

9. Proposals on Promotion Policy Improvement

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GOTI and private textile companies are necessarily the main players for the promotion of Syrian textile industry. However, it is so difficult to expect good results only by their efforts. There are many institutional restrictions on their activities and the available from the sector supporting functions are not effective. Above restrictions are not applied only to the textile industry. Most of the restrictions are shared with other General Organizations and other private sector companies. These proposals are targeting at following objectives which are the most important policy issues for Syria at present.

- *Further advancement to a market economy*
- *Flexible management of public companies for their survival*
- *Proper administration over private companies*

9.1 Schedule for Liberalization of Foreign Trade and Investment

9.1.1 Liberalization of Foreign Trade

The Arab Countries Free Trade Area will start at the beginning 1998 to lift all import controls and to reduce customs duties by 10% a year up to 2007. In addition Syria has to negotiate a protocol with the EU for another regional integration scheme for the Euro-Mediterranean Free Trade Area. Many traders and investors are watching these important negotiations and await their outcome.

The Team proposes that the Syrian government announce the schedule of trade liberalization in the near future.

9.1.2 Management of Foreign Currencies and Unification of Exchange Rates

Foreign currencies are held by the government bodies, the Commercial Bank and private exporters, and are exchanged at plural rates and according to a complicated classification. This structure contributes to export promotion, but causes unfairness among related bodies.

The Team proposes that the Syrian government integrate and transfer management of foreign currencies to the Central Bank of Syria to be tradable at a single rate.

9.1.3 Market Participation In the Public Monopoly Sector by Private Business

Syria has promoted economic transformation into a market economy by expanding private sector activities, but some sectors are still public monopolies. Cotton ginning is one, and private participation in cotton spinning is conditional.

The Team proposes that the Syrian government consider opening the door of many sectors to private dynamism, initiative and capital, step by step, in order to strengthen sectoral international competitiveness.

9.1.4 Promotion of Foreign Direct Investment

The government expects to amend Law No. 10 (1991) for rural development by simplifying related procedures. A more important fact is that the number of applicants, approvals and implementation under this Law has not been increased much. Foreign investors benefit Syria through supply of new technologies, marketing, management know-how, job training, modern business practices as well as capital. Syria has to be as attractive as taxation, foreign exchange control, infrastructure, foreign language abilities, etc., in order to attract investors.

The Team proposes Syrian government remove the obstacles of restrictions and cost burden step by step.

9.2 Relaxation of Price Controls

9.2.1 Pricing Determined by Demand-supply Relations Rather than Cost Plus Profit Margin

Cost-plus-profit-margin is justified in a closed economy, whereas price is settled by the demand-supply relations in a market economy. A change in the method of price formation will be serious for public companies to cause losses until old stock is sold off by selling at lower prices than cost, but this is a one-time problem whereas the change will make managers of the public companies permanently more sensitive to market forces.

The Team proposes that the Syrian government relax current price controls and change the inflation management system so as to depend more on macro-economic policy rather than individual price surveillance.

9.2.2 Elimination of the Reporting System for Less Important Items

Price control has contributed to inflation prevention, and to protection of the peoples' livelihoods but causes a mis-allocation of resources in a market economy. A price reporting system is a meaningless burden for producers. However, in the case of monopoly or oligopoly, a reporting system is still necessary from the view point of fair trade and industrial innovation.

The Team proposes that the Syrian government eliminates the reporting system in less important items.

9.2.3 Reduction of Items Requiring Government Decisions

The government decides prices/charges of two categories. One is that of monopolistic supply, such as of education, medical care, transport fares, electricity, and water. The other is to ensure stable supply of strategic commodities by guaranteeing purchase at a profitable price. This is done for sugar, beet, wheat, barley, chip bean and cotton. Syria has to pay attention to the potential risk of a higher cost in the export market or of the effects of public subsidies.

The Team proposes that the Syria government reduce the number of such items and try to foster development of private competitors, and seek for a lower cost supply system through promotion of irrigation development, wider utilization of new seed, technology improvement on cotton cultivation and harvest, etc. considering the international market price.

9.3 Modernization of the Banking System

9.3.1 Approval of Foreign Bank Branches

The Syrian banking system is out of date, and only plays the role of providing an intermediate function instead of a cash settlement function. The EU supports its modernization plan, but it will take many years for it to catch up. Besides improvement of the legal system, improvement of actual practices, and staff training, are vital.

The Team proposes that the Syrian government approve establishment of branches by foreign banks. The government can control them by defining the approved scope of business, limiting the number, as well as by setting qualification.

9.3.2 Liberalization of Interest Rates

Interest rates have been almost fixed for many years, with the effect of discouraging the people from saving. Interest, on the return on cash is a basic factor in asset or resource allocation.

The Team proposes that the Syrian government liberalize the interest rates, which may result in an increase of the rate by more than 20% a year. Nevertheless, it will contribute to national development as a whole, because money will become available for productive purposes, rather than real estate investment.

9.3.3 Two-step Loan for Investment Finance

Public companies finance for investment is made by their surplus account or the interest free from the state budget, but private companies always face a shortage of funds. Long-term credit for investment finance has a problem of higher interest rate because of the combination to a big demand. If the government get a soft loan from foreign entity as economic cooperation, and has the Industrial Bank or Agricultural Bank relend it to private companies or farmers, this problem will be relieved. A stock market will be necessary in the long run.

The Team proposes that the Syrian government consider using such two-step loans. In this case public companies can participate in this scheme, because many of them are still small and medium in size by international standards, and will be more independent from the state budget in the future. Foreign experts will be needed, however, to help to examine the investment plans of the borrowers.

9.4 Flexibility of Employment System for Public Companies

9.4.1 Re-assignment, Internal Promotion and Dismissal of Employees by the Director-General

The government applies the 1985 Unified Labor Law to all public companies. All organizations have to comply with this law. It has to announce new job opportunities, newspaper advertisements after the approval of a higher committee, according to complicated administrative procedures. All the applicants are graded by their school career qualifications and are screened individually. The employees work in the same position in each company up to retirement, unless they succeed in qualifying for a higher post. These employees have no chance to work at another organization, unless they success in obtaining job in that organization. But workers are protected from dismissal up to 60 years of age, (retirement age), except in the case of a criminal act or extremely poor performance. A loss making company can only be closed when the Economic Committee approves such action and then the responsible minister has to find other comparable jobs for the redundant workforce. As a result the government is obliged to continue to subsidize the company for many

years instead of closing it. This is too rigid for the management of public companies.

The Team proposes that the Syrian government give autonomy in employment to the director-general in each public company.

9.4.2 Simplified Appointment Procedure

The director-general of a public company is nominated by the prime minister after obtaining agreement from the political party and labor union. The directors are nominated by the responsible minister. This procedure is too bureaucratic.

The Team proposes that the Syrian government simplify this rule to give authority to the minister and the director-general for such appointments respectively.

9.4.3 Frequent Review of Job Descriptions

The directorate and its job description have not been changed for many years due to the complicated legal procedures any change would entail. In view of the great change that has taken place and is continuing, in the business environment, the function of the directorate and its job descriptions should be changed so as to make them better suited to contemporary challenges, and better capable efficient implementation of its tasks. Public companies cannot compete with private companies under the rigid, inefficient system now existing.

The Team proposes that the Syrian government change the rules so as to give authority regarding the directorate and its job descriptions to the board of directors in each public company.

9.4.4 New Body to Review Wages In the Public Sector

Wages in the public sector are regulated in many ways. Regular increases are implemented once every two years. All member of the workforce are rated according to a three step scheme that determines their wage increase, of 9%, 7% or 5%, according to their performance. There is no automatic inflation adjustments. Occasionally, however, instead the president announces a sudden increase for that purpose. With inflation of 7-10%, such an arrangement results in a steady reduction of real income year by year. Furthermore the private companies are hiring key workers away from the public companies, by offering better compensation. As a result private sector wages of highly qualified workers are nearly twice those paid by public companies. Though each public company has made efforts to offer incentives which are additional to payment based on performance, many employees are more interested in taking a second job in the private sector after their daily duty. Low wages have eroded employee working morale.

The Team proposes that the Syrian government set up a new organization which reviews the wage differences for similar jobs between private companies and public companies every year and provides their opinion on wage improvements in the public sector to the government.

9.4.5 Re-regulation for Public Companies to Free them from the Unified Labor Law

The public companies need more flexibility and ability to take a realistic approach on employment matters in order to survive in the international economy.

The Team proposes Syrian government provide a new legal framework for the public companies exempting them from the Unified Labor Law.

9.5 Flexibility on Budget Plan Implementation for Public Companies

9.5.1 Bidding, Contracting, Travel Abroad

Procurement, contracts, personnel traveling abroad, etc., of a public company are regulated by state budget rules. The company cannot change its organization by itself, because it is tightly bound by the role regulated at the time of establishment and by justified expenditure of the state budget. Bureaucratic documentation is an additional cost, and impedes timely investment, marketing abroad and business activities with foreigners. These companies can only wait for potential customers in Syria. In order to revitalize public companies, they need more flexibility especially on procurement and marketing abroad.

The Team proposes that the Syrian government relax bidding conditions required of procurement with more than 50,000 SP. a year and contract procedure, and to abolish the approval procedure required for public companies to go abroad.

9.5.2 Division of the State Budget into a General Budget and a Special Budget for Public Companies

The current state budget system is still old fashioned. It used to be justified when most of the local production was carried out by the public sector. However, more than half of the economic activities are now carried out by the private sector. The business environment of the public companies has totally changed. They have to compete for business with the private companies and with foreign competitors. The budget system is one of the most serious constraints on them.

The Team proposes that the Syrian government separate the state budget into a general account for administration and a special account for profitable business activities of public companies, and provide more relaxed rules and procedure to the latter.

9.5.3 Correction of the Imbalance in Foreign Exchange Between State-Owned and Private Companies

The government strictly regulates foreign currencies under Decree No. 24. The public sector cannot sell/buy such currencies to/from the private sector. The government has relaxed the control of foreign currencies, step by step, for the private sector. The privileged exchange rate which is applied to public sector companies for the importation of machinery will expire in 1998, after which the advantage enjoyed by the public sector over the private sector will be reduced. Furthermore, the disadvantage of public sector exporters who have to sell any surplus foreign currency to the government at a lower exchange rate than private exporters, and the disadvantage of non-exporting public sector companies against non-exporting private sector companies in buying foreign currency, will remain.

The Team proposes that the Syrian government should improve the management of foreign currencies to create a better balance between public and private companies.

9.6 Orderly Activity of Private Businesses

9.6.1 Registration and Periodical Survey of Business Activities

There are many cases when private companies violate the law by not registering. This often happens in the transformation process of the economic system in certain countries. Some private businesses do not know of the existence of the legal requirements. Some are afraid of tax payment from registration. The Central Bureau of Statistics cannot monitor private activities well. There is a strong tendency in Syria towards use of the underground economy.

The Team proposes that the Syrian government encourage private businesses to register with the Ministry of Industry and conduct a sample survey of current private activities and their problems twice a year.

9.6.2 Authorized Audit Office for Financial Report

An accounting system has already been established by Decree. At present this is quite reasonable because financial trades are under developed. But this system should be reviewed systematically in the future. A serious matter at this time, however, is poor accounting practices. Actual practices are sometimes more important than the system itself. Accounting is very important in any businesses, but special knowledge and tax burden impede the expected practices. Good accounting practices are also important for the modernization of the banking system.

The Team proposes that the Syrian government legislate so that audit offices are authorized to check financial reports for public purpose.

9.6.3 Reduction of Corporation Tax Rate

Corporation tax rates vary widely, from 10-67% of taxable income. Low rates provide large benefits to farmers or small businesses, but the government has put a prohibitive tax level on larger companies. Higher tax burdens create adverse effects such on avoidance of registration, and drive the private sector to make use of the underground economy. The economy is being liberalized step by step. Foreign potential investors compare the tax systems worldwide. Tax rate reduction as well as banking system modernization and opening a stock market are key changes needed to normalize the economy.

The Team proposes that the Syrian government consider the reduction of corporation tax rate. (Refer to Chap.2.3.4)

9.6.4 Setting up of Private Associations by Sector and by Region

The public companies are organized by General Organizations, but the government does not have such an administrative network for the private companies. Private businesses are numerous, and scattered by sector, by size, by region, etc. The government cannot manage the state in a market economy without appropriate channels of communication with these private businesses. Syria has set up Chambers of Commerce and Chambers of Industry, but efforts and results are not sufficient.

The Team proposes that the Syrian government encourage the private sector to set up sectoral business associations and also regional business associations.

9.7 Export Promotion Measures

9.7.1 Export Promotion Organization

Generally speaking, if a government wishes to promote exports, an organization to assist industries in their export-related activities such as market information collection, marketing, technology and quality upgrading, etc. is required. In Japan, a semi-governmental organization; JETRO (Japan External Trade Organization) was established under the Ministry of International Trade and Industry (MITI), to assist Japanese industries on information and marketing field. Establishment of this sort of general-purpose organization deserves to be studied against the wider background of Syrian industry as a whole. As this is somewhat beyond the immediate scope of the present study, the Team will not elaborate further.

For the textile industry in Japan, under the MITI, there are 14 import-export testing organizations and 80 trade organizations covering fields even including such specialized categories such as neckties or handkerchiefs. In Syria, the starting point is to establish one trade organization covering all fields of textile industry, under Chambers of Commerce and Industry. The main function of it will be to serve as a two-way information channel for government policy and plans, and various requests of the private textile companies, as well as market and technical information and guidance, quality upgrading guidance, trade statistics.

When export trade is done by a number of private companies, it is possible that one company may undercut the price and quality by utilizing below-standard wage and production facilities. This can seriously harm the business prospects for the others, and influence the entire industry's reputation in the world market. Up to a certain point it will not be needed to make such outsider's behavior difficult, or prevent it, a cooperative effort or export cartel-like control, especially over quality, is required. The trade organization proposed above would properly be utilized for this purpose.

The Team proposes the Syrian government that an organization of Syrian companies, who are exporting textile and clothing, (a "Textile Exporters Association") be formed to serve the above-mentioned purpose. The organization could best be under the Chambers of Commerce and Industry since most/all of the potential members already belong to the Chambers.

9.7.2 Export Finance

There is no support for export promotion available through financing in Syria. When exports are to be promoted, finance for material procurement, credit on payment promises received, insurance to cover various risks other than the normal risk covered by marine insurance are required. Tax exemption for earnings through export is also a powerful measure to encourage companies to look abroad, but this would have to be harmonized with the Arab Free Trade Area and Euro-Mediterranean Free Trade agreements,

The Team proposes the Syrian government that short-term export finance or loans against letters of credits received and exemption of income tax for profit derived from export are to be introduced.

9.7.3 Reinforcement of a Textile and Clothing Development Center

The Team would like to point out a move which may grow into a sizeable and effective measure in terms of technical guidance and design assistance for the textile industry in Syria.

The Team proposes the Syrian government that the Textile and Clothing Center in Aleppo and Damascus, which was established by UNDP-Chamber of Industry to give most favorable attention, and if necessary, the government may assist in securing technical and financial assistance from foreign governments. In this connection, the government intervention should be minimized to encourage initiatives of the private sector.

9.7.4 Establishment of Export Processing Zones

Some countries are trying to acquire a competitive advantage by introducing "single window" or "one-stop" service which provides by one single organization all necessary regulatory services related to obtaining approvals, licenses, etc., thereby easing the burden for foreign investors by eliminating the need to visit many governmental agencies, consuming time and money and manpower.

The present Free Trade Zones in Syria do not offer incentives to locate a factory or plant in the zones. If Syria treats those zones as Export Processing Zones with reasonable incentives, Syria can expect future inflow of foreign capital, when the political situation surrounding Syria stabilizes. Until that time, Syria can utilize the zones as Industrial zones for domestic companies, and expect industrial growth as a result of attractive incentives to locate plants/factories inside the zones.

The Team proposes that Syrian government study the improvement of incentives in the current Free Trade Zones, to make them in essence Export Processing Zones.

9.8 Administration

9.8.1 Integration of General Organizations into Ministries

The public companies will be more independent in the future. Flexible management is an irresistible trend. Otherwise the state budget deficit will become uncontrollable due to increases in the costs (e.g., operating losses) of ailing public companies. General Organizations will lose their initial roles. On the other hand the government is urged to improve sectoral polices including especially those for the private sector, because it must promote the policy of liberalization of foreign trade step by step. There is one department for private businesses in the Ministry of Industry, which is responsible for six sectors. This department is too small for proper administration of the industry. Such an administration structure is handicapped.

The Team proposes that the Syrian government integrate the current General Organizations into the related Ministries. GOTI would become the Department of Textiles in the Ministry of Industry. These sectoral departments are to be concerned primarily with specialized policy promotion including private sector trade, exchange rate, finance, tax, profit, employment, training, QC, design, technology, marketing, trade or export processing zones, foreign direct investment, information, etc.

9.8.2 Statistics and Laws

"Statistical Abstract" is published yearly. Economic conditions are changing very rapidly. The government and private sector, as well as potential foreign investors, need monthly data, quarterly data and more precise data on private activities. The data coverage is insufficient and sometimes includes many inconsistencies. The System of National Account (SNA) is one of analytical tools, but there is no I-O table and no periodical analytical report. Statistics are now considered as "soft infrastructure" not only for government use, but also invaluable for private companies, researchers, potential foreign investors and the multilateral agencies active in development cooperation efforts. The statistical background is very important for policy analysis or estimation of future conditions and trends.

The Syrian government has issued a great number of Laws, Decrees, Resolutions, etc. Syrian people collect legal documentation through personal contacts in the administration, but it is very difficult for businessmen to get a copy of these regulations.

The Team proposes that the Syrian government improve the collection of original data, expand data coverage, supply current economic data monthly or quarterly, and compile analytical tools such as I-O tables and set up a legal information center to sell copies of government documents on laws, decrees or instructions for the people.

9.8.3 Release of More Information to the People on Economic Policy Issues

Economic news is abundant in the developed countries. Such information contributes to the preparation of the people for coming challenges. Syria provides a lot of military and cultural information, however information on economic policy issues is rare. In the process of economic transformation, the people want business and policy information in order to be able to adapt themselves to the new situation.

The Team proposes that the Syrian government provide more information on economic affairs and policy issues to the people.

10. New Projects at Company Level

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The following is a list of new projects at the company level or suggestions to the Syrian textile industry, which, according to the analysis of many Syrian textile companies, are considered appropriate to be implemented. Each of them has been discussed in the course of the 2nd field survey with the Syrian counterpart team and have been selected from a long list of possible projects.

10.1 Export of Clothing Made from Domestic Cotton

As is described in more detail in Chapter 7.1.2, cotton should be processed locally to cotton products, especially clothing, for export to industrialized countries, instead of just exporting raw cotton.

To achieve this, the new spinning mills which have been constructed and those planned for the export of spun yarns should also supply high quality yarns to local private companies in midstream and downstream processes, enabling them to process and export value added products, particularly clothing. Then, industry-wide efforts should be made to promote exports, from downstream to upstream. An ample supply of high quality cotton spun yarn from the public sector to the private sector is essential for the success of this Project.

Some private companies are already successfully exporting products made from Syrian cotton: the names of the companies the Team visited are Bawadekji, Habi Tex and Syrian Cotton Development.

10.2 Projects to Produce Coarse Count Yarns and Heavy/Thick Fabrics by Utilizing Low Quality Syrian Cotton Spun Yarn.

The quality of spun yarns in the existing older state-owned spinning companies is not so good except in a few cases and their spinning machinery is almost worn out. From this viewpoint it would be more favorable to produce not fine count yarns but yarns of coarse count, those which are less demanding in terms of quality and production efficiency.

Three Projects are proposed as follows:

(1) Workers uniforms for export based on low quality spun yarn produced in existing textile companies

The percentage of the labor cost for sewing in the cost of production of workers uniforms is high, particularly for uniforms with as multi-functional requiring many sewing operations. From the viewpoint of Syrian competitiveness in labor cost and the experience in producing army uniforms, the production of workers uniforms for export is recommended.

1) Some considerations in the production of workers uniforms are as follows:

- 1) High quality yarns and fabrics are not required.
- 2) Repeated production.
- 3) Low production cost is the most important factor for the sales of the products, more than color, design and quality.

A private company "adidas" in Syria is exporting workers uniforms made from high-quality fabrics to high-grade customers such as German car makers.

2) Functions required to workers uniforms

- to increase work efficiency
- to make a smooth physical action in working
- to assure safety in working
- to protect the body
- durable to repeated washing
- easy care

3) Fiber materials used for workers uniforms

Polyester/cotton blended yarns are popularly used as the fiber materials. However, 100% cotton is also used. Features of 100% cotton for workers uniforms are as:

- heat and abrasion resistant
- more resistant to flame than synthetic fibers
- excellent absorbency of sweat
- natural touch
- keeps fit to the body after fit to a body by repeated use

4) Design

Many functions are required of a workers uniform. The workers uniforms to be produced in Syria must be designed to be multi-functional and fashionable. To fully utilize the low labor cost in Syria, the uniforms must be designed with as multi-functional as possible requiring many sewing operations.

The design of the garment will be the most important factor for a success of this project. Investigation of catalogues and samples of workers uniforms for foreign countries are recommended for the selection of the design.

5) Target market

At a first step, the market should be the domestic market, thereafter, the exports to the EU and the U.S. should be the target.

To conduct a national campaign which promotes the use of workers uniforms in the Syrian companies, particularly in the state-owned companies, is recommended.

6) Production facilities

The production facilities necessary for this project are already installed in the state-owned integrated spinning/weaving/dyeing and finishing companies and ready-made garment companies. At the first step, the production can be started by utilizing the existing facilities. New investment should be done at the time of expansion of the capacity. However, improvement in production facilities and technologies will be necessary to respond to export market requirement.

7) Sewing facilities required, production capacity and raw material consumption (an example)

| | |
|--------------------|---|
| Products | :a set of jacket and slacks |
| Raw materials | :Cotton 100% woven fabrics (width 1.5 m, 153 g/m ²) |
| Out put | :2,000 pieces/day, or 580,000 pieces/year (4 pieces/day/machine) |
| Sewing machines | :500 machines, press iron, etc. |
| Workers | :600 |
| Fabric consumption | :360 tons /year (1.5 m/jacket, 1.2 m/slacks, 2.7 m/set, 620 g/set) |

Investment :machinery 4 million US\$.

Relation between output and fabric consumption

| | | | | |
|--------------------------------|-------|-------|-------|-------|
| Output (pieces /day) | 2,000 | 4,000 | 6,000 | 8,000 |
| Output (thousand pieces /year) | 580 | 1,160 | 1,740 | 2,320 |
| Fabric consumption (tons/year) | 360 | 720 | 1,080 | 1,440 |

- (2) Production of denim fabrics for jeans based on low quality spun yarn produced in existing state-owned textile companies

Denim is a fabric made from coarse spun yarns and is a heavy construction fabric. Private companies already in jeans fabric production: eg. "Sabbagh and Sharabati" is producing high-grade fabrics in modern integrated plants on a large scale for the high-priced market.

In Syria, jeans are quite popular among the nationals. Therefore, in addition to the high-priced market, a low-grade and low-priced market does exist.

A project for the production of jeans fabrics of lower quality for the low-priced market by utilizing the facilities of existing state-owned textile companies as follows.

- 1) Raw material :

Cotton OES yarn Ne 6. Al Shahba Spinning and Weaving, and others are assumed to be the suppliers of yarn.

- 2) Required yarn quantity :

9,800 tons/year

- 3) Production facilities :

The existing spinning equipment of the state-owned companies will be utilized. A weaving and dyeing plant shall be constructed (There is no plan for a denim dyeing plant in the modernization plans of the 11 selected companies).

- 4) Product :

Indigo denim fabric (3/1 twill), Count of warp and weft : Ne 6 x Ne 6, Number of ends : 65 x 43/inch, Weight : 526 g/m², Finished width : 152 cm

- 5) Production plan :

Dyed fabric 12,000,000 m/year

6) Detail of equipment and production flow

Refer to Figure 10.2-1.

7) Estimated investment cost :

9.2 million US. dollars (Main machinery, auxiliary machinery and spare parts)

(3) Production of household textiles based on low quality spun yarn produced in existing state-owned textile companies

The project aims at the production of wide fabric for home use, such as bed sheets, covers, curtains, etc. by using coarse count spun yarns.

However, as the percentage of the labor cost in the total production cost of household textile products is relatively low, competitiveness in the international market will be limited. The market will, therefore, be limited to the Syrian domestic one.

1) Raw material :

Gray cloth woven from carded yarn of warp and weft count Ne 14 and with the number of ends 56 x 55/inch. Woven width : 105 inch (2,667 mm).

2) Required yarn quantity :

4,600 tons/year

3) Production facilities :

Dyeing equipment shall be established (Large-batch jigger, Rotary screen printing machine, Compressive shrinking machine, etc.)

4) Product :

Cotton 100% fabric of home use products (bleached 50%, printed 50%), Finished width : 2,530 mm, Weight 1,530 g/linear m (575 g/m²)

5) Production plan and required equipment :

10,000 m/day, which can be produced by one shift operation running 4 jiggers.

6) Estimated investment cost :

About 8 million US\$.

Figure 10.2-1 PROCESS FLOW CHART OF JEANS PRODUCTION

| Item No. | Process | Quantity | Warp | Weft |
|----------|---|--------------------|--------|--------|
| S-1 | Blowing | | ○ | ○ |
| S-2 | Carding | | ↓ ○ | ↓ ○ |
| S-3 | Drawing | | ↓ ○ | ↓ ○ |
| S-4 | Open-end Spinning | | ↓ ○ | ↓ ○ |
| W-1 | Ball Warping | 3 sets | ↓ ○ | |
| D-1 | Indigo Dyeing | 1 set | ↓ ○ | |
| W-2 | Re-Beaming | 8 sets | ↓ ○ | |
| W-3 | Sizing | 1 set | ↓ ○ | |
| W-4 | Warp reaching | 4 sets | ○ | |
| W-5 | Warp Typing | 4 sets | ○ | |
| W-6 | Rapier Loom and Air Jet Loom | 52 sets 35 sets | | ○ |
| W-7 | Inspecting | 3 sets | | ○ |
| D-2 | Gas Singeing, Washing and Drying Compressive Shrinking | 1 set | | ↓ ○ |
| D-3 | Inspecting/Cloth Winding | 4 sets | | ↓ ○ |
| D-4 | Automatic Warping Machine | 1 set | | ↓ ○ |

10.3 Export of Clothing Using Imported Fabrics and Accessories

It is recommended to seek OPT (Outward Processing Trade, refer to 7.1.2.2) export opportunities by fully utilizing the country's major advantage in low labor cost to sew imported fabrics and accessories into clothing for export: this type of export is thriving in Asian countries as the export of their labor.

The target export markets are the EU and the USA. The EU and the USA do not set import quota on Syrian products and do not restrict imports of textile products from the country.

Some private companies are successfully exporting products which are sewn by using imported fabrics and accessories, together with domestic sales: the names of the companies the Team visited are "adidas", "SEIF", "Benetton", Asseel, Assia, and Abdel Ahad.

The obstacles for promotion of this project are described in 4.4.4.

10.4 Construction of an Integrated Factory of Polyester/Cotton Blended Spinning, Weaving, and Dyeing and Finishing

Currently polyester cotton blended yarn is imported, but its demand is foreseen to expand as the population grows. State-owned textile companies are planning to produce polyester/cotton blended yarns and fabrics by utilizing existing plant.

The Team proposes to construct a new integrated plant, not utilizing existing plant, for polyester/cotton blended: spinning, weaving and, dyeing and finishing plant.

The new plant will produce fine count yarns of Ne 45 of polyester/cotton = 50/50%; existing spinning plant, which can produce Ne 32 100% cotton yarn, may produce polyester/cotton blended yarn of maximum Ne 40 due to the limited functions of the existing machinery. The dyeing of polyester fiber cannot be carried out in the same way as cotton dyeing. It requires special dyeing units.

A detailed explanation of this project is as follows:

- (1) Purpose: Import substitution of foreign cotton textile products by Syrian cotton, and the substitution of polyester/cotton blended yarns and fabric imports by polyester staple fiber imports.

(2) The private sector will not easily enter into this business, because high investment is necessary for constructing integrated plant.

(3) Products: Polyester/cotton = 50/50% yarns and fabrics for shirting.
(If polyester/cotton = 65/35%, finer yarn can be produced)

(4) Production processes and machinery to be installed.

| | |
|----------------------------|------------|
| Spinning: Spinning machine | 57,344 S/P |
| Producing capacity | 4,600 t/y |
| Own use | 3,000 t/y |
| for sale | 1,600 t/y |
| (for knitting and weaving) | |

| | |
|---------------------------|---|
| Weaving: Weaving machines | 235 looms(147 for blended yarns 88 for 100% cotton yarns) |
| Producing capacity | 5,000 t/y |
| Blended woven fabric | 3,000 t/y or 15,315,000 m(122g/m ²) |
| Cotton woven fabric | 2,000 t/y or 9,159,000 m(136g/m ²) |

Dyeing: Fabric dyeing and yarn dyeing.

| | |
|----------------------------|---------------|
| Producing capacity | |
| Blended fabrics: yarn dyed | 6,248,000 m/y |
| dyed fabrics | 4,544,000 m/y |
| bleached fabrics | 4,544,000 m/y |
| Cotton fabrics: yarn dyed | 3,592,000 m/y |
| dyed fabrics | 2,840,000 m/y |
| bleached fabrics | 2,840,000 m/y |

(5) Total investment will be roughly 100 million US\$.

10.5 Construction of Cotton Inspection Laboratories-Introduction of HVI (High Volume Instrument)

10.5.1 Significance of Introduction of HVI

The introduction of HVI has automated and unified the conventional fiber bundle testing, permitting a tremendous increase in testing capacity and sample throughput. Its data is objective and accurate, and independent of personnel factors and is reliably used by cotton growers, ginning factories, exporters, classifying stations and spinning mills.

HVI has been used by the cotton suppliers of the USA and Latin America. In recent years, the demand for it by the cotton users in South East Asia has sharply increased.

The delivery statistics of the Zellweger Uster Company who manufacture HVI 900 show that 56 HVI's were sold to 10 countries from 1994 to 1997 (Hong Kong, Taiwan, China, Japan, North Korea, Thailand, Philippines, Indonesia, Australia).

It is recommended that Syria introduce this system not only for the promotion of cotton exports but for yarn quality upgrading.

10.5.2 Features of HVI

(1) Application areas of HVI

- Cotton classification
- An optimum blend of the raw cotton and spinning process optimization
- Determination of specifications for purchasing raw cotton
- Stock control
- Cotton marketing and establishing price levels
- Fiber research in laboratories
- Fair compensation of cotton producers
- Measuring cotton fiber changes during the ginning process

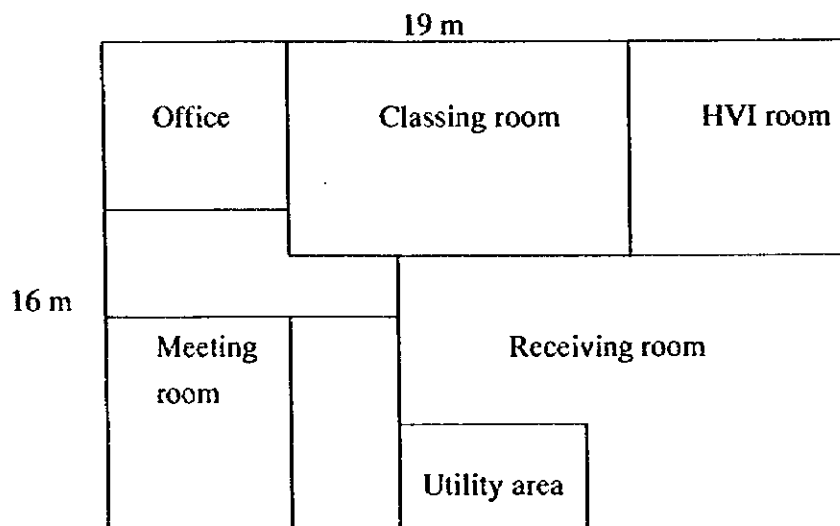
(2) Measuring function of HVI

The following characteristics of cotton are measured using test modules. Results are output on display and printer.

- Fiber length and uniformity
- Fiber strength and elongation
- Micronaire
- Trash and color

10.5.3 Suggested Projects

- 1) To construct three cotton laboratories equipped with 2 HVI sets each in Aleppo, Hama and Hassakeh respectively and provide a service for Cotton Bureaus, ginning factories, and cotton growing farmers.
- 2) Tentative layout plan



- HVI room dimensions are 6m by 8m with a 3 m height.
 - An air conditioner and a baby compressor are installed in the utility area.
 - Air conditioning : $21^{\circ}\text{C} \pm 2^{\circ}\text{C}$, $65\% \pm 10\%$
- 3) Recommended equipment
USTER HVI900
 - 4) Estimated cost of equipment
0.2 million US dollars for 6 sets

10.6 Maintaining Stable Operation of the Newly Constructed Large-Scale Spinning Factorles

A large-scale spinning factory was recently constructed in Lattakia, and further large-scale spinning factories are being planned in Syria. However, the production of many types of product, in small lots, by large-scale factories, which the market now demands, can result in a deterioration of productivity and difficulty in maintaining stable operations.

With reference to maintaining the stable operation of the large-scale spinning factory in Lattakia, and to the planning of future large-scale spinning factories in Syria, the current attitude regarding the construction of such large-scale factories worldwide is summarized as follows:

(1) Example of spinning mill scale in the world

- 1) The Indonesian textile industry has about 8 million spindles. The team studied the distribution of installed spindles. The installed spindle numbers of 75 factories sampled at random is shown as follows ;

| | |
|---------------------------|-------------|
| 10,000~20,000 spindles | 8 factories |
| 20,001~30,000 | 20 |
| 30,001~40,000 | 23 |
| 40,001~50,000 | 7 |
| 50,001~60,000 | 4 |
| 60,001~70,000 | 7 |
| 70,001~80,000 | 0 |
| 80,001~90,000 | 2 |
| 90,001~100,000 | 1 |
| More than 100,00 spindles | 3 |

- a) The above shows the factories with spindles up to 40,000 have shares of 68% in the number of companies and 48% in the number of spindles.
- b) In Indonesia, there are only 3 factories equipped with more than 100,000 spindles as cited above, even if you take into consideration the remaining two hundred or so. Two of the three factories are examples of successful cases, in which management is carried out thoroughly employing more than ten expatriate engineers from Taiwan, Korea, Hong Kong, India and Japan. The remaining factory is suffering from problems arising from its size, in terms of management and cost, and has been unsuccessful. The two successful plants

were constructed more than ten years ago as complexes of many mills in the same company on the same site.

- 2) In Japan, there are still factories equipped with spindles in excess of 100,000 yet these account for about 5% of the total number of existing factories. But, these are the remains of those constructed in the era of mass production of few types in big volume before the war. They require much manpower for their management and will tend to be liquidated in the future.
- 3) The world-wide delivery records of two of the Japanese world's leading spinning machinery makers, show that over the past ten years only one factory, in 1989, purchased more than 100,000 spindles and that was an Indonesian factory of 120,000 spindles which was referred to in (1) above. The said record also shows that the maximum was about 60,000 spindles per factory during the latter part of the 1980s and up to the early 1990s, and that this maximum number of spindles decreased to the 40,000 level from then on.

(2) Other examples

- 1) There are large-scale spinning factories, of more than 100,000 spindles, in Egypt, but they are divided into several mills/buildings and are run individually.
- 2) In India, there are large enterprises incorporating several spinning mills whose total installed spindleage surpass 100,000. However, no single factory of this size exists.

(3) Conclusion

In conclusion, newly constructed factories with more than 100,000 spindles are now very rare in the world. In Syria, however, there are recently constructed new spinning factories with more than 100,000 spindles, and others are planned, which is exceptional.

The reason why spinning mills with more than 100,000 spindles are not now generally constructed is the difficulty in responding to the market need for many types of products in small production lots. In the era of fiber shortages in the former Soviet Union, high production of a few types of products was required, and for this large sized plants were constructed. Recently, however, customers needs have diversified and the economic production of many types of products is

required; therefore, a production system which can respond quickly to customers' needs is required (Quick Response).

Large-scale spinning factories are not now generally constructed as they are not effective in producing many types of product, in small lots, at required modern productivity levels. The Team would, therefore, propose to divide the large-scale plant in Lattakia into two mills; a combed yarn mill and a carded yarn mill, and operate them independently, and for the mills to engage as many experts as possible for a long period of time so that they can be operated extremely efficiently.

Further, the Team would propose that the future construction of large-scale spinning factories be planned to meet the market needs of producing many types of product in small lots.

10.7 Wool "Future Vision"

A Future Plan for wool carpet production by a gradual increase in the blending ratio of Syrian wool is illustrated in Figure 10.7-1. This is based on the successful improvement in Syrian sheep breeding, which is being carried out in the research and development center of the public sector.

To achieve the goal of the Future Vision, improvement in sheep breeding is the most important factor. The objectives of the research and development center are improvements in meat and milk yields of the sheep along with the expected enhancement in wool quality. The improvement in wool quality attained will not be enough: in addition to this, a research and development for the improvement of wool such as breeding of sheep suitable for carpet production and cross breeding of sheep, must be carried out. However, considerable difficulty is anticipated, due to the weather and climatic conditions in Syria. If succeeded, the blending ratio of the Syrian wool is expected to increase from 25% to approximately 35% by 2005, and 50% by 2010.

In addition to the above, improvements in the classification of raw wool and in spinning process controls and machinery are required. Also in modernizing the carpet factory it is planned to introduce computerized Jacquard looms to increase the number of new pattern designs. These improvements should facilitate the acquisition

of the "Woolmark" which is required for export. The export of even a small volume of wool carpet is scheduled to start in 2000 (as to the details of the modernization of spinning and carpet manufacturing, refer to ANNEX-4).

Table 10.7.1 FUTURE PLAN FOR WOOL CARPET PRODUCTION

| | Present | 1998-2000 | 2001-2003 | 2004-2006 | 2007-2009 | 2010 |
|--|---------|---|---------------------------------------|--------------------------------------|-----------|--------|
| Improvement in wool grade | C | C | BC | B | AB | A |
| Blending ratio of Syrian wool (%) | 25 | 25 - 26 | 27 - 30 | 32 - 37 | 40 - 47 | 50 |
| Modernization of spinning | | Improvement in yarn dye-evenness, and removal of dust in raw wool | Modernization of spinning process | | | |
| Modernization of carpet manufacturing | | 2 sets of Computerized Jacquard looms | 3 sets of Computerized Jacquard looms | 1 set of Computerized Jacquard looms | | |
| Production of carpet (thousand m ² /year) | 500 | 500 - 540 | 560 - 600 | 610 - 630 | 640 - 660 | 670 |
| New pattern design (type) | 20 | 20 - 30 | 38 - 55 | 65 - 88 | 100 | |
| "Wool" mark | | Approval of "Woolmark" | | | | |
| Export of carpet (thousand m ²) | 0 | 0 | Export | Export | Export | Export |
| Raw materials for mattress and products for cold weather (tons/year) | 200 | 200 - 220 | 240 - 280 | 300 - 340 | 360 - 400 | 400 |

10.8 Silk "Mini-Plan"

In order to establish the basis of high quality exportable silk yarn production, "Mini-Plan" for producing 13,500 kgs of silk yarn per year, which corresponds to one set of automatic reeling machine is proposed; cocoons are produced by cooperative unions of the farmers, not by individual farmer, to produce uniform quality cocoons with increased production.

For details please refer to ANNEX-6 "Mini-Plan" for Silk Production.

10.8.1 Outline of "Mini-Plan"

10.8.1.1 Pre-requisite conditions required for the Implementation of the "Mini-Plan"

- (1) Objectives of the "Mini-Plan" are to produce export quality silk yarn at international price.
- (2) To adopt "Profit proportional distribution system".
This system proposes division of the export price at the ration of 70% to the producers of cocoon, and 30% to the producers of silk yarn.

10.8.1.2 Production cost

Production cost is too high due to the following reasons:

- (1) International standard cocoon price is US\$2.62/kg while Syrian cocoon price is US\$4.83/kg.
- (2) One line of reeling machine requires minimum 90,000kgs/year of cocoon, which is not secured (The production in 1997 is estimated to be 42,000kgs).

10.8.2 "Mini-Plan"

The objectives of "Mini-Plan" is to produce exportable quality silk yarns at international production cost level. Refer to Figure 10.8-1 which illustrates the outline of the "Mini-Plan" for the improved production system of silk yarns.

Main items of the Plan are as follows:

- (1) Improvement in the quality of yarns
 - 1) Hatching and, 1st and 2nd stages silkworm to be bred in one place, i.e. in the Draikeesh Factory.

- 2) 3rd to 5th stages silkworm to be bred by farmers collectively in a fairly large scale.
- 3) Draikesh Factory machinery should be up graded to maintain its high precision.

(2) Cost reduction

- 1) In order to reduce the cocoon cost, it is proposed to increase the scale of breeding from one box per farmer to 10 boxes per collective breeding house, and once a year breeding to 4-5 times breeding a year.
- 2) To reduce the production cost in the factory, it is proposed to secure the minimum quantity of cocoon (90,000kgs) to run at least one set of reeling machine throughout a year.

(3) Production systems

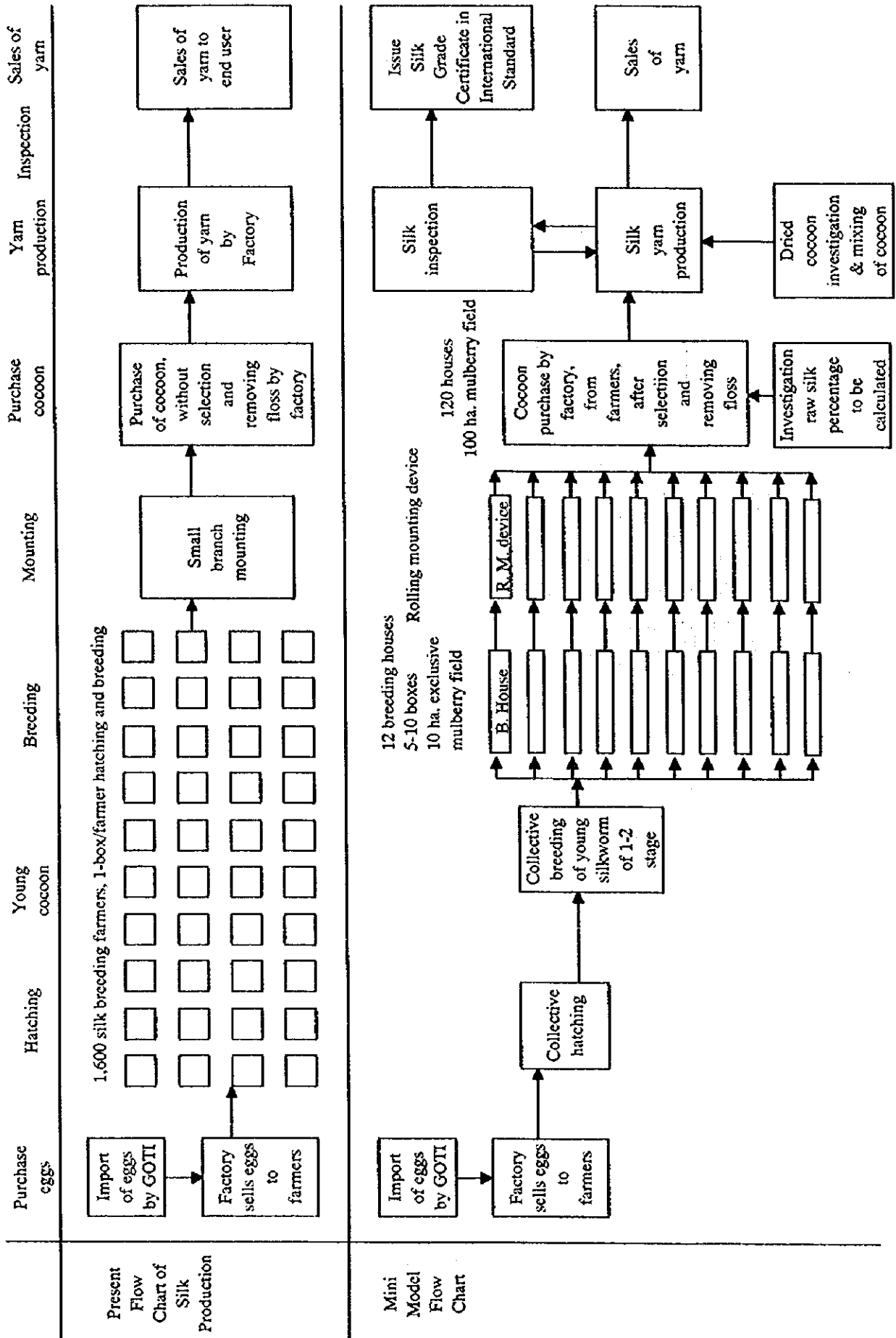
- 1) Secure 3,000 boxes/year of eggs.
- 2) Secure total 100 ha mulberry field. (10ha in 10 places)
- 3) Build total 120 collective breeding houses. (12 houses in 10 places)
- 4) Obtain 90,000 kgs/year of cocoon from farmers.
- 5) Produce 13,500 kgs/year (minimum capacity of a set of reeling machine) of export quality Silk yarn.

(4) Establishment of Silk Quality Control Center

The main jobs are as follows:

- 1) Classing and quality inspection of silk yarn at international level.
- 2) Supervision of the inspection work in the yarn factory.

Figure 10.8-1 OUTLINE OF "MINI-PLAN" FOR SILK PRODUCTION



10.9 Possibility of Polyester Fiber Production in Syria (Reference)

10.9.1 Production of Polyester Fiber In the World

Syrian imports of synthetic fibers stand at approximately 80,000 tons/year. Of the imports, polyester fiber dominates with more than 40,000 tons/year.

Polyester is the most popularly and widely used of all synthetic fibers in the world. For reference, the present situation of polyester fiber production in the world is explained below and from the world situation, the possibility of polyester fiber production in Syria is quite remote.

Table 10.9-1 summarizes the polyester fiber production of the 12 major producing countries in the world between 1992 and 1995, each of which produced more than 200,000 tons/year. In 1995, the number of polyester fiber producing countries was 31, and the total world production was 11,834 thousand tons/year of which 10,173 thousand tons was produced by the dominant 12 major producing countries. Further, the increase in world production from 1992 to 1995 was 1,873 thousand tons/year, of which 1,829 thousand tons was produced by dominant 12 major countries i.e. 98% of the increase in the world total.

Based on these facts, even if the demand for polyester fibers were to increase to 60,000 tons/year, the scale of the demand is still very small compared with the demand in the polyester producing countries in the world. It can easily be understood that the production of polyester fiber will not and should not be carried out in countries with such small demand.

10.9.2 Production of the Raw Materials for Polyester Fiber Production in the World

Table 10.9-2 summarizes the production between 1992 and 1995, of the raw material for polyester fiber, DMT (Dimethylterephthalate) and TPA (Terephthalic acid) of the 14 major producing countries, each of which has a production of more than 300,000 tons/year. In 1995, the number of TPA/DMT producing countries was 27, and the total world production was 18,089 thousand tons/year, of which 16,408 thousand tons were produced by the 14 major producing countries. Furthermore, the increase in world production from 1992 to 1995 was 3,230 thousand tons/year, of which 2,823 thousand tons were from the dominant 12 major countries i.e. 98% of the increase in the world total.

10.9.3 Production Per One Line of Polyester Fiber and TPA Plant In the World

The production capacity of one line of plant, as currently constructed in the world, is between 60,000 to 80,000 tons/year for polyester polymerization (the process to produce polyester by a chemical reaction between TPA and ethyleneglycol) plant, and is 350,000 tons/year for TPA. The production capacity of TPA in the world is very large compared with the demand in Syria.

On the other hand, if the demand for polyester is increased to 60,000 tons/year in Syria, in the future, the demand reaches the capacity of one line of polymerization plant. However, the production capacity of one line of SF production is approximately 30,000 tons/year: hence the production volume of one line of polymerization is larger than for SF demand in Syria and smaller than for FY demand in Syria. This means a lack of flexibility in production.

For reference, the approximate investment cost for the plants are as follows:

| | |
|---|-------------------|
| Polyester polymerization plant with 60,000 tons/year capacity | : 25 million US\$ |
| Polyester FY(POY) with 30,000 tons/year capacity | : 35 million US\$ |
| Polyester SF plant with 30,000 tons/year capacity | : 30 million US\$ |

**Table 10.9-1 PRODUCTION OF POLYESTER FIBER IN THE WORLD
(1992, 1995)**

(1,000 tons/year)

| | 1992 | | | 1995 | | | Increase (1995-1992) |
|-------------|-------|-------|-------|-------|-------|--------|-------------------------|
| | FY | SF | Total | FY | SF | Total | Total |
| Taiwan | 903 | 739 | 1,642 | 1,226 | 753 | 1,979 | 337 |
| U.S.A | 575 | 1,046 | 1,621 | 724 | 1,040 | 1,764 | 143 |
| China | 666 | 701 | 1,367 | 930 | 810 | 1,740 | 373 |
| Korea | 585 | 445 | 1,030 | 947 | 458 | 1,405 | 375 |
| Japan | 446 | 305 | 751 | 432 | 311 | 743 | -8 |
| India | 247 | 162 | 409 | 337 | 225 | 562 | 153 |
| Indonesia | 222 | 180 | 402 | 323 | 229 | 552 | 150 |
| Thailand | 115 | 121 | 236 | 183 | 197 | 380 | 144 |
| Germany | 205 | 155 | 360 | 192 | 140 | 332 | -28 |
| Mexico | 113 | 112 | 225 | 112 | 178 | 290 | 65 |
| Pakistan | 29 | 85 | 114 | 94 | 129 | 223 | 109 |
| Italy/Malta | 62 | 125 | 187 | 68 | 135 | 203 | 16 |
| Sub-Total | 4,168 | 4,176 | 8,344 | 5,568 | 4,605 | 10,173 | 1,829 |
| Others | 732 | 885 | 1,617 | 745 | 916 | 1,661 | 44 |
| Total | 4,900 | 5,061 | 9,961 | 6,313 | 5,521 | 11,834 | 1,873 |

Source : Textile Handbook 1997, Japan Chemical Fibers Association

**Table 10.9-2 PRODUCTION OF DMT AND TPA IN THE WORLD
(1992, 1995)**

(1,000 tons/year)

| | 1992 | | | 1995 | | | Increase (1995-1992) |
|-----------|-------|--------|-----------------|-------|--------|-----------------|-------------------------|
| | DMT | TPA | Total as TPA | DMT | TPA | Total as TPA | Total |
| U.S.A | 1,253 | 2,233 | 3,304 | 1,553 | 2,038 | 3,365 | 61 |
| Korea | 100 | 1,410 | 1,495 | 120 | 2,560 | 2,663 | 1,167 |
| Taiwan | 236 | 2,235 | 2,437 | 0 | 2,340 | 2,340 | -97 |
| Japan | 335 | 1,385 | 1,671 | 340 | 1,855 | 2,146 | 474 |
| China | 90 | 761 | 838 | 229 | 1,036 | 1,232 | 394 |
| Mexico | 420 | 365 | 724 | 460 | 630 | 1,023 | 299 |
| Germany | 585 | 60 | 560 | 610 | 80 | 601 | 41 |
| India | 200 | 550 | 721 | 370 | 250 | 566 | -155 |
| U.K. | 0 | 550 | 550 | 0 | 550 | 550 | 0 |
| Indonesia | 0 | 275 | 275 | 0 | 500 | 500 | 225 |
| Brazil | 90 | 140 | 217 | 70 | 360 | 420 | 203 |
| Russian | 413 | 0 | 353 | 354 | 0 | 303 | -50 |
| Belgium | 0 | 390 | 390 | 0 | 350 | 350 | -40 |
| Thailand | 0 | 350 | 350 | 0 | 350 | 350 | 0 |
| Sub-Total | 3,722 | 10,704 | 13,885 | 4,106 | 12,899 | 16,408 | 2,523 |
| Others | 935 | 825 | 1,274 | 972 | 850 | 1,681 | 407 |
| Total | 4,657 | 11,529 | 15,159 | 5,078 | 13,749 | 18,089 | 2,930 |

Source : Textile Handbook 1997, Japan Chemical Fibers Association

11. Suggestions for Improving Support Functions



11. Suggestions for Improving Support Functions

Supporting services for industry usually includes standardization, testing, quality control, productivity improvement, human resources development, technical guidance, technical information etc. Technically, there are institutions to provide those services in Syria, but institutional backing, budget and staff are insufficient and to be improved.

Present status of Syrian industry requires, in addition, institutional infrastructure for export promotion and improvement of competitiveness.

11.1 List of Suggested Projects

11.1.1 Export Promotion Measures

(1) Tax exemption on export income

The Team suggests that tax exemption on export income is to be introduced as a part of export promotion measures within a permissible extent of bilateral and multilateral trade agreements with other countries. This measure, together with export finance would remove some of contradicting nature of the government policy in export promotion, and show government intention to promote export clearly to all Syrian enterprises, thus increasing the credibility of the cohesiveness of the government policy.

Tax exemption could be provided to Syrian exporters without establishing special organizations, if related laws and regulations are changed.

(2) Export finance

The Team suggests that export finance system be introduced. In the process of export business, there are many occasions when exporters need financing; preparation for production, purchase of raw materials, sight given to buyers, etc. Since the loan/credit is done against the expected hard currency receipt, this type of financing is secure, and is popular among other countries.

(3) Providing market information

The Team suggests that the Chambers of Commerce and Industry set up a department or subsidiary organization to provide market information to Syrian textile companies. For this purpose, a system for gathering market related information is required, and a specialized section is to be set up. No special investment is foreseen, although some staffing and additional expenses may be required.

(4) Export cooperative - Textile Exporters' Association

The Team proposes that the export cooperative involving public and private companies be set up under the Chambers of Commerce and Industry. This organization could serve as strong and effective communication channel between the government and the industry. It can also control quality of products exported by controlling behavior of members, who may undercut the cost by malpractice such as using inferior raw material, sacrificing working conditions and wages. It also can provide detailed statistical figures to be utilized as a basis of marketing and management planning in the member companies.

As the Chambers of Commerce and Industry are existing and functioning in Syria, the Association could start operating without much additional investment, by utilizing the existing staff, office space and equipment of the Chambers. The operation of the Association needs operational experience and the assistance of countries with experience such as Japan in the control of exporters behavior, quality testing and control of the commodities exported, information exchange etc. should be considered.

(5) Export processing zone

Export processing zones with competitive utilities and facilities with incentives such as lower utility prices, better communication facilities, a single-window service etc. are to be established for promotion of export and inducement of foreign capital investment. Special attention is necessary for seaport and airport access. Since Syria has Free Trade Zones already, a study to improve incentives is recommended, together with a study to establish new zones with seaports on the Mediterranean coast. As this

subject covers wide range of industries than textile industry, the Team does not elaborate further on this matter.

11.1.2 Human Resources Development

(1) Installation of equipment in Damascus Intermediate Institute

The Team strongly recommends a project to install additional equipment at the Intermediate Institute in Damascus. There is an urgent need for new installation and addition of equipment in Intermediate Institutes and Vocational Training Centers for textile industry. Among them, the Team found the Intermediate Institute of Textile Industry in Damascus is very well managed, and any additional equipment could best be utilized.

This project does not require much additional buildings or staff. The investment cost is at most in the order of two million US\$. The breakdown of the investment is cotton lab. 0.6 million US\$, gray fabric lab. 0.25 million US\$, and dyeing lab. 0.8 million US\$. The Institute's immediate requirement is for the addition and reinforcement of the Laboratory, Training Equipment for Spinning and Weaving, Dyeing and Finishing, and Sewing which should be realized as soon as possible. There may be the possibility of rehabilitating the whole Institute. A more detailed study is necessary in this case, and the total investment could reach in the order of ten million US\$.

(2) Establishment of textile related faculty in Homs University

As there is no textile engineering faculty in Syrian universities, the plan to establish a textile engineering department in Homs University is an urgent matter for Syrian textile industry, along with reinforcement of Intermediate Institutes and Vocational Training Centers.

According to the 8th five-year plan of GOTI (Refer to the ANNEX-7), requirement for university graduates for GOTI and its companies is 150 in the year 2000. Although not all of 150 are engineers, this could be used as the rough estimate of minimum yearly requirement of new engineers, considering that GOTI represents roughly half of the total production of Syrian textile industry,

Based on 200 students per year there would be 800 undergraduates in the faculty. Based on the university average of 30 students to one professor and staff, the staff requirement would be around 27. The Ministry of Higher Education explains that the bottle-neck is the availability of teaching staff. This means the new faculty may have to engage foreign manpower at the beginning. The new faculty may utilize the existing building and administration, and the new equipment and facilities should urgently be procured. It is not possible to produce new graduates by the year 2000, but if the project for the new faculty starts in 1998, it can start operations and accommodate new students in the year 2000.

11.1.3 Quality Control/Productivity Improvement

(1) Installation of testing equipment of textile products in FTC/ITRC

The Team suggests that test equipment for export quality certification should be reinforced at FTC, ITRC and GOTI laboratory. At present, FTC is testing mainly cotton yarn for export, and to a lesser extent, cotton fabric. The increase in exports of clothing and other textile products of the private sector requires the installation of testing equipment of different categories. In section (5) below, the Team is also proposing that the GOTI Laboratory study the possibility of functioning as a certification organization for GOTI's own textile exports.

The project should be started as soon as possible because of the importance of the quality control of exports. An example of the laboratory equipment required, staffing and investment cost is shown in Table 11.1-1. The required equipment should be clarified by comparing the existing equipment and those listed in Table 11.1-1.

(2) Centralized organization for publicity and guidance of quality control practice

The Team proposes that an organization be set up for centralized publicity of the importance of quality control and guidance/training of quality control measures and ISO9000 practice. At present, cooperation by foreign government and international organization for quality control and ISO9000 is

being performed by JICA experts, UNDP and EU to various Syrian governmental organizations.

(3) Packaging Development Center

The Team proposes that a Packaging Development Center be set up in Syria. Packaging is the basic infrastructure of the industry and consumer welfare. A center for the development of packaging technology and its dissemination is recommended. Necessity of improvements in transportation packaging in textile industry is apparent, such as carton boxes for cotton yarn export. Both transportation packaging and consumer packaging need development in Syria.

(4) Reinforcement of equipment and staff of SASMO

For industrial development, standardization is one of the prerequisites. It is recommended to improve and reinforce equipment and human resources at SASMO, which is in charge of standardization in Syria. SASMO should be equipped with at least the minimum requirements of equipment and staffing, comparable with Asian countries, showing economic and industrial growth.

(5) GOTI Laboratory

The Team proposes that the equipment at GOTI's Laboratory be renewed and a new function assigned. The laboratory is under GOTI's director of production control. The equipment was donated by the United Nations in the late 1970's. As each GOTI company is equipped with a laboratory for routine jobs, there is no immediate need from GOTI companies for the services of this laboratory. The Team proposes that a new job which only GOTI headquarters are in a position to perform; comparative quality tests of the products of GOTI companies be assigned. This action will introduce a sort of competitive mentality in GOTI companies for better quality and performance. The Team also proposes that the laboratory is assigned for the function of propagating the idea of quality control and methods of testing for GOTI companies. A list of typical laboratory equipment is shown in Table 11.1-1. The necessary equipment to be added can be worked out by comparing the existing equipment and those on the list.

(6) Textile and Clothing Development Center

The Team recommends that this project be encouraged and supported. A joint project by the Chamber of Industry and UNDP, Textile and Clothing Development Centers in Aleppo and Damascus is to start operation. The Centers are expected to assist public and private textile companies mainly in the technical and design fields of apparel manufacture. The project is the only trial project in this category, and is expected to render valuable assistance for Syrian textile industry. Under the enthusiastic management and staff, the project has the potential to grow into a powerful facility for the Syrian textile industry.

The Center needs assistance with staff salaries, staff training, equipment, specialists from abroad etc. It would be necessary for foreign governments and international organizations to co-operate by offering their expertise in assistance. The investment and upkeep cost could amount to around two million US\$, over the project period of 3 years. After the 4th year, the Center is expected to cover expenses from fees on technical assistance, guidance, consultation etc.

Table 11.1-1 TEXTILE QUALITY CONTROL LABORATORY

I. Equipment List

| | |
|---------------------------------------|-------|
| 1. Fiber Laboratory | |
| Hydro and thermograph | 1 set |
| Moisture testing oven | 1 set |
| Wet and dry thermometer | 1 lot |
| Staple diagram (Comb sorter) | 1 set |
| Digital fibrograph | 1 set |
| Colorimeter | 1 set |
| Micronaire with balance | 1 set |
| Stelometer (Fineness/maturity tester) | 1 set |
| Microscope | 1 set |
| Projection microscope | 1 set |
| Pressley tester with torsion balance | 1 set |
| Shirley analyzer | 1 set |
| Fiber display pads | 1 set |
| Cotton standard sample box | 1 set |
| Electronic moisture meter | 1 set |
| Compressor with sub tank | 1 set |
| High volume instrument (HVI) | 1 set |
| 2. Yarn laboratory | |
| Electronic wrap reel | 1 set |
| Automatic wrap reel | 1 set |
| Hand driven wrap reel | 1 set |
| Electronic balance | 1 set |
| Quadrant scale | 1 set |
| Twist tester | 1 set |
| Evenness testing equipment | 1 set |
| Automatic yarn strength tester | 1 set |
| Lea tester | 1 set |
| Yarn inspection winder | 1 set |
| Yarn fault classifying instrument | 1 set |

| | |
|--|-------|
| 3. Gray fabric laboratory | |
| Thread counter | 1 lot |
| Yarn count balance (Autosorter) | 1 set |
| Tensile tester for fabrics | 1 set |
| Ballistic tester | 1 set |
| Abrasion tester | 1 set |
| Crease recovery tester | 1 set |
| Fabric inspection machine | 1 set |
| 4. Finished fabric laboratory | |
| Color matching cabinet | 1 set |
| Launder-O-meter | 1 set |
| Laundry shrinkage tester | 1 set |
| Fade-O-meter | 1 set |
| Tester for color fastness to rubbing | 1 set |
| Manual type instrument for analyzing concentration | 1 set |
| Pickup measuring device | 1 set |
| Electronic balance | 1 set |
| Moisture meter | 1 set |
| Electronic meter | 1 set |
| Crockmeter | 1 set |
| Water distillation apparatus | 1 set |
| Hot water bath | 1 set |
| Standard lighting box | 1 set |
| Thermometer | 1 lot |
| Tachometer | 1 lot |
| Set of gray scales | 1 lot |
| Glasswear | 1 lot |
| Chemicals and reagents | 1 lot |

II. Requirement Area

| | |
|----------------------------|--------------------|
| Fiber and yarn laboratory | 240 m ² |
| Gray fabric laboratory | 170 m ² |
| Finished fabric laboratory | 260 m ² |

III. Manpower requirement

Operator 5×3 laboratories : 15 persons

IV. Estimated investment cost

Equipment : approx. 2 million US\$.

V. Estimated Project Period

1 year for equipment procurement.

11.2 Investment Requirements for Actions/Projects

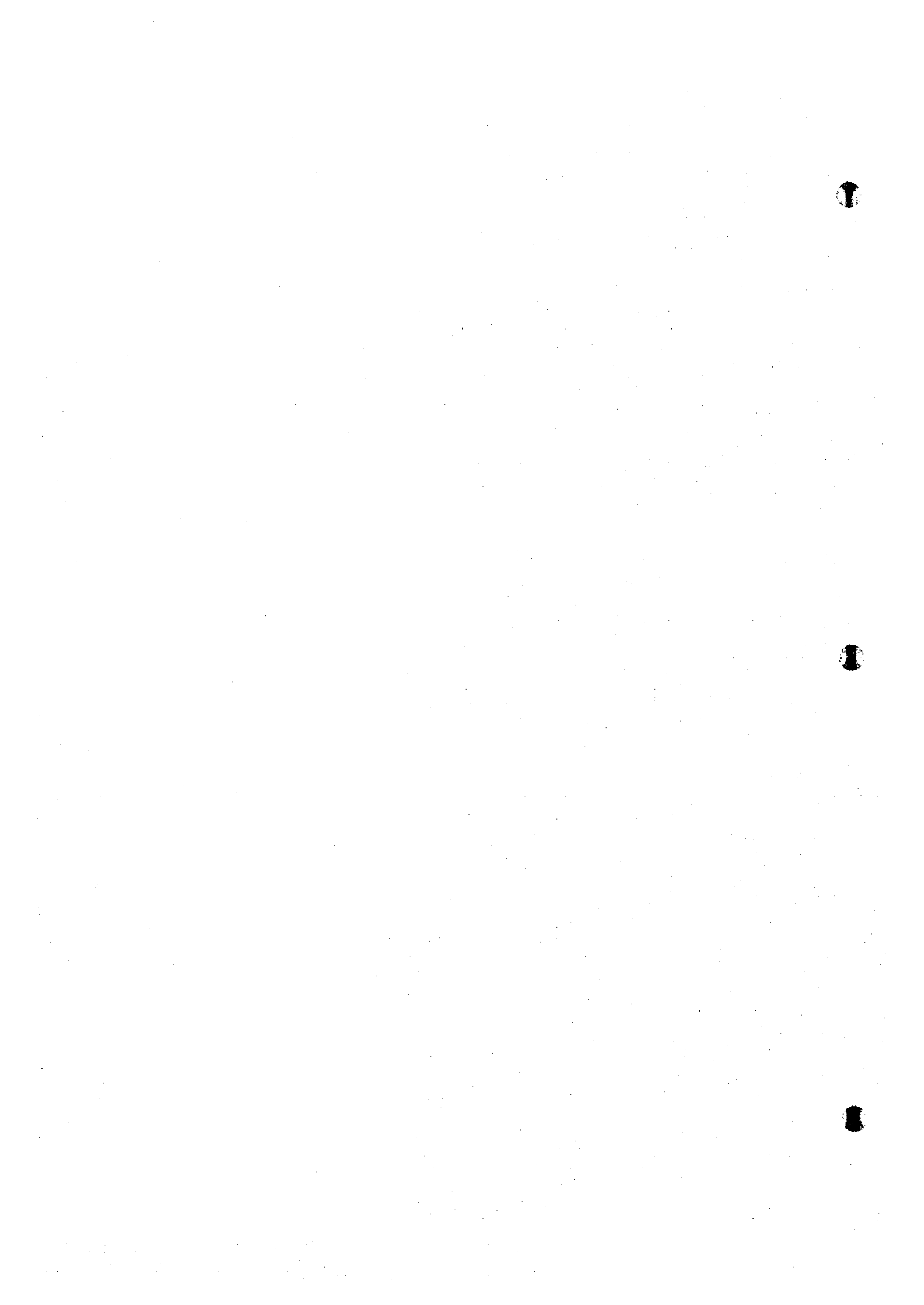
The Table 11.2-1 shows the rough investment requirements figures showing the order of magnitude for the actions/projects suggested, expected governmental organization for supervision and execution, and the probable source of funds. Since the figures and data are obtained on a preliminary basis from the Team's own data and past experience, detailed study for each project needs to be carried out if a decision is made to further pursue the said actions/projects.

Table 11.2--1 ACTIONS AND PROJECTS FOR IMPROVING SUPPORTING FUNCTIONS

| | Ministry/Institution Expected to be in Charge | Manning Requirements at Start | Expected Timing of Project Start | Investment Cost in million US\$ | Possible Source of Fund |
|---------------------------------------|---|-------------------------------|----------------------------------|---------------------------------|-------------------------|
| Export Tax Exemption | Ministry of Finance | negligible | 1998 | A | a |
| Export Finance | Syrian Banks | negligible | 1998 | B | a |
| Market Information | Chamber of Commerce | 5 | 2000 | C | a |
| Export Cooperative | Chamber of Commerce | 5 | 1998 | C | a |
| Export Processing Zone | Ministry of Economy | 50 | 2000 | 100 & upward | b |
| Damascus Intermediate Institute | Ministry of Industry | negligible | 1998 | 2-10 | b |
| Homs University | Ministry of Higher Education | 27 | 1998 | 15 | b |
| FTC / ITRC Equipment | FTC / ITRC | 5-15 | 1998 | 2 | b |
| Centralized OC Publicity / ISO9000 | SASMO ? | 5 | 2000 | - | b |
| Packaging Development Center | Ministry of Industry | 20 | 2002 | 2 | b |
| SASMO | SASMO | 5-10 | 2002 | 3 | b |
| GOTI Laboratory | GOTI | 5-15 | 2000 | 2 | b |
| Textile & Clothing Development Center | Chamber of Industry / UNDP | negligible | 1998 | 2 | b |

Notes: A Investment requirements are negligible, although exempted portion of the income tax could affect decrease government revenue
 B Investment requirements are negligible, and some financial requirements are necessary
 C Investment requirements are negligible, but some recurring expenses are necessary
 a The projects or actions should normally be financed by Syrian government
 b Foreign aid could be expected through discussions with relevant authorities. In case of Japan, JICA may assist and bear the cost of studies, experts dispatch, and grant in kind. Loan could be available from Overseas Economic Cooperation Fund (OECF). It should be noted that normally assistance for staff salary in cash is not possible in Japanese ODA program.

**12. Diagnostic Study of the State-Owned
Textile Companies**



12. Diagnostic Study of the State-Owned Textile Companies

A diagnostic study was carried out on the 11 selected state-owned textile companies in respect of production processes and management. Among those factories, 2 companies were selected as model factories so the corporate and financial management aspects of these companies were also studied. Please refer to ANNEX-4 'Diagnostic study on the state-owned textile companies'. The companies which were the object of the diagnostic studies were as follows ;

| | Company's name | Process diagnosed | Remark |
|---|--|------------------------------|---------------|
| A | Al Shark Underwear's General Company | Knitting, Dyeing | |
| B | General Company for Carpets | Weaving | |
| C | General Company for Wool | Spinning | |
| D | Industrial Company for Ready-made Garment | Garment making | |
| E | Al Ahlieh Company for Spinning and Weaving | Spinning, Weaving, Dyeing | |
| F | Syrian Company for Spinning and Weaving | Weaving, Dyeing | |
| G | Al Shahba Spinning and Weaving Company | Spinning, Weaving | |
| H | Lattakia Weaving Company | Weaving | |
| I | United Arab Company for Industry (DIBS) | Spinning, Weaving, Dyeing | Model factory |
| J | Jableh Spinning Company | Spinning | Model factory |
| K | Draikeesh Natural Silk Company | Silk spinning | |

[Results of diagnosis common to all the factories]

12.1 Problems of Production Management and Counterplans

12.1.1 Process Control

(1) Improvement plans practicable and convenient

- 1) To prepare standards for process control using pre-prepared documents and forms.

Without these, process management is not truly process management. Process management must be started by preparing for it. Important communications like production instructions should be made not verbally but formally, in writing, using the pre-prepared material and clear figures so that

everybody can understand. Management should not be carried out depending on the sub-conscious or memory of managers. The contents and targets of process control must be widely published to all the members involved and at the same time the response and answer from those members must come back in writing. For such purpose, documents such as processing instruction slips, standard process tables, process slips, scheduling tables, progress cards, work reports, daily and monthly reports, notice boards, etc. must be prepared and utilized for control purposes.

Examples of a processing instruction slip, process slip, and work report which are among the main documents and slips used for the processes control are shown in Figure 12.1-1.

The processing instruction slip includes such information as name of color, fabric, quantity to be processed, conditions of contract like delivery time, and processing conditions.

As a dyeing factory deals with various kinds of orders and processing requirements, the standard process tables provide a processing standard per product (it sets forth items necessary for processing like procedure for processing, processing conditions, recipe, processed amount, etc.). It serves as a datum to make the process slips.

The process slip (process control slip) reveals the procedure for making gray fabric into finished fabric and is prepared as per dye lot. The recipe, minute working process, treatment by each process, manpower and machinery required all found on the slip.

A scheduling table provides the dyeing schedule, order of dyeing, plan for loading of dyestuff and fabric, etc.. Based on the scheduling plan table, a machine allocation list for each machine group attached with a work report is prepared and is handed to the workers at each process stage.

Besides that, a list of machine capacity, gray fabric delivery ledger, ledger for dyestuff and other auxiliary materials, gray fabric delivery order, etc. are used

to effect the control. An outline of the process management flow using such documents is shown in Figure 12.1-2.

2) To reduce lead time to realize quick delivery of products.

A schedule planning method and pending review method (A procedure to confirm the delivery deadline before the deadline comes) should be adopted for production.

The scheduling aims to establish the shortest standard days (days necessary for an item to pass one process) and total of standard days of all the processes in order to set up the delivery time for raw materials and final goods, taking into consideration manufacturing capacity, necessary manpower and spare capacity, etc.. It is important to set up the dyeing cycle (to decide the order of dyeing in order to minimize the losses that occur when cleaning of the dyeing vessel is necessitated.), to reduce the total standard times.

Progress control means to check if the work is progressing according to the planned schedule (by observing the actual result and checking it with the plan) and to take corrective action to try meet the plan (measures for maintaining progress) and put it into practice (formation of work plan and necessary instruction). A progress situation table by each processing instruction can be prepared to make it serve as the progress control data for the production management department.

The call-off is a prior warning control, while the progress control is after the fact. The procedure of the call-off is to arrange the copies of the scheduling plan and order sheets according to the order of delivery time and to take them out one or two weeks before the delivery deadline in order to check if the delivery time can still be met.

The above work should be established as the duty of the person in charge of production process control.

3) Tidiness, cleanliness and orderliness.

To develop "5S" activity. This activity is not carried out except in parts of some companies. "5S" means five Japanese words starting with S, i.e. Seiri, Seiton, Seiso, Seiketsu and Shitsuke. The meaning of the 5 words is as follows ;

- SEIRI: Eliminate and abandon unnecessary things.
- SEITON: Organize and keep everything ready for use.
- SEISO: Cleaning and continuous checking
- SEIKETSU: Keep everything clean and make that the standard
- SHITSUKE: Adopt the manner and discipline to control the work site.

4) To carry out the record management.

The following basic work for record control is not carried out ;

- Register: To assign the number of records prepared and register them in the ledger (To register them in the computer in future).
- Treatment: Bookbinding and microfilming (To put them onto disc in the future).
- Storage: Preventing records from becoming missing from being altered or erased, and to enable their secrecy to be maintained.
- Service for use: Search, copy, taking out, lending and withdrawal of records.

It is recommended to start from the study and analyze whether currently the records numbering system has been properly established or to judge if some modifications are necessary.

(2) Improvement plans to be implemented within 1-3 years

1) To make the most of SOP.

In the state-owned textile companies, SOP is found in the job description established for each company, but it is not made the most of in many cases. The independent and more precise and practical SOP should be prepared and well practiced.

2) To check the working attitude of workers.

There are quite a few lazy workers. Monitoring of working attitude of workers by TV camera is adopted in several companies. This should be adopted in all the companies and the number of camera should be increased.

12.1.2 Equipment Control

(1) Improvement plan practicable and convenient

Following fundamental steps are not being observed at implementing equipment control in the state-owned companies. Its practice according to the following order is recommended.

1) To draw up a standardized machine maintenance method for each company.

It should be prepared and established as system, considering maintenance and lubrication frequency, inspection standard, standard of minimum inventory of spare parts, etc..

2) To carry out the preventive maintenance.

It is general concept of the state-owned companies that it is enough for "ex post facto" maintenance or breakdown maintenance. Emphasis should be laid on the preventive maintenance. It means the maintenance in which such daily maintenance as cleaning, inspection, lubrication and adjustment is strictly practiced in machine operation, in order to deter the machine deterioration, and periodical performance check or preventive repair is implemented, as well.

3) Countermeasures for safety.

Though it is asserted that safety is one of the important activities of an enterprise, it is not put into effect. Almost all old machines are not equipped with the danger-proof and fool-proof covers and fences, even though those are easily manufactured in the in-house workshops.

4) Exalting of safety awareness.

Workers lack awareness of safety first. It is necessary to train workers. To prepare events like "safety week", "fire fighting week" and make the employees take part in such events positively in order to exalt the safety awareness of workers.

(2) Improvement plan to be implemented within 1-3 years

1) Systematic implementation of maintenance program.

Preparation for maintenance program to do inspection, maintenance and repair of the equipment should be practiced. It envisages schedule, allotment, personnel, necessary material in accordance with the machine maintenance standard established.

2) Drawing up of maintenance record.

There is no practice of making maintenance record of equipment. Daily maintenance (cleaning, inspection, lubrication, etc.) check sheet and periodical performance inspection record should be recorded. Such records are useful for establishing standards of maintenance cycle, inspection and spare parts inventory, etc. for estimating spare parts life and for shortening of maintenance time.

3) To prepare maintenance manuals as per each company.

Even machine handling manuals submitted by machine manufacturers are not utilized well. Maintenance manuals should be prepared and utilized for implementing maintenance programs.

12.1.3 Quality Control

(1) Improvement plans practicable and convenient

Please see 4.5.2, 4.7.2, 4.8.2 and 4.9 as for the assessment of quality of products of the state-owned companies. State-owned companies should make efforts to plan and implement concrete measures for quality upgrading of individual products and establish immediately an efficient quality management system. Because of that, it is recommended to carry out the following in such priority.

1) To stop the yarn being packaged in bags and to use carton boxes.

To flatly stop the practice of transporting and storing yarn in bags, as this terribly damages the yarn quality. The quantity of carton boxes required to cope with the yarn for three months production should be provided to every state-owned spinning company. All the carton boxes shall be the boxes plying between the suppliers and users re-cycled and the users are requested to return the boxes only after receiving yarns. Meanwhile, the quantity of carton boxes corresponding to the stock quantity of 1-3 months shall be supplied to the user factories of weaving and knitting supplies from the state-owned companies. Such carton boxes shall be used for storage purpose for the yarn or returned to the spinning companies as "shuttle" carton boxes. Thus, the custom to use the carton box for packing yarns should be established as soon as possible.

2) To oblige the attachment of test report at yarn dispatching.

It should be obligatory to attach the test report to the yarn delivery. They should realize their responsibility to supply their yarns to the mid-stream and down-stream state-owned and private textile companies. This is the most effective way for upgrading yarn quality.

3) To show clearly the guidelines of quality control.

Prior to the development of QC activities, it is necessary to show clearly to the employees the guidelines for quality control, to set up necessary organizations and establish quality control systems.

4) To promote the activity for improvement.

In general, there are two QC activities; one is routine control and the other activity is improvement. The former is carried out in the process of routine work for prevention and restoration of quality deviations. The latter is that aiming at the analysis and improvement of problems and the introduction and development of better methods and systems. The state-owned companies are practicing the former activity though insufficiently, but not the latter. It is recommended that the companies should carry out the latter improvement activities. For that purpose, it is necessary to organize QC committees and project teams so as to deal with critical and urgent issues, to try to challenge ZD campaigns and organize small groups like QC circles for promoting

voluntary control improvement in each working site. The QC activities must be carried out involving all of the companies. A chart relating to the necessary activities is shown in Figure 12.1-3.

5) "Internal standardization" should be practiced.

Standardization is defined as the systematic activities to establish the standard and put it to practical use as a part of standardization of quality control, the control items and the standard of properties, according to which quality control is implemented, should be established.

6) To make use of traditional tools for QC.

When implementing QC the use of traditional methodology like a set of rules for QC should be adhered to in the production line organization, because such methodology is not carried out in all the companies.

(2) Improvement plan to be implemented within 1-3 years

1) Introduction of automatic packaging machines in the weaving factories.

Automatic packaging machines should be introduced in the weaving factories so as to prevent the gray cloth from deterioration due to fabric stains.

12.1.4 Education and Training

(1) Improvement plans practicable and convenient

1) Establishment of training center.

The state-owned textile companies generally lack a training center and full-time trainers to be able to give enough training to their employees. Training is indispensable for exalting the ability of workers to cope with the work smoothly and efficiently as well as helping them further knowledge and techniques for dealing with higher-graded duties. What is recommended is as follows ;

- To improve access to skills, qualifications and career progression.
- Construction of a lecture room or training center.
- Employment or training of full-time instructors
- To create an atmosphere for self-enlightenment of workers.
- To raise the skill level of employees throughout the company.

- 2) To make known to all the members the targets of the company.
To inform and impress on all the employees the company's business targets and slogans, production plan and the resulting, instructions of top management, etc..
- 3) To develop multi-talented workers.
To develop as many as possible as a countermeasures against lazy workers.

12.1.5 Technical Assistance

It is necessary to invite experts in textile technology from developed countries for the purpose of transferring technology and know-how on proper production methods and other management aspects. The lack of dyeing engineers was realized after visiting many companies. The dyeing engineers and technicians cannot be reared up only by the on-the-job training, since they are required to possess the basic knowledge of chemistry. In such points they differ from the spinning, weaving and knitting engineers. Further, in order to increase the clothing export from Syria, it is essential to uplift the dyeing and finishing technology level which directly links to the quality of garment. Therefore, the invitation of dyeing experts should be done with the first priority. It is recommended as follows ;

(1) Quality control

Syria has proved to lag behind the developed and fairly well developed textile producing countries like Japan or South East Asia in terms of quality control of textile products. Foreign experts should be invited to train the personnel of state-owned companies about fundamental or advanced quality management methods for them to achieve exportable quality.

1) Cotton and synthetic fiber industry

- Spinning, Weaving, Knitting, Dyeing and Garment experts
- Budget 0.9 million dollars (3 persons x 2 years)
- Training tour to the state-owned and private textile companies

(2) Corporate management

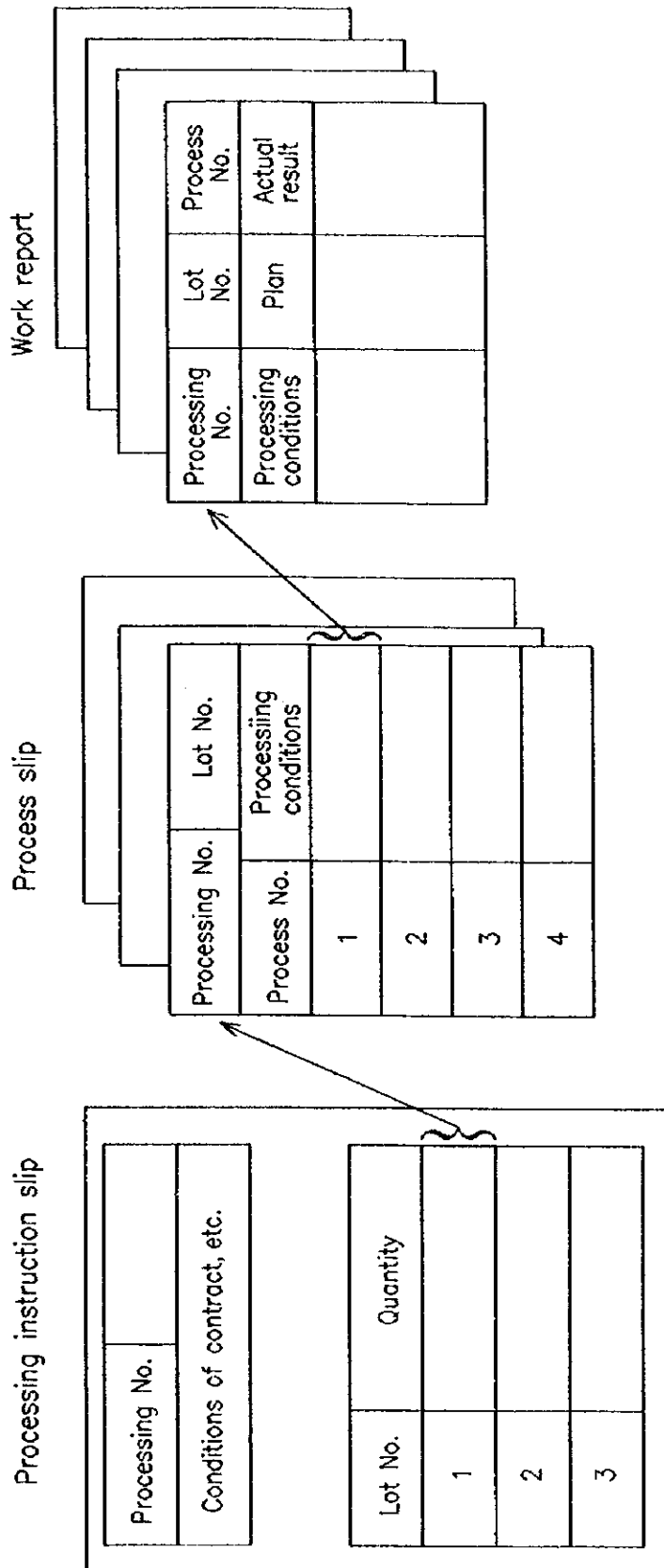
1) Marketing management

- Marketing expert
- Budget 0.3 million dollars (1 person x 2 years)
- Training tours to the GOTI and state-owned textile companies

2) Financial management

- Financial expert
- Budget 0.15 million dollars (1 person x 1 year)
- Training tours to the GOTI and state-owned textile companies

Figure 12.1-1 MAIN SLIPS USED FOR PROCESS CONTROL



**Figure 12.1-2 FLOW OF PROCESS CONTROL
(CASE OF DYEING PROCESS)**

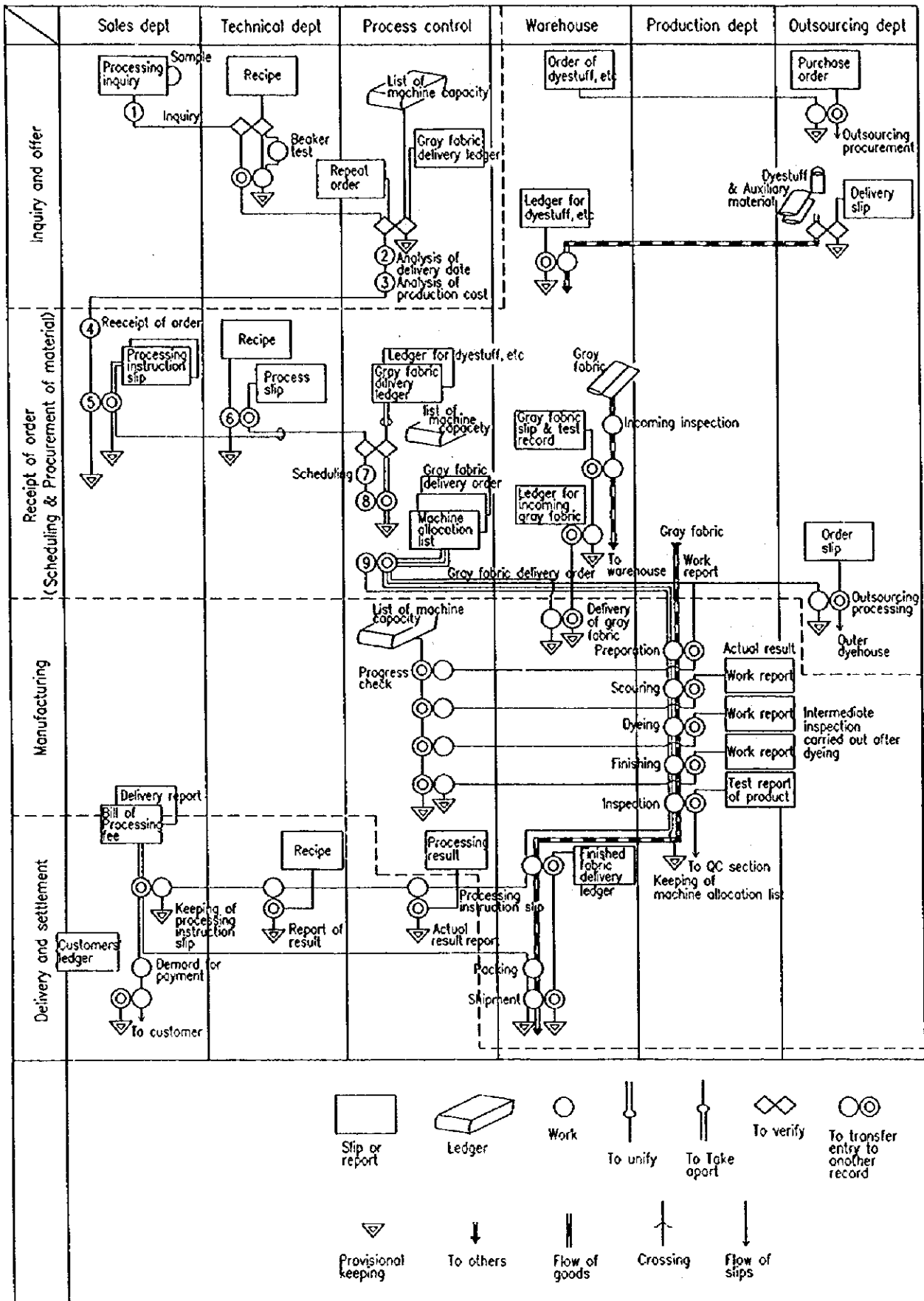
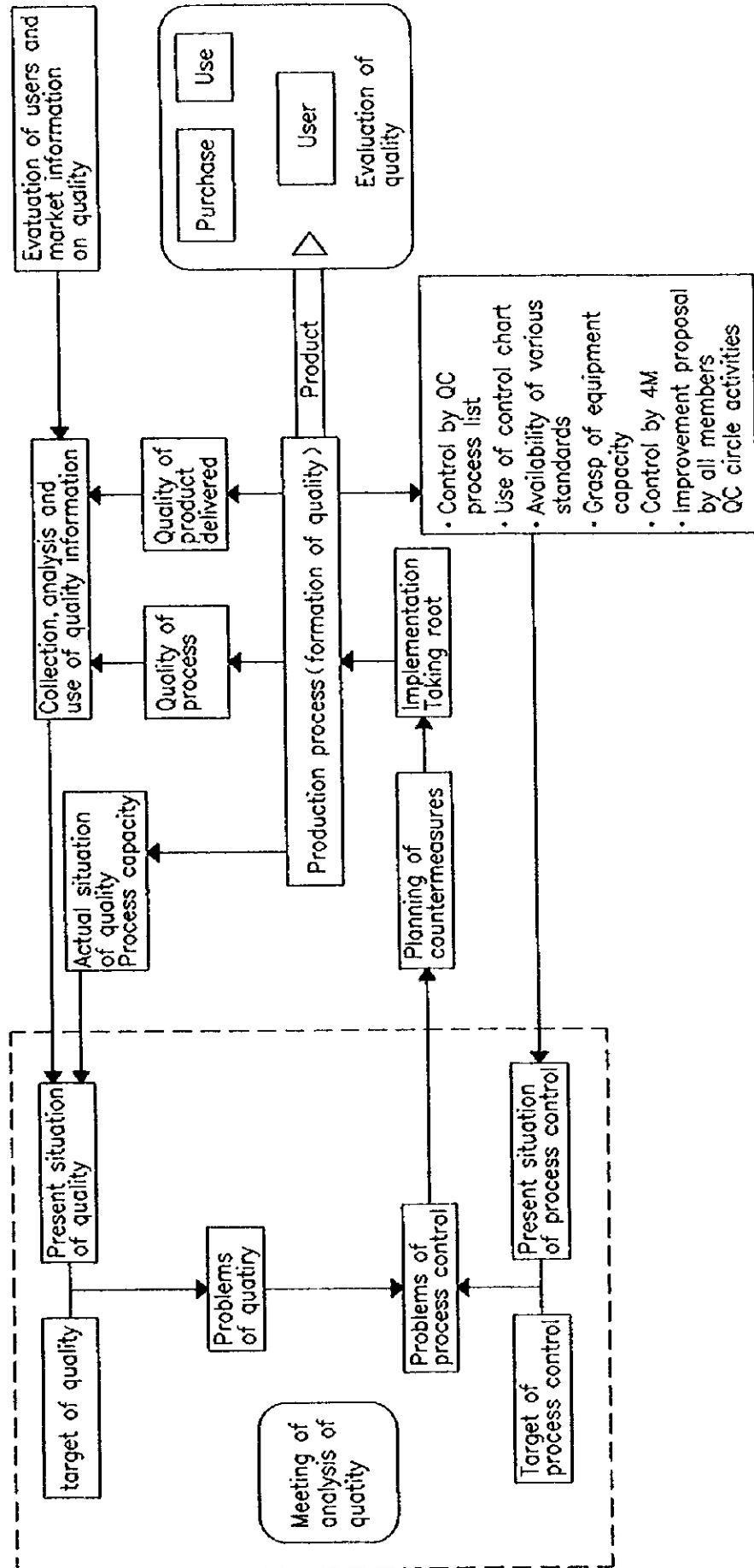


Figure 12.1-3 CORRELATION OF QUALITY CONTROL



12.2 Problems of Corporate Management Commonly Pointed out and Counterplans

12.2.1 Marketing Management

It is suggested the state-owned companies by themselves to do followings;

- (1) Change from market production to production with firm orders and from production-oriented to marketing-oriented. Adoption of latest marketing strategy.
- (2) Practice of marketing survey in a more scientific and detailed way.
- (3) Practice of demand forecast and formation of sales plan.
- (4) Introduction of more flexible cost setting method.
- (5) Re-organization of commercial department by amendment of law (To increase the number of section, group, personnel, in order to carry out sufficient marketing activity).

12.2.2 Labor Management

There are much issues to be improved relating to labor management of the state-owned companies (improvement of recruitment and distribution management, carrying out of lay-off and revision of wage rate, collaboration with the labor union, etc.). Please refer to Chapter 3 for detail.

12.2.3 Fund Management

Bills' collection tends to be delayed at the transaction among state-owned companies. Management of cashflow is also important for the state-owned companies, in order to avoid the risk of insolvency.

[Results of diagnosis on individual companies]

12.3 Al Shark Underwear's General Company (A)

12.3.1 Process Diagnosed

Knitting process and dyeing and finishing process.

12.3.2 Modernization of Production Management

(1) Stock control

- 1) Possibility of production adjustment on account of huge stock should be analyzed. Clearing out of old yarn stocks by all means as early as possible. Its quality declines more and more as time passes by.

(2) Equipment control

- 1) To check the suction parts of dust collecting equipment to prevent the accumulation of fly in the air inlet and outlet.
- 2) To maintain stable supply of steam by replacement of defective reduction valves and do recovery of drainage.
- 3) Securing enough space for placing gray and finished fabric currently placed in the working site in disorder.
- 4) To secure stable power supply (to avoid dyeing speck).
- 5) The yarn supplied from the creel of knitting machines is not protected against the attachment of fly. The cover tubes should be installed. Refer to Figure 12.3-1.

(3) Quality control

- 1) Concentration or recipe of dyestuff and chemicals should be prepared as per each kind of fabric of different weight. Try to titillate even manually the concentration and if it is deviated from the standard, adjust it by recipe change or changing supplying quantity.
- 2) The press mark defects are observed in the finished fabric due to its improper storage method. It is recommended to stop to mount the finished rolls on other rolls when stored. Refer to Figure 12.3-2.

(4) Environmental preservation

- 1) To analyze the introduction of effluent treatment system.

12.3.3 Modernization of Production Process

- 1) There often takes place uneven whiteness and color shade and dyeing speck in the dyeing process. Necessary to take urgent countermeasure for improvement of dyeing quality by eliminating uneven whiteness and color shade and dyeing speck.
- 2) Overall dyeing quality is low due to low level dyeing technology inadequate process control and worn out and deteriorated machinery. Necessary to enhance overall dyeing quality.
- 3) Clear processing conditions is not established in the dyeing process. Testing equipment and instrument necessary for establishing and fulfilling processing conditions do not exist, as well. To establish clear processing conditions, after introducing necessary testing equipment.

12.3.4 Modernization of Dyeing and Finishing Equipment

(1) Main machinery to be introduced

Following equipment shall be introduced in order to cope with the above 12.3.3 1) and 3).

- 1) Jet dyeing machine (normal press) 600kg - 3 sets, 300kg - 3 sets, 100kg - 2 sets (capacity : bleaching - 6,000kg/day, dyeing - 4,200kg/day)
- 2) Dosing equipment 1 set
- 3) Testing equipment for establishing processing condition 1 lot : Manual type instrument for analyzing concentrations, Various reagents, Pickup measuring device, Electronic balance, Moisture meter, Thermometer, Tachometer
- 4) Testing equipment for general analysis of quality : Launder-O-meter, Laundry shrinkage tester, Fade-O-meter, Tester for color fastness to rubbing, Microscope, Electronic meter.
- 5) Inspecting and tube packaging machine 1 set
- 6) Water softener 1 set 1,200-1,500 ton/day
- 7) Deep well 1 set (locally supplied)
- 8) Estimated investment cost for machinery : Approx. 2.3 million dollars.

(2) Subsequent modernization plan

In order to cope with the above 12.3.3. 2), following equipment shall be introduced.

- 1) Shrinking dryer 1 set
- 2) Centrifugal hydro-extractor 2 sets
- 3) Scutcher, detwisting, opening machine each 1 set
- 4) Steaming & softening machine 1 set
- 5) Sewing machine for T-shirts making 3 sets
- 6) Singeing machine for tubular knitted fabric 1 set
- 7) Heat setting machine for tubular knitted fabric 1 set

**Figure 12.3-1 KNITTING MACHINES WITHOUT YARN
COVERING TUBES**

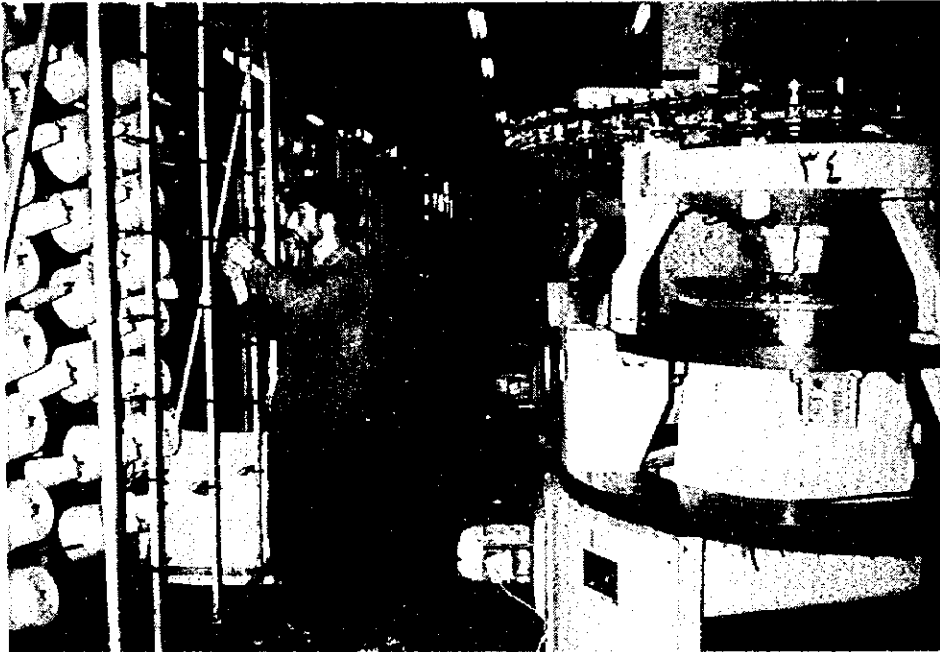
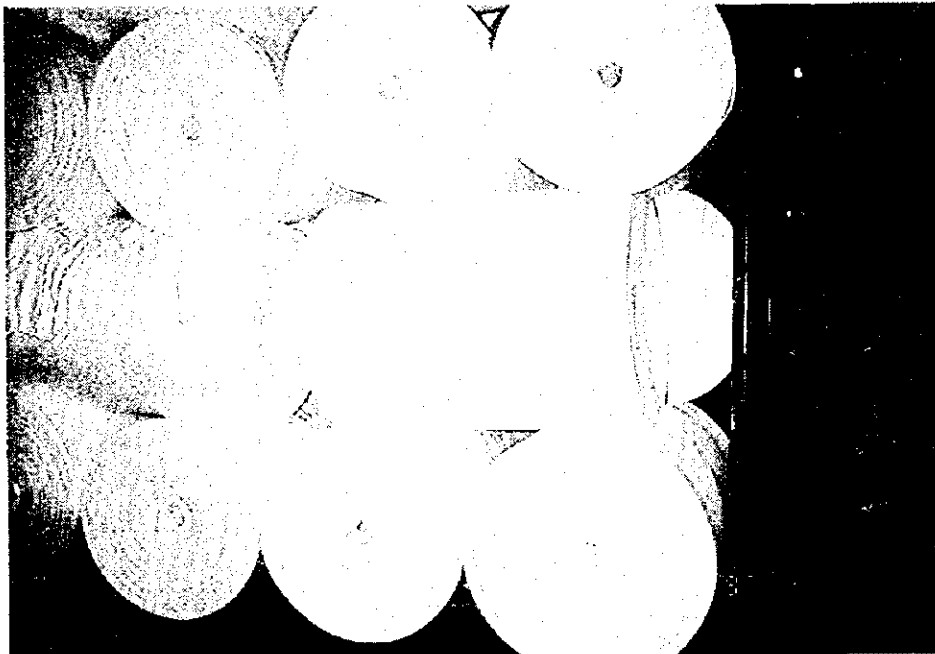


Figure 12.3-2 INADEQUATE STORAGE OF FINISHED KNITTED ROLL



12.4 General Company for Carpet (B)

12.4.1 Process Diagnosed

Carpet making process (Weaving).

12.4.2 Modernization of Production Management

(1) Procurement control

- 1) To hold periodical quality problem meeting with the yarn supplying company, General Company for Wool so as to analyze quality upgrading of yarn.

(2) Process control

- 1) To install the glass window on the wall of design and punching room for surveillance of working attitude of workers.

(3) Equipment control

- 1) Decrease of lubrication quantity to the loom to avoid trouble by oil's or oil-stained waste's sticking to the carpet.
- 2) Remodeling of atomizers in bad conditions for better humidity control (To raise RH and make better the humidity effect and prevent its dispersion as well).
- 3) Remodeling of the existing blow cleaner not having effect to blow off the fly and repairing of traveling rail hindering the smooth progress of the cleaner.
- 4) The quantity of lubricant is generally excessive. It is necessary to avoid the quality trouble caused by the attachment of waste oily stained. Please see Figure 12.4-1.

(4) Quality control

- 1) To hold periodical meeting with General Company for Wool and Al Khomasieh and make an exhaustive discussion to upgrade yarn quality and to take measures against removal of vegetable foreign matters and eradication of yarn dyeing speck.
- 2) To make efforts to upgrade quality for aiming at the acquisition in the future of "Wool mark" certificate internationally authorized.

- 3) Coming off short fiber waste is attached to the surface of carpets. It is necessary to intensify the cleaning and reinforce the function of blow cleaners. Please see Figure 12.4-2.

(5) Environmental preservation

- 1) Thorough cleaning of short fiber waste by use of cleaners of strong power and improving suction of exhaust air inlet of air-conditioning.
- 2) To improve working environment through beautification and tree planting campaign of the factory by workers themselves when there is not much job, as the Damascus factory faces a heavy traffic road.

12.4.3 Modernization of Production Process

- (1) Enhancement of technology in compliance with the market needs for carpet.
 - 1) Current market needs for the carpet has been diversified, looking for the design more minute and of large repeat size. Necessary to comply with such market needs, replacing the existing looms by new looms which enable it to do so.
 - 2) Lead time of G.Co.for Carpets from design making to weaving is fairly long, incurring much cost. Necessary to shorten design preparing time, reduce lead time and curtail production by purchasing new looms enabling it to do so.
 - 3) It is necessary to upgrade the overall quality of carpet, if oriented for export.
- (2) It is suggested to streamline the existing two state-owned carpet factories, Damascus factory and Sweda factory, making them specialized in sales for export or domestic market (Refer to 12.4.4).
- (3) Renewal of defective air conditioning of Damascus factory for improvement of air conditioning effect.

12.4.4 Modernization of Making Equipment for Carpet

(1) Modernization of carpet looms

Following equipment shall be introduced to cope with the process modernization described in 12.4.3.

- 1) Installation of 6 computer-controlled jacquard looms in 6 years (1 loom per year), which can cope with diversified design making and shortening of design preparing time.
- 2) Suggestion 1 - introduced into Damascus factory
Suggestion 2 - introduced into Swede factory
- 3) Recommended machine : ADR92 Rapier loom (Belgium)
- 4) Output from new looms shall be oriented for export.

(2) Plan of streamline of two factories

- 1) To scrap 5 existing defective looms worn out and seriously deteriorated out of 16 looms of Damascus factory and 3 looms out of 8 looms in the Sweda factory.
- 2) Suggestion 1 - Remaining 11 looms of Damascus factory are transferred to Swede factory and total 16 looms are run.
Suggestion 2 - Remaining 5 looms of Sweda factory are transferred to Damascus factory and total 16 looms are run.
- 3) Output from the existing looms shall be oriented for domestic markets.
- 4) In case of Suggestion 1, air conditioning equipment of Damascus factory shall be refurbished and one new winder will be purchased. The remaining preparatory machinery of Damascus factory will be not needed.

(3) Estimated investment cost

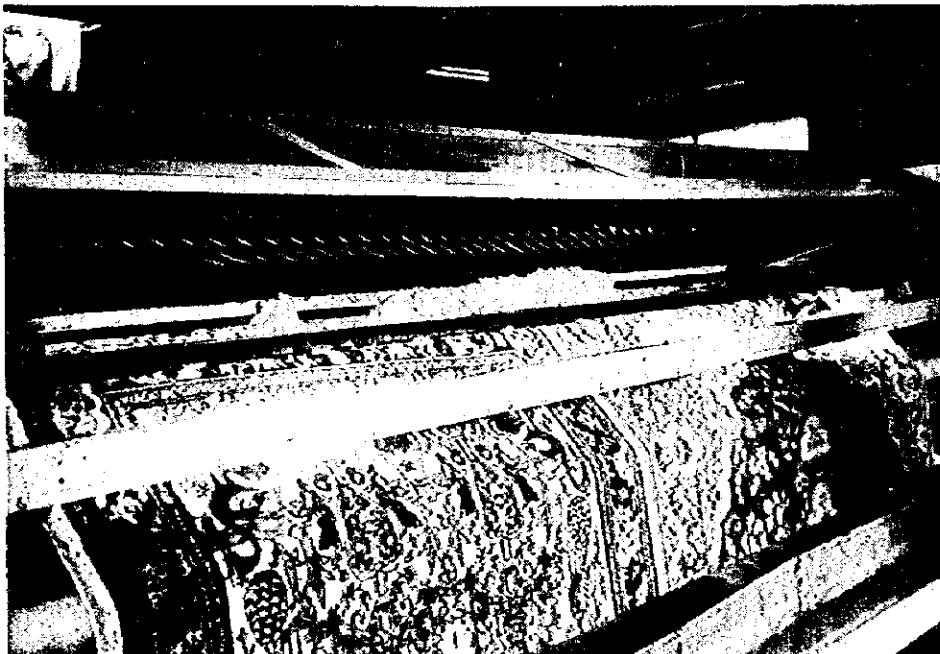
Suggestion 1 Approx. 6.7 million dollars

Suggestion 2 Approx. 5.6 million dollars

Figure 12.4-1 MACHINE STAINED BY EXCESSIVE LUBRICATION OIL



Figure 12.4-2 WOOL SHORT FIBER WASTE ATTACHED TO THE CARPET



12.5 General Company for Wool (C)

12.5.1 Process Diagnosed

Wool carpet spinning process (sorting and top-making process)

12.5.2 Modernization of Production Management

(1) Process control

- 1) Top dyeing equipment of No.1 Mill is well maintained but it is run with low operation ratio, because other equipment of the same mill is not run so much because of its deterioration. To try to make the most of this machine, making run the equipment in No.2 Mill for this machine.

In order of improve the process of No.2 Mill, the following is suggested.

- 2) To stop the current transport system of scoured and dried wool put in bags and adopt the air chute transportation to the wool bin in No.2 Mill. Please see Figure 12.5-1.
- 3) To do carding oil supply after the drying machine in order to put oil sufficiently to the wool (to prevent fiber from being cut) in No.2 Mill.
- 4) To enhance dust removing effect by introducing new cylinder opener in No.2 Mill. Please see Figure 12.5-2.
- 5) Adjustment of each roller gauge of carding machine.

(2) Quality control

- 1) Installation of device to measure yarn dyeing speck and residual fat.
- 2) Repletion of chemical testing equipment.
- 3) Repletion of physical testing equipment as spinning mill.
- 4) Establishment of quality control system in the process.

(3) Environmental preservation

- 1) Reconsideration about the location of planned effluent treatment plant. To make it apart from the municipal main road and residential area.

12.5.3 Modernization of Production Process

- 1) No.2 Mill is a newly constructed factory but it is operated by only one shift because of trouble caused by yarn dyeing speck. It is necessary to make the most of the existing equipment of No.2 Mill (e.g. to spin the top dyed in No.1 Mill, etc.)
- 2) No.1 Mill is a factory comprising outdated and worn out machines made in 1955 to 1976. Because of that, it is extremely difficult to carry out correct production management as it is. To update the obsolete and outdated equipment in No.1 Mill in order to make the most of the existing top dyeing equipment, which is only in good condition.

12.5.4 Modernization of Spinning Equipment for Carpet

(1) Modernization of No.2 Mill

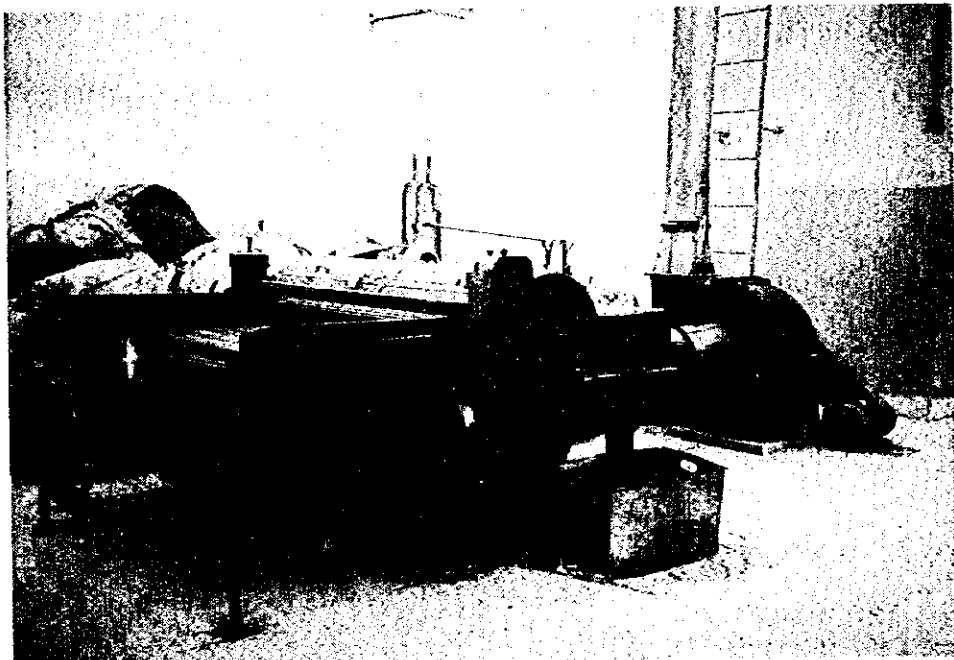
Following suggestion is made for the modernization of process of No.2 Mill (referred to in 12.5.3).

- 1) Replacement of 1 sorting table
- 2) Replacement of 1 cylinder opener for greasy wool.
- 3) Replacement of 1 cylinder opener for scoured wool.
- 4) Increase of 1 wool mixing bin.
- 5) Installation of 1 mixer for scoured wool.
- 6) Metallic wire clothing and adoption of large size cans and cooler parts for cards and gills cards and gills.
- 7) Estimated investment cost for machinery : Approx. 0.5 million dollars (0.2 million dollars of local portion is excluded).
- 8) Subsequent modernization plan : modernization of No.1 Mill, excluding top dyeing equipment.

Figure 12.5-1 SCOURED WOOL PACKED IN SACKS



Figure 12.5-2 VERY POOR CONDITION OF SCOURED WOOL OPENER



12.6 Industrial Company for Ready-Made Garment (D)

12.6.1 Process Diagnosed

Garment making process.

12.6.2 Modernization of Production Management

(1) Procurement control

- 1) Present procurement system by tender is causing many constraints to the company at trying to get good quality raw material with reasonable price in quick delivery. Such constraints are fatal for a ready-made garment maker who procures some countermeasures such as amendment of law, etc. are necessary to be taken.

(2) Process control

- 1) The lead-time for each item should be studied again to shorten the actual long time for making garment.
- 2) Re-arrangement of areas for each section for better working efficiency.
- 3) Study of illumination adequate for good working efficiency.

(3) Quality control

- 1) Feedback to the fabric suppliers for improvement current tough and rigid handling of supplied fabric which is originating the jackets of hard touch.
- 2) Number of sheets of fabric to be piled for being cut is so many that it should be decreased. It will cause the fabric to slip down.
- 3) Study of pattern marking practice to lessen the wastage ratio of fabric.
- 4) To oblige the supplier of fabric to strictly abide by the specifications of shrinkage and other important cloth properties indicated by the company.

12.6.3 Modernization of Garment Making Process

- 1) The company does not possess a testing laboratory in which to make tests on either cloth brought in or garments made. Due to lack of such laboratory, no shrinkage tests are undertaken, which is fatal, if the products are to be sold to international market. Necessity of testing and inspection of all incoming raw material and midway and finished products.
- 2) Sewing machines supplied in 1977 by Nipping Ire Co., Ltd. are already old and quality faults on the finished garments originated in machine troubles are observed. Some machines are shaky and vibrating at operating. ⇒ Replacement of old fashioned and worn out sewing machines of Nippon Iryo to upgrade quality and productivity.

12.6.4 Modernization of Garment Making Equipment

For the purpose of modernizing the garment making process, the following equipment shall be modernized.

(1) Modernization of laboratory

- 1) Testing equipment to be introduced : Cloth unfolding machine, Cloth opening machine, Cloth inspecting machine, Sponging equipment, Fastness tester (light, perspiration, rubbing, washing, bleeding, etc.), Steam & wet shrinkage tester, Strength and tearing tester.
- 2) Estimated investment cost : Approx. 250,000 dollars.

(2) Modernization of sewing machines

- 1) Introduction of new sewing machines designed for working wear formation.
- 2) Estimated investment cost : Approx. 875,000 dollars.

12.7 Al Ahleh Company for Spinning and Weaving (E)

12.7.1 Process Diagnosed

Spinning, weaving and dyeing and finishing processes

12.7.2 Modernization of Production Management

(1) Procurement control

- 1) It is an urgent issue to procure wool material for worsted spinning to re-start its operation as early as possible. Formation of procurement plan of raw material and its materialization had better be set up and implemented by a co-work with the Modern Industry, because it can appeal more effectively to the government.
- 2) Materialization of workshop capable of manufacturing spare parts of higher technical level (Self-supply ratio of spare parts in the company has fairly increased).

(2) Process control

- 1) Appropriate adjustment of production balance among each process of OES plant (No.3 mill) is necessary. Management to prevent the process from suffering unnecessary stoppage of production owing to machine breakdown or maintenance is required, as the production speed of coarse count yarn is high .

(3) Equipment control

- 1) To scrap and remove the weaving machines in closed weaving factory in No.2 Mill and abandoned machines of weaving and dyeing in No.1 Mill, as such machines are occupying the place uselessly without any hope of restoration. Please see the attached Figure 12.7-1.
- 2) To use the parts or components of stopped looms for other looms

(4) Quality control

- 1) Dyeing speck of yarn of No.3 Mill dyed in No.1 Mill should be reduced. Technical assistance by foreign expatriate shall be needed, as the technical level of yarn dyeing in the factory is relatively low.

(5) Environmental preservation

- 1) There are three dyeing facilities in the company. None of which has an effluent treatment system. Its installation should be implemented as early as possible.

12.7.3 Modernization of Production Process

- 1) The existing OES spinning plant using cotton waste as raw material in No.3 Mill has been worn out and it is now difficult and costly to maintain its operation due to prohibitively high spare parts and machine performance already deteriorated. Many machines are found to be stopped due to shortage of parts and waiting for maintenance. Above all, the blow room machinery's performance of opening and removing dusts is short falling. The function of air conditioning is also deteriorated. To replace totally the existing equipment for modernization.
- 2) To concentrate each department in one factory for easier operation.
 - a) The dyeing machines are scattered in two factories and had better be gathered in one factory and then modernized. To specialize the dyeing equipment of No.1 Mill in the dyeing for wool material. To make the dyeing plant of No.2 Mill specialized in dyeing cotton and polyester/cotton, introducing high temperature and high pressure dyeing machines, jet dyeing machines, continuous dyeing range, etc..
 - b) To make full operation of yarn dyeing process in the No.1 Mill, introducing package drying machine, corresponding to the commission dyeing order from the private sector.
 - c) Twenty Girbos winder in No.1 worsted spinning plant has poor productivity and its mechanical parameter is not satisfactory viewed from the nowadays standard. To renew Murata Girbos winders. Please see Figure 12.7-2.

12.7.4 Modernization of Production Equipment

Following equipment shall be introduced because of the reason of 12.7.3 1).

(1) Modernization of spinning equipment of No.3 Mill

- 1) Main machinery to be introduced
 - Blowing machinery 2 line
 - Carding machine 14 sets
 - Drawframe 6 sets
 - Open end spinning machine 6 sets (1,296 rotors)
- 2) Export oriented production of Ne 8 yarns, substituting the cotton waste export in the country.
- 3) Estimated investment cost for machinery and air conditioning : Approx. 8 million dollars.

(2) Subsequent modernization plan

The proposal stated in 12.7.3 2) shall be materialized as follows.

- 1) To make the dyeing process of No.2 Mill specialized in dyeing cotton and polyester/cotton, introducing new equipment (continuous dyeing range, jet dyeing machine, etc.). To specialize the dyeing plant of No.1 Mill for wool dyeing and finishing.
- 2) Introduction of 1 dryer for dyed cone (250 kg) in the yarn dyeing process of No.1 Mill.
- 3) Replacement of 20 Girbos Winders by 10 Autoconers in the worsted spinning process of No.1 Mill.

Figure 12.7-1 SCRAPPED LOOMS (NO.2 MILL)

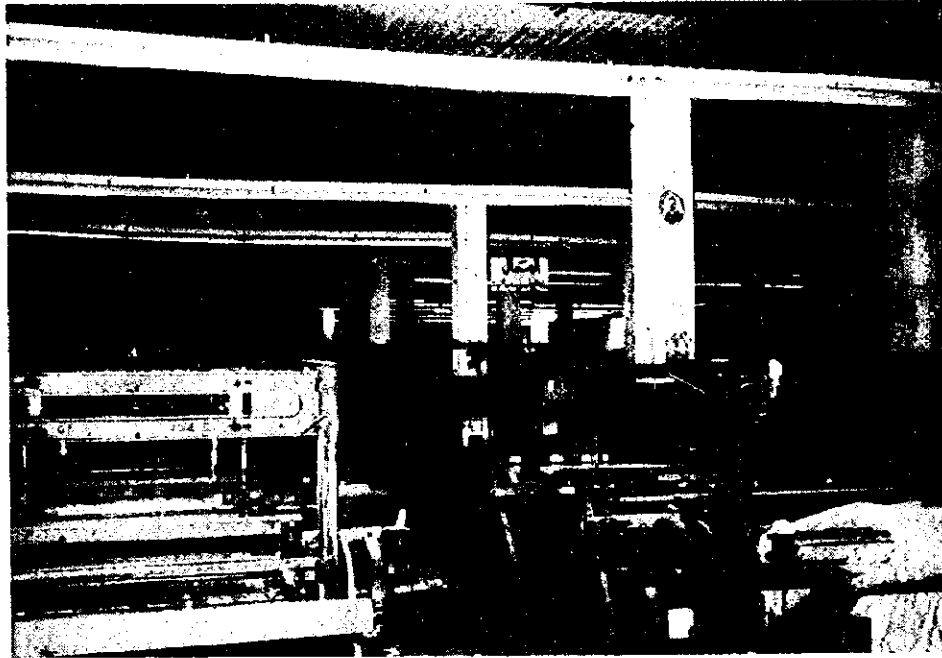
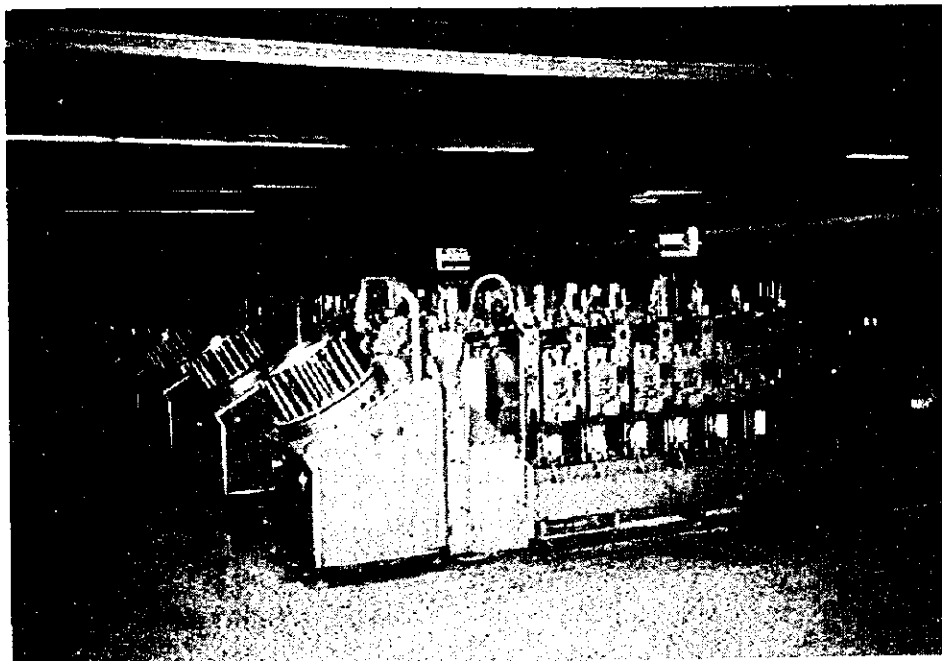


Figure 12.7-2 LOW PRODUCTIVITY GIRBOS WINDERS



12.8 Syrian Company for Spinning and Weaving (F)

12.8.1 Process Diagnosed

Weaving and dyeing and finishing process.

12.8.2 Modernization of Production Management

(1) Procurement control

- 1) Spare parts required for dyeing machines are all by special order because of very old-aged machines out of production, resulting in high cost. Therefore, it is not economical to repair and maintain the machinery with much money. It is better to replace the machinery itself.
- 2) Raw material and midway material should be supplied each other between Syrian Co. and Al Shahba Co.. This is a merit of merger of two companies. No need to procure all from outside.

(2) Equipment control

- 1) Repair or maintenance to the broken down machines is very poor, owing to very low technical level of maintenance people (Weaving section).

(3) Quality control

- 1) Samples of color and whiteness should be available at any time (Dyeing section).
- 2) More severe inspection of the products is desirable. Even visual check seems not to be fully practiced.

12.8.3 Modernization of Production Process

(1) Modernization of dyeing and finishing process

- 1) In the dyeing department, production equipment is too worn out and outdated and laboratory equipment is much poor. Its renewal is needed. Please see Figure 12.8-1, 2.
- 2) Re-organization of the company as an integrated cotton textile maker by modernization or renewal of existing dyeing and finishing plant. It shall become a processing base of its own yarn and gray fabric as well as for

commission production for the state-owned companies situated in the northern area of Syria.

- 3) Upgrading of quality of gray fabric. Good quality gray fabric cannot be expected from the existing old Picanol rapier looms whose parts are difficult to get. Weaving looms to match the preparatory machinery maintained in good conditions is recommended to be introduced for the purpose of producing gray fabric (denim, upholstery goods, uniform, etc.).
- 4) Modernization plan is better to be designed synthetically on the merged new company. The flow of raw material in new company is done reciprocally among the following processes.
- 5) Modernization of spinning process of the Syrian Company is not proposed, as it requires huge investment cost and return from investment is small. It is more practical and economical to bring yarn from Al Shahba or purchase it from the outside. The company had better be specialized in the weaving and dyeing production.

12.8.4 Modernization of Production Equipment

(1) Modernization of dyeing and finishing equipment

In order to develop the process modernization, it is suggested to plan the following production and introduce necessary equipment.

- 1) Product mix : household products of wide width 50% and uniform, etc. for military use and other garment use 50%.
- 2) Capacity, process and production : 56,000 m/d, print 35%, dye 25% and bleach 45%.
- 3) Main machinery to be introduced : Gray fabric inspecting machine, Gas singeing and desizing machine, Scouring and bleaching range, Mercerizing machine, Pad drying and dyeing machine, Thermofixing machine, Pad steaming machine, Rotary screen printing machine, compressive shrinking machine, Calendering machine, etc..
- 4) Auxiliary equipment to be introduced : Dosing plant for bleaching and dyeing, Carriers for transport, Laboratory equipment (tester for color fastness and shrinkage, test drying machine, test steamer, test mangle, drying oven, electronic balance, etc.)
- 5) Estimated investment cost : Approx. 8.3 million dollars.

(2) Modernization of weaving equipment

In order to proceed the process modernization plan, it is suggested to plan the following production and introduce necessary equipment.

- 1) Use : fabric for denim and others fabric of 64 inch width
- 2) Capacity : 9,820 m/d.
- 3) Necessary supply from preparatory section : 104,000 m/d from warpers and 10,310 m/d from sizers.
- 4) Machinery to be introduced : Air jet looms (RS 190 cm, 900 rpm) 23 sets, Traveling cleaners 2 sets and accessories and spare parts.
- 5) Place to put up looms : after removing existing Picanol looms.
- 6) Estimated investment cost : Approx. 1.4 million dollars.

Figure 12.8-1 VERY OLD FASHIONED BLEACHING MACHINE

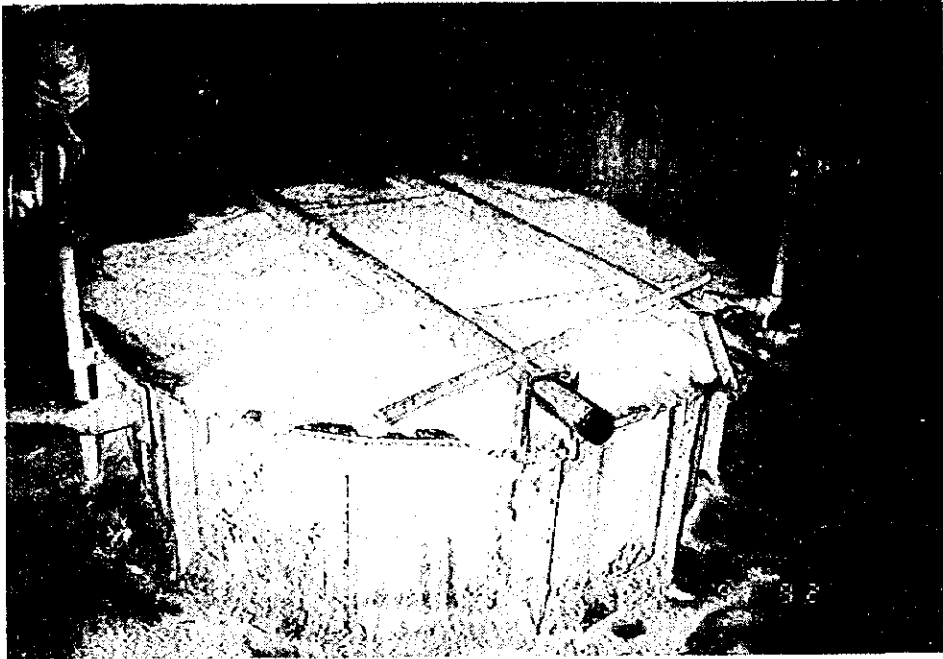


Figure 12.8-2 VERY POORLY EQUIPPED LABORATORY

