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**STRENGTHENING OF THE COLLEGE OF TEXTILE TECHNOLOGY, DHAKA**

DP/BGD/85/162

BANGLADESH

**Terminal Report\***

Prepared for the Government of Bangladesh  
by the United Nations Industrial Development Organization.  
acting as executing agency for the United Nations Development Programme

Project Manager: J-P. Moll  
Agro-based Industries Branch

United Nations Industrial Development Organization  
Vienna

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\* Mention of firm names and commercial products does not imply the endorsement of UNIDO.  
This document has not been edited.

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## L INTRODUCTION

### A. Background

Managerial weakness was identified as the most important single factor for this state of affairs and, in recognition of this, the Government had decided, in 1979, to upgrade the **Bangladesh College of Textile Technology (BCTT)** to a B.Sc. degree level, four-year College in order to ensure a supply of properly trained technologists for the industry. The practical implementation of this decision, however, had been difficult owing to an acute shortage of qualified teachers and lack of appropriate physical facilities at the BCTT.

In this situation, the Government requested, in 1982, UNDP's support in staff development, build-up of physical resources and up-dating of the curriculum. In view of the obvious link between the performance of the BCTT and the performance of the textile and jute industry sectors, the **United Nations Industrial Development Organization (UNIDO)** was selected as the executing agency for the project. Preparatory assistance activities were carried out under a **United Nations Development Programme (UNDP)** project (BGD/82/047, total input \$61,557); and two missions were undertaken by experts from Bolton Institute of Higher Education in Manchester to assist the BCTT in outlining a more modern curriculum, and reviewing and categorizing the existing equipment into three groups - items that should be retained, repaired and discarded.

Under this phase, detailed proposals were formulated to transform the curriculum from the traditional fibre-based approach (e.g. jute and cotton) to a process-based curriculum (yarn manufacturing, fabric production and wet processing). This change was recommended after seeking the views of textile manufacturers who indicated that they usually required weaving, spinning and dyeing technologists instead of the more generally trained cotton and jute technologists. This project aimed to help the BCTT to implement the curriculum reform proposals formulated under the preparatory assistance

## **B. Proposed Objectives and Outputs**

The project strategy was to send 12 of BCTT's teaching staff for overseas training in spinning, weaving and wet processing. After their return, three international experts would be attached to BCTT for 12 months each to supervise and support the implementation of the new curriculum. The job descriptions of the international experts are given in Annex 3.

The project also aimed to provide laboratory and demonstration facilities required to teach the new curriculum, supported by an adequately equipped library and teaching aids. The equipment would then be more up-to-date and miniaturized to enable the simulation of processes instead of the full-scale industrial equipment that was under-utilized by BCTT because of the high cost of raw material and maintenance.

Re-wiring of electric lines was necessary because the original wiring was installed in 1961, and was considered unsuitable for the new equipment, plus the fact that many of the power-points were badly sited and not convenient for the placement of the new equipment.

**The development objective** of the project was to strengthen the country's supply of adequately trained man-power to the textile and jute industries.

**The immediate objective** of the project was to strengthen CCT to improve qualitatively the standard of its graduates.

**The proposed outputs** of this project are outlined below:

### **1. Output 1**

A modern process-based curriculum for a four-year B.Sc. course in textile technology.

2. **Output 2**

Qualified teaching staff of 12, each trained in his specialty to teach the new curriculum.

3. **Output 3**

Laboratory and demonstration facilities, covering spinning, weaving and wet processing, required to teach the new curriculum, supported by an adequately equipped library and teaching aids.

The proposed project starting date was July 1989 and the expected duration was two and a half years. The project work plan is given in Annex 2.

C. **Proposed Inputs**

	<u>US\$</u>
International experts	
1. Yarn production expert (12 w/m)	101,100
2. Fabric production expert (12 w/m)	101,100
3. Wet processing expert (12 w/m)	101,100
Administrative support	15,000
Experts' travel	9,000
Mission costs	25,000
<b><u>Total-Personnel</u></b>	<u>352,000</u>
<b><u>Sub-contracts</u></b> (Wiring and electrical installations)	58,065
<b><u>Training</u></b>	151,548
<b><u>Equipment and supplies</u></b>	766,303
<b><u>Miscellaneous</u></b>	8,453
<b>PROJECT-TOTAL</b>	<b><u>1,336,669</u></b>

## II. ACTIVITIES CARRIED OUT AND OUTPUTS PRODUCED

### A. Activities Carried Out

#### 1. Fellowships

Ten short Fellowships of two months' duration and one Fellowship of twenty-one months' duration were undertaken by eleven members of the college teaching staff, making a total of 41 months of Fellowships at the Textile Department of the University of Leeds (U.K.). Two study tours were arranged for the Principal of the College, UNDP/UNIDO's National Project Director for the project. In July 1993, before the completion of the project, the Principal was transferred to the Leather College.

#### *Fellowships (University of Leeds, UK)*

Abdul Khaleq (Wet Processing)	Oct to Dec 91
Serajuddin Bhuiyar (Wet Processing)	Oct to Dec 91
Monril Islam (Wet Processing)	Oct 91 to Jun 93
Mashur Ahmed (Weaving)	Oct to Dec 91
N. Ahmed (Weaving)	Oct to Dec 91
Raisuddin (Weaving)	Oct to Dec 91
Hasanuzzaman (Weaving)	Mar to May 92
Sutradhan (Spinning)	Mar to May 92
Baqi (Spinning)	Mar to May 92
Kashim (Spinning)	Mar to May 92
Abdul Kassim (Spinning)	Mar to May 92

#### *Study Tours*

#### Mustafizur Rahman (BCTT's Principal/NPD)

India, North Korea and China	Sep/Oct 92
Austria, Germany and the USA	Nov. 90

2. **International Experts**

The duration of assignment for each international expert was 12 months. The names and the assignment periods of the experts are listed below:

Frank Eckersley (Yarn Manufacture)	17 Oct 92 ~ 5 Apr 93;
Frank Eckersley (Yarn Manufacture)	17 May 93 ~ 11 Nov 93
El Sayed El Helw (Fabric Manufacture)	23 Oct 92 ~ 24 Sep 93
Volker Rossbach (Wet Processing)	31 Jan 93 ~ 22 Jan 94

The three international experts helped in the teaching of 3rd and 4th year of the B.Sc. courses, adjusting and refining new curricula developed in the preparatory phase of this project, assisting existing teaching staff, undertaking industrial visits with students, improving college-industry relations and assisting the BCTT's Principal in the planning of short/medium/long manpower requirements for the industry.

3. **Equipment**

Equipment procurement started as soon as the UNDP Advance Authorization had been received in August 1989 and was completed by mid-90 - more or less on schedule.

The complete list of equipment, with comments, is given in Annex I.

4. **Sub-contract**

A local sub-contract to Siemens Bangladesh Ltd for re-wiring the electrical installations in the various BCTT workshops had been included in the project inputs and scheduled to coincide with the equipment installation in 1990. For various reasons, this activity was also delayed by about two years against the plan and the work was not



completed until 1992. As a consequence, some of the project equipment could not be properly commissioned despite their timely delivery.

## **B. Outputs Produced**

The delays in the project approval process and during its implementation, the major changes in the project's concept and the budget reduction, exacerbated by loss of the purchasing power during the delays, all led to a vastly reduced impact of the project on the capabilities of the BCTT. While all three outputs - improved curriculum, better qualified teaching staff and more suitable equipment at BCCT - were addressed by the project, the results remain modest:

### **1. Improved curriculum**

An improved curriculum was prepared by the team of three international experts in 1993. By taking into account of the views expressed by industry representatives, the final approved curriculum differs from the original curriculum in the following ways:

- i. complete conversion from fibre focused on cotton, jute and chemical technology to process focused on yarn manufacture (spinning), fabric manufacture (weaving & knitting), wet-processing (finishing) and garment technology (clothing).
- ii. garment technology on a parity with yarn, fabric and wet-processing;
- iii. increased engineering, computer and maths content;
- iv. continuous assessment for theory (20%) and practical (40%) with exam assessment for theory (80%) and practical (60%);
- v. greater emphasis on machine technology and maintenance. It was apparently approved by the University of Dhaka authorities in September 1994 and will hopefully be implemented soon.

2. **Qualified teaching staff**

The qualifications of the BCTT's teaching staff have been improved to the extent that the fellowship programmes in terms of duration allowed for .

3. **Improved laboratory and workshop facilities**

This output was produced more or less on schedule against the original plan and with the reduced budget, but the delays and disruptions in other, related project activities, greatly reduced the potential use of this equipment. Some items have still not been commissioned for lack of steam, compressed air or water and others have already deteriorated for lack of maintenance.

### III. **ACHIEVEMENT OF IMMEDIATE OBJECTIVES**

**A. Timeliness of Implementation**

The implementation of training (fellowship programme), arrival of experts and the subcontract for re-wiring were all approximately two years behind schedule. Although the arrival of the machinery was timely the machines became operational two years later because of the two-year delay in the wiring.

**B. Implementation Problems**

1. **Fellowships**

The Government regulations prohibited personnel of 40 years or over to be trained for more than two months overseas. Also insufficient staff were available for training at BCTT as those who had returned from previous training had to fulfil teaching obligations before embarking on further training.

Another factor that delayed the implementation of the fellowships was a freeze on Government recruitment, resulting in unfilled staff posts, and restrictions governing fellowships such as age, time elapsed since last fellowship, etc. The combined effect of these constraints stopped the implementation of the programme for two years.

2. **International Experts**

Delay in the recruitment of the experts was the result of delays in government clearance involving the Ministry of Finance (ERD), Ministry of Education (DGTE, University of Dhaka, and Secretary) and Ministry of Interior. In addition, UNDP and UNIDO participated in clearance procedures to further delay approval.

Problems related to BCTT's staff shortages, protest actions and extended student strikes disrupted seriously the project activities and led to only partial achievement of project activities. The Principal of the BCTT, who was also the National Project Director, was prevented from carrying out his duties because of the student strike. He has since been appointed to another College and a Principal-in-Charge was appointed from the College staff. Members of staff were promoted and two new members of staff appointed at the end of July 1993. Only after these problems had been solved, the core part of this project (Curriculum development and implementation) could be addressed.

3. **Equipment**

The delivery was carried out in accordance to specification of project assistance committee recommendations. It was delivered on time. The subcontracting of re-wiring was delayed because of the tendering process and because the contractor had to import wiring material. The re-wiring problems caused delays in making the machinery fully operational.

The re-wiring of the workshops and laboratories was sub-contracted to a Dhaka-based international firm of electrical contractors (Siemens). The delay in the sub-contract was due to the tendering process, preparation of the specification, and because the company (Siemens) which won the tender had procurement problems in sourcing the necessary equipment - which had to be imported.

Thus, the machinery sat idle for two and a half years (August 1989 to early 1992) until it became fully operable. The rewiring was completed according to inadequate specifications which **failed to identify the need for voltage stabilization.**

The layout of the equipment has not significantly changed as a result of the project. The change in the curriculum and syllabus from fibre to process has not resulted in the movement of any of the machinery in order to conform to the processes. This is quite reasonable and has little effect upon how the subject matter is taught.

## C. Achievement of Objectives and Outputs

### 1. Curriculum

The difference in the commencement and termination of the consultants' duties proved to be of no disadvantage to the project since the combined period was so long that continuity was ensured. On the contrary, the total time during which experts were present was thus extended to 15 months which facilitated the development and implementation of the curriculum.

The proposed process-based curriculum was successfully developed although it suffered from limitations due to inclusion of garment technology as noted above.

2. **Qualified teaching staff**

The fellowship programme was limited to 41 work-months versus the original plan of 72 work-months. The original plan would have made a real impact on the professional competence of the BCTT's staff.

11 BCTT's teaching staff went on fellowships. 10 for 2 months; and 1 for 21 months who received an M.Sc. degree in textile technology. The output requirement was 12 qualified trained teaching staff. However, it must be noted that most of those teachers who went on short term training already had M.Sc. degrees in textile technology -- though not as a result of the project. Strictly speaking, the staff are qualified, but not a result of the project training output.

3. **Equipment**

This was the most successful component as the machinery was delivered on time with a minimum of damage.

#### **IV. UTILIZATION OF PROJECT RESULTS**

##### **A. Institutional Capability Building**

Staffing inadequacies -- Only 16 out of 31 posts are filled. Of the remaining 15 posts, only 7 have been advertised. Delays in filling these posts were attributed to procedures in the Public Service Commission. Out of the original 11 teaching staff who were trained overseas, only 7 remained. Of the other 4, 3 retired, 1 emigrated. It is anticipated that most of the remaining 7 staff will retire soon without clear indication of their replacement.

The college had establishment for 31 posts and only 15 posts were filled:

- 7 textile lecturers
- 6 non-textile lecturers (Physics, Maths etc)
- 2 following MSc training in Belgium

It would appear that there were many rules and regulations which apparently cannot be circumvented, making the filling of these posts very difficult, and most unlikely in the short term. There might be shortage of staff at BCTT in the near future.

##### **B. Cost Effectiveness of the Projected-Provided Equipment**

In selecting equipment for a project of this type, the desires and expectations of the recipients, the level of assistance required, and the budgetary constraints, all contributed to a compromise.

According to the Non-Expendable Property Control Record, the total expenditure on equipment, excluding the cost of the Electrical Re-wiring Sub-contract and the purchase of additional voltage fluctuation protection devices, amounted to \$696,400 (53% of total project cost).

The layout of the equipment has not significantly changed as a result of the project. The change in the curriculum and syllabus from fibre to process has not resulted in the movement of any of the machinery in order to conform to the processes. This is quite reasonable and has little effect upon how the subject matter is taught.

The expenditure on the equipment was considered to be worthwhile, and if expressed in 'equipment \$s per student', assuming 20 years of useful life, and 50 graduates per year, the investment represents \$175 per student.

After completion of the re-wiring sub-contract it was discovered that it had not catered for the installation of any protection devices against the sudden surges of electrical voltage frequently experienced in Bangladesh.

### **C. Linkages with Industry**

Linkages between BCTT and industry were strengthened. There were student visits to mills to orient them to mill realities. They took place anywhere from 1-2 to 5-10 times during BCTT study. There were also student internships where students worked for 1-2 months in their area of specialization at the mill under supervision and with token remuneration from industry. As a result, some students were offered jobs by the host organisations.

## V. CONCLUSIONS

- A. The overall design of the project was good and project elements were configured in a logical manner. Despite delays in implementation, the configuration remained intact - a precondition for effectiveness and configuration and impact. The central aim of the project was to strengthen BCTT to upgrade the quality of its graduates to meet the increasing demands of the textile and jute industry of the country.
- B. The project objective and outputs were satisfactorily met. The quality of graduates was improved. A modern process-based curriculum has been designed and adopted.
- C. Eleven out of twelve members of the teaching staff underwent short term training programmes since they had already adequate basic qualifications. The whole training schedule was constrained by regulations in force as to durations permissible for persons above a particular age and those who had already received training earlier.
- D. The strengthening of the workshop and laboratories for practical demonstration and training was considered to have been successfully completed in terms of equipment choice and timeliness of delivery.
- E. However, all other project inputs were seriously delayed. The delays were inevitably due to excessively long bureaucratic procedures.
- F. The serious staffing deficiencies within the college caused some of the problems during the life of the project. However, the most serious concern is that, with the apparent inertia in filling staffing vacancies, the sustainability of the project is in serious doubt.



## VI RECOMMENDATIONS

- A. According to the evaluation mission, the inclusion of a course on Garment Technology could dilute the instruction offered in Textile Technology due to diversion of time to the former. It was also stated that at present (since the inclusion of garment technology was not foreseen in the project document) there are no facilities for practical training and demonstration for garment technology. However, given the very important position of garment industry in the Bangladeshi economy, every effort should be made to ensure that the instruction in garment technology is of a high credible quality.
- B. All efforts should be made to fill vacant positions speedily. The appointment of additional lecturers in yarn manufacturing, testing and wet processing is a prerequisite for the continuation of teaching in these fields.
- C. Linkages with industry should be further fostered and BCTT should seek the assistance from the Ministry of Education.
- D. Twinning arrangements should be developed with similar institutions in the region and worldwide.
- E. Implement the recommendations made in the various reports prepared by the project's expert team.

### Reports

- DP/ID/SER.A/1704 Technical report prepared by Messrs. V.Roszbach, F.Eckersley and El Syed El Helw (July 1994)
- DP/ID/SER A/1688 Technical report prepared by Mr. F.Eckersley (Jan. 1994)  
Technical report prepared by Mr. E.S. ElHelw (Sep 1993)  
Evaluation report by Messrs. Hague/Seymour (Jan. 1995)

**Yarn Production - Jute**

- 1      Apron Draft Spinning Frame

**Yarn Production - Cotton**

- 1      Rieter Ingolstadt Drawframe
- 1      Open End Rotor Spinner
- 2      Bobbin Trucks
- 1      Tube Truck
- 3      Waste Trucks
- 1      Shirley Miniature Carding Machine
- 1      Shirley Miniature Drawing Machine
- 1      Shirley Miniature Ring Spinning Machine

**Fabric Production - Cotton**

- 1      Projectile Weaving Machine
- 1      Set Measuring Tools, Weaving Machine
- 1      LIBA Warp Knitting Machine
- 2      Sets, Tricot Beams
- 1      Hand Flat Knitting Machine
- 2      Course Length Testers
- 2      Cylinder & Dial Knitting Machines

**Wet Processing**

- 1      Ahiba Turbocolour\*                      (Not working)
- 1      Colour Sampler for Rotary Screen
- 2      Rotary Screens
- 1      Lab Transfer Printing Unit
- 1      Air Compressor
- 1      Flat Screen

- 1 Lab. Pad Mangle
- 1 Lab. Print Paste Mixer
- 2 Rotary Sample Dyeing Machines
- 1 Lab. Winch Dyeing Machine
- 2 Lab. Steam Units
- 1 Lab. Jet Dyeing Unit
- 1 Temperature Probe - Rotadyer
- 1 Colour Sampler - Flat Screen Printing
- 1 Lab. Jig Dyeing Unit
- 1 Colour Matching Cabinet\* (Needed local repair)
- 1 Atmospheric Dyemaster Sample Unit
- 1 Lab. Oven\* (Pyrometer needed local repair)
- 1 Scourtester\* (Not working)

#### **Testing Laboratory**

- 1 Dial Tensionmeter
- 1 Yarn Speed Meter
- 1 HATRA Yarn Length Counter
- 1 Quadrant Twist Tester
- 1 WIRA Rapid Drying Unit\* (Heating Element to be replaced)
- 1 Mathis Coating Plate
- 1 Meier Bars with holder
- 1 Tensionmeter
- 1 Motor-driven Yarn Reel
- 1 Shirley Crimp Tester
- 1 Spin Dryer
- 1 Shirley Crockmeter
- 1 Pressley Fibre Length Tester
- 1 Shirley Torsion Balance
- 1 Courtaulds Tetrapod Carpet Walker
- 1 Shirley Comb Sorter

- 1 Vernier Microscope
- 1 SDL Burst Strength Tester
- 1 Stroboscope
- 1 pH Meter
- 1 Crease Recovery Tester
- 1 Lab Oven
- 6 Colorimeters
- 2 Light Fastness Testers
- 1 Tact-o-Tester

**Miscellaneous Items**

- 1 Rotary Electric Stencil Duplicator
- 1 Rotary Electronic Stencil Scanner
- 1 Overhead Projector
- 1 Nashua Plain Paper Copier\* (Not working for 2 years Difficulty in getting replacement parts. No local dealer, only an agent)
- 2 Olympia Manual Typewriter
- 1 Olympia Electronic Typewriter
- 1 Toyota 12 Seater Mini-coach
- 1 Canon Printing & Display Calculator
- 1 Kodak Carousel Slide Projector
- 1 Da-lite Projection Screen
- 1 Voltage Protector
- 1 Bengali Keyboard Typewriter

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**\*All items reported to be in working condition except those marked.**

Project No.: DP/BCD/85/162/A/01/37      Project Title: strengthening of the College of Textile Technology Backstopped by: A. Eršneva      Branch: IO/T/AGRO      Date: 28/11/88

Item	Activity	Year Month	1989												1990												1991												1992												1993			
			01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11	12	01	02	03	04
	<b>Expert assignments:</b>																																																					
	- yarn production																																																					
	- fabric production																																																					
	- wet processing																																																					
	<b>Training programmes:</b>																																																					
	- weaving																																																					
	- spinning																																																					
	- dyeing/finishing																																																					
	- dyeing/finishing																																																					
	- technician																																																					
	- technician																																																					
	- study tour																																																					
	<b>Equipment</b>																																																					
	<b>Evaluation</b>																																																					
	<b>Technical review</b>																																																					
	<b>Sub-contract</b>																																																					

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## UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
PROJECT IN THE PEOPLE'S REPUBLIC OF BANGLADESH

## JOB DESCRIPTION

DP/BGD/85/162/11-01/J13102

Post title	Textile technologist (yarn manufacturing)
Duration	12 months *) (split into two six-month assignment with an interruption by one month)
Date required	October 1992; May 1993
Duty station	Dhaka
Purpose of project	Strengthening of the Bangladesh College of Textile Technology
Duties	Attached to the Bangladesh College of Textile Technology and under the general supervision of the National Project Director, the Principal of the College, the expert will participate in the teaching of 3rd and 4th year students in yarn manufacturing technology. This will include adjusting and refining the new curriculum developed during the preparatory phase of this project, supporting and guiding the local teaching staff designated to him as counterparts to improve their teaching skills and technical knowledge and, in particular, promoting active College/industry contacts through frequent factory visits with the students and by linking course assignments with real factory situations to the extent possible. He will also assist the Principal in assessing the short, medium and long-term man-power requirements of the textile and jute industry in the yarn production sub-sector.
Qualifications	Degree in textile technology. A minimum of five years of industrial experience and 3-4 years of teaching experience.
Language	English

## UNIDO

**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
PROJECT IN THE PEOPLE'S REPUBLIC OF BANGLADESH****JOB DESCRIPTION  
DP/BGD/85/162/11-02/J13102**

Post title	Textile technologist (fabric manufacturing)
Duration	12 months
Date required	July 1990
Duty station	Dhaka
Purpose of project	Strengthening of the Bangladesh College of Textile Technology
Duties	Attached to the Bangladesh College of Textile Technology and under the general supervision of the National Project Director, the Principal of the College, the expert will participate in the teaching of 3rd and 4th year students in fabric manufacturing technology. This will include adjusting and refining the new curriculum developed during the preparatory phase of this project, supporting and guiding the local teaching staff designated to him as counterparts to improve their teaching skills and technical knowledge and, in particular, promoting active College/industry contacts through frequent factory visits with the students and by linking course assignments with real factory situations to the extent possible. He will also assist the Principal in assessing the short, medium and long-term man-power requirements of the textile and jute industry in the fabric production sub-sector.
Qualifications	Degree in textile technology. A minimum of five years of industrial experience and 3-4 years of teaching experience.
Language	English

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## UNIDO

**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
PROJECT IN THE PEOPLE'S REPUBLIC OF BANGLADESH**

## JOB DESCRIPTION

DP/BGD/85/162/11-03/J13102

Post title	Textile chemist (wet processing)
Duration	12 months
Date required	July 1990
Duty station	Dhaka
Purpose of project	Strengthening of the Bangladesh College of Textile Technology
Duties	Attached to the Bangladesh College of Textile Technology and under the general supervision of the National Project Director, the Principal of the College, the expert will participate in the teaching of 3rd and 4th year students in wet processing. This will include adjusting and refining the new curriculum developed during the preparatory phase of this project, supporting and guiding the local teaching staff designated to him as counterparts to improve their teaching skills and technical knowledge and, in particular, promoting active College/industry contacts through frequent factory visits with the students and by linking course assignments with real factory situations to the extent possible. He will also assist the Principal in assessing the short, medium and long-term man-power requirements of the textile and jute industry in the wet processing sub-sector.
Qualifications	Degree in textile technology or textile chemistry. A minimum of five years of industrial experience and 3-4 years of teaching experience.
Language	English



### Background Information

The textile sector occupies an important place in the economy of Bangladesh. It includes 60 units in the modern mill sector, about 437.000 traditional handloom units in the cottage sector, a recently emerged and growing small-scale powerloom sector with about 4.000 looms installed, and a rapidly growing garment industry geared to exports. Altogether roughly one million people are employed in textiles, with 850.000 in handloom activity, 75.000 in the modern mill sector and about 60.000 in other groups of textile industries. Domestic textile production ranks second to jute manufacturing as regards contribution to the industrial sector's share of GDP. Jute and jute manufacturing are the largest export earners of the country, with an employment of about 200.000 persons.

The modern textile mill sector plays a critical role in the textile sector as it supplies the handloom weaver with most of their yarn requirements and itself produces about 50% of the domestically produced cloth. It has an installed spinning capacity of about one million spindles and a weaving capacity of about 7.500 automatic looms.

Managerial weakness has been identified as the most important single factor responsible for the generally poor capacity utilization and mill performance in both the textile and jute mill sectors. In recognition of this the Government decided to upgrade the College of Textile Technology (established 1952) to a B.Sc. degree-level, four-year College in 1979. The practical implementation of this decision, however, has been difficult owing to an acute shortage of qualified teachers and lack of appropriate physical facilities at the College.

Various reports on the College indicate an urgent need to improve the curricula, the knowledge and skills of the teaching staff and the physical facilities. The Government, through the National Economic Commission, endorses these conclusions and the strengthening of the Textile College has also been included in the Medium Term Education Plan prepared by the Planning Commission.