry

(1) Demand and Supply for Finished and Intermediate Products

In Japan, 183,300 MT of soap were produced in 1990, when soap exports and imports stood at 2,900 MT and 7,100 MT respectively. Although soap production has remained around 180,000 MT a year since 1985, soap imports have grown at a remarkable pace since 1988. In 1990, soap imports jumped 3.4-fold from the figure in 1985. Soap exports, which remained at about 2,000 MT until 1989, showed year-on-year growth of 40.9 percent in 1990. Soap consumption stood at 187,600 MT in 1990, having remained at around 180,000 MT, similar to soap production, since 1985. The per capita consumption of soap, which has stagnated since 1985, was 1.52 kg in 1990.

In 1990 Japan produced 993,800 MT of synthetic detergent, exported 34,400 MT and imported 28,900 MT. Although production volumes fell 12.4 percent in 1988 due to the entry of super-concentrates, they have since grown again. Like production volumes, imports and exports have also been showing gains since 1989. Consumption has increased alongside production, and annual per capita consumption has grown at a rate of 5.5 percent since 1989.

Shampoo production in Japan stood at 108,000 MT in 1990, when 500 MT of shampoo were exported and 1,900 MT were imported. After steady growth until 1988, shampoo production dropped for two consecutive years. Annual exports and imports have remained at around 400-500 MT and 2,000 MT respectively. Although consumption of shampoo has stagnated, similar to shampoo production, per capita consumption of shampoo increased 15.1 percent in 1990 compared to the figure in 1985.

Japan's production and exports of surfactants stood at 1.1273 million MT and 128,500 MT respectively in 1990, when 19,700 MT of surfactants were imported. During the past five years, production has increased at an average annual rate of 5.2 percent while exports and imports have grown at rates of 7.1 percent and 13.8 percent respectively. Japan's consumption of surfactants in the past five years showed an average growth rate of 5.0 percent to reach 1.2725 million MT in 1990. In 1990, surfactants were in demand in a wide range of fields from the textile industry, which accounts for 25.1 percent of total demand for surfactants, rubber/plastic (10.7 percent), civil engineering/construction (11.1 percent), toiletries (9.9 percent), pharmaceuticals (7.0 percent), food (7.0 percent) paper/pulp (5.3 percent) and machinery/metal (3.9 percent). The average growth rate of real GDP in the above-mentioned sectors in the past five years was as follows: textiles (1.0 percent), chemicals (10.8 percent), civil engineering/construction (6.5 percent) food (4.9 percent), paper/pulp (4.8 percent) and machinery/metal (6.7 percent). Based on these growth rates, textiles are expected to account for 22.9 percent of total surfactant demand in 1995, followed by rubber/plastic (12.5 percent) toiletries (10.5 percent) and pharmaceuticals (7.8 percent). The share of the textile industry is forecast to decline while consumption in chemical industries such as rubber/plastics, toiletries and pharmaceuticals is expected to show significant growth.

(2) Demand and Supply for Basic Oleochemicals

Up till now, Japanese oleochemicals firms have imported raw materials for production into basic oleochemicals such as fatty acids and fatty alcohols and their derivatives in Japan. Firms using coconut oil, either import crude coconut oil or import copra and conduct mechanical expression domestically. By 1988 annual imports of the two had reached a scale of 100,000 MT. Since 1989, however, imports of both coconut oil and copra have been declining. Imports in 1989 imports fell by 16.5 percent and in

1990 by 5.6 percent from the previous year respectively. Imports in 1990 amounted to less than 80,000 MT.

This might be related with the fact that Japanese oleochemical manufacturers are shifting production of basic oleochemicals such as fatty acids and fatty alcohols to raw material producing countries.

Japanese oleochemical manufacturers have had to expand their production facilities in response to growing demand for basic oleochemicals. However, due to high land prices and labor costs in Japan, it is difficult for Japanese oleochemical firms to expand their domestic facilities while maintaining competitive production costs. In response to this situation the major manufacturers aimed at increasing their production by building basic oleochemical production plants in the raw material producing countries.

In 1987 Kao established a joint venture with Palmco in Malaysia and in 1990 began production of methyl esters and fatty alcohols. In 1989 New Japan Chemical Co. Ltd entered into a joint venture with Henkel and Lucky Group in Malaysia for the production of fatty alcohols. Asahi Denka Kogyo Co. Ltd. and Miyoshi Oil & Fat Co. Ltd. also established a joint venture in Malaysia with a local firm in 1990 in order to manufacture fatty acid and refined glycerol. Operation is planned to begin in February, 1993. Sakamoto Yakuhin has operated a glycerol refining plant in the Philippines since 1990 (refer to Annex V-3).

Although production of basic oleochemicals in raw material producing countries has just begun, Japan's imports are increasing rapidly. In 1990 imports of basic oleochemicals and derivatives from Malaysia were 46,000 MT, 64.5 percent up on the previous year. While 750 MT of refined glycerol was imported from the Philippines in 1989, in 1990 this grew to 3,200 MT.

In 1990 Japan produced 307,000 MT of fatty acids, 52,300 MT of glycerol and 102,100 MT of fatty alcohols. Production has grown at annual rates of 5.3 percent, 3.1 percent and 1.6 percent respectively since 1985. Japan's consumption (total of captive use, sales and imports) of fatty acids was estimated at 318,100 MT, glycerol at 68,200 MT and fatty alcohols at 116,400 MT. Annual growth since 1985 has been 5.1 percent, 1.2 percent and 0.7 percent respectively. Demand for these basic oleochemicals has exceeded supply since 1985. (refer to Table V-1-8)

1) Fatty acids

Fatty acid production in Japan amounted to 307,000 MT in 1990, a 26.7 percent increase over 5 years ago. Japan's fatty acid production capacity is estimated at 290,000 MT. At present all plants are operating at full capacity.

Fatty acids have a wide range of uses. Their primary use is as materials for the production of soaps, vinyl chloride stabilizers, metallic soaps, lubricants and emulsifiers for synthetic rubber. Demand for synthetic rubber, metallic soap and vinyl chloride stabilizers has grown remarkably. Consumption has grown 18.5 percent, 16.0 percent and 14.7 percent respectively in these areas over the past five years.

2) Glycerol

Production of glycerol in 1990 was 52,300 MT, having exceeded 50,000 MT since 1986. Although production of synthetic glycerol has stagnated, natural glycerol production is growing. In 1990 the latter is estimated to be accounted for 70 percent of total production.

Annual consumption of glycerol is approximately 65,000 MT. Consumption of natural glycerol, particularly for food and medicines is expanding. In Japan, personal care products, alkyd resin plasticizers, and surfactants are also becoming major demand fields. Although large volumes of glycerol are now blended into detergents in Europe and the U.S., there has been low growth in this area in Japan.

3) Fatty alcohols

Production of fatty alcohols in 1990 was 102,100 MT. Imports are also expanding with 42,900 MT being imported in 1990. Annual production of synthetic alcohols has remained at a level of between 50,000 and 60,000 MT since the middle of the 1980s. Production of natural alcohols, on the other hand, is growing, and has reached the same scale as synthetic alcohols in recent years.

Domestic consumption of fatty alcohols has tended to exceed production since 1985. Consumption, like production of natural alcohols is experiencing considerable growth. The average annual growth rate for consumption of natural alcohols since 1985 was 12.4 percent as opposed to 4.2 percent for synthetic alcohols.

In 1990 detergent and toiletries was estimated to account for 47.2 percent of demand for natural fatty alcohols, and industrial surfactants for 52.8 percent. Demand for natural alcohols for industrial surfactants is increasing. High grade products which contain over 95 percent lauric alcohol and standard products with an cetyl alcohol content of between 60 and 80 percent are used as textile lubricants. Consumption of natural fatty alcohols in tertiary amines is also increasing steadily. Uses for natural fatty alcohols in metal rolling oil and polymethacrylate viscosity index increasing agents are also growing.

1-4 The U.S. Market and Oleochemical Industry

(1) Demand and Supply for Finished and Intermediate Products

In 1982, bar soap shipments were worth $961 million. They had grown to $1.2 billion in 1987 and $1.5 billion in 1990. Sales of liquid toilet soaps, which account for 10 percent of the toilet soap market, are forecast to reach $143 million in 1991.

In 1990, the market for heavy-duty laundry detergent was worth $3.7 billion, and detergents for household use are estimated to account for 63 percent of this market. The market is made up of powders, liquids and superconcentrates. Although liquid detergents account for more than 40 percent of this market, the same as powders, their growth rate is low at less than 3 percent.

Environmental concerns are the factors which influence this market most. Superconcentrates were introduced into the market with a view to facilitating recycling of resources and resource conservation. Moreover, detrergent manuafacturers are beginning to reconsider natural alcohols as they are less damaging to the environment and because of fluctuations in the price of ethylene. As the use of phosphates as builders is regulated in many states, demand for zeolite as an alternative material is growing. The use of enzymes is also growing rapidly. Detergent manufacturers now use around $100 million worth of enzymes annually.

Soap and detergent shipments are estimated to have amounted to $11.559 billion in 1987 and $12.847 billion in 1990. A low growth rate of between 2 and 3 percent is expected until 1995. In 1989, exports of soap and detergent were worth $271 million and imports $148 million.

Surfactant shipments in 1990 were estimated at $3.9 billion. Petroleum-based surfactants are estimated to account for 90 percent of anionic and 70 percent of nonionic surfactants. However, natural surfactants have become more competitive due to the steep rise in prices for petroleum products. According to some survey, consumption of surfactants will grow at an average rate of 1.3 percent per year until the year 2000.

In 1989, surfactant exports amounted to $251 million and imports were worth $120 million. (refer to Table V-1-9)

Cosmetic shipments for 1990 are estimated at $18.5 billion. Hair care products accounted for around $4.6 billion of this. Shampoos account for one-third of the hair care product market and tonics, conditioners and rinses combined account for 15 percent.

In addition to hair care products, the cosmetics market includes skin care products ($2.8 billion), fragrances ($2.24 billion) and color cosmetics ($1.65 billion). Demand for cosmetics based on natural materials is growing and oleochemicals play a large role in this demand.

Cosmetic shipments are expected to grow at an average annual rate of 4 percent until 1995. Sales of skin care and and sun care products which help prevent aging are forecast to grow.

In 1989 exports of cosmetics totaled $694 million and imports totaled $594 million.

(2) Demand and Supply for Basic Oleochemicals

In the U.S., tallow-based fatty acids account for one-third of total fatty acid production. Coconut oil-based fatty acids account for 8-10 percent of production, soy bean oil 1-2 percent, and rapeseed and fish oil 2 percent.

In 1987, demand for natural fatty acids amounted to 737,000 MT. Natural fatty acids are used in the production of fatty amine derivatives (40 percent), fatty esters (15 percent), monomers/dimers/trimers (11 percent), heavy metal salts (11 percent) and fatty alcohols (3 percent).

Production of palm oil and palm kernel oil-based fatty acids is expanding globally. In the U.S. market, exports from Malaysia are showing rapid growth.

Production of methyl esters in 1988 totaled 110,000 MT. It is predicted that the amount will reach 175,000 MT in 1995 and 190,000 MT in 2000 after which production will cease to grow.

Global production of natural fatty alcohols is expanding. Growth in production in the Asian region is particularly high. However, production in the U.S. will grow a mere 2.6 percent between 1988 and 2000. (predicted by C.A. Houston & Associates).

Consumption of glycerol in 1987 amounted to 152,000 MT. Uses for glycerol include drugs/personal care products (39 percent), tobacco/triacetin (16 percent), food (14 percent), polyether polyols (11 percent) and alkyd resins (9 percent) and others.

The growth rate of consumption between 1987 and 1992 is forecast to be 2.5 percent by the American Oil Chemists' Society.

(3) Demand and Supply for Raw Materials

Tallow is most important raw material in the U.S. However, due to the popularity of low-fat foods, consumption of tallow in foods is declining, and non-food use is accounting for one-third in the production of fatty acids.

In 1990, production of tallow for food and other use totaled 3.14 million MT, exports 1.03 million MT and domestic consumption 1.85 million MT. Of the total consumption volume, 1.49 million MT were used in non-food products and 360,000 MT were used in food products. Of 1.49 million MT, 910,000 MT was used as feedstuff, 330,000 MT were used in fatty acid production and 180,000 MT were used as raw material for soap.

In 1990, 414,429 MT of crude coconut oil and 38,294 MT of refined coconut oil were imported. Most imports of these oils were from the Philippines. Imports of crude palm oil amounted to 13,109 MT, refined palm oil 118,052 MT, crude palm kernel oil 60,712 MT and refined kernel oil 93,615 MT. Most imports of these products were from Malaysia. Refined palm kernel oil was the only product for which imports dropped over the previous year, when they stood at 119,310 MT.

(4) Development of the Oleochemical Industry

A manufacturing industry census conducted in 1987 revealed that there were 764 soap and detergent manufacturers and 217 surfactant manufacturers.

P&G, Colgate and Unilever, known as the Big Three, hold a combined share of 76 percent of the household soap and detergent market in the U.S. These three firms

either manufacture basic oleochemicals themselves or procure them from outside. Information on raw material consumption and production volumes for separate products is not disclosed and could not be obtained. The following is an overview of recent trends.

1) Procter and Gamble (P&G)

P&G has production bases in 46 countries and sells products in 140 countries. Its net sales in 1990 reached $24.081 billion ($14.962 billion in the U.S.) and its net earnings were $1.602 billion ($1.304 billion in the U.S.). It employs 88,800 people (47,400 in the U.S.). The firm is made up of the following four groups: washing and cleaning, personal care, food and beverages, and pulp and chemicals. The firm is the largest manufacturer of detergents and household surface care products in the U.S..

At $11.767 billion, its net sales were greatest in the personal care products. In November 1989, the firm purchased Noxell Corp. in order to further strengthen its personal care product operations. During the year, P&G also sold detergent superconcentrates in Japan, Europe, Latin America and the U.S (part of this was test marketing).

The firm manufactures natural glycerol, fatty acids, fatty alcohols, methyl esters and tertiary amines. Almost of them are captive use but also sells some to other firms. Although its raw material sources are unclear, the firm procures some coconut, palm and palm kernel oil from Asia and it refines some of the oil which it procures through one of its overseas joint venture companies.

The firm is building a plant in Malaysia for the production of methyl esters and fatty alcohols through a joint venture with FELDA. It also plans to double fatty acid production at its Cincinnati plant in the U.S. by 1992.

2) Colgate-Palmolive

Colgate-Palmolive sells products to 160 countries world-wide. In 1990, its net sales were $5.6913 billion ($1.8992 billion in the U.S.) and its net earnings were $584 million ($208.9 million in the U.S.). It employs 25,000 people.

The firm deals in five categories of goods: oral care, body care, household surface care, fabric care and pet dietary care. Net sales for personal care, detergents and household items reached $4.96 billion or 81 percent of total net sales.

In 1990 it purchased a 49% share in the Italian company Viset (liquid soaps, bath and shower foam and body lotion). Colgate-Palmolive also purchased Canada's Javex (bleach and fabric softener). The firm has placed emphasis on detergent superconcentrates and has already begun sales of these in Australia, Malaysia and Colombia. It began sales of liquid and powder dishwashing detergent in 1990.

Colgate-Palmolive considers the former U.S.S.R., eastern Europe (tooth paste, skin care, hair care), and India (soap) to be strategic markets for the future.

It is believed that the firm does not sell any of the oleochemicals it produces, and most of what it produces is captive use. It is likely that it procures RBD palm kernel oil from Malaysia. It is also believed that the firm procures partially-refined basic oleochemicals.

3) Unilever

The company is English and Dutch owned and manufactures food, fat and oil, and chemical products internationally. In 1990, its net sales were $39.62 billion ($8.247 in North America) and its net earnings were $3.65 billion ($647 million in North America). It employs 304,000 people.

Its products come under the categories of edible oils and fats, food, detergents, and personal care. At $19.5 billion, food accounts for the largest share of sales. Following are detergents and household surface care products with sales worth $8.5 billion and personal care products with sales of $4.7 billion.

The firm manufactures soaps and detergents and cleaners in 40 countries and is Europe's largest manufacturer. The firm sold detergent superconcentrates in the U.S., Europe and the Far East and conducted capital investment in this field in the U.S.

The firm is conducting R&D on palm kernel oil based bio esters in personal care products. It currently uses these in skin cream, sunscreens and bath oils.

Unichema International is its oleochemical division. Unichema North America manufactures oleic and stearic acid from tallow in the U.S. and the firm is also expanding its production in other countries.

As well as expanding its ester and amide production facilities in the Netherlands, the company has purchased Danish ester manufacturer, DS Industries Aps. It also manufactures vegetable oil-based fatty esters in Malaysia for export to Japan, Australia and Indonesia.

4) Henkel

Henkel, a Germany-based company, had net sales of $6.9 billion ($835 million in the U.S.) and net earnings of $247 million in 1990. It employs 38,803 people (3,098 in the U.S.). The firm manufactures products in five divisions: detergent and household surface care, institutional hygiene products, technical consumer and industrial adhesives, toiletries and oleochemicals.

Net sales of detergents and household surface care products totaled $2.193 billion, 32 percent of total sales. Henkel, too, has released superconcentrated detergents and intends to strengthen sales of these in the future.

In its oleochemical division, Henkel manufactures glycerol, fatty alcohols and derivatives of these. The company developed the so-called "Petrofree" palm and coconut oil-based fatty acid esters which are used in oil drilling in the North Sea. It also developed the nonionic surfactant, alkyl polyglucosides (APG) manufactured from coconut and palm kernel oil and glucose (made from corn starch).

Henkel purchased the Emery Group in the U.S. in 1989. The group will complete expansion of its Cincinnati plant around 1992. When completed, the plant's fatty acid production capacity will be 40,000 MT and its APG production capacity will be 25,000 MT. The firm is also in the process of expanding its fatty acid plant which is due for completion in 1992. Although it will use most of its APG and fatty alcohol production, it also plans to sell part of it in the North American market, outside the U.S..

As the Emery Group manufactures basic oleochemicals from coconut oil and palm kernel oil and tallow, Henkel will not have to procure basic oleochemicals from other sources unless production does not keep pace with demand.

5) Stepan Co.

Stepan Co. is a manufacturer of surfactants, polymers, emulsifiers, lubricants, cutting oil and other products and is based in the state of Illinois. Its net sales in 1990 totaled $389.61. Surfactants accounted for $271.25 million or 70% of this.

Its surfactant sales are performing well, growing 16 percent on a value basis and 13 percent on a volume basis in 1990. Its main markets are the U.S., Canada, Mexico and France. The firm has established a new sulfonation pant in Mexico and has also updated the facilities at its sulfonation plants in Illinois, Georgia, and California.

The company, which procures its basic oleochemicals from William Simeral Co., manufactures surfactants from coconut oil-based fatty acids and methyl esters.

6) Witco Corp.

Witco Corp. manufactures oleochemicals, surfactants, and petrochemical products. Its net sales for 1990 were $1.63148 billion and its net earnings were $67.95 million.

The firm's Humko Chemical Division produces fatty acids, glycerol, amides, amines and emulsifiers, and its Organics Division produces surfactants. It purchased tallow-based fatty acid manufacturer, Union Camp Corp. in 1989 and surfactants manufacturer, De Soto Inc. in 1990, thereby strengthening its production system.

Witco Corp. is converting its New Jersey plant into a plant specialized in production of fatty acid esters and refined glycerol. It also aims to strengthen facilities at its Tennessee plant. The firm procures raw materials and basic oleochemicals externally. Procurement of coconut oil and RBD oil is particularly interest to the firm. It is looking for the possibility of producing oleochemicals overseas.

1-5 Trends in R&D

Below is a summary of oleochemical R&D activities being carried out in Japan to which attention has recently been drawn as well as an outline of the direction that R&D is taking. An overview of trends in palm oil and palm kernel oil R&D at the Palm Oil Research Institute of Malaysia (PORIM) is also shown. It is hoped that this will provide reference material to assist in examinations of the way R&D activities with respect to coconut oil are carried out in the Philippines.

The emphasis which is placed on the following three areas is characteristic of trends in R&D in Japan today: 1) biotechology such as the synthesis of materials using enzymes, 2) fine chemical materials and the fractionation and utilization of useful minor components, and 3) the development of materials with have no or little effect on people or the environment as a resonse to growing concern over environmental conservation and the effects of materials on consumers. These issues have come out as a result of demands from manufacturers and users than from the raw materials themselves.

In Malaysia joint research with Japan is taking place on the above themes and the same trends may be seen in Malaysia as in Japan. At the same time much research on the possibility of replacing currently used materials with palm oil based materials is also taking place. As neither government research organizations in industrialized countries nor leading oleochemical firms place very much emphasis, it is thought necessary that coconut producing countries take the initiative in regard to such research using coconut ci.

The research themes which would provide valuable reference to the Philippines on the basis of the perspectives outlined above include: 1) the use of calcium soap in feed for ruminants, 2) palm oil derived substances materials as substitute raw materials for printing `ink, and 3) the synthesis of lubricating oil from palm oil by metathesis reactions.

(1) Trends in Oleochemical R&D Activities in Japan

1) Research into the fractionation and use of minor components in crude palm oil

Research is being conducted into methods of concentration and using the carotin in crude palm oil used as raw material for oleochemicals. The fractionation and use of vitamin E, squalene and sterol is also possible. Though the components in coconut oil differ to those in palm oil, research into these minor components, other than carotin, in coconut oil is also thought possible.

2)Research into the production of fatty acids through lipase

At present, fatty acids are manufactured through the high pressure hydrolysis process. However, a considerable amount of research has recently begun into the production of fatty acids through the hydrolysis of fats and oils using lipase. Though only on a small scale, this method has already been employed in one factory. Fatty acids can be produced at low temperatures and ordinary pressure using this method. Equipment is thus simple. This method is expected to be widely used in the manufacture of fatty acids in the future. The current focus of research is the improvement of lipase and reactor. If the research is successful, the lipase will be able to be produced at low cost.

3) Synthesis of monoglycerides and triglycerides, interesterification

Research for commercial production is being conducted into esterification and interesterification using lipase. This research looks set to play a part in the use of oleochemicals in the future. It is thought that the research will make possible chemical reactions which were not in the past. As is the case with the manufacture of fatty acids, as