

4-3-4 Basic Design Drawings

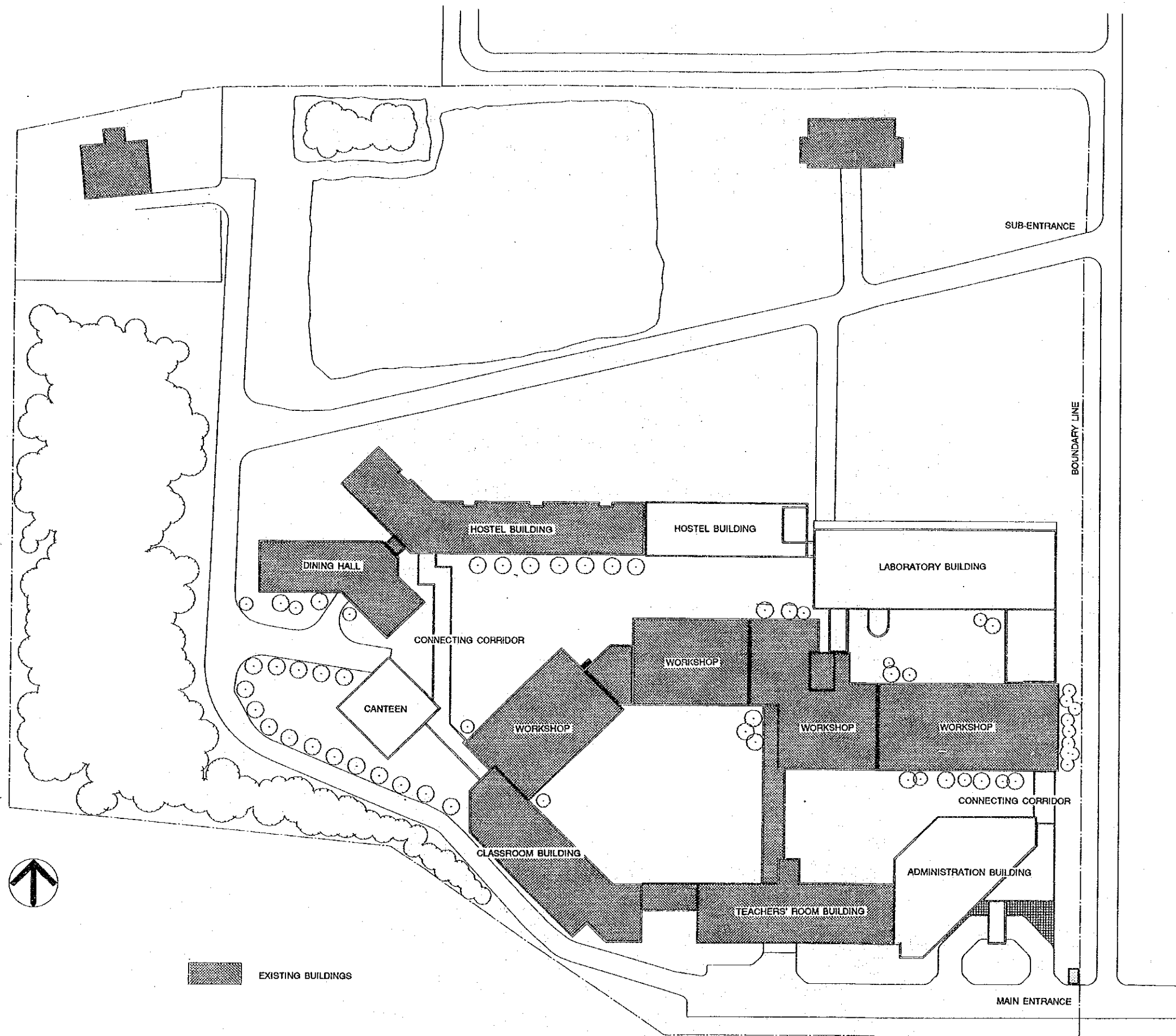
(1) List of drawings

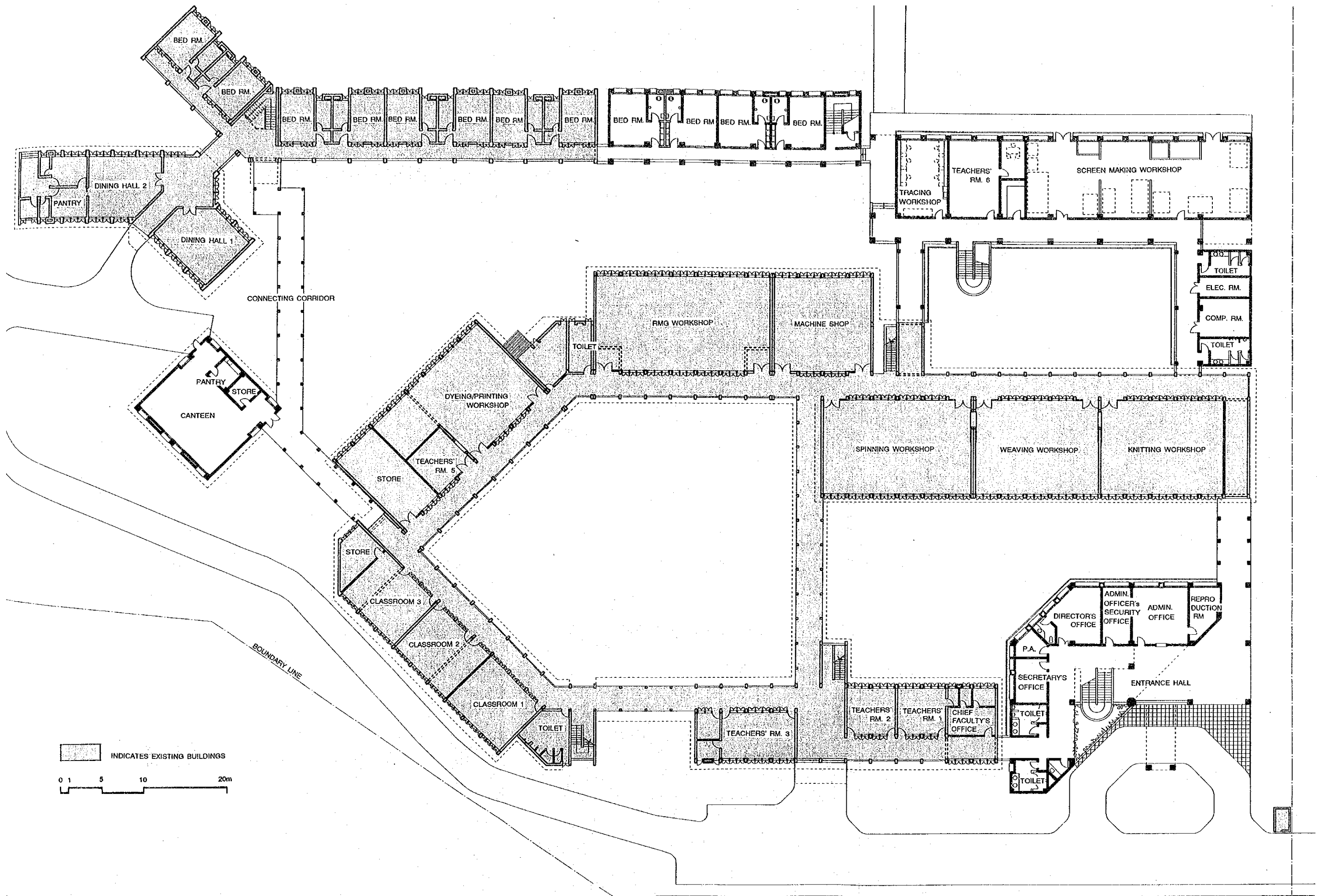
- 01 Site plan
- 02 Ground floor plan
- 03 First floor plan
- 04 Second floor plan, penthouse floor plan
- 05 Section, elevation
- 06 Elevation

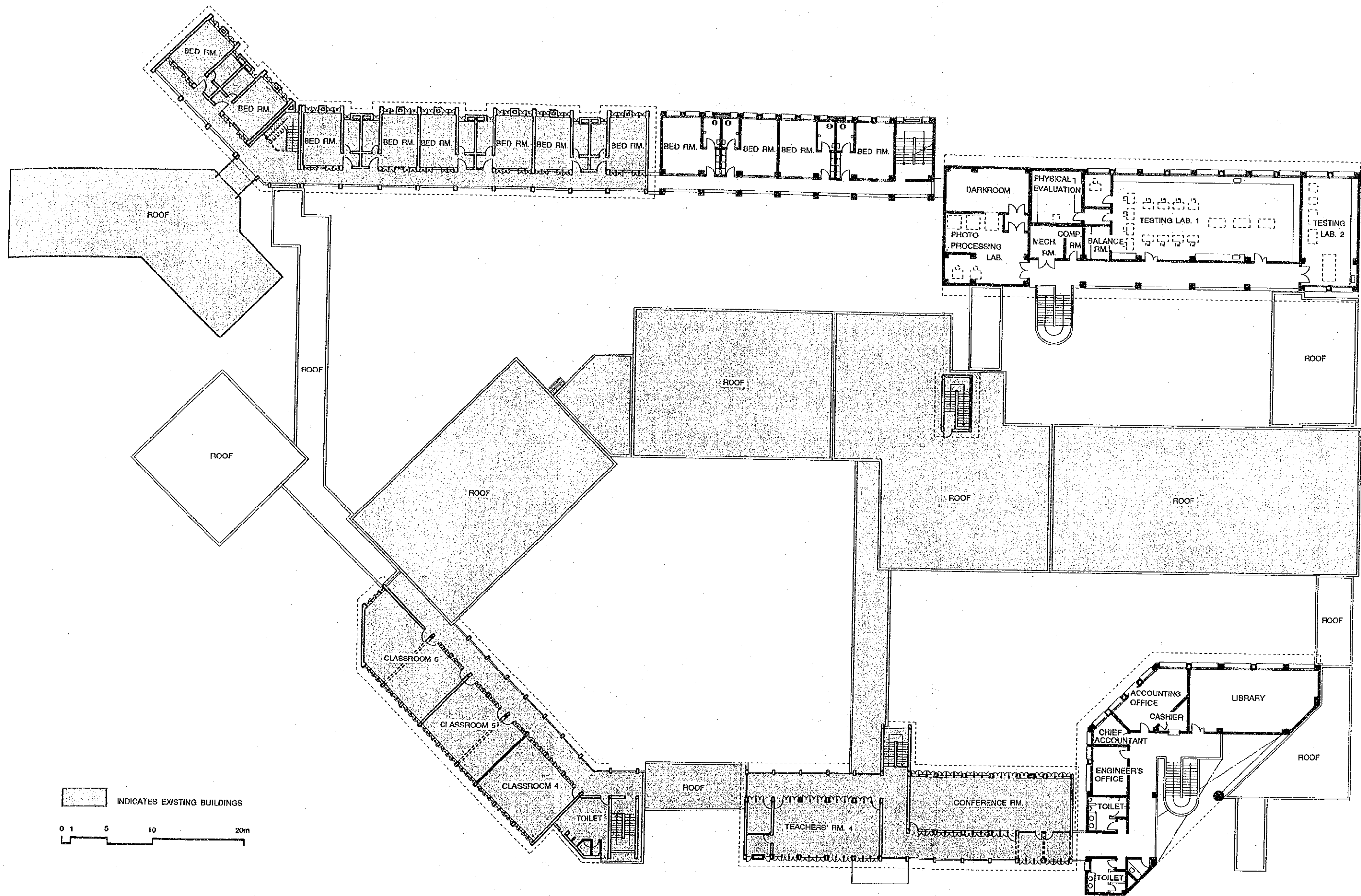
(2) List of floor areas

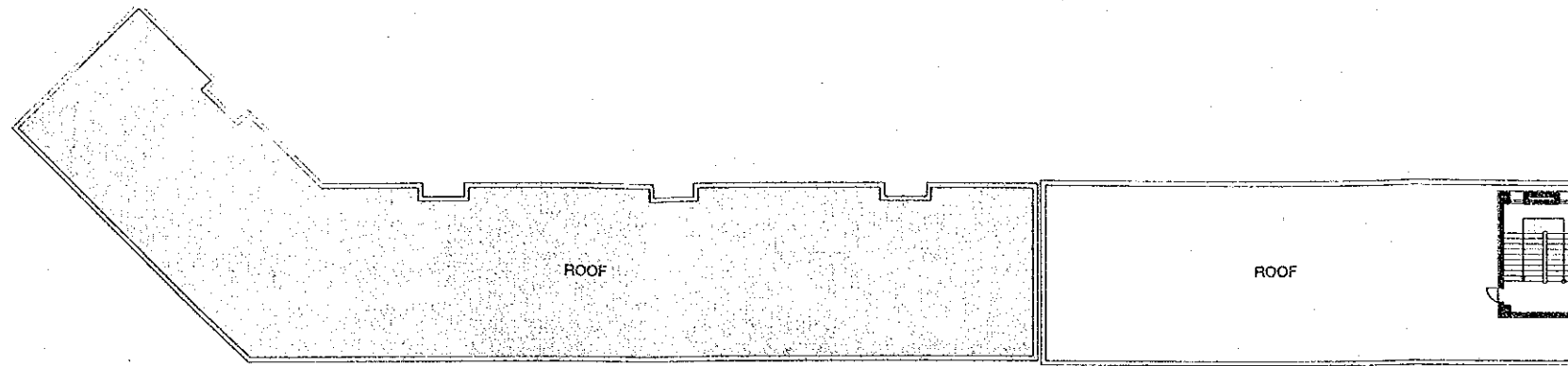
Table 4-10 List of Floor Areas

	Ground floor (m ²)	First floor (m ²)	Second Floor (m ²)	Penthouse (m ²)	Total (m ²)
Administration building	514.7	324.8	—	—	839.5
Laboratory building	865.4	579.6	—	—	1445.0
Hostel building	266.0	262.2	262.2	27.9	818.3
Canteen building	144.0	—	—	—	144.0
Connecting corridor, pump house	173.5	—	—	—	173.5
Total	1963.6	1166.6	262.2	27.9	3420.3

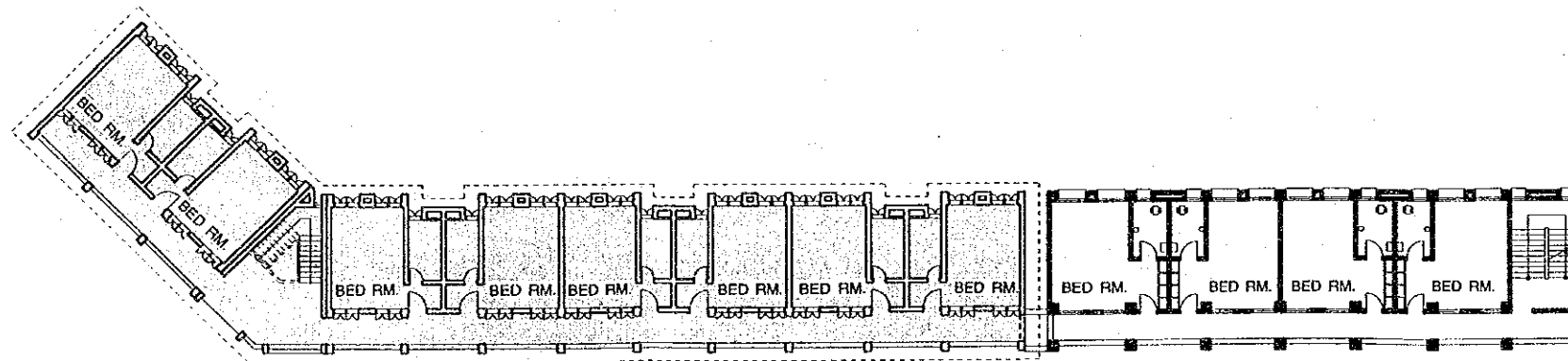




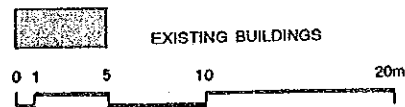


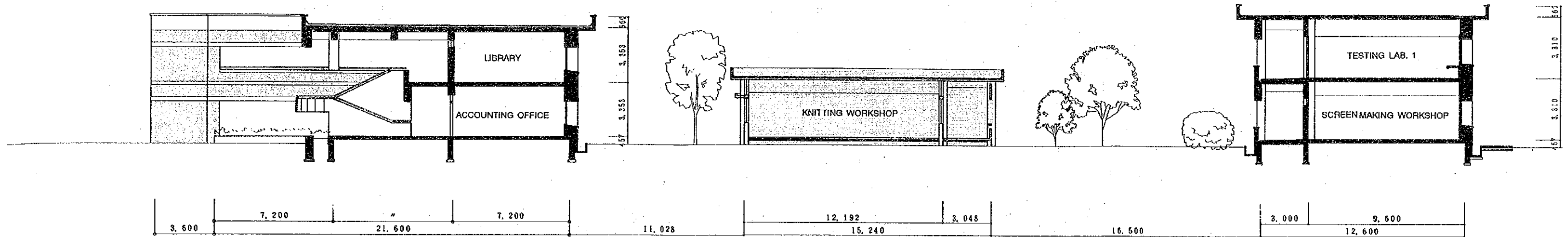


PENTHOUSE FL PLAN

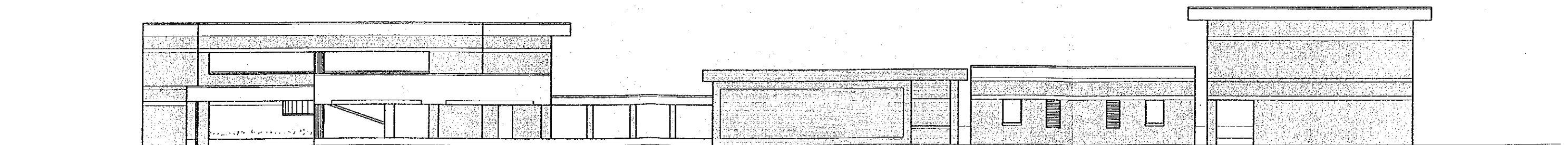


2ND FL PLAN

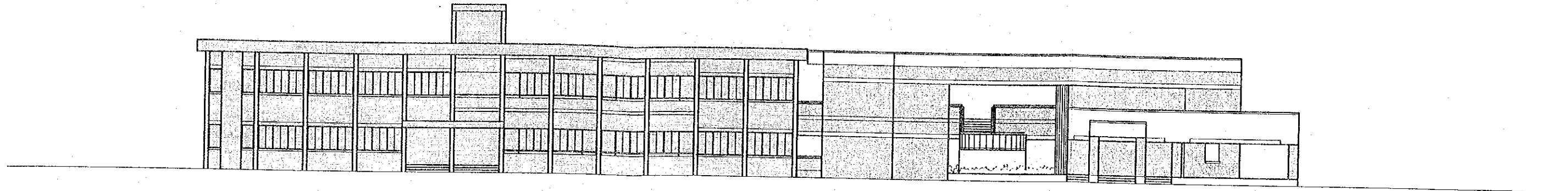




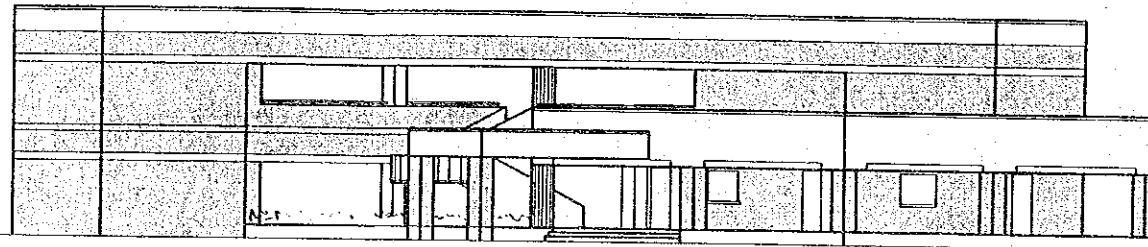
SECTION



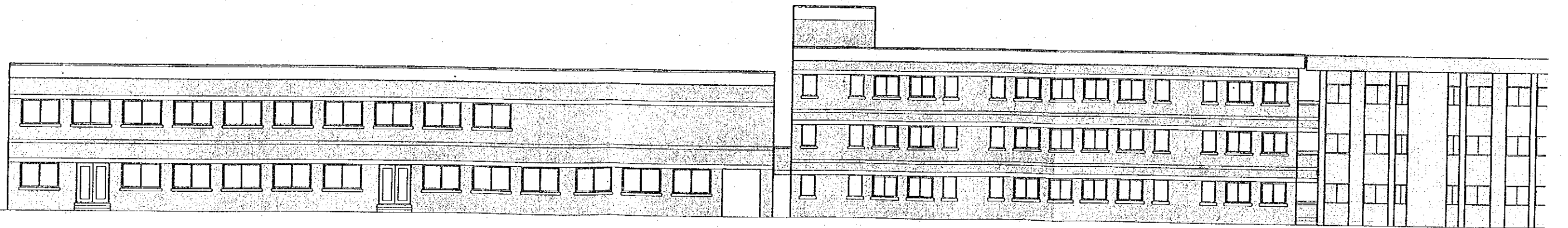
EAST ELEVATION



SOUTH ELEVATION



SOUTHEAST ELEVATION



NORTH ELEVATION

4-4 Implementation Plan

4-4-1 Implementation Policy

This project is to be implemented under the control of the Ministry of Textiles of Bangladesh. The ministry will be the executing body for the consultant contract, the construction contract, bank arrangement, and other arrangements. TIDC, which is planned to be converted into NITTRAD, will be responsible for the coordination of technical matters.

The buildings to be constructed under this project will be reinforced concrete buildings of two or three storeys with a total floor area of about 3,400m². It will therefore be possible to complete the construction work in 12 months. As for the equipment work, major installation is not included in the building construction work. For these reasons, it was decided to implement the project in a period of 12 months.

(1) Project implementing system

The project will be implemented within the framework of the grant aid assistance system of the government of Japan. After the signing of the Exchange of Notes (E/N) by the government of Bangladesh and the government of Japan, and its verification by the government of Japan, grant aid assistance for the project will be commenced formally. The the Ministry of Textiles of Bangladesh is the agency responsible for the implementation of the project.

(2) Consultant for the project

Immediately after the signing of the E/N by the governments of the two countries, the Ministry of Textiles of Bangladesh will conclude a consultant contract concerning the detail design and the supervision of the construction work with the Japanese consultant firm which

participated in the basic design study of the project. In order to ensure the smooth implementation of the project, it is necessary to conclude the consultant contract immediately after the signing of the E/N. After the consultant contract is verified by the government of Japan, the Japanese consultant firm will prepare detailed design drawings and specifications based on the contents of the basic design study report. Subsequent to obtaining approval of the detail design documents from the Ministry of Textiles, the consultant will carry out tender assistance work and construction supervising work.

(3) Building contractor

A qualified Japanese construction company will be selected by tender. In principal, the Ministry of Textiles will conclude a building work contract with the tenderer who submits the lowest tender, and will obtain verification of the contract from the government of Japan. The contractor shall complete the building work and turn over the facilities by the due date shown on the contract.

(4) Equipment contractor

A qualified Japanese trading company will be selected by tender. In principle, the Ministry of Textiles will conclude an equipment procurement contract with the tenderer who submits the lowest tender, and will obtain verification of the contract from the government of Japan. The contractor shall complete the equipment procurement work and turn over the equipment by the due date shown on the contract.

4-4-2 Present State of the Local Construction Industry and Important Points to Note in Construction

(1) Present state of the local construction industry

1) Local consultant

Detail design requires the coordination of architectural design, structural design, electrical design, sanitary design, mechanical design and equipment design. In other words, it must be conducted by a group of architects and engineers with a thorough inter-communication. For this reason, it is considered difficult to commission a local consultant firm to participate in the detail design of the project.

2) Local contractors

Several large local contractors are considered eligible for large-scale construction projects in light of their general technical level. The larger contractors have sufficient technical capabilities as well as an adequate quantity of machines and materials in stock, and the ability to recruit the necessary number of construction workers. There will be no problem, therefore, utilizing these large local contractors as subcontractors for the construction of the project.

3) Construction materials

Materials for structural work can be procured locally. As for finishing materials, only paints, terrazzo, wooden doors and windows can be procured locally in light of the production capacity of local suppliers and product quality. The government of Bangladesh restricts the importation of certain materials.

This restriction is applicable to grant aid projects as well.

Following are banned materials related to the project:

- Plastic sanitary appliances except for plastic bathtubs
- Carpets and rugs
- Sanitary ceramic ware except bathtubs
- Electric ceiling fans
- Fluorescent lamp stabilizers
- 100kVA-250kVA (11kVA/415) transformers
- 15-100W GLS lamps
- Fluorescent lamps which are 12 inches or more in length
- Insulators with a capacity of up to 33kVA
- Single-phase wattmeters

Since the list is revised every three years, it is necessary to reconfirm the contents of the list when the project is implemented after 1994.

4) Procedure for applying for the building permit

Building construction on the proposed project site, in Nayarhat, Savar, Dhaka, is subject to the examination and approval of the application for the building permit by RAJUK even though it is to be carried out under a grant aid project.

Documents required by RAJUK for application of the building permit are as listed below:

- Attested copy of land registration (indicating the name of the government ministry as landowner in the case of state land)
- Prescribed application forms
- Land use clearance form

- Design drawings (site plan, layout plan, floor plan, elevation, section, structural plan, etc.)

According to the local building regulation, building permits shall be issued within 30 days after the date of application. When incomplete or wrong entries are found in the application documents, the documents must be corrected and resubmitted. This will result in a delayed issuance of the building permit. In actuality, building permits are rarely issued within 30 days after the date of application.

The important provisions of the local building regulation are the following:

- Restrictions on the building height according to the width of the front road.
- Parking space required from the size of the building.
- Distance between the road and the building.

The building regulations of Bangladesh has fewer provisions than that of Japan. However, verbal instructions are sometimes added in the course of examination of the applications.

(2) Points to note in construction

1) Work of the Bangladesh side

Concerning the project site, it is necessary that the following works be completed by the Bangladesh side before the work by the Japanese side is started:

- Ground leveling, tree felling, removal of obstacles in the proposed construction site.

- Temporary supply of electricity, telephone lines and water to the proposed construction site.
- Construction of a permanent tube well to supply water.
- Removal of those items of equipment which will not be used.

2) Work of the Japanese side

The following points should be noted concerning work by the Japanese side:

- Facilities constructed under this project are an expansion of the existing facilities which will be in use during the construction period. It is necessary, therefore, to pay particular attention to safety during construction so that the operation of existing facilities are not hampered.
- In Bangladesh, the monthly rainfall during the rainy season (June to October) reaches as much as 350mm. During the rainy season, it will be very difficult to execute construction work below ground level, such as foundation work. For this reason, special care should be given to the execution of the construction work during the rainy season.
- Although the installation of items of equipment that are directly involved in the construction work is not included in the project, the construction work includes the work to install pipes for equipment. Therefore, it will be necessary to conduct sufficient coordination of the construction work and the equipment installation work.

4-4-3 Construction Supervision Plan

The Japanese consultant firm will conclude a consultant contract with the competent authority of the government of Bangladesh in accordance with the grant aid programme procedures of the government of Japan. Under the contract, the consultant will be responsible for the detail design and supervision of the construction work carried out under the project. The main purpose of construction supervision is to ascertain whether the construction work is carried out in compliance with the contract documents, and to ensure the quality of the construction work, as well as proper performance of the provisions of the construction contract from an impartial point of view.

The consultant shall be responsible for the following activities:

(1) Assistance to tendering and construction contract

The consultant shall prepare all the tender documents necessary for the selection of the Japanese contractors to take charge of the construction work and the equipment work, and carry out the tender procedure, which includes announcement of tenders, acceptance of applications, prequalification, distribution of the tender documents and collection of tenderers' documents. They shall also give advice to the competent authority of the government of Bangladesh on concluding the construction contract as well as the equipment procurement contract.

(2) Guidance, advice and coordination to the contractor

The consultant shall examine the construction schedule, the construction plan, the construction machinery/materials procurement plan, the equipment procurement plan and the equipment installation plan, and give guidance and advice to the contractors.

- (3) Examination and approval of the shop drawings and the manufacturing drawings.

The consultant shall examine and approve the shop drawings, the manufacturing drawings and other necessary documents submitted by the contractors.

- (4) Confirmation and approval of the building materials and the equipment.

The consultant shall examine proposed building materials and equipment and determine whether they satisfy the contract documents.

- (5) Inspection at manufacturers' factories.

The consultant shall inspect the building materials and equipment at their manufacturers' factories in order to ascertain their quality and performance.

- (6) Reporting on the progress of the construction work.

The consultant shall observe the actual progress conditions of the construction work, and report back to both governments.

- (7) Completion inspection and test operations

The consultant shall inspect the completed facilities and the installed equipment by making a test run for each piece of equipment in order to confirm that all facilities and equipment are in compliance with the provisions of the contract documents. The consultant shall then submit inspection certificates to the Bangladesh side.

- (8) Training in operation of the completed facilities and the installed equipment.

Some equipment installed under the project will require basic knowledge of operation and maintenance. For this reason, it will be

necessary for the personnel in charge of maintenance of facilities and equipment to receive on-site training in operation and maintenance techniques during the construction period. The consultant shall give guidance and advice concerning the training programmes for this purpose.

Considering the scale of the project, the consultant will station an engineer on the construction site throughout the period of the implementation of this project. The consultant shall also dispatch the necessary number of engineers to the project site for inspection, guidance and coordination. At the same time, a backup organization consisting of engineers shall be established in Japan. The consultant shall report to the pertinent agencies of the Japanese government on the progress of the project, the payment procedures, the completion of the facilities and the installation of the equipment.

Fig.4-7 gives an outline of the proposed construction supervision structure.

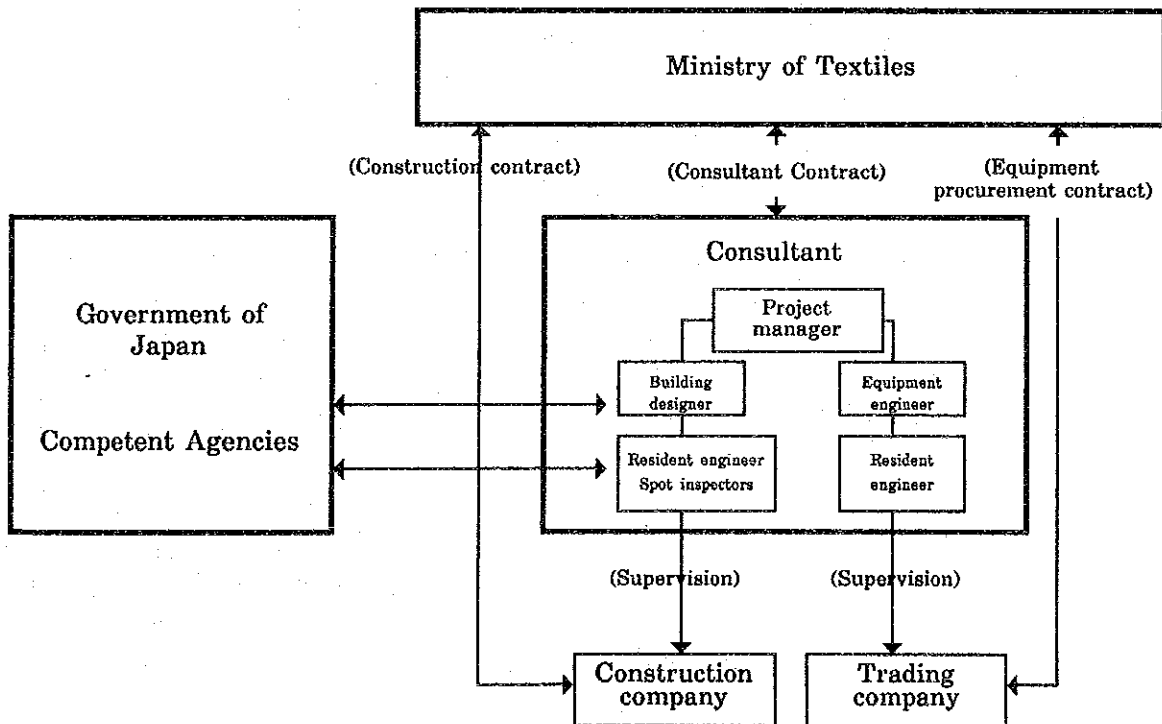


Fig. 4-7 Supervision Organization

4-4-4 Material Procurement Plan

(1) Material procurement criteria

When procuring appliance and materials for the construction of the facilities, the following shall be noted:

1) Local procurement

To facilitate repair and maintenance of the facilities, local construction materials shall be primarily selected. In this case, each material should be ordered after the current level of its supply is confirmed in order not to cause a delay in the construction work.

2) Imported materials

If locally procurable materials are of poor quality or in short supply, corresponding Japanese-made materials shall be imported. In this case, the contractor shall keep in close contact with the competent agencies of the government of Bangladesh upon importation of them in order to ensure that all the necessary procedures are followed without delay.

3) Unit prices of materials

The unit price for the importation of material (including packing, transportation and insurance costs) should be compared with that for its local procurement. If the unit price for its local procurement is judged to be lower than or nearly equal to that for its importation, it should be procured locally.

(2) Material Procurement Plan

The material procurement plan described in Table 4-10 on this page was worked out in accordance with the above-mentioned criteria.

Table 4-11 Country for Procurement of Main Construction Materials

Portion	Name of material	Country to procure	Quality			Remarks
			Good	Ave.	Poor	
Structural	Concrete	Bangladesh		○		Quality is not even due to site mixing. Brick chips used as aggregate.
	Steel bar	Bangladesh		○		Deformed bar is becoming available in Bangladesh.
Exterior finishing material	Brick	Bangladesh	○			Common in Bangladesh. There is no problem with quality and workmanship.
Roof	Lime terracing	Bangladesh		○		Popular waterproofing method in Bangladesh.
Doors and Windows	Aluminium	Japan	○			Aluminium doors and windows available in Bangladesh are Thai made and quality is poor.
	Wood	Bangladesh		○		At manufacturing stage, termite treatment and hardware position need to be inspected.
Floor finishing	Terrazzo	Bangladesh	○			Common in Bangladesh.
	Ceramic tile	Bangladesh		○		Applied for toilets.
Wall finishing material	Paint	Bangladesh		○		Repainting is well done at the existing facilities.
Ceiling finishing material	Calcium silicate board	Bangladesh		○		Applied for portions where humidity is problem since water resisting performance is high.
Other	Valves	Japan	○			In consideration of durability, Japan made is used.

(3) Equipment procurement plan

1) Method of procurement

All the necessary items of equipment shall be procured by the equipment contractor who will be selected by a public tender. It is desirable that Japanese-made or Bangladesh-made items of equipment be procured, with the exception of the procurement of personal computers (hardware and software) and copiers. Since

these items of equipment require after-sales service, it is necessary to procure them from local distributors. In this case, there is a possibility that the origin of these items of equipment will be from a third country. Listed below in Table 4-11 are those items of equipment which will likely be imported from a third country.

Table 4-12 Items of Equipment Likely to be Imported from Third Countries

Item of equipment	Remarks
Sewing machines, Photocopy machine, Electric typewriter, Personal computer	For the maintenance services by distributors, these items of equipment shall be procured locally.
Stelometer with torsion balance, Testing device for honey dew content in cotton, Trash analyzer for raw cotton, Fineness meter for wool, Uster tester, Uster classimat, Fabric drapemeter, Coarse length tester, Yarn hairiness tester, Water repellency tester, Spray rating tester, Air permeability tester, Fabric crease recovery tester, AATCC wrinkle tester, Snag tester, Flammability tester, AATCC durable press replica, AATCC apparatus for tested sample evaluation, Tumble dryer	Due to different testing standards these items of equipment are not available in Japan.

2) Method of transportation

In principle, all consignments of procured items of equipment are to be loaded at the nearest port from the production place, and unloaded at the port of Chittagong. Consignments will be transported by truck or by rail from Chittagong to the project site located in Nayarhat, Savar a suburb of Dhaka city. Since some of these consignments contain precision measuring instruments and equipment for use in electronic control, special care should be taken in packing and transporting them.

4-4-5 Project Implementation Schedule

After the signing of the Exchange of Notes by the government of Japan and the government of Bangladesh, the project will be implemented in three stages: detail design, tender and construction, equipment procurement/installation work.

(1) Detail design

After the conclusion of a consultant contract with the competent agency of the government of Bangladesh, the consultant firm (subject to its verification by the government of Japan) shall start the detail design work. Detail design includes the preparation of design documents such as detailed drawings, specifications, and tender documents on the basis of the contents of this basic design study report. The consultant shall discuss the contents of the facilities and equipment with the Bangladesh side upon preparation of design documents, and shall gain approval from the Bangladesh side. The time required to complete this procedure is estimated to be five months.

(2) Tender

The contractors to take charge of the work (a Japanese general contractor and a Japanese trading company) will be selected through public tenders. Tender procedure includes: public announcement of the tender, collection of applications, prequalification of participants, issue of tender documents, opening of tenders, evaluation of tenders, designation of the contractors, and conclusion of the construction contract. It will take about one and a half months to complete this procedure.

(3) Construction and equipment procurement/installation work

The construction and equipment procurement/installation work will begin after the construction contracts are verified by the government of Japan. Judging from the scale and contents of the proposed facility, the situation of the local construction industry, and the inefficiency of construction work during the rainy season, it will take about 12 months to complete.

The overall implementation schedule, from signing the Exchange of Notes to the completion of the entire project, is shown in Fig. 4-8.

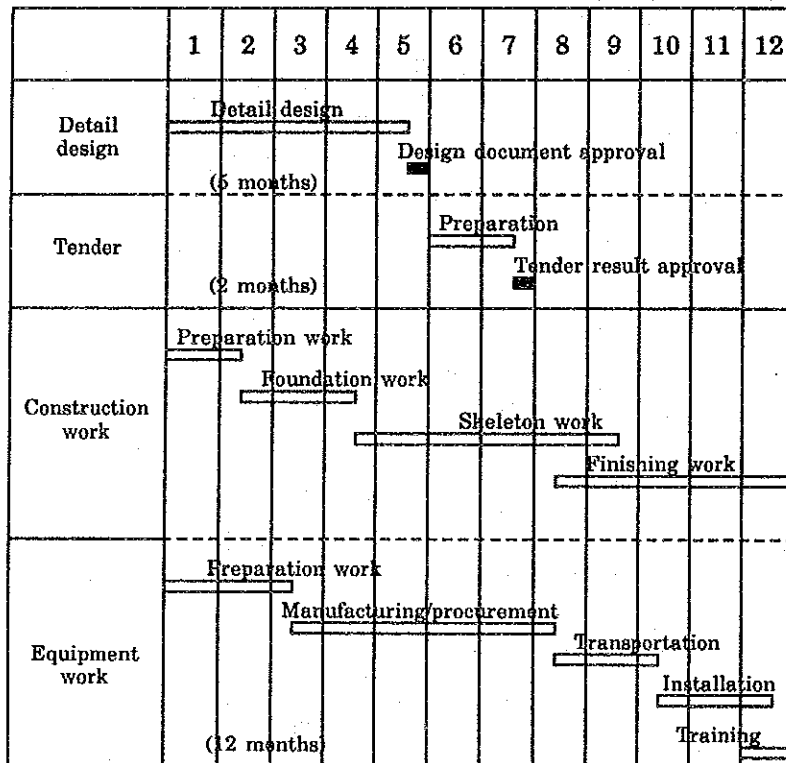


Fig. 4-8 Project Implementation Schedule

4-4-6 Scope of Works

(1) Scope of work

This project is to be implemented through close collaboration between the government of Bangladesh and the government of Japan within the framework of grant aid assistance from the government of Japan. The scope of work to be carried out by each side is as follows:

1) Scope of work by the government of Japan

- Facilities
 - Construction of the buildings as described in this basic design study report
 - Electrical, mechanical and sanitary works for these buildings
- Equipment
 - Procurement of the equipment listed in this basic design study report
 - Installation of those equipment
- Infrastructure
 - Low tension power line from the transformer which shall be installed by the Bangladesh side.
 - Plumbing work for the proposed facilities excluding digging a tube well which shall be done by the Bangladesh side.
 - MDF and telephone facilities within the project site excluding central office line
- Exterior work
 - Septic tanks
- Transportation and other related works
 - Packing, insurance, loading, marine transportation, unloading, and inland transportation of equipment and materials necessary for the Japanese work.

2) Scope of work by the government of Bangladesh

● Preparation

- Securing the sites for the project
- Removal of existing obstacles, preparation of the project sites
- Removal of those items of equipment which will not be used. (specified in 2-3-5 as unusable equipment)

● Preparatory work for construction

- Provision of the sites for the site office, workshops and material stock yard
- Supply of temporary electricity, telephone lines and water

● Facilities

- The buildings not included in the work of the government of Japan (Service road, boundary fencing, gate etc.)
- Temporary facilities necessary for routine services during construction time

● Infrastructure (including payments for the following work)

- High tension power supply line and transformer
- Telephone central office line up to MDF
- Digging tube well
- Connecting work of the private drainage to the public drainage facilities if necessary

● Exterior work

- Fences, gate doors, planting and service road

● Fittings and furniture

- Fittings and furniture other than those to be supplied by the government of Japan

● Miscellaneous procedure and its costs

- To conclude a banking arrangement (B/A) with an authorized Japanese foreign exchange bank and to bear the necessary commissions to the bank
- To issue necessary authorization to pay (A/P) and to bear the necessary payment commissions for A/P

- All taxes on the customs clearance, port change, unloading and inland transportation of the imported building materials and equipment
- Prompt actions related to customs clearance and inland transportation
- Necessary measures for exempting Japanese nationals engaged in the project from internal taxes, value added tax and other fiscal levies in accordance with the verified contract
- Provision of every facility to the Japanese nationals engaged in the project under the verified contract for their entry into and stay in Bangladesh
- Formalities and expenses for obtaining building permits
- Maintenance and operational expenses for the facilities and the equipment
- Other expenses beyond the scope of Japanese grant aid cooperation

(2) Estimated project costs to be borne by the government of Bangladesh

- Site preparation work
 - Removal of existing obstacles, site leveling approx. 100,000 TK
 - Temporary infrastructure supply work for the construction
 - Power supply work (Receiving 400V) approx. 100,000 TK
 - Telephone line supply work (not needed in case existing telephone lines can be used)
 - Water supply work (Digging a tube well) approx. 50,000 TK
 - Permanent infrastructure supply work
 - Power supply work (Not needed since temporary supply can be used for permanent)
 - Telephone line supply work (5 lines) approx. 170,000 TK
 - Water supply work (Not needed in case a tube well is dug for the temporary supply)
 - Curtain, office furniture, bed clothes, misc. consumables approx. 350,000 TK
-
- Total approx. 770,000 TK

- Other than the items listed above, the following expenses shall be borne by the Bangladesh side:
 - Formalities of obtaining building permit
 - Customs duties on imported appliances and materials
 - Banking arrangement and other related charge
 - Internal taxes, value added tax and other fiscal levies
 - Construction of staff quarters with a floor area of 930m²

The government of Bangladesh is required to allocate the necessary funds as mentioned above, and to complete their scope of work within the relevant time.

CHAPTER 5 EXPECTED EFFECTS OF THE PROJECT AND CONCLUSION

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(1) Project evaluation

When the project is completed and proper operation and maintenance is handled by the Bangladesh side, positive effects and improvements as summarized in Table 5-1 will be realized.

Table 5-1 Positive Effects and Improvements Expected to Result from the Implementation of the Project

Present state and problems	Measures to be taken under the project	Expected positive effects and improvements
<p>[Problems facing the entire textile industry]</p> <ul style="list-style-type: none"> • Although RMG industry has grown to be the country's top export industry, no significant progress has yet been made in such upstream sub-sectors as spinning, weaving and dyeing. For this reason, most materials of RMG for export are still imported. 	<ul style="list-style-type: none"> • Facilities and equipment for use in training upstream operations, such as spinning, weaving and dyeing, which have been conducted at TIDC will be improved. And NITTRAD as an autonomous institution to operate under the supervision of the Ministry of Textiles will be established in order to improve the quality of the training programmes which are aimed at improving production technologies. • NITTRAD will be provided with advanced testing facilities and equipment so that the institution may meet the textile industry's testing requirements as the country's leading testing institution. 	<ul style="list-style-type: none"> • Human resources with expertise in production and quality control technologies in upstream sub-sectors, such as spinning, weaving and dyeing, will be developed, and as a result the textile industry's production level will be enhanced. • As a result of the establishment of NITTRAD as the country's leading testing institution, the technical standard of quality control in the textile industry will be enhanced.
<p>[Problems facing TIDC]</p> <ul style="list-style-type: none"> • As TIDC has been offering training programmes mainly for BTMC mills, its operations do not include training programmes in the fields of knitting and sewing. In addition, its facilities and equipment are insufficient, and therefore it is unable to exercise leadership in the textile industry. 	<ul style="list-style-type: none"> • TIDC is to restart as NITTRAD, an autonomous institution to operate under the supervision of the Ministry of Textiles with the new training programmes of knitting and sewing as well as advanced facilities and equipment provided under this project. 	<ul style="list-style-type: none"> • As a result of the expansion of the scope of activity and the improvement in the quality of facilities and equipment as well as the technical level of operations, NITTRAD will be able to establish its leading role in the textile industry, and will thereby contribute to the implementation of the government of Bangladesh's programmes to promote the growth of the textile industry.
<p>[Problems in design of local products]</p> <ul style="list-style-type: none"> • Textile products manufactured in Bangladesh are not competitive with imports because of the poor quality of print design. • In the RMG sub-sector where products are manufactured in accordance with fashion sketches provided by foreign buyers, many factories have to hire highly paid foreign engineers because of a shortage of print design specialists domestically. 	<ul style="list-style-type: none"> • NITTRAD will have a Design Department to conduct training and research in the fields of print design and fashion design. 	<ul style="list-style-type: none"> • As a result of the development of human resources with expertise in print-screen-making technologies, the technical level of domestically made print designs will be enhanced and home-made apparel products will become more competitive with imports. • As a result of the development of human resources with expertise in apparel design, including paper pattern making, there will be no need for factories to hire foreign engineers, and the technical level of local engineers will be enhanced.

(2) Appropriateness of the implementation of the project

1) Operation system

According to the project operating plan which has already been approved by the government of Bangladesh, NITTRAD is to operate with a staff of 150. TIDC, which will be converted to NITTRAD, is operating with a staff of 95 and has achieved certain results in training and testing in the divisions of spinning, weaving and dyeing. For this reason, there will be only a slight increase in the number of staff members in these divisions at NITTRAD. It has been decided to recruit an expert from BTMC for the print design division of NITTRAD's Design Department, and have that person be responsible for recruitment of staff members in the division.

There is no problem with the recruitment of the necessary number of staff members for the Administration Department of NITTRAD because ample applicants are seeking clerical jobs in the country. However, there is a shortage of engineers in sewing as well as fashion design in Bangladesh, and it is hoped therefore that the Bangladesh side will seek technical cooperation from international donor organizations.

2) Budgetary appropriations

The Bangladesh side has already calculated an annual operating budget in the amount of 29,110,000TK for NITTRAD, and the government of Bangladesh has approved it. This budget figure is more than the amount anticipated in "3-3-5 Maintenance and Management Cost" of this report and is therefore considered appropriate.

Since the establishment of NITTRAD will act as the nucleus of the government of Bangladesh's policy to promote the growth of the textile industry (the country's largest export industry), it is certain that the

approved annual operating budget for NITTRAD will be implemented and therefore there will be no problem with budgetary appropriations for this project.

3) Maintenance and management

The proposed facilities were designed to, as much as possible, adopt the specifications of TIDC's existing facilities so that the facility maintenance and management know-how accumulated at TIDC may be taken full advantage of.

TIDC has a full-time building maintenance engineer, and an annual budget for facility maintenance and management is being allocated. As a result, the facilities are properly maintained and managed. And to restate fact, the annual operating budget for NITTRAD is appropriate and has been approved. For these reasons, the conclusion is that there will be no problem with the maintenance and management of the facilities to be procured under this project.

This project includes the introduction of personal computers and photocopy machines, which need periodical maintenance. It has been confirmed that local distributors of these items of equipment have sufficient maintenance know-how, and therefore it is concluded that NITTRAD will be able to maintain and manage them by concluding periodical maintenance contracts with these local distributors.

(3) Conclusion

The Bangladesh textile industry has become the country's top export industry mainly because of the growth of its RMG sub-sector. On the other hand, quality control and production technologies in upstream sub-sectors, such as spinning, weaving and dyeing, have not yet reached the international level. Most of the yarn and cloth for use in RMG products

for export are still imported. Under such circumstances, the government of Bangladesh formulated a textile policy 1989, and has been promoting the growth of the country's textile industry through this plan. An outline of the textile development plan is given below:

1. to augment production in a manner such that the local and export demands are met adequately.
2. to establish new capacities in spinning, weaving, knitting, dyeing and finishing facilities required for the above purpose.
3. to undertake BMR/BMRE of the existing enterprises for improvement of both quantity and quality of products.
4. to promote and develop proper linkage of RMG with other textile sub-sectors for ensuring local supply of quality fabrics.
5. to ensure credit facilities on easier terms and conditions for BMR of existing facilities and creation of required new capacity in the private sector.
6. to give priority to foreign investment through joint-venture in the textile sector.
7. to allow incentives for import of textile raw materials of all kinds in order to make the local fabrics competitive in the international market.
8. to take appropriate measures for improving the manpower skills engaged in the different existing industries of different textile sub-sectors, and the new units which are coming up to develop backward linkage with the export-oriented RMG industry.

9. to ensure development of skilled manpower; to create appropriate facilities for testing, research, design; to create advisory services for existing and new sponsors. Also to ensure programmes for upgrading the existing TIDC which have been taken up to convert it into a National Institute of Textile Training, Research & Design.

In implementing the textile policy 1989, the government of Bangladesh introduced import incentives and also decided to establish the National Institute of Textile Training, Research and Design (NITTRAD) whose main objective is to act as a central organization indispensable in the improvement of productivity and quality control as well as in the development of human resources while promoting direct foreign investment in the textile industry.

NITTRAD will be established to convert TIDC, an institution operating under the control of BTMC which is an affiliate of the Ministry of Textiles, to the status of an autonomous institution to operate under the supervision of the Ministry of Textiles. Since it is necessary for NITTRAD to have an expanded scope of activity and a higher technical standard in order to contribute to the growth of the entire textile industry, the main objective of the project is to procure advanced facilities and equipment. Upon establishing NITTRAD, training divisions in knitting and sewing will be added. Also a Design Department which will conduct research and training in the fields of print design and fashion design will be established, in addition to TIDC's existing departments. It is expected, therefore, that if NITTRAD is operated and managed properly, training and research on production technologies and quality control in all sub-sectors of the textile industry will be conducted, human resources with expertise in these fields will be developed, and

high-quality testing services indispensable in carrying out quality control will become available. All this will help enhance the technical standard of the entire textile industry and will thereby contribute to the growth of the textile industry.

Since the project is expected to greatly contribute to the growth of the textile industry, one of the country's key industries, as stated above, it is considered appropriate to implement the project under Japanese grant aid cooperation. It should be added that there will be no problem with the Bangladesh side for the operation and management of the project, including the staffing and budget plans.

(4) Recommendations

The following recommendations are made so that the project may be implemented without delay and that its objective may be attained through the smooth and effective operation and management of the facilities and equipment procured under the project.

- 1) Smooth implementation of the government plan for the textile industry development plan

It is expected that the establishment of NITTRAD, whose role is to offer technical training and testing services to the entire textile industry, will greatly contribute to the growth of Bangladesh textile industry. If the industry is to continue to grow, however, it is important that the government of Bangladesh have a clear-cut vision as well as a practical plan for the future development of the country's textile industry, in which NITTRAD is to play a pivotal role. The establishment of NITTRAD will become truly meaningful if the government of Bangladesh's textile industry development plan is implemented securely and effectively. In this context, it is desirable that the establishment of

product quality standard aimed at improving the quality of domestically made textile products, the development of human resources to support the growth of the textile industry, the formulation of programmes to promote the growth of the materials industry and the improvement of infrastructure for the purpose of promoting direct foreign investment in the industry be among the most important elements of the textile industry development plan.

2) Export inspection system

In order to improve the Bangladesh textile industry's international competitiveness, it is important for Bangladesh-made textile products to gain an international reputation through the establishment of a viable export inspection system. Therefore, it is hoped that a policy to promote the establishment of such a system will be drawn up. In this connection, it is desirable that NITTRAD's Testing/Research Department enhance the quality of its operations on the assumption that it will also serve as an export inspection organization in the future.

3) The training ability of NITTRAD's faculty staff members

NITTRAD is intended as an institution to train senior class personnel who are responsible for giving managerial and technical guidance to their factories. It is desirable, therefore, that NITTRAD conduct special lectures and utilize international organizations' technical cooperation in order for faculty staff members to maintain sufficient training ability by acquiring new technologies and know-how. It will also be necessary for them to conduct joint research with other research institutions.

4) Establishment of NITTRAD's operation management department

At TIDC, training and operation programmes are worked out by the staff members in charge of the training, operation and testing/research departments, and are set up by the principal.

The objectives of the operations conducted at TIDC are intended for contributing mainly to the improvement of BTMC mills in productivity and their quality control. It seems that at such institutions, an operation management system in which each instructor works out detailed training programmes and an overall plan to administer these training programmes has proven effective. However, at NITTRAD, which is expected to play a leading role in the development of the country's textile industry, a management system for conducting training and operation needs to be drawn up based on a strategic operation management policy so that NITTRAD may offer training and technical services which meet the needs of various sub-sectors of the country's industry. It will therefore be difficult for NITTRAD to meet some of these needs if it continues under TIDC's present operational system. In addition, at NITTRAD the scope of training will be expanded and the number of training courses will be larger than that of TIDC. This means that it will be necessary for NITTRAD to systematically coordinate its curriculum, training schedule and production of teaching materials. Therefore, it is desirable to establish an Operation Management Department consisting of specialists of each division and coordinated by a personnel who is familiar with the entire textile industry for the control of overall operation management within NITTRAD. The positioning of such a proposed department in NITTRAD's organization is illustrated in Fig. 5-1 on the following page. The proposed Operation Management Department is expected to be an advisory organization as well as to support the director in the activities of the Governing Council.

At TIDC, the Administration Department is responsible for public relations activities, including the production of brochures. It is expected that NITTRAD will have a similar system for its public relations activities. As stated above, however, NITTRAD's operations are meant for the country's entire textile industry. This means that public relations activities will carry greater weight with NITTRAD. For this reason, it is desirable that the public relation function of the Administration Department be transferred to the proposed Operation Management Department so that it will be easily accessible to people from the outside.

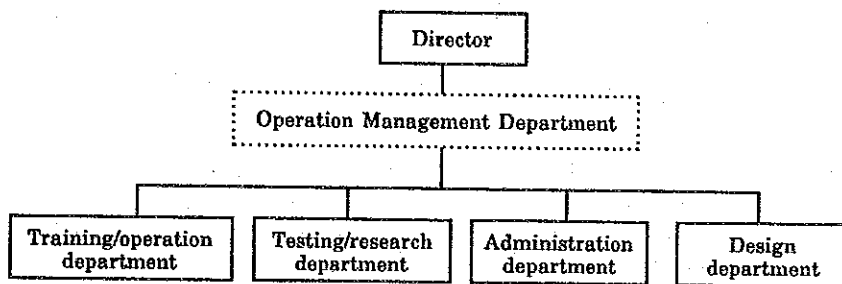


Fig. 5-1 Proposal for Establishing Operation Management Department

The planned organization of NITTRAD does not include an official Operation Management Department because the total number of its staff members must be approved by the government of Bangladesh. As stated earlier, however, NITTRAD's operations need to be coordinated under a strategic operation management policy. It is recommended, therefore, that there be an Operation Management Committee which consists of faculty members above assit. chief faculty member level from each division, and that then remain active within NITTRAD until an official Operation Management Department is established.

5) Prompt arrangement by the Bangladesh side

The project is to be implemented within the framework of Japanese grant aid cooperation, and therefore there are time restrictions on its

implementation. For this reason, it is necessary that the government of Bangladesh take prompt actions concerning: signing of the Exchange of Notes and the consultant contract, approval of the detailed design documents prepared on the basis of the contents of the basic design study report, and the signing of the construction contracts etc.

6) Smooth implementation of the Bangladesh side work

The Japanese basic design study team has already explained the framework of Japanese grant aid cooperation to their Bangladesh counterparts, and therefore Bangladesh side works for the project will be implemented properly. However, it shall be assured that the government of Bangladesh take budgetary measures at the necessary time for this project relative to its fiscal year. Especially important is the necessity for the Bangladesh side to complete the work of site preparation, acquisition of building permit, and the temporary power/telephone/water supply before the Japanese side work begins. The budget to cover the customs duties on imported equipment and materials must be secured before the start of the project. The water supply work must be completed at least four months prior to the completion of the facilities for the tests and trial operations of the newly procured facilities and equipment.

7) Appropriate personnel plan

As stated above, the government of Bangladesh has already secured a special budget for the project. The required number of staff members can be appointed within this budget. Therefore, it is desired that the Bangladesh side shall implement assignment plan of all necessary staff members.

8) Maintenance and operation

As stated above, in order to lengthen life span of facilities and equipment, systematical maintenance is indispensable. Therefore, it is desired that the Bangladesh side keep periodical maintenance records (such as daily, weekly and monthly) to track the condition of facilities and equipment as well as stock condition of spare parts.

9) Budgetary appropriations

The project will become feasible only when the work of the Bangladesh side is carried out properly, as stated above. It is necessary, therefore, for the government of Bangladesh to secure the budget as described in "4-4-6 Scope of Works" when it is needed in order to prevent any delay in the implementation of the project. It is desirable that the Bangladesh side take every necessary budgetary measure on the basis of the estimate as shown in "3-3-5 Maintenance and Management Plan" not to cause any serious hindrance to the operation of NITTRAD.

The Bangladesh side is planning to construct a officer's quarters with a floor area of 930m². Considering the increase in staff members when TIDC becomes NITTRAD, it is urgently necessary to secure appropriate new housing. Therefore, it is highly recommended that the Bangladesh side appropriate sufficient budget for realization of this construction.

ANNEX

1. Member List of Basic Design Study Team

(1) The first field study

Mr. Takashi Hatakeyama	Team Leader	Deputy Director, First Project Management Division, Grant Aid project Management Department, JICA
Mr. Tadashi Nagata	Technology Development Planner	Textile Supervision Division, International Trade and Industry Inspection Institute Nagoya Regional Office, MITI
Ms. Satoko Yazaki	Textile Industry Development Planner	Textile Products Division, Consumer Goods Industry Bureau, MITI
Mr. Eiji Iwasaki	Project Coordinator	Second Basic Design Study Division, Grant aid Study and Design Department, JICA
Mr. Minoru Tanaka	Architectural Planner	Yamashita Sekkei Inc.
Mr. Hiroshi Kawashima	Textile Engineer	〃
Mr. Akiyoshi Matsuyama	Equipment Planner	〃

(2) The second field study

Mr. Toshikazu Isomura	Team Leader	Official, Southwest Asia Division, Asian Affairs Bureau Ministry of Foreign Affairs
Mr. Masayuki Sato	Technology Development Planner	Inspection Division Chief, Inspection Unit MITI International Trade and Industry Inspection Institute Tsuruoka Regional Office
Mr. Minoru Tanaka	Architectural Planner	Yamashita Sekkei Inc.
Mr. Hiroshi Kawashima	Textile Engineer	〃
Mr. Akiyoshi Matsuyama	Equipment Planner	〃
Mr. Masayoshi Masuzawa	Facilities Planner	〃
Mr. Kunihiro Inadome	Cost Estimator	〃
Mr. Yasunori Nomura	Electrical Engineer	〃

(3) Explanation of draft final report

Mr. Tetsuya Sumi	Team Leader	Official, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Mr. Ikuo Tsukagoshi	Technology Planner	Official, Kiryu Regional Office, International Trade and Industry Inspection Institute, Ministry of International Trade and Industry
Mr. Minoru Tanaka	Architectural Planner	Yamashita Sekkei Inc.
Mr. Akiyoshi Matsuyama	Equipment Planner	"

2. Survey Schedule

(1) The first field study (June 12, 1993 ~ June 26, 1993)

No.	Date	Place	Schedule
1	June 12 (Sat)	Tokyo Bangkok	<ul style="list-style-type: none"> ● Lv. Tokyo (Ms. Yazaki, Mr. Nagata, Mr. Iwasaki, Mr. Tanaka, Mr. Kawashima, Mr. Matsuyama) ● Ar. Bangkok (Transit)
2	June 13 (Sun)	Bangkok Dhaka	<ul style="list-style-type: none"> ● Lv. Bangkok ● Ar. Dhaka ● Meeting at JICA office
3	June 14 (Mon)	Dhaka	<ul style="list-style-type: none"> ● Courtesy call on ERD ● Meeting at TIDC (Explanation of the Inception Report, Japan's Grant Aid system, survey schedule)
4	June 15 (Tue)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC (Submission and explanation of the questionnaire, existing facilities and equipment)
5	June 16 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Visit to BTMC textile mills
6	June 17 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Visit to private textile mills ● Meeting at UNIDO
7	June 18 (Fri)	Dhaka	<ul style="list-style-type: none"> ● Review of collected data ● Team meeting
8	June 19 (Sat)	Dhaka	<ul style="list-style-type: none"> ● Visit to private textile mills ● Lv. Tokyo (Mr. Hatakeyama) ● Ar. Bangkok (Transit)
9	June 20 (Sun)	Dhaka	<ul style="list-style-type: none"> ● Ar. Dhaka (Mr. Hatakeyama) ● Meeting at TIDC (Proposed construction site)
10	June 21 (Mon)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC (Existing facility and equipment) ● Meeting at the Embassy of Japan ● Meeting at JICA office
11	June 22 (Tue)	Dhaka	<ul style="list-style-type: none"> ● Meeting at ERD
12	June 23 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Signing of Minutes of Discussion ● Report the results to MOT and ERD ● Meeting at UNIDO
13	June 24 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Report the results to the Embassy of Japan and JICA office
14	June 25 (Fri)	Dhaka Bangkok	<ul style="list-style-type: none"> ● Lv. Dhaka (Mr. Hatakeyama, Ms. Yazaki, Mr. Nagata, Mr. Iwasaki, Mr. Tanaka, Mr. Kawashima, Mr. Matsuyama) ● Ar. Bangkok (Transit)
15	June 26 (Sat)	Bangkok Tokyo	<ul style="list-style-type: none"> ● Lv. Bangkok ● Ar. Tokyo

(2) The second field study (July 30, 1993 ~ August 28, 1993)

No.	Date	Place	Schedule
1	Jul. 30 (Fri)	Tokyo Bangkok	<ul style="list-style-type: none"> ● Lv. Narita (Mr. Isomura, Mr. Sato, Mr. Tanaka, Mr. Kawashima, Mr. Matsuyama, Mr. Masuzawa, Mr. Inadome, Mr. Nomura) ● Ar. Bangkok (Transit)
2	Jul. 31 (Sat)	Bangkok Dhaka	<ul style="list-style-type: none"> ● Lv. Bangkok ● Ar. Dhaka
3	Aug. 1 (Sun)	Dhaka	<ul style="list-style-type: none"> ● Courtesy call on ERD ● Courtesy call on the Embassy of Japan ● Meeting at UNIDO
4	Aug. 2 (Mon)	Dhaka	<ul style="list-style-type: none"> ● Meeting at JICA office ● Meeting at the Ministry of Textiles (MOT) ● Meeting at ERD
5	Aug. 3 (Tue)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC
6	Aug. 4 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Survey of the College of Textile Technology and BSTIC ● Meeting at ERD (Minutes of Discussions)
7	Aug. 5 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Meeting with MOT, TIDC and ERD (Minutes of Discussions) ● Signing of Minutes of Discussions ● Report the results to the Embassy of Japan and JICA office
8	Aug. 6 (Fri)	Dhaka	<ul style="list-style-type: none"> ● Lv. Dhaka (Mr. Isomura, Mr. Sato) ● Survey of local conditions
9	Aug. 7 (Sat)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC ● Survey of local conditions
10	Aug. 8 (Sun)	Dhaka	<ul style="list-style-type: none"> ● Lv. Dhaka (Mr. Kawashima) ● Meeting at TIDC
11	Aug. 9 (Mon)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC
12	Aug. 10 (Tue)	Dhaka	<ul style="list-style-type: none"> ● Survey of construction sites
13	Aug. 11 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Visit to BGMEA ● Lv. Dhaka (Mr. Masuzawa, Mr. Inadome, Mr. Nomura)
14	Aug. 12 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Site survey
15	Aug. 13 (Fri)	Dhaka	<ul style="list-style-type: none"> ● Survey of local conditions
16	Aug. 14 (Sat)	Dhaka	<ul style="list-style-type: none"> ● Visit to BGTTTC ● Survey of local conditions (computer)
17~19	15~17	Dhaka	<ul style="list-style-type: none"> ● Survey of textile mills

No.	Date	Place	Schedule
20	Aug. 18 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC ● Survey of local conditions
21	Aug. 19 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC
22	Aug. 20 (Fri)	Dhaka	<ul style="list-style-type: none"> ● Survey of local conditions
23	Aug. 21 (Sat)	Dhaka	<ul style="list-style-type: none"> ● Meeting at NBR
24	Aug. 22 (Sun)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC ● Survey of local conditions
25	Aug. 23 (Mon)	Dhaka	<ul style="list-style-type: none"> ● Meeting at MOT
26	Aug. 24 (Tue)	Dhaka	<ul style="list-style-type: none"> ● Meeting at ERD
27	Aug. 25 (Wed)	Dhaka	<ul style="list-style-type: none"> ● Report the results to MOT, ERD, TIDC ● Receive site survey results
28	Aug. 26 (Thu)	Dhaka	<ul style="list-style-type: none"> ● Meeting at TIDC ● Meeting at UNIDO ● Report the results to the Embassy of Japan
29	Aug. 27 (Fri)	Dhaka Bangkok	<ul style="list-style-type: none"> ● Report the results to the JICA office ● Lv. Dhaka (Mr. Tanaka, Mr. Matsuyama)
30	Aug. 28 (Sat)	Bangkok Tokyo	<ul style="list-style-type: none"> ● Ar. Narita (Mr. Tanaka, Mr. Matsuyama)

(3) Explanation of Draft Final Report (November 29, 1993 ~ December 10, 1993)

No.	Date	Place	Schedule
1	Nov. 29 (Mon)	Tokyo Bangkok	● Lv. Tokyo (Mr. Sumi, Mr. Tsukagoshi, Mr. Tanaka, Mr. Matsuyama) ● Ar. Bangkok (Transit)
2	Nov. 30 (Tue)	Bangkok Dhaka	● Lv. Bangkok ● Ar. Dhaka ● Courtesy call on the Embassy of Japan
3	Dec. 1 (Wed)	Dhaka	● Courtesy call on ERD ● Courtesy call on the Ministry of Textiles
4	Dec. 2 (Thu)	Dhaka	● Meeting at UNIDO ● Meeting at TIDC
5	Dec. 3 (Fri)	Dhaka	● Review of collected data
6	Dec. 4 (Sat)	Dhaka	● Meeting at TIDC
7	Dec. 5 (Sun)	Dhaka	● Meeting at TIDC
8	Dec. 6 (Mon)	Dhaka	● Joint meeting at ERD (ERD, MOT, TIDC, PC)
9	Dec. 7 (Tue)	Dhaka	● Meeting at ERD (Minutes of Discussions)
10	Dec. 8 (Wed)	Dhaka	● Signing of Minutes of Discussions ● Report the results to the Embassy of Japan and JICA office
11	Dec. 9 (Thu)	Dhaka Bangkok	● Lv. Dhaka (Mr. Sumi, Mr. Tsukagoshi, Mr. Tanaka, Mr. Matsuyama) ● Ar. Bangkok (Transit)
12	Dec. 10 (Fri)	Bangkok Tokyo	● Lv. Bangkok ● Ar. Tokyo

3. Member List of Concerning Party in Bangladesh

(1) Ministry of Finance (ERD)

Mr. Sadaat Husain	Additional Secretary, Economic Relations Division
Mr. Nasir U. Ahmed	Joint Secretary, Economic Relations Division
Mr. Dewan Zakir Hussain	Deputy Secretary, Economic Relations Division
Mr. Rafiqul Islam	Assistant Chief, Economic Relations Division
Mr. Sirajul Haq Talukder	Research Officer

(2) Ministry of Finance (Planning Commission)

Mr. Md. Aminul Islam	Joint Secretary
Mr. Md. Zabih Villah	Planning Commission

(3) Ministry of Textiles

Mr. A. H. Mofazzal Karim	Secretary
Mr. M. Maqbul Husain	Joint secretary
Mr. Rezaul Hoque	Deputy chief

(4) Bangladesh Textile Mills Corporation

Ahmed Bawany Textile	
Mr. M. A. Quddus	General Manager
Mr. M. A. Rouf	Manager
Mr. M. M. Hussain	Manager
Mr. Md. Nasar Hasanat	Designer
Mr. Md. Golam Murshed	Assistant Dyeing Master
Maghna Textile Mills	
Mr. Moslemhddin Ahmed	Deputy General Manager
Mr. Shamsul Huda	Deputy General Manager

(5) Textile Industry Development Center

Dr. Aftabuddin Hossain Chowdhury	Principal
----------------------------------	-----------

Dr. MD. Ali Nesar Khan	Councillor Head of quality control Department
Mr. Jayanta Kumar Kundu	Assistant Manager (spinning), Operation Division
Mr. MD. Nurul Amin	Spinning Master
Mr. Abul Hasanat	Deputy Chief Engineer
Mr. M. Mohhiuddin Ahmed	Production officer
Mr. Ali Reza Hossain	Production officer

(6) Bangladesh Textile Mill Association

Padama Textile Mills Ltd.

Mr. A. S. F. Rahman	Chairman, Bangladesh Export Import Co., Ltd.
Mr. Azharul Islam	Production Officer
Mr. Motlebur Rahman	SR. Production Officer
Mr. Shyamal Mitra	Assistant Manager
Mr. Sasir Uddin	Assistant Manager

Trade Focus Limited Duke Garments Ltd.

Mr. Mahbob Siddique	Managing Director
Mr. Haroon H. Rahman	Director

Islam Garments Ltd.

Mr. Md. Shafiqul Islam	Managing Director
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Prime Textile Spinning Mills Ltd.

Mr. Mahbub-E-Rabbani	General Manager
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Reliance Spinning Mills Ltd.

Mr. Ahmedullah Khan	General Manager
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Dekko Group

Mr. M. S. Hossain Kiron	
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(7) Bangladesh Textile Manufacturing Export Association

Rafhkat Garments Ltd.

Mr. Kamal Uddin Ahmed	Factory Manager
Mr. Shamsul Haq Khan	Production Manager

Newage Fashionwear Ltd.	
Mr. A. S. M. Quasem	Managing Director
Fortuna Apparels Ltd.	
Mr. M. A. Taher	Managing Director
Mr. U. N. Mhamudul Islam	Executive Director
The Mohammadi Group	
Mr. Md. Aminur Rahman	Executive
Mr. Sanwar Hossain Khan	Asstt. General Manager
Sparrow Apparels Ltd.	
Mr. Maqharul Islam	Managing Director
Mr. Johnny Lam	Office Manager
Mr. Windsor Chui	Production Coordinator
Northern Giant Group	
Mr. Sayeed Hassan	Director
Mr. Akther Rashid	Marketing In-charge
Mr. Naqrul Islam Chowdhury	Asstt. General Manager
Friends International	
Mr. Mujib	Executive Director
Mr. Md. Masudur Rahman	Indenting Executive
National Garments Ltd.	
Mr. A. F. M. Fakhrul Islam Munshi	Chairman

(8) **Bangladesh German Technical Training Center**

Mz. Eva M. Nordberg	Chief Technical Advisor
Mr. Steven J. Hollingworth	Expert / Consultant

(9) **UNIDO**

Ms. Jurgen T. Hannak	Programme officer
Mr. Hamdy Y. Eldosokey	Chief Technical Advisor
Mr. Frank Eckersley	Consultant

Mr. Volker Rossbach
Dr. El-Sayed M. El-Helw

Consultant
Textile Expert

(10) Embassy of Japan

Mr. Shigeo Takenaka
Mr. Yasukichi Ichihashi
Mr. Yoshihisa Kuroda
Mr. Kenichi Yokoyama

Ambassador
Minister
Minister
First Secretary

(11) JICA Bangladesh Office

Mr. Hironao Suzuki
Mr. Arinori Aratsu
Mr. Abdul Khatib

Representative
Staff
Deputy Director

4. Minutes of Discussions

(1) The first field study

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
ON
THE PROJECT FOR ESTABLISHMENT OF NATIONAL INSTITUTE OF
TEXTILE TRAINING, RESEARCH AND DESIGN

In response to the request from the Government of People's Republic of Bangladesh, the Government of Japan decided to conduct a Basic Design Study on the Project for Establishment of National Institute of Textile Training, Research and Design (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Bangladesh a study team, which is headed by Mr. Takashi Hatakeyama, Deputy Director, First Project Management Division, Grant Aid Project Management Department, JICA, and is scheduled to stay in the country from June 13 to June 25, 1993.

The Team held discussions with the officials concerned of the Government of Bangladesh and conducted field surveys at the study area.

In the course of discussions and field survey, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Interim Report of the Project.

Dhaka June 23, 1993



Mr. Takashi Hatakeyama
Leader,
Basic Design Study Team,
JICA



Dr. Saadat Husain
Additional Secretary,
Economic Relations Division,
Ministry of Finance

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve facilities and equipment of Textile Industry Development Center (hereinafter referred to as "TIDC") for promoting development of Textile Industry in Bangladesh.

2. Project site

The site of the Project is located in the existing site of TIDC.
(Project area and site map is attached as ANNEX - I.)

3. Executing Organization

Executing Organization: Ministry of Textile

4. Items requested by the Government of Bangladesh

Items requested by the Government of Bangladesh are facilities and equipment which are necessary for the activity of testing, research, training and design. However, the final items of the Project after further study may differ from those items of the Project Proforma which was made by Bangladeshi side in December 1992 .

5. Grant Aid system



The Government of Bangladesh has understood the system of Japan's Grant Aid explained by the Team and the following items have been confirmed .

- (1) The consulting firm that was selected by JICA as per their set procedure and takes charge of the Basic Design work will be employed in principle as a project implementing consultant for smooth implementation of the Grant Aid project.
- (2) Procuring products and services for implementing the Grant Aid project shall be executed in accordance with "GUIDELINES FOR PROCUREMENT UNDER THE JAPANESE GRANT, 1991, JICA".
- (3) Necessary measures described in ANNEX - II will be taken by the Government of Bangladesh for smooth implementation of the Project.

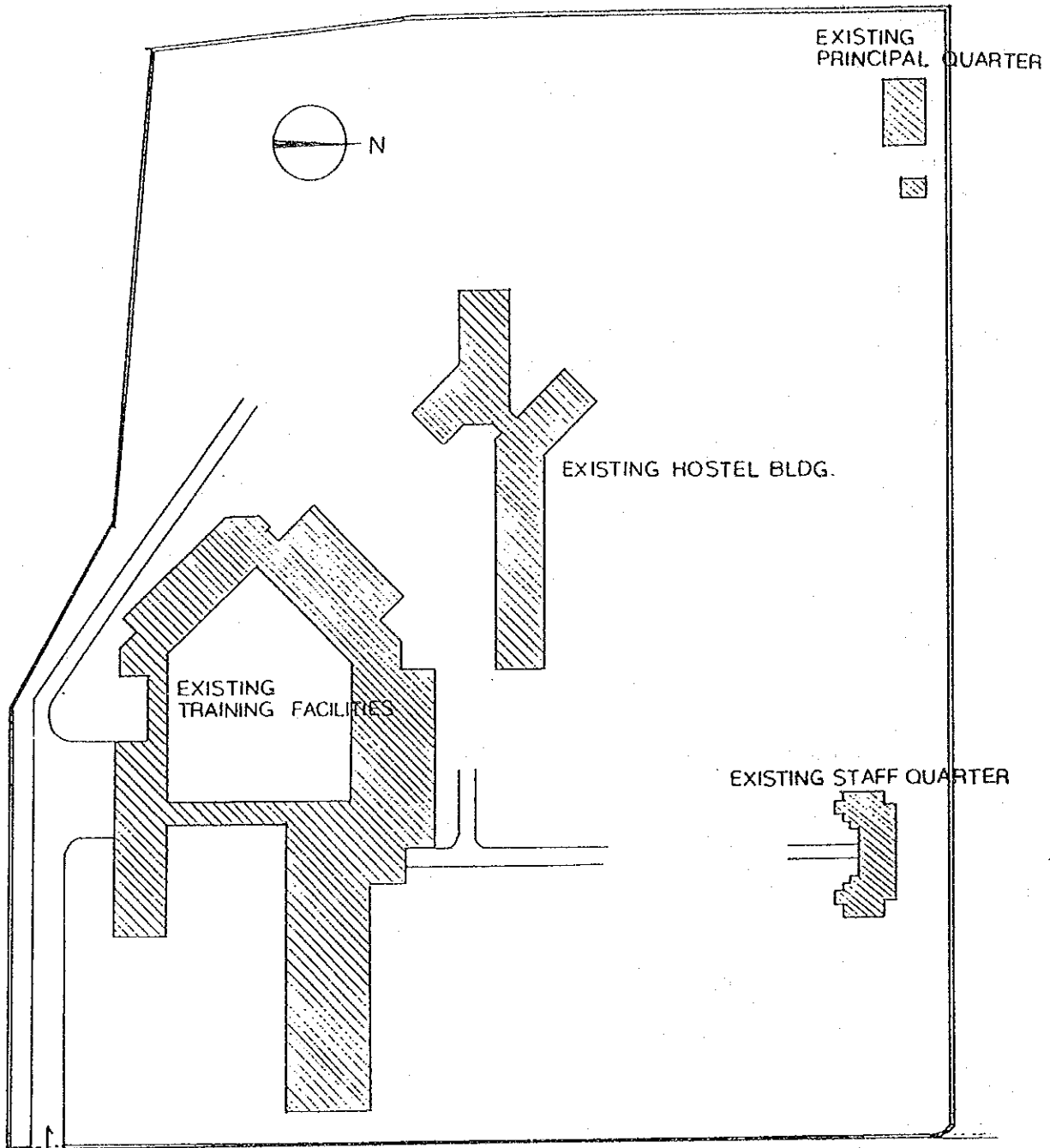


6. Schedule of the Study

- (1) JICA will prepare the interim report of the Project in English, and dispatch a mission in order to explain its contents to the Government of Bangladesh around the end of July 1993.
- (2) JICA will prepare the draft final report of the Project in English and dispatch a mission in order to explain its contents to the Government of Bangladesh around November 1993.
- (3) In case that the contents of the draft final report is accepted in principle by the Government of Bangladesh, JICA will complete the final report and send it to the Government of Bangladesh around February 1994.

PROPOSED PROJECT SITE



LOCATION: NAYARHAT, SAVAR, DHAKA
SITE AREA: 36,435 m²

APPROACH ROAD FROM DHAKA-ARICHA HWY.

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ANNEX-II

Necessary measures to be taken by the Government of Bangladesh;

1. To secure the site for the Project.
2. To clear, level and reclaim the site prior to commencement of the construction, if required for the execution of works.
3. To demolish or remove existing facilities, if required and agreed by both parties for the execution of works.
4. To undertake incidental outdoor works such as gardening, fencing, gates and exterior lighting in and around the site.
5. To provide facilities for distribution of electricity, water supply, telephone, drainage, sewage and other incidental facilities to the Project site.
 - 1) Electricity distributing line to the site.
 - 2) Water distribution main to the site.
 - 3) Drainage to the site.
 - 4) Telephone trunk line to the main distribution panel of the Building.
 - 5) General furniture such as curtains, tables, chairs and others.
6. To bear advising commissions of the Authorization to Pay (A/P) and payment commission to the Japanese foreign exchange bank for banking services based upon the Banking Arrangement (B/A).
7. To ensure prompt unloading, tax payment, and custom clearance of the materials and equipment for the Project at port of disembarkation.
8. To accord Japanese Nationals whose services may be required for the Project in connection with the supply of the products and services under the verified contract such facilities as may be necessary for their entry into Bangladesh and stay therein for the performance of their work.
9. In order to exempt Japanese Nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Bangladesh with respect to the supply of the products and services under the verified contracts, the cost of duties, internal taxes and other fiscal levies to be imposed under the Bangladesh Regulations shall be borne by the relevant Ministry/Agency concerned with the Project for which necessary

① AP

budget provision shall be made by them .

10. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the verified contracts.
11. To bear all the expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment.
12. To coordinate and solve any issues related to the Project which may be raised from third parties and inhabitants in the Project area during implementation of the Project.

A handwritten signature in black ink, appearing to be 'D. Sh.', located below the list of items.

Minutes of Discussions

(2) The second field study

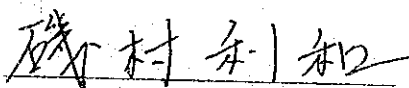
MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
ON
THE PROJECT FOR ESTABLISHMENT OF NATIONAL INSTITUTE OF
TEXTILE TRAINING, RESEARCH AND DESIGN

In August 1993, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Establishment of National Institute of Textile Training, Research and Design (hereinafter referred to as "the Project") to the People's Republic of Bangladesh, and through series of discussions, field survey and technical examination of the results in Japan, has designed the Interim Report of the study.

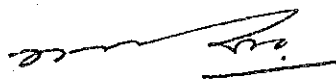
In order to explain and to consult the Bangladesh side on the components of the Interim Report, JICA sent to Bangladesh a study team (hereinafter referred to as "the Team"), which is headed by Mr. Toshikazu Isomura, Official, South- West Asia Division, The Ministry of Foreign Affairs, and is scheduled to stay in the country from 31 July to 27 August, 1993.

As a result of the discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Dhaka August 5, 1993

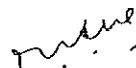


Mr. Toshikazu Isomura
Leader,
Basic Design Study Team,
JICA



Mr. Dewan Zakir Hussain
Deputy Secretary,
Economic Relations Division,
Ministry of Finance

Witness



Mr. Rezaul Hoque
Deputy Chief,
Ministry of Textile



Dr. Aftabuddin Hossain Chowdhury
Principal,

ATTACHMENT

1. The Interim Report

- (1) The Government of Bangladesh has received the Interim Report on the project from the Team. The Government of Bangladesh is now studying it and will give comments on the report by end of August, 1993, if any.
- (2) The Team explained to the Government of Bangladesh, the following basic policies on the project.
 - 1) To give emphasis on the garments, testing and quality control of the Textile Industry in Bangladesh and to give also due consideration in the upstream.
 - 2) Not to include equipment such as CAD/CAM etc. in the project which may cause difficulties in future operation and maintenance.
- (3) The Government of Bangladesh has understood the policies on the project explained by the Team.
- (4) The Government of Bangladesh submitted to the Team, the Bangladesh Textile Industry Policy attached in ANNEX-I.
- (5) The Team will take note on the Bangladesh Textile Policy, and give due consideration.
- (6) The Government of Bangladesh requested the Team to reconsider the contents of the equipment list attached in the Interim Report, and the Team agreed to reconsider within an extent of the project basic policies explained by the Team.

2. Schedule of the Study

- (1) JICA will prepare the draft final report of the Project in English and dispatch a mission in order to explain its contents to the Government of Bangladesh around November 1993.
- (2) In case that the contents of the draft final report is accepted in principle by the Government of Bangladesh, JICA will complete the final report and send it to the Government of Bangladesh around February 1994.

A BRIEF ON TEXTILE INDUSTRY IN BANGLADESH

Textile industry plays a significant role in the economic growth of Bangladesh. It provides employment to more than 3.5 million rural people, contributes about 30 percent of total manufacturing value added and approximately 70% of total export earnings. The installed capacity of the different sub-sector of textile industry of the country is given below:

Sub-sector	Installed capacity	Annual production capacity
Spinning	2,128,000 spindles	170.24 mln. kg.
Weaving :		
- Powerloom	37,000 nos.	300.00 mln. meter
- Handloom	514,456 nos.	675.00 mln. meter
Knitting Hosiery	3118 m/c	30.00 mln. meter
	140 flat bed	
	350 circular knitting	20,000 tons.
Dyeing and Finishing :		
- Semi-mechanized	90 units	120.00 mln. meter
- Mechanized	66 units	500.00 mln. meter
Export-oriented RMG	1,500	650.00 mln. pcs.

The textile sector of Bangladesh until 1977-78 had been an inward looking industry but entered into export market of RMG since 1979 with only a few no. of garment units. The industry has grown dramatically over the period upto 1993. In the last decade, the value of exports from this sub-sector has increased from Tk.0.14 billion in 1981-82 to Tk.57.00 billion in 1992-93 making it the most important export industry with well over 50% of the Gross National Export Value. Until 1985-86, the export of RMG depended mainly on woven fabrics but since then export of knit garment is also expanding very fast.

The requirement of fabrics for export-oriented RMG is more than 1000.00 million meter which is increasing very fast. In addition to the fabric requirement for fast growing RMG, fabric requirement for

domestic consumption is more than 1200.00 million meter making the total fabric requirement 2200.00 million meter a year. As against this demand the existing textile industry of the country can produce about 1000.00 million meter per year leaving a deficit of 1200.00 million meter which is met out of imports.

It is pertinent to mention that the value addition in export-oriented readymade garment sector is only 20-25% of the total value of export as the country cannot produce quality yarn as well as fabrics due to various reasons like old and outdated technology in most of the existing spinning, weaving and dyeing & finishing facilities. Inadequate trained and skilled manpower at managerial, supervisory and operative levels and lack of proper maintenance, quality control and supervision etc affect the quality of fabrics. It should also be noted carefully that the imported material for export-oriented RMG industry will be unavailable to the country as soon as the Uruguay Round talks are over. So, under the present situation if the country cannot develop quality fabrics for readymade garments it will be very difficult for the readymade garment industry of the country to grow and survive unless the local supply base of fabrics for the RMG industry can be ensured.

So, the readymade garment sector of the country needs a local supply base of good quality fabrics of acceptable type at competitive prices in order to increase its local added value and its international competitiveness.

Keeping in view the above, the utmost necessity is to gradually develop the backward linkage industries like dyeing & finishing, weaving, knitting & spinning with special emphasis on research, testing and design in a harmonious way for supply of quality fabric to the garment sector.

For ensuring supply of fabrics for the local market as well as to create backward linkage of readymade garment industry, the existing older spinning mills need to be balanced and modernised and new spinning units with modern technology should be set up to turn out quality yarn. Similarly, the existing weaving units will be balanced and modernised and new weaving units with modern technology for producing quality grey fabrics will be established. Finally, establishment of modern dyeing & finishing plants to turn

out quality fabrics for the export-oriented readymade garment industry will be given priority.

In order to upgrade the quality of local fabrics to an international standard emphasis will be given for providing appropriate facilities for testing, research & development. Moreover, special emphasis will be given on providing training of manpower of this sector through upgradation of training facilities of the country.

GOB's future planning for the development of the textile sector should therefore take the above considerations into account.

The emphasis has got to be on the followings:-

1. To augment production in a manner such that the local and export demands are met adequately.
2. To establish new capacities in spinning, weaving, knitting, dyeing and finishing facilities required for the above purpose.
3. To undertake BMR/BMRE of the existing enterprises for improvement of both quantity and quality of products.
4. To promote and develop proper linkage of RMG with other textile sub-sectors for ensuring local supply of quality fabrics.
5. To ensure credit facilities on easier terms and conditions for BMR of existing facilities and creation of required new capacity in the private sector.
6. To give priority to foreign investment through joint-venture in the textile sector.
7. To allow incentives for import of textile raw materials of all kinds in order to make the local fabrics competitive in the international market.
8. To take appropriate measures for improvement of skills of manpower engaged in the different existing industries of different textile sub-sectors and the new units which are

coming upto develop backward linkages with the export-oriented readymade garment industry.

9. To ensure development of skilled manpower and to create appropriate facilities for testing, research, design, advisory services to existing and new sponsors, programs for upgrading the existing TIDC has been taken up to convert it into a National Institute of Textile Training, Research & Design.

For upgrading the existing facilities of TIDC, Government attaches high priority on obtaining technical assistance in the form of equipment required for training, testing & design for such processes as spinning, weaving, knitting, dyeing & finishing. garments etc. along with reasonable facilities for accommodation of the new machinery equipment and training.

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ANNEX-II

List of participants attended the meeting

Economic Relations Division:

1. Mr. Nasir U. Ahmed Joint Secretary
2. Mr. Dewan Zakir Hussain Deputy Secretary
3. Mr. Sirajul Haq Talukder Research officer

Planning Commission:

1. Mr Md. Aminul Islam Joint Chief

Ministry of Textile:

1. Mr. M. Rezaul Hoque Deputy Chief.

Textile Industry Development Centre

1. Dr. Aftabuddin Hossain Chowdhury Principal

Japanese Team

1. Mr. Toshikazu Isomura Official, Ministry of Foreign Affairs
2. Mr. Masayuki Sato Official, Ministry of International Trade and Ind.
3. Mr. Minoru Tanaka Project Manager
4. Mr. Kunihiro Inadome Architect

Embassy of Japan:

1. Mr. Kenich Yokoyama First Secretary

JICA Bangladesh Office

1. Mr. Abdul Khatib Deputy Director

(3) Explanation of draft final report

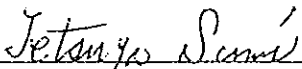
MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT OF
NATIONAL INSTITUTE OF TEXTILE TRAINING RESEARCH AND DESIGN
IN
THE PEOPLE'S REPUBLIC OF BANGLADESH
(CONSULTATION ON DRAFT FINAL REPORT)

The Japan International Cooperation Agency (JICA) dispatched Basic Design Study Teams, one in June and another in August, 1993, on the Project for Improvement of National Institute of Textile Training, Research and Design (hereinafter referred to as "the Project") to the People's Republic of Bangladesh, and through discussions, field survey, and technical examination of the results in Japan, has prepared the draft final report of the study.


In order to explain and to consult the Bangladesh side on the components of the draft final report, JICA sent to Bangladesh a study team, which is headed by Mr. Tetsuya Sumi, Official, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, and is scheduled to stay in the country from November 30 to December 9, 1993.

As a result of discussions, both parties confirmed the main items described on the attached sheets. Based on those Minutes of Discussions, the team will proceed to further works and prepare the Basic Design Study Report of the Project.

Dhaka, December 8, 1993

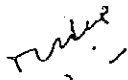


Mr. Tetsuya Sumi
Leader,
Draft Final Report Explanation Team,
JICA

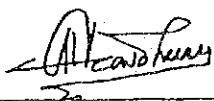


Mr. Dewan Zakir Hussain
Deputy Secretary,
Economic Relations Division,
Ministry of Finance

Witness:



Mr. Rezaul Hoque
Deputy Chief,
Ministry of Textiles



Dr. Aftabuddin Hossain Chowdhury
Principal,
TIDC

ATTACHMENT

1. Components of Draft Final Report

The Government of Bangladesh has agreed the equipment list (ANNEX 1), the list of floor areas (ANNEX 2) and tentative implementation schedule (ANNEX 3) proposed by the team.

2. Grant Aid Programme extended by Japan

The Government of Bangladesh has understood the system of Japan's Grant Aid explained by the team and the following items have been confirmed.

(1) The consulting firm that was selected by JICA as per their set procedure and takes charge of the Basic Design work will be employed in principle as a project implementing consultant for smooth implementation of the Grant Aid Project.

(2) Procuring products and services for implementing the Grant Aid Project shall be executed in accordance with "GUIDELINE FOR PROCUREMENT UNDER THE JAPANESE GRANT, 1991, JICA".

(3) The Government of Bangladesh will take the necessary measures described in ANNEX-II of the Minutes of Discussions signed and exchanged on June 23, 1993.

3. Comments on the Draft Final Report

The Government of Japan will provide necessary information in details by December 20, 1993 in order to prepare revised PCP by Government of Bangladesh. The Government of Bangladesh will submit its comments on the draft final report of the Project in writing by January 10, 1994 to JICA Bangladesh office for onward submission to JICA HDQ.

4. Further schedule

The team will make the final report giving due considerations on the comments of the Government of Bangladesh by the end of February, 1994.

5. Necessary measures

This Project will be implemented after the following items are confirmed:

(1) The Government of Bangladesh is kindly requested to discuss with Embassy of Japan and JICA Bangladesh office concerning the revision of a Project Concept Paper (PCP) for the Project.

- (2) The Government of Bangladesh will construct the officer's quarters, which are described in the "Comments on the Interim Report", as submitted to the Basic Design Study Team of the Project during the second field survey.
- (3) The Government of Bangladesh shall submit official requests for technical cooperation concerning at least in the field of overall planning such as curriculum making, sewing, fashion design, and knitting to international donor organization(s) under a separate technical assistance programme.

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ANNEX 1

List of Equipment

No.	Name of Equipment	Q'ty	Unit
	1. Spinning equipment		
SP-1	Card (semi high speed)	1	unit
SP-2	Simplex (approx. 40 spindles)	1	unit
SP-3	Ring frame (approx. 96 spindles)	1	unit
SP-4	Cone winder with auto splicer	1	unit
SP-5	Auxiliary equipment (with air compressor)	1	set
	2. Weaving equipment		
WV-1	Rapier loom	1	unit
WV-2	Air jet loom (with air compressor)	1	unit
WV-3	Mechanical dobby (16 shafts) for rapier loom	1	unit
	3. Dyeing & finishing equipment (lab. model)		
DF-1	Sample jet dyeing machine	1	unit
DF-2	Stenter machine	1	unit
DF-3	Padding mangle	1	unit
DF-4	Steamer	1	unit
DF-5	Calender	1	unit
DF-6	Electronic balance (0-200g×1, 0-2,000g×1)	1	set
DF-7	Air compressor	1	set
	4. Knitting equipment		
KT-1	Single plain jersey knitting machine	1	unit
KT-2	Single knit double fleece knitting machine	1	unit
KT-3	Double knit double plain jersey knitting machine	1	unit
KT-4	Double knit rib machine	1	unit
KT-5	Flat knitting machine (rib)	1	unit
KT-6	Flat knitting machine (jacquard)	1	unit
KT-7	Linking machine	1	unit
KT-8	Air compressor	1	unit

No.	Name of Equipment	Q'ty	Unit
	5. Sewing equipment		
SD-1	Lock stitch, single needle	5	unit
SD-2	Overlock, twin needle 4 thread	1	unit
SD-3	Interlock, twin needle 5 thread	1	unit
SD-4	Lock stitch, single needle with automatic thread trimmer, wiper & reverse feed	1	unit
SD-5	Lock stitch, single needle with variable top feed, with automatic thread trimmer, wiper & reverse feed	1	unit
SD-6	Lock stitch, single needle with vertical trimmer wiper & reverse feed	1	unit
SD-7	Bar-tacking machine	1	unit
SD-8	Button hole machine for woven fabric	1	unit
SD-9	Button hole machine for knitted fabric	1	unit
SD-10	Button sewing machine	1	unit
SD-11	Feed-off-the-arm, double chain stitch machine, 3-needle	1	unit
SD-12	Lock stitch, 2-needle w/org. split needle-bar	1	unit
SD-13	Double chain stitch, single needle	1	unit
SD-14	Double chain stitch, 4-needle elastic attacher	1	unit
SD-15	Double chain stitch, 4-needle shirt fronting m/c	1	unit
SD-16	Pocket welting plate	1	unit
SD-17	Lock stitch, twin needle feed	1	unit
SD-18	Bottom covering stitch belt loop making machine	1	unit
SD-19	Over lock machine, single needle 3 thread	1	unit
SD-20	Over lock machine with back-tacking	1	unit
SD-21	Top & bottom cover stitch flat bed machine	1	unit
SD-22	Lapseaming machine (back tap attaching)	1	unit
SD-23	Elastic seams machine, 6 thread	1	unit
SD-24	3-Needle covering machine	1	unit
SD-25	Pocket seam facing machine, 2-needle	1	unit
SD-26	Bias tape cutting machine	1	unit
SD-27	Tables (cloth laying)	1	unit
SD-28	Circular knife (4' & 6" circular blade/set)	1	set
SD-29	Scissors (various types)	1	set
SD-30	General purpose finishing board (2 types/set)	1	set

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No.	Name of Equipment	Q'ty	Unit
SD-31	Steam iron	2	unit
SD-32	Vacuum cleaner	1	unit
SD-33	Zigzag sewing machine, 1-needle	1	unit
SD-34	Steel cabinet for materials	2	unit
SD-35	Pattern making equipment	1	set
	6. Testing equipment		
TS-1	Double sorter	1	unit
TS-2	Stelometer with torsion balance	1	unit
TS-3	Testing device for honey dew content in cotton	1	unit
TS-4	Precision polarising microscope w/photo device	1	unit
TS-5	Microscope (×300)	5	unit
TS-6	Trash analyzer for raw cotton	1	unit
TS-7	Fineness meter for wool	1	unit
TS-8	Yarn tension meter	1	unit
TS-9	Uster tester	1	unit
TS-10	Yarn package hardness tester	1	unit
TS-11	Uster classimat (with air compressor)	1	unit
TS-12	Electronic tensile tester	1	unit
TS-13	Pilling tester	1	unit
TS-14	Fabric abrasion tester	1	unit
TS-15	Fabric stiffness tester	1	unit
TS-16	Digital pH meter	1	unit
TS-17	Fabric drapmeter	1	unit
TS-18	Coarse length tester	1	unit
TS-19	Elemendorf's tearing tester	1	unit
TS-20	Fabric bursting strength tester	1	unit
TS-21	Yarn hairiness tester	1	unit
TS-22	Fabric washing machine	1	unit
TS-23	Launder meter	1	unit
TS-24	Gray scale for colour change & staining	1	unit
TS-25	Water repellency tester	1	unit
TS-26	Spray rating tester	1	unit

No.	Name of Equipment	Qty	Unit
TS-27	Perspirometer	1	unit
TS-28	Air permeability tester	1	unit
TS-29	Fabric crease recovery tester	1	unit
TS-30	AATCC wrinkle tester	1	unit
TS-31	Rubbing tester (crock meter)	1	unit
TS-32	Snag tester	1	unit
TS-33	Flammability tester	1	set
TS-34	Knit Shrinkage tester	1	unit
TS-35	AATCC durable press replica	1	unit
TS-36	AATCC apparatus for tested sample evaluation	1	unit
TS-37	Tumble dryer (wascator type)	1	unit
TS-38	UV Spectorophotometer	1	unit
TS-39	Water bath	1	unit
TS-40	Glassware for formaldehyde analysis	1	set
TS-41	Shaker	1	unit
TS-42	Aspirator	1	unit
TS-43	AATCC puckering replica	1	unit
TS-44	Glassware	1	set
TS-45	Electronic balance (0.001mg)	1	unit
TS-46	Digital tachometer	1	unit
TS-47	Overhead projector with screen	2	unit
TS-48	Slide projector with screen	1	unit
TS-49	Audio-visual equipment (video camera, VTR, monitor)	1	set
TS-50	Combined lab oven	1	unit
TS-51	Thermograph	2	unit
TS-52	Chemicals & Reagent		
	7. Design equipment		
PD-1	Set square (small, medium, large/set)	6	set
PD-2	T scale board (adjustable)	4	pc
PD-3	Rotor pen set (0.1-0.8mm)	6	set
PD-4	Tracing table (with light box)	2	set
PD-5	Drawing paper cabinet	1	unit
PD-6	Day light film development machine	1	unit

No.	Name of Equipment	Q'ty	Unit
PD-7	Vacuum exposing m/c with processor	1	unit
PD-8	Negative positive copying machine (vacuum contact printer for camera work copying film)	1	unit
PD-9	Auto developer and dryer	1	set
PD-10	Compact camera set	1	unit
PD-11	Tracing & masking table	1	unit
PD-12	Graphic design table and chair	1	set
PD-13	Step and repeat machine (horizontal type)	1	unit
PD-14	Film cutting (trimmer)	1	pc
PD-15	Camera (35mm) with zoom lens	1	unit
PD-16	Developing and fixing chemicals	1	set
PD-17	Tools & materials for tracing film making	1	set
PD-18	Accessories & materials for darkroom works	1	set
PD-19	Drawing set.	2	set
PD-20	Weighing scale (0-1.0 kg, by 5g graduation)	1	unit
PD-21	Colour mixing stirrer	1	unit
PD-22	Stretching machine with adhesive chemicals	1	unit
PD-23	Screen drying chamber	1	unit
PD-24	Suction machine	1	unit
PD-25	Metal frame	50	pcs
PD-26	Printing table	1	unit
PD-27	Vacuum contact exposing machine for flat screen stencil	1	unit
PD-28	Tension meter for checking the tension of cloth	1	unit
PD-29	Polyester screen cloth (fine, medium, coarse-3 types)	4	roll
PD-30	Photo emulsion for flat screen (in small can/kg)	50	kg
PD-31	Coating bucket for photo emulsion	5	pc
PD-32	Rubber squeegee for test printing	5	pc
PD-33	Test printing paper with testing colour paste	1	set
PD-34	Polyurethane black lacquer (type A & B)	5	pc
PD-35	Spray gun (retouching gun) with compressor	2	unit
PD-36	Refrigerator for chemicals (300ℓ)	1	unit
PD-37	Digital balance (0.1-200g)	1	unit

No.	Name of Equipment	Q'ty	Unit
	8. Workshop tools & equipment		
	(I) Mechanical workshop		
WS-1	Gas welding machine (excl. gas cylinder)	1	unit
WS-2	Tool bit sets for lathe machine	1	set
WS-3	Tool bit sets for drilling machine	1	set
WS-4	Milling cutter sets	1	set
WS-5	Compressor (0.3-0.4 m ³ , 2 H.P., 2,900r.p.m)	1	unit
WS-6	Shaper machine (smaller size, working L. 1/3m)	1	unit
WS-7	Metal hardness measuring instrument	1	unit
WS-8	Leveling plate	4	pc
WS-9	Dial indicator for measuring eccentricity	1	unit
WS-10	Flow meters (liquid & steam)	1	set
WS-11	Hygrometer for measuring density of fluid	1	unit
WS-12	Regulator transformer (variable)	1	unit
WS-13	Rheostat (variable resistor)	1	unit
WS-14	Paint spray gun set	1	unit
WS-15	Bearing puller set	1	set
WS-16	Vacuum Cleaner (0.5 H.P.)	1	unit
WS-17	Power hand blower (3,000 r.p.m.)	1	unit
WS-18	Diamond pointed glass cutter (pen type)	4	pc
WS-19	Pipe bender set (for steel pipe, max. 50mm)	1	unit
WS-20	Power hand grinder with spare blade	1	unit
WS-21	Power circular table saw for wood cutting	1	unit
WS-22	Electric hand drilling machine	1	unit
WS-23	Power handy saw for wood cutting (small)	1	unit
	(II) Electrical & electronic workshop		
WS-24	Clip-on-meter (for amperage)	1	unit
WS-25	Induction current testing set	1	unit
WS-26	Phase sequence indicator (for demonstration)	1	unit
WS-27	Meters (kW, KWH, kVA, kVAR, volt, Amp., etc.)	1	set
WS-28	Potential transformer (2 kVA)	1	unit
WS-29	Current transformer (variable)	1	unit

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No.	Name of Equipment	Q'ty	Unit
WS-30	Multimeter (digital)	2	unit
WS-31	Wheatstone bridge	1	unit
WS-32	Capacitor tester	1	unit
WS-33	Tool sets for electronic works	1	set
WS-34	Static voltmeter (0-28 kV)	1	unit
WS-35	Oscilloscope	1	unit
WS-36	Drawing table with accessories	1	unit
WS-37	Drawing sets (for tracing paper)	1	set
	9. Supporting equipment		
	(Classroom)		
FO-1	Chair for trainees	100	pc
FO-2	Table & chair for trainer	6	set
FO-3	White board with marker & eraser	6	unit
	(Library)		
FO-4	Table	2	unit
FO-5	Chair	12	pc
FO-6	Open shelf	6	unit
	(Testing Laboratory)		
FO-7	Steel cabinet for storing spares	4	unit
FO-8	Wooden cabinet (glass sliding door) for chemicals	6	unit
FO-9	Steel file cabinet	4	unit
FO-10	Wooden round stool	36	pc
FO-11	Laboratory table with basin & gas outlet	1	unit
FO-12	Refrigerator for chemicals (300ℓ)	1	unit
	(Administration)		
FO-13	File cabinet	12	unit
FO-14	Bookshelf	2	unit
FO-15	Steel cabinet	4	unit
	(Canteen)		
FO-16	Chair	30	pc
FO-17	Table	5	unit

No.	Name of Equipment	Qty	Unit
	(Dining Hall)		
FO-18	Chair	40	pc
FO-19	Table	4	unit
	(Conference Room)		
FO-20	Chair	70	pc
	10. Others		
OT-1	Photocopy machine	1	unit
OT-2	Duplicating machine	1	unit
OT-3	Stencil cutting machine	1	unit
OT-4	Typewriter (electric)	1	unit
OT-5	Typewriter (manual)	3	unit
OT-6	Personal computer	3	unit
OT-7	Uninterrupt power supply	3	set
OT-8	White board with casters	2	unit
OT-9	Vehicle (station wagon type)	1	unit
OT-10	Microbus	1	unit

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ANNEX 2

List of floor areas

(Unit:m²)

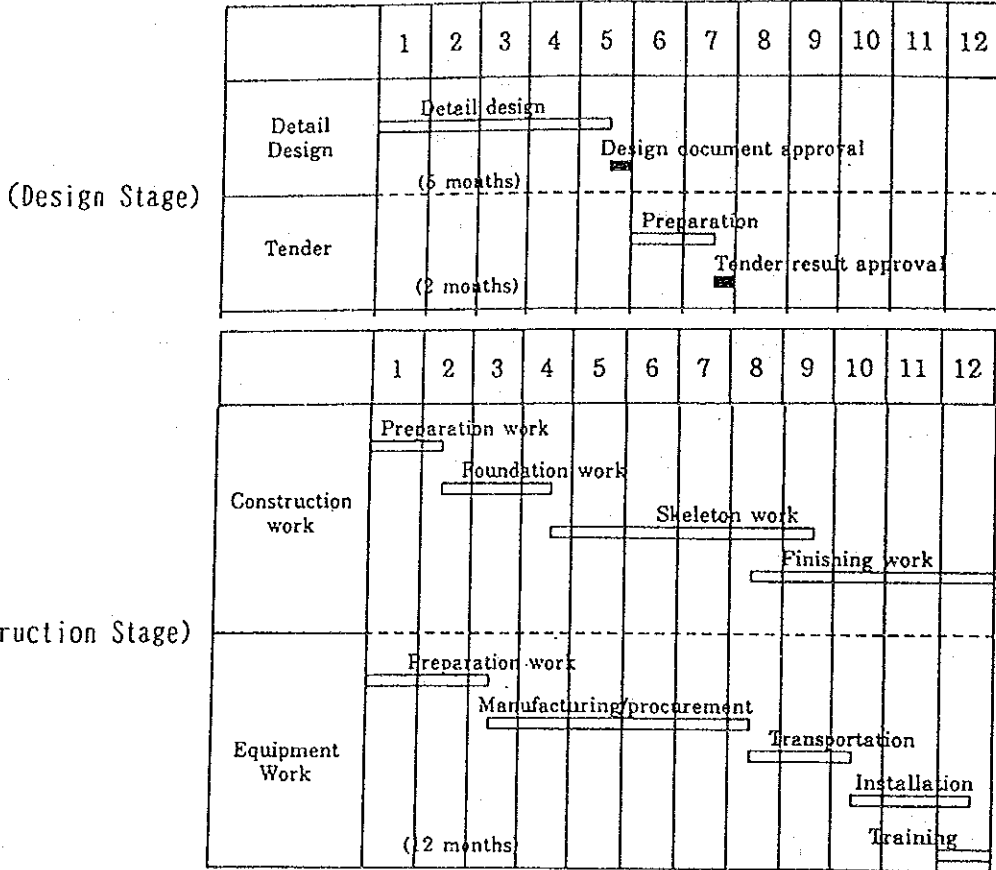
	Ground floor	First floor	Second Floor	Penthouse	Total
Administration building	514.7	324.8	--	--	839.5
Laboratory building	865.4	579.6	--	--	1445.0
Hostel building	266.0	262.2	262.2	27.9	818.3
Canteen building	144.0	--	--	--	144.0
Connecting corridor, pump house	173.5	--	--	--	173.5
Total	1963.6	1166.6	262.2	27.9	3420.3

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ANNEX 3

Project Implementation Schedule



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ANNEX-4

List of participants attended the meeting

Economic Relations Division

1. Mr. Dewan Zakir Hussain Deputy Secretary
2. Mr. Sirajul Haq Talukder Research Officer

Planning Commission

1. Mr. Md. Zobih Ullah Research Officer

Ministry of Textiles

1. Mr. Rezaul Hoque Deputy Chief

Textile Industry Development Centre

1. Dr. Aftabuddin Hossain Chowdhury Principal

JICA Dhaka Office

1. Mr. Yuki Aratsu Deputy Resident Representative

Japanese Team

1. Mr. Tetsuya Sumi Official, MOFA
2. Mr. Ikuo Tsukagoshi Official, MITI
3. Mr. Minoru Tanaka Project Manager
4. Mr. Akiyoshi Matsuyama Equipment Planner

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