

12.9 Al Shahba Spinning and Weaving Company (G)

12.9.1 Production Process Diagnosed

Spinning and weaving process.

12.9.2 Modernization of Production Management

(1) Process control

- 1) Practice of aging should be implemented (Open the cotton bale and leave it for 24 hours to make even the moisture content of cotton and make it adapt to the temperature and humidity condition of the room.
- 2) More proper adjustment should be done for newly introduced spinning machines so as to display its maximum performance (At present, its adjustment is not properly done).
- 3) Improvement of yarn breakage in ring spinning process. This is attributable to the bad management (e.g.: insufficient machine cleaning. Bobbins, spare parts, etc. are scattered on the floor, etc.). Spinning conditions have been improved by the introduction of new preparatory machinery, but the warp breakage in the warper's beam happens frequently due to low quality yarn. Please see Figure 12.9-1.
- 4) To be exhaustive in putting everything in order as well as cleaning of floor, wall and other working environment, which is insufficient now due to shortage of workers. Especially, lap waste, roving waste, yarn waste and various sundries are scattered about on the floor of ring spinning and winding sections. And, the looms abandoned with sizing beams on them show the process control badly managed. The development of "5S" activity is required. Please see Figure 12.9-2.
- 5) Securing skillful and well trained workforce particularly in loom section, where in fact, minor aged labors and others not well trained of lower technical level are often damaging the quality of cloth.

(2) Quality control

- 1) To root out slub yarn and unevenness of yarn which is often generated in spite that there are new carding machines.
- 2) To practice inspection of gray fabric by marking defects.

12.9.3 Modernization of Spinning Process

- 1) Existing BD200 OES spinning machine (14 frames) is the initial model which cannot give soft twist to the yarn. It is not suitable for spinning yarn for blue jeans which tends to use the soft twist. It is necessary to replace the BD200 by latest OES spinning machines with much productivity which can cope with soft twisting as well.
- 2) Existing drawframes for open end spinners have very low efficiency using 8 inch cans. It is recommended to plan large packaging of drawframes by replacing the existing ones by latest drawframes using cans of large diameter in order to cope with the high productivity of new OES spinners.
- 3) To produce good quality OES yarn for jeans use, of which much quantity of demand is expected in the future in Syrian market and supply it both for own consumption and for the private sector weavers and dyers. Existing OES machine should be totally replaced. The modernization OES spinners is already envisaged in the five year plan for replacement project of GOTI and the proposal is to take it in advance.

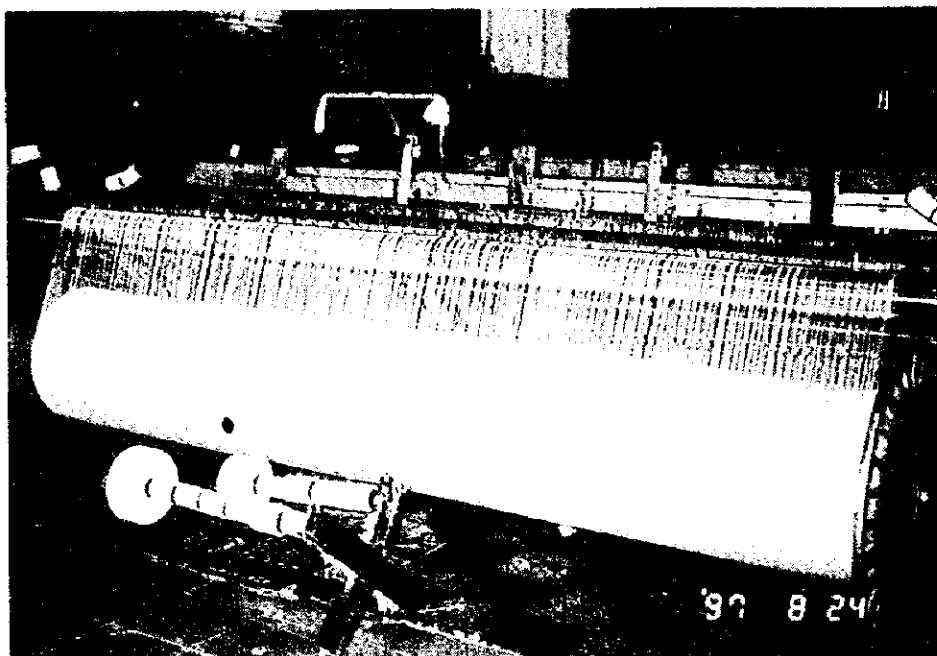
12.9.4 Modernization of Spinning Equipment

(1) Modernization of OES spinning line

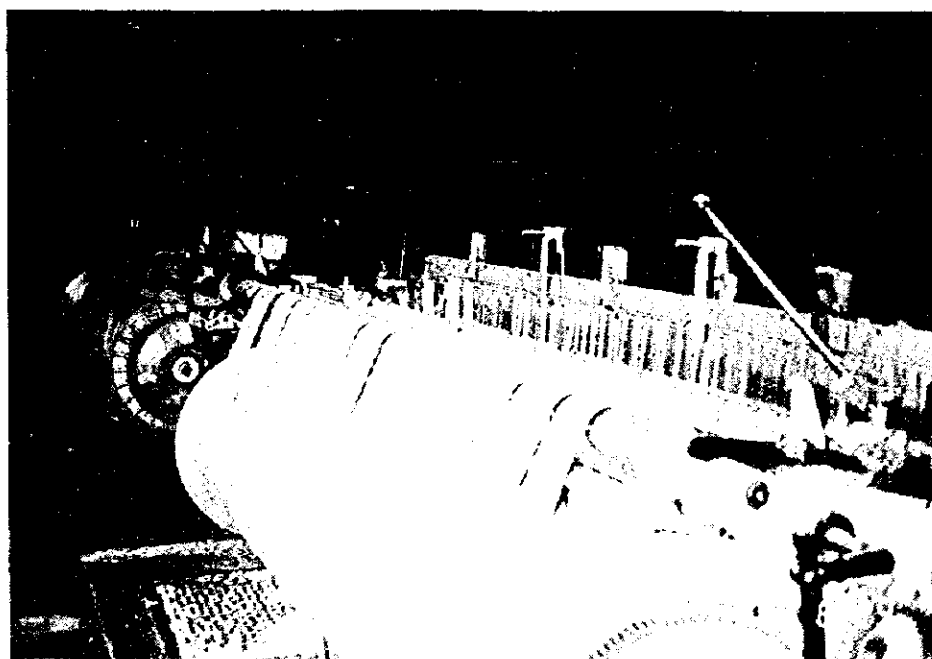
As stated in 12.9.3, the modernization of OES spinning equipment will be undertaken as follows;

- 1) To replace the existing OES 6 sets by 3 new machines (216 rotors, 65,000 rpm, total production 6,962 kg). To replace the existing 4 Drawframes by 4 new ones.
- 2) Accessories : Cans (20 inch dia.) 800 pcs
- 3) Estimated investment cost : Approx. 1.5 million dollars.
- 4) Subsequent modernization plan : To introduce 4 OES machines after withdrawing remaining 8 old OES machines. 4 old drawframes are also replaced by 4 new ones.

**Figure 12.9-1 SHORTAGE OF WARP ON THE BEAM CAUSED BY YARN
BREAKAGE IS SUPPLEMENTED BY THE YARN CHEESE
PUT ON THE FLOOR**



**Figure 12.9-2 ABANDONED LOOMS WITHOUT REMOVING
SIZING BEAM AND NOT COVERED UP**



12.10 Lattakia Weaving Company (H)

12.10.1 Process Diagnosed

Weaving process.

12.10.2 Modernization of Production Management

(1) Equipment control

- 1) Fabric defects caused by structural defects of looms such as defective cutter of right side selvage, uneven length of inserted filling yarn, variation of filling density, drain coming out of air compressor, worn out accessories of loom, etc. cannot be corrected. There is no other choice than to renew totally the looms. Please see attached Figure 12.10-1, 2.

(2) Quality control

- 1) To use the report format for the investigation of yarn breakage in warper in order to take improving action and leave the record.

12.10.3 Modernization of Weaving Process

- 1) The existing air jet looms bring about problems of quality and productivity due to its structural defects. Because of this, 90% of production of the company is the bag, which does not require high quality. Lattakia weaving is required to establish its reason of existence by producing value added weaving product as only one company specialized in weaving in all the companies under GOTI. Therefore, we propose to renew all the looms.

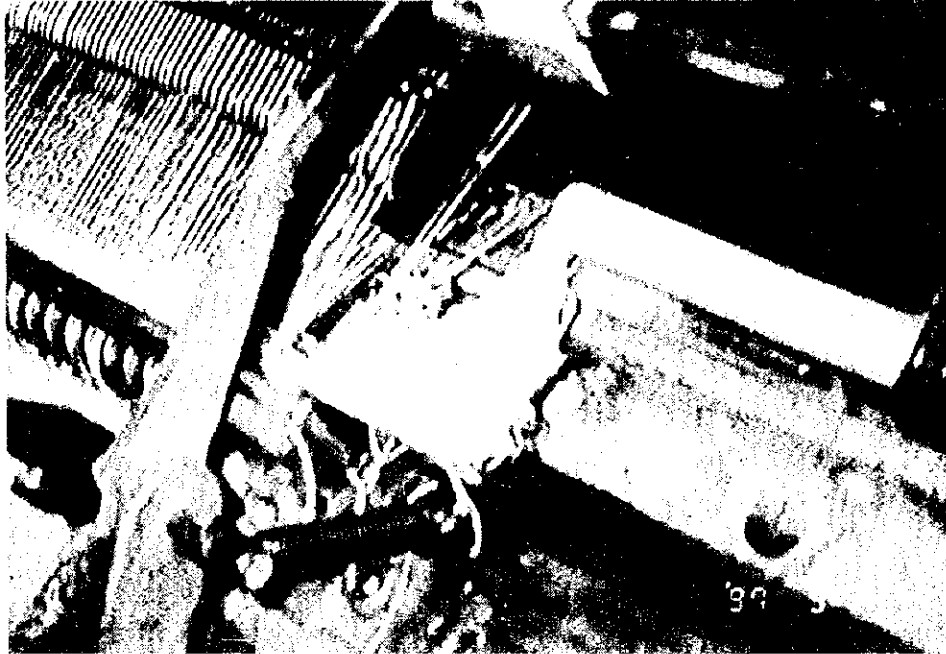
12.10.4 Modernization of Weaving Equipment

In accordance with the above proposal, it is suggested to introduce the following equipment.

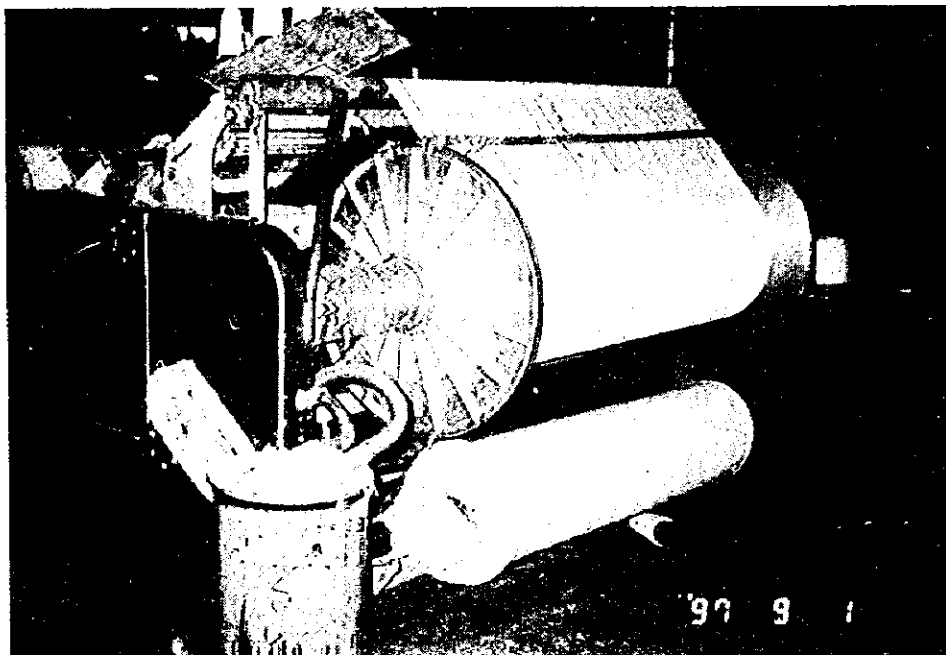
- 1) Machinery to be introduced : 88 Air jet looms (RS 190 cm, 900 rpm), 2 Warpers (1,627 mm width, speed 800 m/m), 1 Sizer (winding width 2,300 mm, speed 100 m/m), Tying machine, Reaching machine, Inspecting machine, Folding machine, Auxiliary equipment and accessories.

- 2) Production capacity : 32,000 m/d
- 3) Estimated investment cost : Approx. 6.6 million dollars.
- 4) Subsequent modernization plan : 88 Air jet looms, 1 Warper, 1 Sizer, etc.

**Figure 12.10-1 DEFECTIVE WEFT YARN CUTTER
AT THE RIGHT SIDE SELVAGE**



**Figure 12.10-2 MUCH WASTE YARNS ON THE CLOTH ROLLER CAUSED
BY THE DEFECTIVE WEFT YARN CUTTER**



12.11 United Arab Company for Industry (I)

12.11.1 Process Diagnosed

Spinning, weaving and dyeing and finishing process.

12.11.2 Modernization of Production Management

(1) Equipment control

- 1) It is observed sometimes the yarns are spun in the machines without necessary parts and accessories. To stop such practice which degrades the yarn quality.

(2) Environmental preservation

- 1) To analyze the introduction of equipment to treat the effluent from dyeing section.

12.11.3 Modernization of Production Process

(1) Modernization of spinning, weaving and dyeing process

- 1) The existing spinning process is small-scaled and occupies small area and it is fractionalized into spinning of various kinds and yarn counts and it cannot cope with the following processes of weaving and dyeing as a composite textile mill. Therefore, its restoration is not so meaningful that it is suggested the company to separate spinning business and exist as a company specialized in weaving and dyeing which have a large scale. Therefore, the plan of activation of obsolete spinning process here presented is the next best plan.
- 2) Upgrading of gray fabric of low quality produced in outdated Sourer looms.
- 3) Activation of dyeing process. This process was designed to cope with multiple processing, but its fundamental functions were already lost in some machines and others were suspended because they are too obsolete (Such factors affect so much the quality of products. Please see Figure 12.11-1, 2.) or they cannot produce fabric with wide width that market requires. To restore the dyeing and finishing process of the company is the most important renovation project for the company and the company can exist as the

processing base for the state-owned companies in southern area of Syria,
contrasted with the Syrian Company for Spinning and Weaving, Aleppo.

12.11.4 Modernization of Production Equipment

According to the above proposal, the following is suggested.

(1) Modernization of spinning equipment

- 1) To remove 10 ring frames corresponding to one column spun and other preparatory machines and activate the balance 20 ring frames by utilizing the parts of removed frames.
- 2) To put up 4 new ring frames (2,688 spindles, production 2,671 kg/day) and other machines before and behind, after removal of 10 frames.
- 3) To repeat same refurbishment two times more, thus replacing 30 ring frames by 12 new ones.
- 4) Estimated investment cost : Approx. 4.2 million US\$.

(2) Modernization of weaving equipment

- 1) Machines to be introduced : 20 Air jet looms (RS190 cm, 900 rpm, 8,340 m/d/20F), 1 Sizer (beam width 300 cm, speed 100 m/m), Accessories and spare parts 1 lot.
- 2) To utilize the existing Benninger warper as it is.
- 3) Estimated investment cost : Approx. 2.2 million US\$

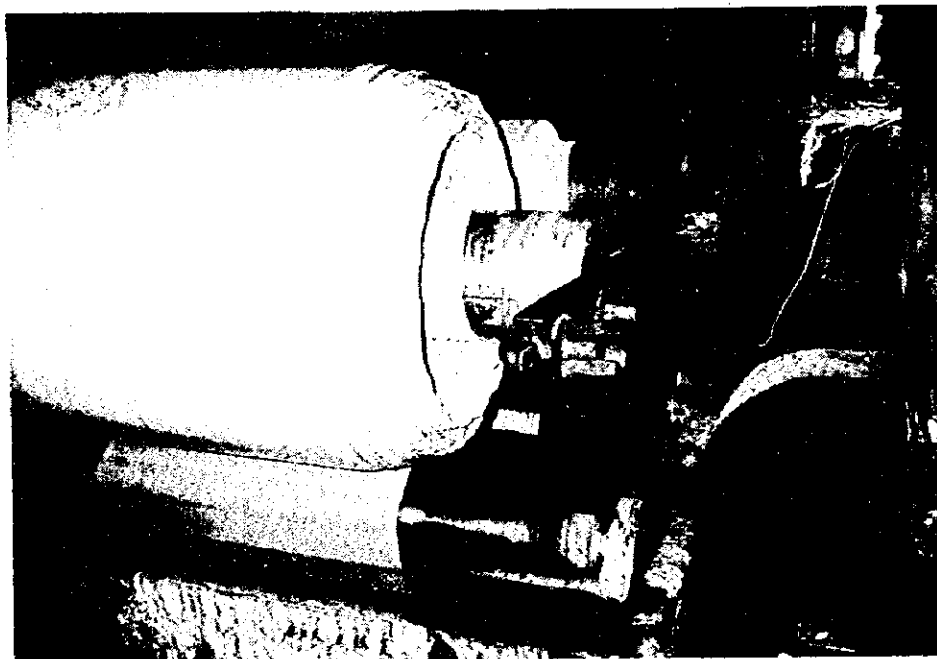
(3) Modernization of dyeing and finishing equipment

- 1) Machines to be introduced : 2 Jiggers (working width 3,000 mm), 1 Singeing machine, 1 Mercerizing machine (working width 2,000 mm), 1 Compressive shrinking machine (working width 2,000 mm), 1 Baking machine, 1 Washing and drying machine, 1 lot of Laboratory equipment (Electronic balance, Titration analyzing apparatus, Fade-o-meter, Washing shrinkage measuring device, Viscometer, Color difference measuring device)
- 2) Estimated investment cost : Approx. 3.7 million US\$

**Figure 12.11-1 SILICON SCALE AND RUST GENERATED IN ROPE
WASHER AND IMPROPER TENSION CONTROL**



**Figure 12.11-2 DEFECTIVE ROLL CENTERING CAUSED
BY WORN OUT JIGGER**



12.12 Jableh Spinning Company (J)

12.12.1 Process Diagnosed

Spinning process.

12.12.2 Modernization of Production Management

(1) Process control

- 1) Aging of cotton for 24 hours after releasing it in certain place (Improvement of opening property of raw cotton).
- 2) To change from current setting condition of air conditioning (30°, 45%) to 27°, 60-70%, as the latest high speed machines generate much caloric (Improvement of overall spinning property, reduction of yarn breakage).
- 3) To change the moisture regain contents of one cheese from approx. 5% to 7.5% (Improvement of yarn quality, improvement of profit).

(2) Education and training

- 1) Recovery of training center which is not functioning now due to the machines not usable. Appointment of full-time trainers.

12.12.3 Modernization of Spinning Process

Though Jableh Spinning Company has combing line which can give the yarn high value added, the quality of its combed yarn is fairly inferior to that of Lattakia Spinning and Hama Cotton, due to old fashioned and obsolete combing machines and roving machines of bad performance of Platt Saco Lowell. ⇒ Enhancement of quality of combed yarn is absolutely necessary. Please see Figure 12.12-1, 2.

- 1) Basically, it is difficult to upgrade performance of combers and speed frames without renewing these.
- 2) Jableh spinning has 5 spinning line. Its way of renewal of spinning equipment is to replace horizontally all of 1 machine. It is not effective, unless all different machines of 1 line are replaced. It is suggested, therefore, to replace all the machines of 1 combing line (combers and roving frames among others).

- 3) The combed yarn produced in this new line should be treated as a "special" product, so that its quality may be attended to by everyone.
- 4) This modernization will be necessary, if the company can become a representative plant specialized in spinning, among the existing GOTI's companies, which can confront forthcoming new spinning companies.

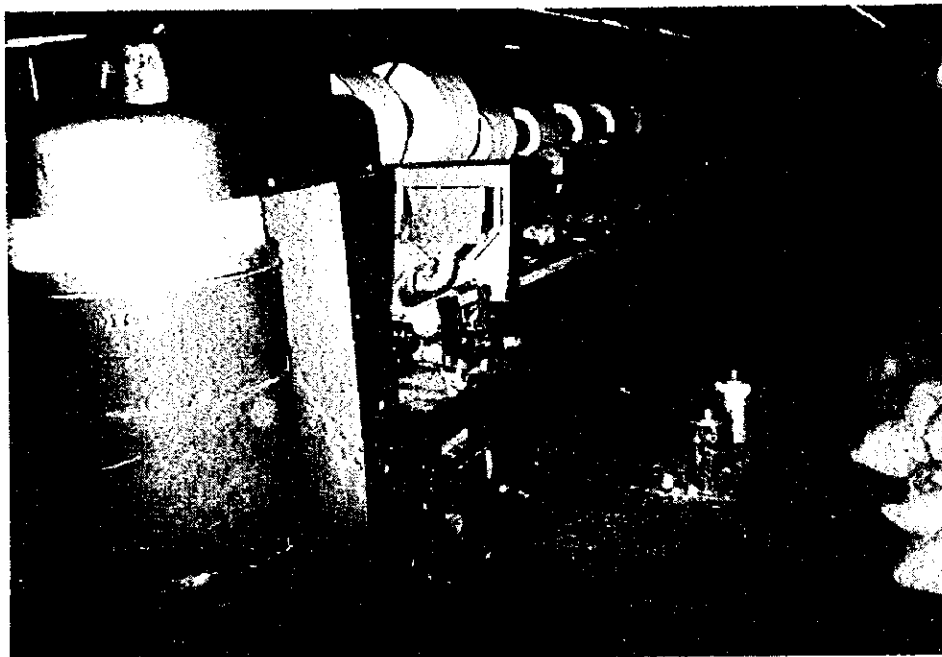
12.12.4 Modernization of Spinning Equipment

According to the above proposal, the following is suggested.

The existing equipment of one vertical line for combed yarn shall be scrapped or transferred to other factories, except for the machines recently replaced such as drawframes and new machines shall be put up there.

- 1) Machines to be newly introduced : 1 line of Blow room machinery, 10 Cards, 10 Combing machines, 1 Hi-lap, 4 Roving machines, 14,400 spindles of Ring spinning frame (production 5,940 kg/d), Autoconers (200 drums) with cans and bobbins.
- 2) Estimated investment cost : Approx. 9 million dollars.
- 3) Subsequent modernization plan : Renewal of another combed yarn line, in order to upgrade all the combed yarns produced.

Figure 12.12-1 WORN OUT COMBING MACHINE



**Figure 12.12-2 NEP GENERATED IN WEB IN COMBING MACHINE
IN BAD CONDITION**



12.13 Dralkeesh Natural Silk Company (K)

12.13.1 Process Diagnosed

Raw silk production process.

12.13.2 Modernization of Production Management

(1) Procurement control

- 1) To stop the current purchase system of cocoon in which it is bought without selection and the company removes the floss. Cocoon will be purchased by the company from farmers but after selection and floss removed.

(2) Stock control

- 1) To clear out of dead stock of raw silk yarn as early as possible in order to prevent insect damage and quality decline.

(3) Process control

- 1) To renew the existing machinery.
- 2) To establish technical parameter and control standard of each process by technical transfer carried out by technical assistance.
- 3) This process control is desirable to be implemented as early as possible.

(4) Quality control

- 1) To replace worn out inspecting equipment.
- 2) To establish an inspection department and carry out sure inspecting method.
- 3) To establish a system for issuing silk grade certificate based on the international standard for silk yarn for export.

(5) Education and training

- 1) To implement training of employees by foreign expatriate of technical assistance so as to learn process and quality control method.

12.13.3 Modernization of Production Process

- 1) Production equipment of raw silk manufacturing is almost worn out and some are shaky because of its manufactured age in 60s and 70s. It is extremely difficult to maintain its precision and it is the principal cause of low quality of raw silk yarn. Replacement of production equipment is essential.
- 2) Reinforcement of testing of raw silk yarn.

12.13.4 Modernization of Production Equipment

- (1) Refurbishment plan of worn out machinery
 - 1) Cocoon eliminating machine, Drying machine, Cocoon cooker, Automatic reeling machine, Re-reeling machine and others.
- (2) Completion of inspecting equipment
 - 1) Replacement of counter reel and denier balance of bad precision
 - 2) Introduction of moisture tester and seriplane

12.14 Summary of Proposals for Modernization

Out of proposals for modernization of equipment to each company, equipment to be introduced, its number, estimated investment amount, number of personnel required for running the equipment, training method, supposed market, supposed implementing time, and its priority are summarized in the Table 12.14-1.

12.15 Upgrading of Productivity and Quality

(1) Productivity

The productivity is influenced by the effectiveness of manufacturing method adopted in the factory as well as by the efficiency of production activity (practice efficiency). The points for enhancing productivity of the state-owned companies by each production factor are suggested as follows ;

1) Manpower (labor productivity) : Effectiveness of working system.

Low technology level brought about by the bad rooting of labor force and lack of excellent manpower in the state-owned companies are adversely affecting not only the productivity but also the quality. The implementation of efficient training as well as the preparation of law backed up by the Government to secure the stable fixing of labor force in the state-owned companies will be required to enhance the productivity of the state-owned companies.

2) Productivity of equipment : Effectiveness of equipment itself and its operation efficiency.

There is nothing more important than the replacement of worn out equipment and practice of efficient equipment control for the state-owned companies.

3) Productivity of material : Effectiveness of material design (selection of material of good quality, yield of material design).

It is important to enhance the yield of raw cotton for spinning and upgrading of quality of raw material (yarn) is important for weaving and dyeing.

It is necessary to carry out the countermeasures for enhancing the productivity from the above viewpoints.

(2) Quality

It is extremely important to carry out correct quality control in order to upgrade the quality and it is recommended to carry out the improvement plans proposed for better quality control in 12.1.3.

Table 12.14-1 SUMMARY OF MODERNIZATION PLAN

	Company's name	Facilities to be invested	Quantity	Invest amount (million dollars)	Allocation of manpower	Training of manpower	Presumed Customers	Implementation period	Suggested Priority order
A	Al shark Underwear's General Company	<ul style="list-style-type: none"> • Jet dyeing machine 600kg • 300kg • 100kg • Dosing equipment • Testing equipment for establishing processing conditions • Testing equipment for general analysis of quality • Inspecting and tube packaging machine • Water softener 1,200-1,500t/d 	3sets 3sets 2sets 1set 1lot 1lot 1set 1set	2.3	30	overseas training	Local and overseas retailers	2000	6
B	General Company for Carpet	<ul style="list-style-type: none"> • Computer-controlled jacquard loom • Re-arrangement of the existing looms 	6sets 22sets	5.6-6.7	Current manpower will be decreased by 35%	overseas training	Local and overseas customers	2001	8
C	General Company for Wool	<ul style="list-style-type: none"> • Control panel for yarn dyeing • Cylinder opener for greasy wool • Cylinder opener for scoured wool • Mixer for scoured wool • Sorting table 	1set 1set 1set 1set 1set	0.5	Current manpower will be decreased by 15 operators	Inhouse training	Local customers	2001	9
D	Industrial Company for Ready-made Garment	<ul style="list-style-type: none"> • Cloth unfolding machine • Cloth opening machine • Cloth inspecting machine • Sponging equipment • Physical testing equipment • Sewing and finishing line for uniform jacket 	1set 1set 1set 1set 1set 1line	0.25	10	Overseas training	Local and overseas retailers	2001	10
				0.88	128				

I	United Arab Company for Industry	<ul style="list-style-type: none"> • Blow room machinery • Card • Draw frame • Simplex fly frame • Ring spinning frame 672SP/F • Auto winder • Air jet loom • Sizer • Accessories and spare parts • Jigger • Singeing/Desizing machine • Mercerizer • Compressive shrinking machine • Baking machine • Washing and drying machine • Testing equipment 	1line 10sets 6sets 4sets 12sets 3sets 20sets 1set 1lot 2sets 1set 1set 1set 1set 1lot	4.2	30	Overseas training	Inhouse consumption	1998	2
J	Jableh Spinning Company	<ul style="list-style-type: none"> • Blow room machinery • Card • High lap machine • Combing machine • Roving frame • Ring spinning frame 480SP/F • Auto winder 	1line 10sets 1set 10sets 4sets 30sets 4sets	13.8	102	Overseas training	Local and overseas customers	1998	1
K	Draikesh Natural Silk Company	<ul style="list-style-type: none"> • Cocoon eliminating machine • Drawing machine • Cocoon cooker • Automatic reeling machine • Re-reeling machine • Counter reel • Denier, balance • Moisture tester • Seriplane 	1set 1set 1set 1set 1set 1set 1set 1set 1set	1.0	12	Overseas training	Local customers	2002	11

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