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Bangladesh's Textile and Clothing Industry:

The Role of Women

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Preface

As part of its work on regional issues, the Regional and Country Studies Branch of UNIDO carries out studies and provides advice on key issues of industrial policy that affect groups of developing countries. The present working paper, covering Bangladesh, is part of a regional study seeking to assess how the new technologies are likely to affect the role of women in South-east and South Asia's textile and clothing industries. The paper will be discussed at a national workshop in 1991 and subsequently revised if necessary. Together with other working papers, it will constitute a major input to a UNIDO synthesis document on the subject matter.

The draft was prepared by a team of researchers at UBINIG (Policy Research for Development Alternative), Dhaka, Bangladesh.[1]

[1] For a more detailed description of UBINIG and the research team, please see Appendix 2 "About UBINIG".

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ABBREVIATIONS

BBS	Bureau of Statistics
BGMEA	Bangladesh Garments Manufacturers and Exporters Association
BIDS	Bangladesh Institute of Development Studies
BHB	Bangladesh Handloom Board
BRAC	Bangladesh Rural Advancement Committee
BTMC	Bangladesh Textile Mills Corporation
CBA	Collective Bargaining Agent
EPZ	Export Processing Zone
EPZA	Export Processing Zone Area
GOB	Government of the People's Republic of Bangladesh
HSC	High School Certificate
ILO	International Labour Organization
MFA	Multi Fibre Arrangement
MIDAS	Micro Industrial Development Society
NICs	Newly industrialized countries
SSC	Secondary School Certificate
TIDC	Textile Industry Development Centre
UBINIG	Policy Research for Development Alternative

1. INTRODUCTION

1.1 Women and industrialization

The study we have undertaken focuses on the implications of the introduction of new technologies in the textile and clothing industries on women of Bangladesh. The entrance of women in large numbers in recent years in the garment industries is a phenomenon that has been noticed both by the researchers and the policy makers.

The social impact of the rise of a women labour force, given the patriarchal as well as underdeveloped and backward precapitalist economy of Bangladesh, is enormous and deserves a thorough study. On the other hand, women were always playing a significant role in the handloom industry, mainly in the pre-weaving phase of production processes [UBINIG 87]. In recent years the handloom industries have undergone rapid transformation creating possibilities for new social and economic relations with complex and multifaceted implications for women. The emerging new social and technical division of labour in Bangladesh, linked to and dictated by the global division of labour, deserves a thorough investigation not only because the global and local economic processes affect women but also because these processes create new possibilities for them. A comprehensive grasp of the new potential is possible once we also take into account the counteracting forces such as the rise of protectionism in the developed countries and the introduction of capital-intensive technologies in the textile and garment industries, etc. The present study is done in the latter context.

In recent years women and industrialization has become a major issue in the development literature. It is essentially the question of integration of women in the industrialization process of the country and the dislocation they suffer and/or the benefits they enjoy from such industrialization. The issue cannot and should not be addressed abstractly outside the context of the history of the society. Therefore, it is necessary to keep in mind the key features of the economy of Bangladesh to have an idea of the history inherited by the Bangladeshi women. These features are not unique to Bangladesh but bear similarity with those in other countries occupying a peripheral status in the world economy:

(i) These countries are post-colonial. They have earned formal political independence but have not been able to follow an independent economic strategy of development due to the integrating and dominating force of the world market.

(ii) They manifest all the features of underdevelopment such as low per capita income, high rate of unemployment, high rate of illiteracy, malnutrition, poor health conditions, etc.

(iii) There is no complementary relationship between the industrial sector and the agrarian sector.

The agrarian sector is severely stagnant and regressive. The commercialisation of the economy has reinforced this stagnant character of agriculture.

(iv) At the level of the national economy, the features of underdevelopment are manifested in two main forms: a) severe problem of balance of payment and b) massive dependence on foreign aid.

(v) To alleviate the balance of payments problem and dependence on foreign aid, these countries have been persuaded to pursue an import substitution strategy for industrialization which has largely been unsuccessful. Of late, these countries are assertively advised to embark upon the path of export-oriented industrialization as the only solution to their problems of underdevelopment (Akhter, 1989). It is therefore obvious that the issue of women and industrialization needs to be addressed within the broader framework of these economic features.

Entrance into the wage labour market is an index of integration of women in the industrialization process. Women are now appearing in increasing numbers in the labour market in both the formal and informal sectors. According to ILO statistics, the female labour force grew at a much higher rate than their male counterpart, having an above-average growth of 3.3 per cent per annum as compared to 2.2 per cent for the males between 1960-1980 (UNIDO, 1988). The rise in the female labour force is faster in the developing countries than in the developed countries. The major driving force behind this phenomenon is the redeployment of industries with high female labour content and low capital intensity from the developed to the developing countries since the 1960s. Typically, textile and clothing industries were the first industries to be relocated.

The textile and clothing industries are part of the international production and marketing network. Specially designed export processing zones are established to attract foreign investors to set up industries in the developing countries. These countries offer cheap labour, specially female labour to be recruited in these industries. In the export-processing zones the share of female labour invariably ranges between 75 and 90 per cent. The other relocated industries are food processing, and certain kinds of pharmaceuticals which use female labour as well.

The developing countries encouraging the relocation of industries under export-oriented industrialization strategies have created conditions for the recruitment of females as the source of cheap and unorganized labour. The investors in the export processing zones (EPZs) enjoy favoured treatment from the governments of the respective countries including liberal or no labour laws as long as they produce for the export market.

The issue of integrating women into the mainstream industrialization process has also been raised among the ranks of women's movement all around the world. It is a consequence of the UN Decade for

women (1976-85) as well. The issue has often been raised that the integration of women in the industrialization process should not be left to market forces alone but that active intervention on the part of states and NGOs is required.

1.2 Bangladeshi women and industrialization

The industrial development of Bangladesh has been very slow. The total contribution of the industrial production to GNP is only 9.5 per cent. Women's involvement as entrepreneurs and as labours has been quite insignificant as shown in the labour force statistics, except in home-based and cottage industries such as cane, bamboo, pottery and weaving.

Women have entered into the workforce as labours in labour-intensive industries such as garments, bakeries, pharmaceuticals, textile, jute, tea, sericulture, and in electronic industries. However, only in the garments industries is the largest proportion of the total labour force female; the others have very little proportions ranging between 3 to 7 per cent of the total labour force. Gender plays the determining role in the kind of job women can get for themselves. They are engaged mostly in lower grade, low paid jobs. These jobs are graded as second rate jobs and women are discriminated against in terms of wages, working conditions, and other fringe benefits. Women have fewer opportunities for overtime and less job security.

Since the mid-seventies, export-oriented industrialization has been intensively persued in Bangladesh. The shrimp culture projects and the garment industries are the two important kind of export-oriented industries that attracted a large numbe of labour, specially female labour. The shrimp culture projects are located only in the offshore areas of Chittagong and the Khulna regions. Rural landless women are employed in these industries for the beheading of prawns and packaging works. They are paid very low wages and have no formal working contract. They are overworked and do not have any job security. Rural women, in the absence of any other job opportunities, are forced to work in these industries for their livelihood. The other industry which employs a large number of female labour is the garment industry. In 1976, the first garment industrial establishment was set up in Bangladesh. Up to 1987, the number of garment factories increased to 700 employing 0.25 million labours out of which 0.20 million are women [UBINIG 1987].

The garment industries constitute common gateways to women seeking jobs in the industrial sector. This sub-sector is employing illiterate, semi-literate and educated women at different levels of jobs. The majority are drawn from the illiterate and semi-literate groups. The managerial and administrative posts are mainly held by males, even though for these posts there are no gender specific job descriptions. Nonetheless, the actual recruitment policy is always discriminatory against women so that they are excluded automatically. There also are certain unwritten rules which are very specific to women. Thus, unmarried women, mothers, married women etc. all face different kinds of discriminations in recruitment.

Women in the garment industries are newcomers in the labour pool and many of them are very young, i.e. below the age of 15 years. They come from very poor families who need the income of their adolescent

children to meet the subsistence needs of the families. The majority of the female garment workers are in the age group of 15-19 years. Having started their entry in jobs at a very early age means that they did not qualify for their jobs with previous education, training and skill. They receive the training on-the-job. They also have to accept very low wages and salaries and cannot demand many benefits. Although they learn their work quite well after some time, the owners tend to consider them as apprentice in order to keep on paying low wages and salaries.

Working in the garments industries as labour has had both positive and negative consequences for women. Those who have joined these industries have left behind a past of feudal, semi-feudal and patriarchal oppression. It is emancipating for them to come out and work. They earn their own income and are not dependent on the male members of the families. In fact, they now become the breadwinners of the families in most cases. They work hard in the family as well as in the factory, but also enjoy an independence which they never had before.

On the other hand, there is oppression and exploitation of women as labourers in the garment industries. The working conditions are often appalling. Facilities such as toilets and canteens are generally inadequate. The typical factory with 200 women and 50 men have only one toilet for women and one for men. Everybody has to finish their lunch in turns within the lunch period because canteen facilities or an eating place is usually absent. Creche facilities are non-existent, violating the existing labour laws.

1.3 Introduction of new technologies: some broad issues

Introduction of new technologies is implicit in the industrialization process and technological innovation is one of the essential dimensions of structural change. There are international and national debates on the question whether the new technologies displace labour, particularly women. But it is not only the issue of employment that is of interest. The impact is far reaching, specially on the family. Thus, the status of women and their role within the household are almost always being redefined with the introduction of new technologies, that is, with the process of industrialization.

The stagnant pre-capitalist structure of Bangladesh is a distorted form of feudal structure; it has retained the negative elements more prominently than the old values of honour, family prestige, etc. The marrying of women in harvest time and abandoning them after the harvest also reflects the degeneration of the old values. The selfish economic needs prevail over the honour and social status of the farmer in a more conservative feudal mode of life. The more this stagnant structure is prolonged the more the degeneration of values is getting deep-rooted. In this situation, it is doubly more painful and dishonouring for women. They have been caught into the helpless historical trap of a society where capitalism has failed to emerge. The best and pragmatic solution in this case can only be found through radical land reform and change of family laws and institutions.

Capitalization and mechanisation of certain processes that previously were carried out by women generally undermine the productive role of the female population of a society. Women's role in the household

productive activities decreases: consequently her social values as well. Depending on the extent of patriarchal family structure, variation can be seen in this pattern with regard to the employment of women. Women of the poor or marginal families seek jobs and often get them since they can be engaged for low wages and they can always be assigned to tasks not acceptable to male labourers.

Without taking into account the requirement of increased productivity to stay competitive, the argument that new technology displaces women from employment is indeed misleading. If productivity is not increased, women face lack of employment side by side with their male counterparts. Elimination of certain production processes due to the introduction of new technologies may, of course, displace a section of women but equally create opportunity for another section.

1.4 Global competition and challenges to the women workers of developing countries

The industrial branch of textile and clothing has played a crucial role in the industrialization efforts of many third world countries. Bangladesh is no exception. In the third world countries, clothing was the first manufacturing branch that achieved a rapid growth in exports to the industrialized countries. Between 1968 and 1978, their exports had increased by more than 20 per cent annually. The expansion in clothing output - 7 per cent annually during the 1970s - was initially based on imported fabric. But the growth in the clothing sector has stimulated the growth of textiles in a number of countries. Thus, textile exports to the industrialized countries also expanded rapidly. As a consequence, the share of the developing countries in the world trade in textile and clothing increased from 16.4 per cent in 1965 to 42.1 per cent in 1985. It more than doubled in 20 years. In the third world countries other industrial branches have also registered growth of output and export, but the textile and clothing remained important, accounting for 4.5 per cent of total manufactured output and over 35 per cent of manufactured output [UNIDO 1989].

The newly industrialized countries (NICs) in Asia, particularly Hongkong, the Republic of Korea and Taiwan province of China were by far the largest textile-clothing exporters during the 1960s and 1970s. On the average, they contributed more than 75 per cent of the total third world exports over that period. The success of the NICs encouraged many other developing countries to follow their path. Consequently in the 1970s many third world countries entered into export-oriented textile and clothing production.

The pattern of rapid export growth first by the NICs and then by a much larger group of smaller economies was seen as the source of considerable problems by the industrialized countries as their combined share in the world clothing exports dropped from 65 per cent in 1965 to 40 per cent in 1985. By 1984, developing countries' clothing exports accounted for one half of OECD's imports with 65 per cent going to the US and Canada and 29 per cent to Europe. The US alone imported 17.7 billion worth of clothes from the third world countries in 1987.

This success of the developing countries provoked protectionist pressures in the developed countries. The most well-known of the

protectionist reactions of the industrialized countries to the export products of the third world is the Multi Fibre Arrangement (MFA). The imposition of quota on the quantity of textile clothing products from the third world is threatening to the emerging female labour force in these countries.

Raising tariff and non-tariff barriers is only one of the ways developed countries use to protect their interests. The more significant form of competition is to use technological innovation to increase productivity and efficiency in the textile and clothing industries of the industrialized countries to counteract against the comparative advantage of the developing countries with their cheap female labour. The impact of technological innovation is far reaching and sooner or later will change the locational basis and the organization of production of the textile and clothing industries globally. To what extent the developing countries can meet this challenge is an area that requires extensive investigation.

In the industrialized countries, technological modernization is frequently being supported by the state creating favourable conditions for innovation. The state in the developing countries is not equally alert to the changing technological environment and in most cases is not capable to keep up with the changes. Therefore, the threat from this form of competition is alarming in a completely different manner than the MFA, tariff barriers and other provisions of the industrialized countries to discourage import from the third world. The technological innovation which the textile and the clothing industries has undergone and is still undergoing constitutes a serious threat to the emerging female labour force of the developing countries. In the industrialized countries, computer-aided automation of spinning and weaving activities have already made significant progress. Consequently textile industries now follow a more capital-intensive path, reducing the need for labour. Similar development can also be observed in the garment industries of industrialized countries where a new generation of computer-based automation systems are introduced in grading, designing and cutting.

Due to these trends in technological innovation, the ratio of capital to labour is expected to rapidly change against the interest of labour, affecting mainly the female labour of the developing countries.

The skill requirements in the textile and clothing industry are also expected to change. This requirement sets into motion a trend to acquire the new skill, but there is also a process of "de- skilling" due to the mechanisation of certain manual operations that reduce the requirement for certain old skills. Due to this dual development, the precise impact of new skill requirements is not yet clear. However, while new supervisory and organizational arrangements, data control and programming activities tend to increase skill requirements, a higher degree of automation generally reduces the skill requirement in mechanical activities. For the female labour force of Bangladesh and similar countries, this is a challenge to be met in years to come so that they are not replaced by the introduction of new technology.

The locational pattern of the global textile/clothing production will be affected by the new conditions of production and the new technological environment. A final outcome is yet to be seen. But it is

clear that the cost disadvantages of the industrialized countries due to the higher wages has increasingly been compensated for with the introduction of new technologies. As a result, producers in industrialized countries have kept or regained an absolute cost advantage, at least when it comes to textile/clothing products targeted at the medium and upper segments of the market.

Developing countries will have to respond to the shift in competitive advantage, and in fact a number of countries have already undertaken the task of restructuring their textile and clothing industries by modernising and upgrading the sector. Since it is mostly the female labour that is going to be affected by such restructuring, it is essential that an assessment be made of the impact of these programmes on the size and skill requirements of the female labour in the developing countries.

1.5 Objectives and scope of the study

The overall objective of this study is to assess the impact of the introduction of new technologies on women of Bangladesh in the textile and clothing industries. It is essentially an exploratory study with information collected and experience gained directly from the field and has summarily dealt with the past history of the textile and clothing sector of Bangladesh to have a better understanding of the existing state. The study belongs to the broader project of UNIDO entitled "Implications of the introduction of new technologies for the role of women in the textiles and clothing industries in the Asian developing countries".

Textile and clothing industries are generally labour-intensive with a high proportion of female labour. These, particularly the garment industries, are the main industrial employer of female labour in Bangladesh. Introduction of new technological processes therefore has far reaching implications for Bangladeshi women entering or already active in this labour force.

The study has been conducted keeping the global context in mind. The rapid technological modernization in the developed countries to meet the labour-based competitiveness of the developing countries was kept in view. The impact of new technologies has been discussed where applicable, but in most cases possible general impacts of recent global innovation was the focus of the research. Empirical accounts of the existing technologies, the existing social and technical division of labour and emerging management and entrepreneurial structures are discussed. Perceptions of the labour force with regard to the introduction of new technologies are also examined. The study, we hope, offers a glimpse of Bangladeshi women in the textile and clothing industry in the context of technology.

The UNIDO project document on "Implications of the introduction of new technologies for the role of women in the textile and clothing industry in Asian developing countries" states the following:

"The overall development objective of the project is to assess the impact of the prospective introduction of new technological processes in industry on the sex and skill structure of human resources in developing

countries and contribute to ensuring that, through policies and measures, equitable participation and an enhanced role of women be achieved in this process of technological and industrial transformation.

The immediate objective of the project is to assess, in selected developing countries in Asia and the Pacific region, the impact on the women labour force of the prospective introduction of new technological processes in one specific industrial subsector, namely the textile and clothing industry, which is traditionally a labour-intensive subsector with a high proportion of female labour and is constituting the main industrial employer for female workers in the region" [UNIDO document NRE/sr of 20 February 1989].

Besides Bangladesh, similar studies are carried out in two other Asian countries, Indonesia and Thailand. This study is part of the country case studies focussing on the following issues:

(i) Assessment of likely pace and degree of future application of new technologies in the textile and clothing industry sectors of the selected developing country and their implications for the female labour force in terms of (wo)manpower and skill requirements;

(ii) assessment of the requirements for female human resource development in the selected developing country in order to counter potential losses in international competitiveness of the country's textile and clothing industries;

(iii) preliminary outline of policies and measures conducive to enhancing the role and contribution of women to the envisaged future development of textile and clothing industry in the selected developing country;

(iv) preliminary identification of areas and key issues for bilateral and multilateral co-operation.

In the context of Bangladesh, the main focus is to assess the development of the country's textile/garment industry and to evaluate emerging human resources requirements, with a special emphasis on training for female workers.

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2. METHODOLOGY

2.1 Collection of information from secondary sources

During the initial period of the study, sources of secondary information were identified and collected. In writing this report we have, however, consulted and used the published official statistics as the primary source of data unless there were reasons to rely on information from unofficial sources. The published data of the Bangladesh Bureau of Statistics (BBS), affiliated with the Ministry of Planning, Government of the People's Republic of Bangladesh (GOB), constitute the main, available, official information.

Other official sources of interest were the Department of Textiles, affiliated with the Ministry of Textiles; the Bangladesh Textile Mills Corporation (BTMC); the Bangladesh Handloom Board (BHB); the Bangladesh College of Textile; and the Technology and Bangladesh Standard Testing Institute (Textile Section). They often publish data related to their activities. Their data are also reflected in the official publication of the BBS. However, some of their data are more specific and therefore more useful for our study.

Information and analyses published by various research institutions were also utilized in this report. The Bangladesh Institute of Development Studies (BIDS) recently completed a survey on the handloom sector. Their data have been used in the sections dealing with handloom.

2.2 Collection of information from primary sources

The Department of Textiles, affiliated with the Ministry of Textiles, the Bangladesh Textile Mills Corporation (BTMC), the Bangladesh Handloom Board (BHB), the Bangladesh College of Textile and Technology and the Bangladesh Standard Testing Institute (Textile Section) were visited and discussions were held with responsible and knowledgeable persons there. Among the other non-government institutions visited for collection of secondary information were: the Micro Industrial Development Society (MIDAS), the Bangladesh Rural Advancement Committee (BRAC), the Dhaka Chamber of Commerce and Industries and the Bangladesh Garments Manufacturers & Exporters Association (BGMEA).

The information received from them with regard to their experience of the past, observations on the present, insights into the future in terms of trends, transitions and future potential for the sector, as well as their critical observations on the policy of the Government of Bangladesh were extremely valuable. A study of such a short duration as this one would not be possible unless we had picked up the threads of issues and hints that came out in those discussions. In many cases the generalized statements that have been made in this report reflect what we have learned from all sources and considered to be valid observations.

2.3 Field level information collection

Twenty-nine establishments selected according to pre-determined criteria of UNIDO were visited by the research team. The collection of information directly from the management divisions of the textile industries, handloom factories, and the garment industries had to be done in phases. In the initial stage the authorities of the respective industries were contacted with proper letter of introduction both from UBINIG and UNIDO to explain and justify the purpose of data collection and to obtain permission for the second stage, the actual data collection.

A portion of the general information about the establishments was collected from the central management division of the establishments at their Dhaka offices in cases where such offices exist, or the researchers collected all information while visiting the establishments at their production unit.

Besides general data about the establishments, the study had to collect two distinctly different types of information: social and technical (or technological). The research team, therefore, was divided into two groups. The technical information was collected by a team of two researchers headed by an engineer, while the other group had six researchers on the team to investigate the social aspects.

It is a normal procedure with UBINIG to offer several orientation classes before undertaking a given piece of research. The issues to be looked into and the methodology to be followed were rigourously discussed in these classes as much as possible.

2.3.1 Questionnaire preparation

Following the UNIDO terms of reference, a questionnaire was prepared and initially tested in a few factories in Dhaka. The questionnaire was then finalized with the necessary corrections. Three sets of questionnaires were finally prepared:

1. Questionnaire for the management to get general information about the establishment.

2. Technical questions about the machines used in the selected establishments and their relevance to the workers, specially the female workers.

3. Questionnaire for the workers about their socio-economic background and about their perception of the work and technology used.

2.3.2 Notebooks and diaries

To ensure qualitative information, UBINIG researchers keep two types of instruments: notebook and diary. The notebook collects information of qualitative nature not covered by a questionnaire, but essential for the study. This information is very valuable and generally sets the context for the quantitative data which may otherwise get obscured as meaningless statistics. The diary contains the personal reflections of the researchers while they are in the field. Diaries also

serve as an analytical guide to enrich the process of information collection and are shared and consulted during the report writing.

2.3.3 Permission and procedures in dealing with management of the establishment

Due to the objective of the study, the quality of the information depended very much on the co-operation of the management of the various establishments we visited. For example, data on the machines and technologies were not possible to get unless the management had co-operated with us. On the other hand, interviewing a worker could not be very easily done without the consent and co-operation from the management. Therefore, the required permission was sought. We are glad that, except for some minor difficulties, we received the co-operation we needed.

It is important to note here that the Bangladesh Textile Mills Corporation has been very cooperative during all the phases of the research. The BTMC Dhaka office informed in writing the mills where the research team was supposed to go. However, there were problems with labour unrest in some textile mills and therefore it was difficult to get permission for visiting those mills. In the privately owned textile industries, the permission was sought firstly from the head quarters and also from the mills authority. It may be mentioned that the mill owners were very cooperative in giving out the necessary permissions.

The permission for the garments industries was sought directly from the owners in Dhaka and Chittagong and from the Export Processing Zones Authority (EPZA) for the industries within EPZ. The garment owners are often hesitant about giving permission to interview the workers because according to a factory manager, "interesting reports are published in the newspapers after interviewing the garment workers, but these reports often go against the owners."

For dyeing and printing factories permissions were sought directly from the owners. The owners were rather happy that their mills had been chosen for the sample in an industrial research effort.

The handloom establishments visited were in a pre-selected area determined by UNIDO. Two types of areas were selected to be representative of the two current phases of rapid transition: (a) home-based establishments; and (b) factory type establishments. The home-based handloom establishments usually are based on pitlooms and are engaged in the production of materials which are craft-like products such as Zamdani or Tangail sarees. We selected the Zamdani area to investigate the home-based handloom establishments. UBINIG has been working on Pathrail of Tangail for a long period and is quite familiar with the situation of this home-based handloom area. In the report we shall draw on our experience. However, for the purpose of this report, our focus will be on the nature of the transition of handloom business, both technically and socio-economically. Therefore, we selected Balla of Tangail District, an area where the semi-automatic Chittaranjan looms are predominant. To keep the information consistent, we have not considered the home-based pitlooms where mostly family labour is used. These types of family-based establishments are not suitable for the comparisons between different types of establishments. Apprehension and nervousness on the part of the

small producers were frequently encountered when we visited these areas. The owners of handloom establishments were very reluctant to share information with "outsiders" because they are not sure about the intentions of the researchers. Yet the necessary co-operation was gained after we were able to explain our purpose.

2.3.4 Pre-selected sample types and classification of the establishments

Table 1 shows the pre-selected sample types in accordance with the UNIDO terms of reference. The only minor change which was made in Jessore was to take a textile mill in the adjacent district of Satkhira that has employed more female workers than others.

The names of the selected industries with their locations are given in Appendix ...

Twenty-nine industries under different categories were sampled. The industries selected by broad categories have been classified in table 2 to show more detail. The analysis in the report closely follows this classification.

2.3.5 Interviews of workers

As the focus of the research is the female workers, we always attempted to interview the female workers in the selected industries. But we faced the following constraints.

In the selected industries, the emphasis on the female workers was difficult to maintain when we had to interview workers in different sections of the industry. To interview the workers we had to go through the management. In most cases the management referred to the section chief who then recommended only the skilled male workers who were then interviewed. But we made special arrangements to interview the female workers if there were any.

Secondly, the female workers are employed, except in garments, mostly in the finishing and packaging sections. Therefore, to get information on the impact of technologies on the workers, we interviewed both the skilled and unskilled workers in all the sections. To interview the female workers we had to change the selections given by the management and requested to see female workers if there were any.

The working hours of mills differ. For example some mills are operating eight hours at a stretch while some are working in four-hour-work and four-hour-gap shifts. It was difficult to interview the workers if the working hours were over, they had to go home.

Table 1. Pre-selected sample types and their location

Sector/ Pre-selected types	Dhaka	Chittagong	Pabna	Jessore	Comilla	Tangail	EPZ	Total
Textile								16
Spinning and weaving	4	2	2	2				10
Finishing and dyeing	1							2
Printing	1			1	2			4
Handloom	1		1			2		4
Garment	4	2					3	9
TOTAL	11	4	3	3	3	2	3	29

Table 2. Classification of the establishments

Sector/ Establishment type	Dhaka	Chittagong	Pabna	Jessore	Comilla	Tangail	EPZ	Total
Textile a/								16
Type A				1				1
Type B			1					1
Type C	1	2		1				4
Type D	2		1					3
Type E	1							1
Type F				1				1
Type M	1							1
Type N					2			2
Type O	1				1			2
Handloom b/								
Type HF			1			2		3
Type HT	1							1
Garment	4	2					3	9
TOTAL	11	4	3	3	3	2	3	29

There were cases where a selected labour could not agree to an interview because of the workload on him or her.

In the garment industries there are large numbers of female workers. The owners, however, often refused to give permission to interview the workers. Those who gave permission, restricted the time so that it became impossible to complete the questionnaire. In the EPZ areas, restrictions were imposed more than elsewhere, partly because of the work process. If workers in the chain are withdrawn for an hour, the production process is hampered. The researchers were allowed only to interview one labour at a time so that the production process would not be disrupted. This arrangement was not suitable for the research team because it could only engage one interviewer at a time and the others had to wait for their turn.

In the dyeing and printing industries, there were two features which led to difficulty in labour sample selection. Firstly, there is no sharp division of labour among the labourers. The same labour is used for different levels of works. Secondly, the underutilization of the capacity of production meant that there were some sections which were not having any work at the time of the interview. As a result the workers were absent.

2.3.6 Methodology of technology survey

The technological research team initially took some time to get acquainted with the names of the machines used in the textile industries and their functions. On the basis of this knowledge and after discussion with the social research team, a preliminary questionnaire was prepared. After pre-testing of the questionnaire some problems and shortcomings were identified and it was further improved.

In each mill the technical researchers spent time in physical investigation of the machines, detailed discussion about their functions, origin of the machines, and the year when each machine was introduced.

Observations were made about the setting of the machines and their relation to workers.

2.3.7 Time period of the research

Reconnaissance works, literature collection and meeting the people and conceptual development about the research subject: 2-8 August 1989.

Questionnaire pre-testing and development of final questionnaire: 9-20 August 1989.

Fieldwork in 6 areas: 24 August to 9 October 1989.

Data coding, tabulation: 11 October to 15 November 1989.

Collection of information from secondary sources: 15-30 November.

Report writing: 1 December 1989 - November 1990.

2.4 Problems encountered during field work

2.4.1 Interviews with workers

We always told the workers the exact objective of the study. This is part of the research ethics of UBINIG. We requested that the information given by the interviewers should be more or less accurate. It was difficult for us to convince the workers that the results of the study would be used for policy considerations. They are not very hopeful, in many cases, about the management and the government; therefore they do not expect any positive results. Yet, the workers were cooperative in their attitude towards the interviewers. One interesting aspect was noticed. After the completion of the questionnaire, the workers felt more relaxed and by this time developed a trust in the interviewer and then started volunteering more information about the industry. These informal and out-of-the-questionnaire statements and dialogues were helpful in the report writing stage.

2.4.2 The administrators and the attitude towards the study

The title of the study was not very clear to many of the administrative personnel of the selected industries. For example, many of them raised the question "why do we have to study the implications of new technologies when there are no new technologies at all?". The other question was "when there are thousands of male workers, why is the study focussing on the female workers?"

The management personnel of the industries were very sceptical about interviewing the workers and often rushed the researchers to complete the interviews.

2.4.3 Production hours in the industries

The hours of production varied. In some plants the one single shift was 8 hours long, while in others, it was 4 hours at stretch and then a gap of four hours before the next one started. It was very difficult to keep the workers for interviews if the shift was over. On the other hand, the management was not happy when the workers were spending time with the research team during their working hours.

2.4.4 Transport and accommodation problems

Some establishments were located in distant places. To reach these plants even from the nearest place of accommodation was difficult for the researchers. In some cases the team travelled a distance of 80 to 100 km one way by public transport and had to return on the smae day.

Due to the need for interviewing the female workers, the research team had female researchers. But in some areas hotel accommodation was

difficult to get due to the female researchers in the team. In Pabna the team was forced to return the female members to Dhaka because there was no place to stay.

3. OVERVIEW OF THE HISTORICAL TRENDS IN THE COTTON TEXTILE INDUSTRIES

3.1 Overview on the historical trends in cotton textile industries

3.1.1 Trend in spinning capacity

Cotton textile is the oldest among the large-scale industries of Bangladesh. With eight looms the Mohini Mills Limited entered into production as far back as in 1908. The beginning of the twentieth century is significant for such sign of industrialization and nascent entrepreneurial spirit. By 1921 there were 18 spinning and weaving mills in operation in Bengal employing some 13,735 workers [Census of India 1921] .

The true capacity of Mohini Mills is not known. However, substantive addition to capacity did not occur until the First World War. In the wake of the First World War, the Imperial Government set up the Department of Industries to provide commercial intelligence and professional and technical advice to the private enterprises [Bagchi 1972]. A boom in private investment during the years 1919-1928 in modern industries in India, particularly in the cotton industries coincided, with this Imperial initiative [Bagchi 1972].

Raw cotton was produced in small amounts in the Bengal region. To establish cotton mills, cotton had to be imported from outside, i.e. the Bombay area or from abroad. This entailed additional costs in terms of transportation and personnel. There was also the perennial problem of wagon shortage. On top of that the Bengal cotton mills had to face fierce competition from established and mature foreign and domstic mills of other regions of India. The foreign competition mainly came from Lancashire and later on from Japan. These factors hindered the growth of cotton textile in the Bengal region.

In the twenties the cotton textile vis-à-vis jute gained favourable impetus in terms of profitability. The market for local cotton goods in India enlarged after the First World War, owing to steep rises in the unit wage cost in the Indian cotton industry [Bagchi 1972]. The state also played a role in creating a favourable environment by repeating the excise duty on cotton piece goods in 1926. The establishment of the Dhakeswari Textile Mill at Narayanganj in 1927 reflects the overall opportune circumstances of the late twenties.

A beneficial commercial policy encouraged the growth in spinning capacity in the thirties. The Imperial Government in a series of escalatingly protective measures increased the import duty on cotton piece goods from 11 per cent ad valorem in 1930 to 50 per cent in 1934 [Bagchi 1972]. This step was undertaken to protect against the stiff competition from Japan that was gaining markets because of the loss of competitive power by the British industries. With the expansion of the domestic market, the locational advantage for setting up a textile industry was determined by proximity to the market and the low wage rate [Bagchi 1972]. As a consequence, in a mere decade, i.e. 1931-40, five fairly large textile mills were established in Narayanganj and Dhaka. The last textile mill that was installed in this period was

Adarsha [Chowdhury 1977]. In 1947, Bangladesh had a total of 109,747 thousand installed spindles and 2,717 looms [Muslim 1969].

The mills that were established during this period were composite in nature. All units did both spinning and weaving. This is an index of the underdeveloped division of labour and absence of organic linkage between spinning and weaving activities of the society. Contrast to this situation, in Madras during the same period, the trend was to establish spinning mills designed to supply yarn to the numerous handloom weavers in the vicinity.

During this period the mills installed second-hand ancillary equipments. In one case, viz., the Adarsha Mill, the core equipment was from 1989 and was transferred to Adarsha after having been used first in a factory in Dacca, India. The other Indian centres which grew relatively fast in the inter-war years also used second-hand machineries [Bagchi 1972].

The period between 1947 and 1988 can be subdivided into six subperiods in terms of variation and change in the growth trend of installed spindles (see Figure 1; also see Appendix table 1). The sharpest rise occured in the period between 1947 to 1960. After 1960, the trend of growth was uneven, but there was a steady increase in spindleages until 1974. The largest absolute increase in capacity for spinning and weaving happened during 1960-65.

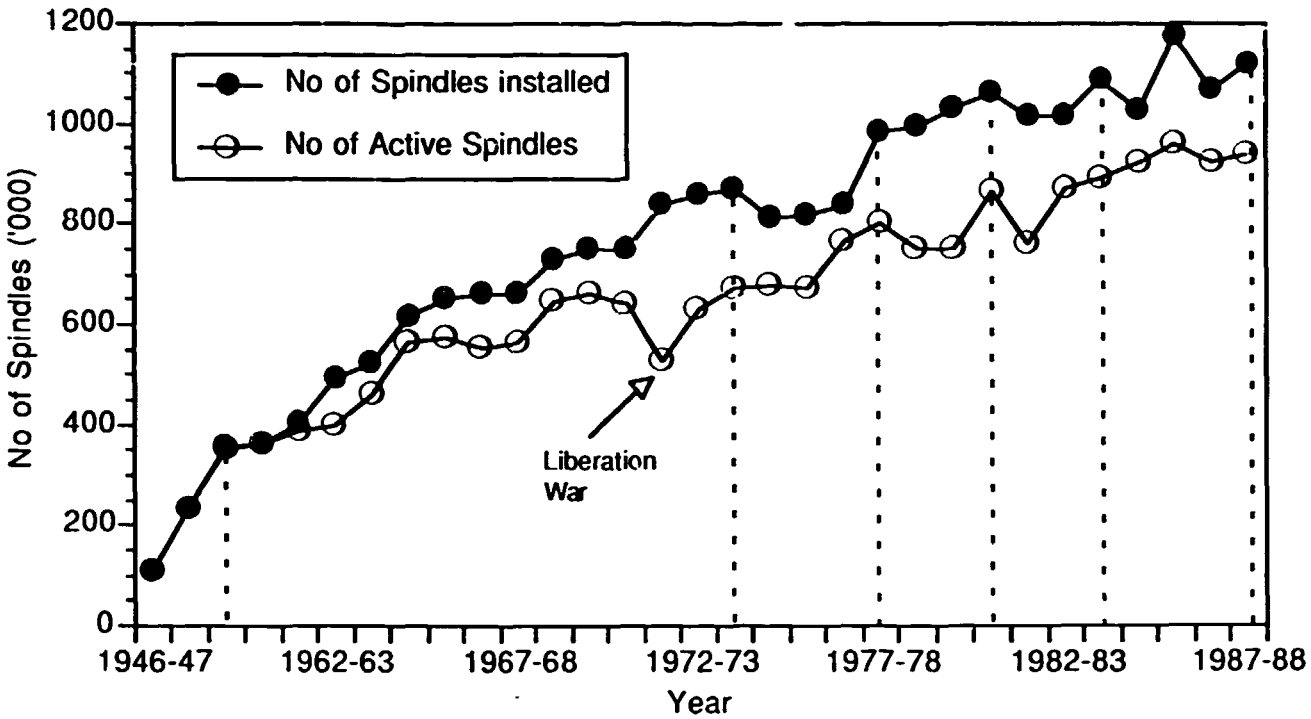
During the period from 1960 to 1965, seven spinning mills had been turned into composite units and nine new mills were established. This is reflected in the upswing in the graph for the spindle per loom for this period. However, the sectors cloth output during this period was declining.

During 1965-70, fifteen new mills were established but the average spindles per mill declined from some 20,000 to 17,000. This is due to the fact that mills established during this period were small in size compared to the mills of the 1960s. The visible increase in the spinning capacity for the years from 1970 to 1972 was mainly due to the completion of plants which had been under construction for some time.

There was a sharp fall in the two periods between 1974 and 1978 and 1981 and 1984. This was partly due to the political instability during these periods. There was a fall in the number of looms during 1976-1977 with a recovery in the period 1977-1981, only to fall again in the following years to below the level of installed looms in the 1960s and 1970s.

The period after 1980 is erratic making it difficult to project a future trend. The sector, however, is more and more specializing in spinning rather than weaving, a trend which was quite evident from the

Figure 1. Historical Trends in Installed and Active Spindles



Notes:

1. The horizontal scale is compressed between 1946 and 1959.
2. An accurate charting of the growth trend in cotton textiles industries is not possible because of the unavailability as well as unreliability of data. Some useful information is available from Bangladesh Bureau of Statistics but data on all mills are not available. Therefore, the chart is compiled on the basis of only those mills that reported the information asked for. Researchers in this field have attempted to at least provide some qualitative insights despite the unreliability of the quantitative data (Chowdhury 1977) But this has its own limitations. For example, some of the data used by Chowdhury (1977), although based on official sources, do not always correspond to the figures available in BBS publications. he, it seems, also ignored the number of mills reporting and took the figures as representing all the textile mills in a year.
3. To chart the historical trends we have used official figures published by BBS in Statistical Yearbooks of different years. This exercise is useful only for gaining a sense of the past. Implicit is the assumption that the exclusion of mills, their installed and actual capacity as well as productivity etc. produces the same effect each year in terms of proportions to the reporting mills and remains consistent with the rate of growth or decline.
4. It is important to note, however, that very large differences exist between the figures available from the Textile Directorate (April 1988) for the year 1988 and the BBS figures published in the Statistical Yearbook of 1989. For example, according to the Textile Directorate (april 1988), there were 69 textile mills in Bangladesh having 1 375 202 installed spindles; the Statistical yearbook of 1989 contains information on 61 mills having 1 120 thousand spindles. In discussing the present structure of the textile sector we have used the information from the Textile Directorate, and for historical trends BBS statistics.

middle of the sixties. After liberation of Bangladesh in 1972, the Government sought to discourage the development of weaving capacity in the mill sector. This strategy has largely remained effective until now and no new integrated mills have been set up since 1972. Weaving capacity of the mills has also remained virtually static, around seven thousand looms or so between 1972 to 1986.

The number of spindles per loom had a sharp increase during 1960-1964, but a slow decline followed until 1966 whereafter it remained more or less stable until 1978.

What is important, however, is to note that we are discussing installed capacity in order to identify investment trends in the sector that do not necessarily correspond to the effective capacity and the performance of the sector. This can be seen in the graph for active spindles (see figure 1) which shows that the ratio of the operable to the installed spindleage consistently fell over time. The ratio fell from 94 per cent during the period 1948-55 to 91 per cent during the 1960-65 period. It fell further to 87 per cent during the 1965-70 period, and 75 per cent during the 1972-76 period. This was partly due to the fact that old and uneconomic equipment could not be replaced due to scarcity of the requisite type of spare parts and partly due to poor maintainance [Textile Commission 1960]. In the first half of the eighties, the ratio increased to 81 per cent remained approximately at 82 per cent in the following years.

Not enough information is available with regard to loomage. Since the installed spindles grew at a faster rate during 1947-74 than installed loomage, it may be assumed that the ratio of operational to installed looms was lower than the corresponding ratio for spindles. The maintainance and the availability of spare parts were no better for looms. The higher growth of installed spindleage may mean that proportionately greater number of looms as compared with spindles are not in running condition. As a consequence, the large-scale industries failed to keep up with the installed capacity and, in spite of growth in installed capacity, the supply of yarn and cloth remained in short supply. The mills never could satisfy more than 20 per cent of the country's demand for cotton products. The remaining 80 per cent, the rural market mainly, was supplied by the hard looms. One of the far reaching consequences of this failure is the shortage of yarn for the handlooms. This has remained until now a persistent obstacle to the growth of the handloom sector.

3.1.2 Trend in size of establishments

In 1947 two-thirds of the firms were rated below 10 thousand spindles. The industries which were established in 1948-49 were of much larger sizes, having mean spindle levels of 22,500 compared to 11,944 in 1947 (see table 3). The import substitution policy of the government in this period largely contributed to this trend. This favourable policy environment was further enhanced by the boom in foreign exchange availability during the Korean war and a large-scale allowance of deferred payments by the industrialized countries, particularly Japan [Ahmed 1961].

Table 3. Historical trend in the distribution (%) of establishments by number of spindles installed

Group by number of spindles installed ('000)	August 1947	Newly entered establishments 1948-49	1960-76	September 1959	June 1976	April 1988
0-4.9	33.3	0	0	5.9	0	1.45
5-9.9	33.3	0	9.1	0	6.1	0
10-14.9	11.1	33.3	60.6	35.3	55.1	40.58
15-19.9	11.1	11.1	12.1	23.5	16.3	11.59
20-24.9	0	11.1	9.1	5.9	8.2	11.59
25-29.9	0	33.1	9.1	17.6	4.1	21.74
30-34.9	0	0	0	0	4.1	7.25
35-39.9	0	0	0	0	2	4.35
40-44.9	0	11.1	0	5.9	2	0
45-49.9	11.1	0	0	0	0	1.45
50+	0	0	0	5.9	2	0
Mean spindleage	11,944	22,500	14,924	20,441	17,194	19,930

Source: BTMC Annual Report 75/76; Muslim 1969; Textile Commission 1960; Textile Directorate 1988; see also Chowdhury 1977.

Setting up of small spinning units was the main trend in the sixties. This was again triggered by encouragement from the Government whose aim was to establish a number of standardized spinning units with about 12,500 spindles. As a consequence mean installed spindleage of the newly established mills fell from 22,500 in the 1950s to 14,924 during the period 1960-76.

A comparison between 1975/76 and 1987/88 shows that there was a significant growth in spinning mills with between 20 to 25 thousand installed spindles. For the composite mills it is the range between 30 to 40 thousand that grew the most (table 4). But the proportion of composite mills in the installed spindle range of 40 thousand and above fell in 1988 compared to 1975/76.

The mean and median size of the composite mills shows that they were much longer than the spinning mills in 1975/76 (see table 4). The trend now in 1988 is that the large mills are getting fewer while the medium size spinning mills are increasing in number. Both cases show a tendency towards optimal size due to increased market pressures in the eighties.

There are 8187 looms in the 27 integrated textile units in the mill sector (see table 5) [Textile Directorate 1988]. Twelve of these integrated mills are in the public sector in the hands of the Bangladesh Textile Mills Corporation, an autonomous government-owned corporate body. Fifty-two per cent of the mills have between 100 to 250 looms. There is only one large mill with 804 looms.

3.1.3 Trends in local distribution

In 1953 there were 29 textile mills in united Pakistan of which 13 were located in the geographical area of Bangladesh. Until 1949, 75 per cent of the installed spindleage were located at Narayanganj, a centre well known for textiles. Bengali pioneers in cotton textiles were mostly Hindus and they used to live in Narayanganj. They generally belonged to the trading class engaged in import and distribution of yarn from abroad and other parts of India. As experienced traders they knew the investment possibilities in the nascent cotton textile sector and already had contact with the end users of yarn who were mostly handloom weavers. The district of Dhaka had the largest proportion of handlooms, 25.3 per cent in 1962-63 according to a survey [Muslim 69]. This created opportunities to establish an easy linkage with the weavers working on handlooms. The newly growing urban areas of Dhaka and Narayanganj also contributed in providing a market for cloths. Narayanganj had the additional advantage of being a river port having commercial linkage with Calcutta.

The locational concentration of cotton textile industries soon started to diminish (see table 6) due to the competitive pressure of the market forces looking for cheap land and low rent. Naravanganj became saturated to a level that discouraged new investment. A process of decentralization took place and the process is still continuing. The Government also consciously persued steps to encourage decentralization of the cotton textile industries. However, Naravanganj still has the largest concentration of looms among all regions of Bangladesh (see

Table 4. Distribution (%) of spinning and composite mills by number of spindles installed in the years 1975/76 and 87/88

Group by number of spindles installed ('000)	Spinning mills only (percentage)		Composite mills only (percentage)	
	75/76	87/88	75/76	87/88
0-4.9	0	2.38	0	0
5-9.9	12	0	0	0
10-14.9	60	50	33.3	25.93
15-19.9	20	7.14	12.5	18.52
20-24.9	4	9.52	16.7	14.81
25-29.9	4	28.57	12.5	11.11
30-34.9	0	0	8.3	18.52
35-39.9	0	2.38	4.2	7.41
40-44.9	0	0	4.2	0
45-49.9	0	0	4.2	3.7
50+	0	0	4.1	0
Mean size	13,900	17,742	23,750	23,333
Median size	13,160	14,600	21,250	24,400

Source: BTMC Annual Report 75/76; Textile Directorate 1988.

Table 5. Distribution of composite mills by number of looms installed

Categories	100	101 -150	151 -200	201 -250	251 -300	301 -350	351 -400	401 -450	451 -500	501 -550	551 & +
Number of mills	1	1	6	7	1	3	1	1	2	2	
Percentage	3.7	3.7	22.22	25.93	3.7	11.11	3.7	3.7	7.41	7.41	7.4

Mean size: 303 Median size: 21

Source: Textile Directorate '88.

Table 6. Locational trend in terms of distribution of spindleage installed
(percentage)

Location	Up to 1949	Installed between 1950-59	Installed between 1960-76	At present 1987-88
Dhaka	3.13	40.24	24.35	17.74
Narayanganj	76.73	6.61	0.00	11.85
Tongi	0.00	28.40	21.39	13.00
Chittagong	5.06	17.58	21.64	13.64
Others	15.08	7.18	32.57	43.77

Source: BTMC 76; Textile Commission 1960; Muslim 1969 & Textile Directorate 1988; see also Chowdhuru 1977.

figure 2). A detailed picture of the regional distribution of spindles and loom as of 1988 can be seen in Table Appendix B.

3.1.4 Product specialization

In order to understand the product specialization trend, it is of interest to look at the spindle/loom ratio for a selected period [Chowdhury 1977].

Various establishments may have the same degree of specialization in cloth and yarn and still produce different qualities. Specialization in finer varieties, whether yarn or cloth, require a higher spindle/loom ratio. Different extents of specialization in cloth relative to yarn may also require a higher spindle/loom ratio. The links to the markets for yarn depend on the degree of specialization in fine relative to coarse varieties of cloth. Moreover, some firms enjoy advantageous access to financial and organizational means and thereby can reach a higher spindle/loom ratio to keep their looms fully utilised. It is plausible to assume that if the typical spindle/loom ratio of the industry rises over the years, it implies a shift either towards specialization in yarn as compared to cloth or towards specialization in finer types of output as compared with coarser ones.

The mean spindle/loom ratio of the cotton textile mills of Bangladesh increased from 45 in 1947 to 78 in 1959 and 88 in 1976 (see

Figure 2. Locational Distribution (%) of Looms

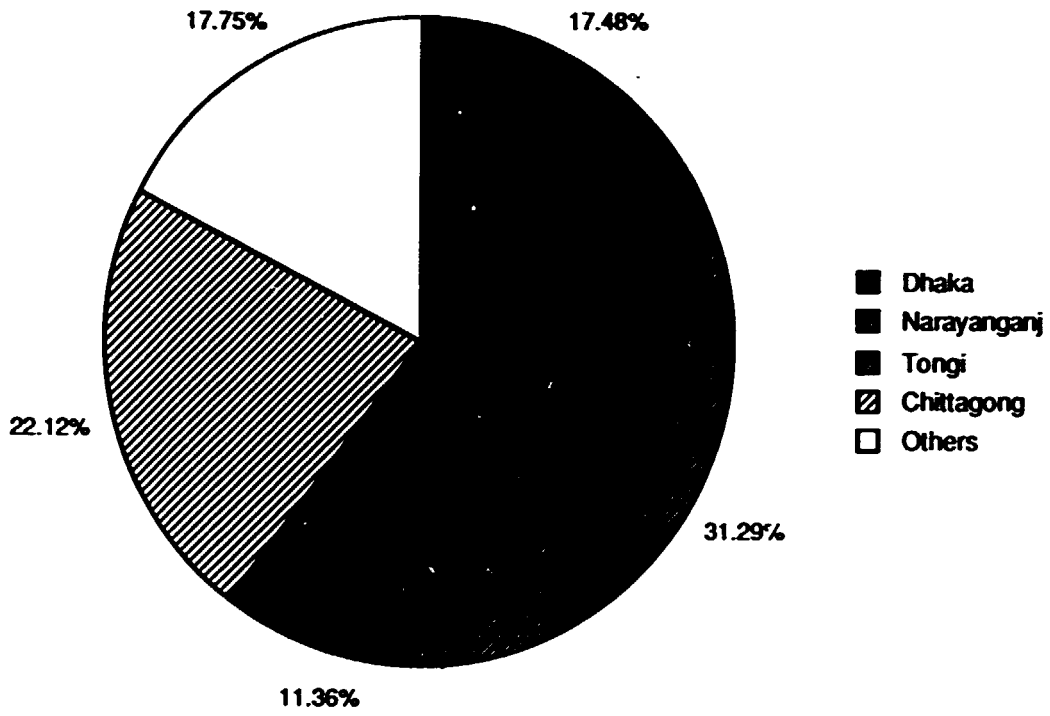


table 7). Since then it has remained fairly stable. The coefficient of variation in the spindle/loom ratio was low in 1947 but was quite high in 1959 and 1976. This suggests that the product specialization of the composite mills has become less pronounced. The mills did not specialize in different varieties of woven cloth. Towards the end of the sixties, the medium variety of cloth predominated among the mills' output.

Table 7. Distribution of establishments by spindle/loom ratio at selected periods during 1947-88
(percentage)

Spindle/loom ratio	August 1947	September 1959	June 1976	April 1988
0-50	75	30	12.5	11.11
50-100	25	60	58.3	66.67
100-150	-	-	20.8	14.81
150-200	-	-	4.17	7.41
200-250	-	10	4.17	-
Mean ratio	44.77	78.29	88.09	86.52
Standard deviation	16.6	46.55	58.61	33.45
Coefficient of variation	37	59	66.53	38.67

Source: BTMC Annual Report 1975/76; Textile Commission 1960; Muslim 1969; see also Chowdhury 1977.

It is to be noted that the coefficient of variation for 1988 is 38.67, significantly lower than 1959 and 1976 suggesting an emerging coherence in specialization between establishments and a more defined linkage to the market.

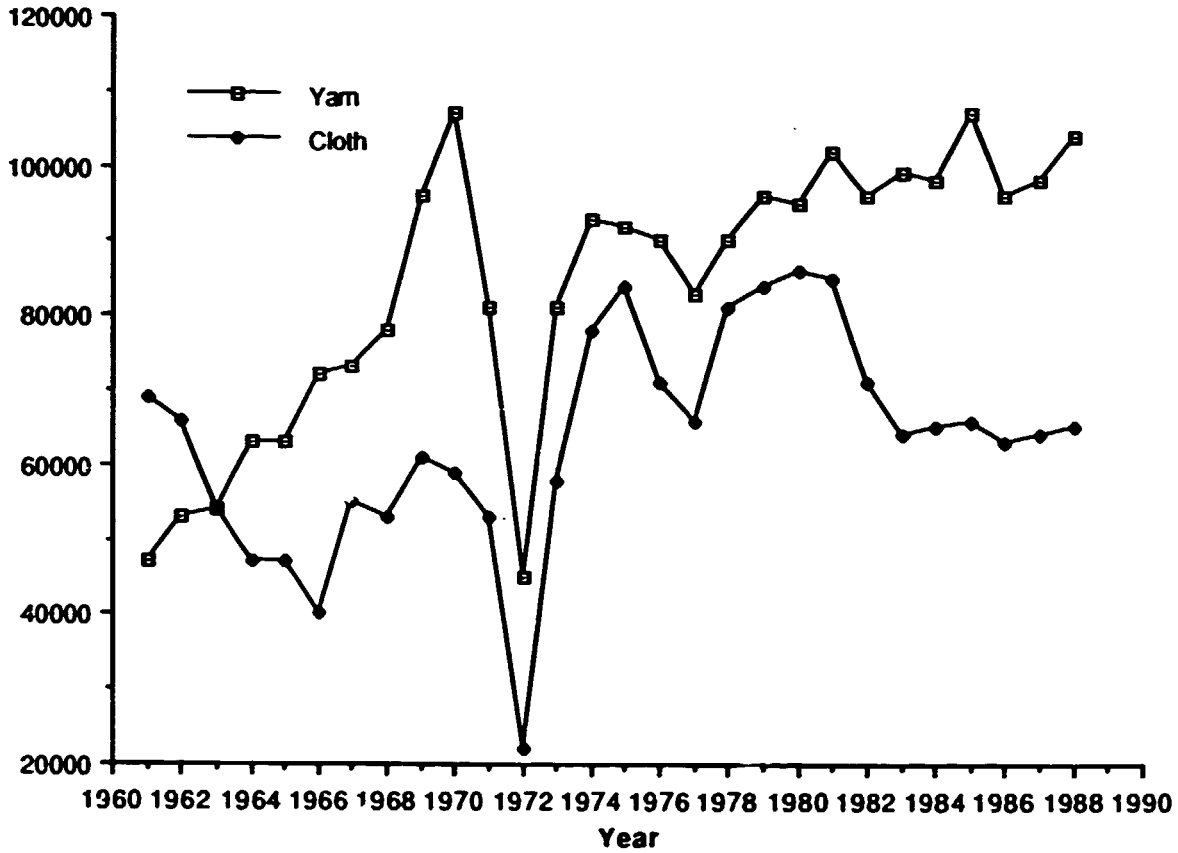
Cloth and yarn production gradully declined until the middle of the 1960s. Thereafter it has risen appreciably except during the liberation period. But in the eighties cloth production declined again and the industry now shows a clear trend towards increased yarn production compared to cloth.

But yarn production has not reached the level of the pre-liberation period. This has caused a serious shortage of yarn for the handloom sector, because the mills need the yarn for their own internal consumption as an intermediate raw material (see Appendix Table C). The situation has been aggravated by the stopping of imports of yarns from Pakistan after the independence.

3.1.5 Productivity

The spinning capacity of the cotton mills shows a declining trend if the quantity of cotton processed per active spindle is taken as an index of productivity. This can be seen in table 8. Cotton processed per spindle per year has been computed by averaging data for the corresponding years. The period between 1966-70 showed an upward trend

Fig. 3 Yarn and Cloth Production, 1961,....,1988



Source: UNIDO Secretariat after UBINIG original

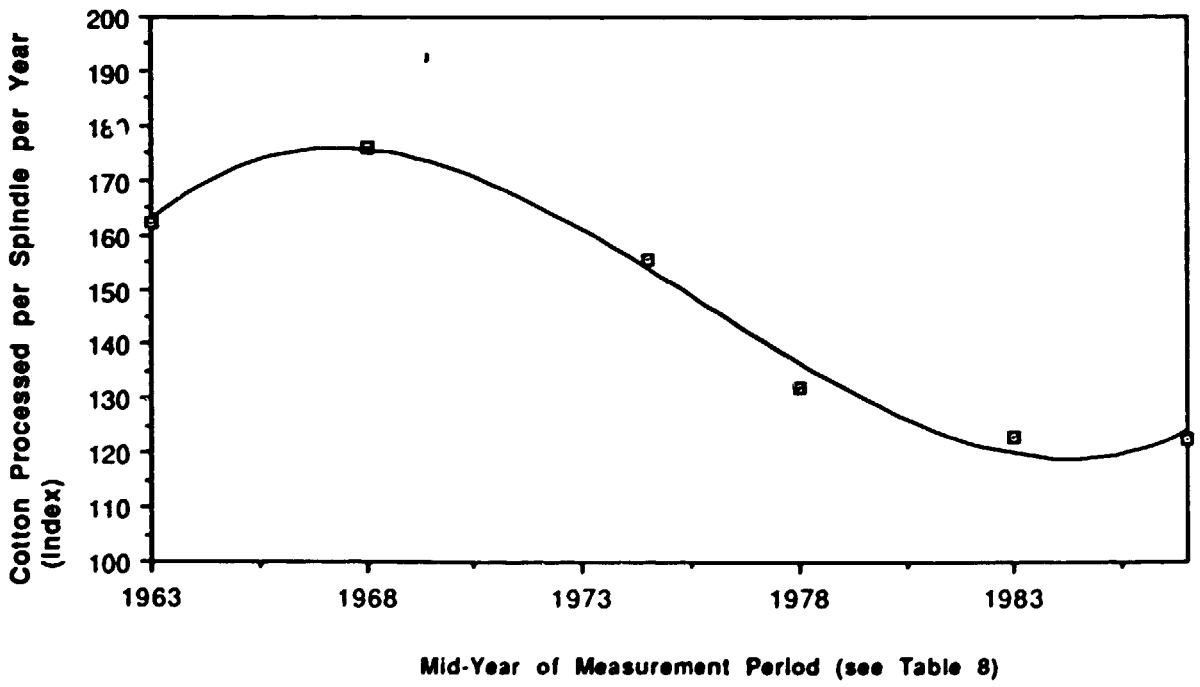
Note: Cloth is in million of square meters;
the unit for yarn is unknown to the Secretariat

Table 8. Productivity index

Selected period	Index of cotton processed per spindle/year
1961-65	162.2
1966-70	176.1
1974-75	155.4
1976-80	132.2
1981-85	123.2
1986-88	122.4

due mainly to the then prevailing entrepreneurial enthusiasm and profit-oriented management of the privately owned industries. The productivity began during the years of 1974-75 to decline due at least partly to the nationalization policy of the Government and the political instability. But, the policy of liberalization that has been systematically followed after 1975 failed to demonstrate any positive sign either. Note that we have excluded the years 1971, 1972 and 1973 mainly due to lack of data as well as for their being war years or immediately after the war years.

Fig. 4 Productivity of Cotton Processing, varying periods, 1961,....,1988



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4. HANDLOOM

4.1 Handloom - a traditional clothing industrial sector

The handloom sector is the largest single supplier of cloth to the population of Bangladesh and it is the second largest employer in the rural areas. Accordingly, the significance of the sector to the economy of the country as well as the lives of the people is great.

4.1.1 A brief historical background

On the Indian subcontinent, the history of the handloom industry dates back to the early 17th century. The area, now called Bangladesh, attained an appreciable degree of performance and efficiency in the art of handloom production and was highly acclaimed throughout the world. The handloom products were exported and acknowledged around the world for their craftmanship and quality.

The growth of the handloom industry was hindered by the advent of the industrial revolution in England and the consequent political changes in the country. Apart from the colonial-political environment affecting the social and economic fabric of the whole society, the contemporary processes in the world economy materially changed the domestic conditions of production. The new source of cotton and the evolving cheap and efficient production technique of the Lancashire factories delivered the decisive blows to the handloom enterprises of Bengal.

Lancashire cloth was of coarse and medium type. It competed directly with home-based weaving. The latter was not decisively separate from the agricultural activity during that period although there were clear signs of its emerging as an independent sector of production. The industrial revolution in England destroyed this possibility and redefined the relation of the rural households to the world economy, setting in motion a new international division of labour.

The historical literature often emphasizes that the colonial period destroyed the tradition of producing superfine cloth such as muslins. These products were the fancy of the Mughal court, families of Nawab and other elite classes of the society. They were exported to other countries as precious goods to be acquired from the exotic India. It is definitely true that with the decline of the Mughal empire and royal elites, the market for specialized fabric declined and the colonial policy decisively hindered the survival of the specialized weavers. The effect on the overall structure of the economy, however, requires critical review.

Two points need mentioning here that are extremely relevant for this study. The first is that specialized weaving - along with its craft-like artistic excellence - has survived the colonial onslaught. It is still doing quite well, producing excellent cloth. At least two types of cloth expressing this tradition have a considerable market in Bangladesh, e.g. Jamdani and Tangail Booti. They still are produced in old and primitive pit looms and depend for their quality on the creative ability of the weaver as was always the case. The artistic

ability has an inner resilience immunizing it to the destructive trends in technology and fashion. The second point is, that the disappearance of the home-based weaving, important for personal consumption and for a limited market, has imparted a deep wound in the rural economy of Bangladesh. Thus, the emergence of the handloom sector in Bangladesh did not evolve as a result of the usual process that gradually develops a division between agricultural and industrial activities in an economy. In Bangladesh, The Chittagong Hill Tracts area remained outside this process. In this part of Bangladesh, the tribal communities continued to produce their own traditional cloth almost entirely for their local consumption. The unity of agricultural and industrial activity has not been separated in this case because, for geographic and historical reasons, the tribal societies remained outside the orbit of global capitalism, mediated and conditioned by the colonial era.

The Swadeshi Movement, started in 1906, contributed in regaining a new lease on life for the handlooms. This movement advocated the boycott of Lancashire cotton cloth and appealed to the masses to use indigenous cotton cloth. Nonetheless, the larger market developed for machine cloth that was cheaper than handmade cloth and had a smart finishing that attracted the eye. But there remained a demand for coarse, medium and fine cloth produced on handlooms. The important handloom pockets of Bangladesh are Baburhat, Tangail, Shahjadpur and Feni.

The import of Lancashire cloth started to decline and during the First World War it had practically ceased. The handlooms of Bengal prospered partly thanks to the market gap created by the absence of imported cloth but most importantly due to the rise of cloth prices. After World War I, the anticolonial and independence movement kept the demand for handloom cloth on the increase. In the course of the movement and of the national awareness, hand-spinning and hand-weaving acquired merit and dignity of their own, although hand-spinning practically disappeared by 1930.

The 30s and 40s were the period when the handloom as a profitable activity spread among the population already engaged in agricultural activity. Handloom weaving during this period became an off-time occupation fo many peasant families. The peasant weavers were in a better competitive position than weaving mills because of cheap labour and low capital cost. This trend continued until the partition of India in 1947.

It is difficult to estimate the number of looms that were in existence at the time of partition. The Census Report of 1951 indicated a figure of 183,251 looms with a total number of workers of 407,332.

Since the partition of India in 1947, migrational trends affected the handloom sector. A large number of Hindu weavers migrated to India, while many Muslim weavers crossed the border and settled in Bangladesh. Migration was at its height during the partition years (1946-48), the 1965 India-Pakistan War and during the liberation war period of 1971. A significant number of Hindu weavers continued to migrate until 1975 despite the predominance of secular politics in Bangladesh.

It seems that migration of Hindu weavers to India has not hindered the weaving activities of Bangladesh to the same extent as did the migration of the Hindu merchant financiers and traders. Weaving activities spread among the marginal Muslim peasant households and learning the skill was not difficult. But there was no equally competent financier and trading class in Bangladesh who could replace the departed families. This has seriously fragmented the sources of capital and considerably damaged the trade and distribution structure of weaving products [Miyan 1978].

4.1.2 The handloom industry and its contribution to the economy

In Bangladesh, it has been estimated that there were approximately 162,000 handloom establishments (as of 1986-87) employing an estimated 780,000 (including part-time) workers. This workforce represents the second largest source of industrial employment outside post-harvest paddy processing. The handloom industry thus contributes 2.6 per cent of the national labour force and 6.3 per cent of the industrial labour force [Sobhan 1989].

In the handloom sector, we observe several types of establishments. The home-based establishments operate 1-2 looms using household labours. They account for 55 per cent of all handloom establishments but only 15.4 per cent of the total weaving capacity. The second type is karkhana or factory establishments. The larger ones use 20 or more looms. They largely employ wage labour; household labour accounts for less than 3 per cent of the labour force. The small karkhanas, operating 6-19 looms, employ slightly more household labour, although these still comprise only 15 per cent of the total enterprise labour force. In between the karkhanas and the household establishments, there are 3-5 loom enterprises. They range from big households using largely family labour to small factories with a small but predominantly hired labour force. These account for 22.3 per cent of the establishments and 17.6 per cent of the weaving capacity [Sobhan 1989].

The handloom weaving, whether in small, medium or karkhana enterprises, uses family labour. This implies that the use of female family labour and children is an integral characteristic of this industry. Unfortunately, the statistics do not give an estimate of the number of female workers involved in the entire handloom sector. The district statistics of persons employed in industry show that 58 per cent of all persons employed in the handloom industry consists of family members [Miyan 1978]. Clearly, this means that the extent of women's involvement in this industry is quite substantial. Only 42 per cent of all the persons employed in the handloom industry is hired. This in turn indicates that women are not always hired but are engaged in the sector as unpaid family members.

Observation reports [UBINIG 1987] show that the role of women in the weaving sector is extremely important. Without her contribution the weaving cannot even start because all the pre-weaving processing is done by women either as family labour or as hired labour in the karkhanas. This activity has been done by women for years and will so continue. Bu her role has never been recognized. This non-recognition is reflected in the terminologies and language - by "weaver" we often

mean male weaver. That is, the operator of the looms are recognised, while the other operations are seen as less important or as support services. Traditionally women, except tribal women, do not run the loom because of the patriarchal culture as well as due to the household division of labour Women perform the household chores of cooking and looking after children which prohibit them to sit behind the loom. Women who are free from such responsibilities can operate the looms. They are the widows, divorced or abandoned women - which means poor women. These women offer themselves for employment in various outside jobs including handloom weaving activities.

The women workers in the handloom sector enjoy the status of paid labour for the same kind of jobs they have been doing in their households. But at the same time they do not enjoy the benefits of becoming a factory labour, because the working conditions and the rights as workers are not guaranteed under the karkhanas system of the handloom industries.

In most of the weaving areas men are migrating from one area to the other to be employed as handloom workers, while women are the local workers. Through their involvement in the family weaving activities they learn the basic skills for the pre-weaving processing activities.

4.2 Discussions of the handloom industries visited

We have taken three different areas with distinct differences in handloom production and technology. They comprise pitlooms and semi-automatic looms. We shall describe these three areas separately and then compare them with respect to the involvement of female workers.

The three areas are:

(a) Village Noapara in Rupganj upazilla of Narayangani, typical of Jamdani handloom, a very special weaving craft of Bangladesh;
(b) Village Balla in Kalihati upazilla of Tangail where the traditional handloom weavers shifted to semi-automatic Chittaranjan looms; and
(c) Village Kayemkhola in Pabna with traditional factory operations using semi-automatic looms.

4.2.1 Jamdani weaving in Noapara

Among others, we visited the factory of Haji Kafiluddin Bhuiyan, a traditional and skilled Jamdani weaver. In his factory there are 50 looms employing 100 weavers. Each loom requires a skilled weaver called Karikar and a helper called Harkit. Usually women play the role of the Harkit, while a man is the Karikar. The task of the Karikar is to weave and put on the design and the Harkit sits on the left hand side of the Karikar, puts on design and keeps the bobbin ready for the shuttle.

The apprenticeship of the Jamdani starts at a very early age. It is common to see an adult Karikar with a boy or girl of 7/8 years on his left side.

The Karikar is entirely responsible for making the product. There is a contract between the Karikar and the owner of the loom and capital to produce a sari. This contract stipulates the design, colour and texture of the cloth to be made. The wage is fixed accordingly. The payment to the Harkit is made by the Karikar. The wage decided upon in the contract between the Karikar and the owner includes the wage for Harkit. The Karikar is free to employ his Harkits from the village. If the Karikar can produce saris at his own loom at his house then he usually uses his family members, including children and grandchildren.

The payment to the Karikars are made partially in advance and partially after the production of the saris. The advance payment can be between Tk.5,000 to Tk.25,000. Harkits are also given an advance payment from the Karikars from Tk.2.000 to Tk.10,000. The higher payment requires longer days of work. To complete a sari may take one week, or even 4 to 5 months. The more skilled weavers (Karikar) can earn more, even though the sari takes longer time to finish. These are the craft products.

An owner can make contracts with a Karikar for a year during which time the Karikar and Harkit will work on the looms of the owner. But the working hours and conditions for the Harkit will be determined by the Karikar. The usual working hours are 6 a.m. to 6 p.m. with a two hours lunch break.

The production process of Jamdani weaving is the following:

(a) Pre-weaving processes including dyeing, starching, bobbin making;
(b) warping;
(c) reed preparation and fixing the loom;
(d) weaving; and
(e) starching.

The pre-weaving processing of yarn is done by women for which they are paid Tk.10 to 12 per day.

Warping or Tana: The warping is done either by walking or by drum. Warping by walking is still the traditional form; the drum was introduced in this area only in 1987. Before warping, the yarn is rolled into bobbins known as noli. These bobbins are then put into a frame. In warping done by walking, there are only 50 to 100 bobbins, whereas in drum warping there must be more than 100 bobbins, up to 200 bobbins. A Karikar buys the warp and simply starts weaving. Warping by walking takes longer time than by drum. For example, by drum three to four warps can be made in a day, while by walking only one or two warps can be made. It is interesting to notice that there is a sharp division of labour between the pre-weaving activities and the weaving activities. The pre-weaving activities are not done by the Karikars. It is done by a separate group of people.

Combing or Shana and fixing the loom: After the warps are made, combing is done. Shana is the comb through which the threads of warp are to be passed. It takes about two to two and half hours to do the job of combing. Then the loom is fixed for warping. It is called Baw

fitting. It takes two to three hours. This job is done by women for which they are paid Tk.10 to 12 per day.

Weaving: After the loom is prepared, the weaving is done by the Karikar and Harkit. The length of time required to weave a cloth depends entirely on the design. The more lubricate the design, the longer will be the time to complete a sari and also the higher will be the price. For example, a Karikar can weave only 7 to 8 inches in a day if both he and the Harkit work for 12 hours for a sari worth Tk.4,000 to Tk.4,500 at the current market price.

Starching: After weaving a portion of the sari, a fine starch made of rice is put on the sari till the next day.

The Jamdani workers are all local. Usually they are from traditional families having weaving as their family occupation. Women are involved in both the pre-weaving stages and during the weaving activities. But their recognition is less than that of the male weavers. In weaving, they are hired only as Harkits and not as Karikars, though the skill levels are the same.

Sample cases of women involved in various production processes in Jamdani weaving:

Women in difficult situations are certainly the ones who are seen in the paid job of Harkits. But wives or daughters can also act as Harkit, albeit as unpaid labour. The following three cases are illustrative.

(i) Razia Begum: Harkit

Razia Begum is 27 years old. She was married but was divorced due to her inability to manage dowry from her parents. She has a son who is two years old. Ths son lives with her. After the divorce, she first came back to her brother's house but soon realized that he was not able to support her. In her childhood, she had learnt weaving because her father was a Jamdani weaver. Now, to earn an income she took the job of Harkit in a Jamdani factory. On the average, she earns Tk.200 per week.

(ii) Kulsum Begum: Harkit

Kulsum is only 11 years old. Kulsum's father died whereafter she had to depend on her brother. The brother married twice, so he stopped supporting her. Kulsum had to look for her own livelihood. Soon she got a job as Harkit. She earns Tk.150 per week by which she supports herself and her younger brothers and sisters.

(iii) Shilpi: Harkit

Shilpi is 12 years old. Her father died. Her brother is a Karikar. She found that if she helps her brother as a Harkit then he can earn more income. They jointly support the family.

4.2.2 Semi-automatic loom activities in Balla, Tangail

Balla was a traditional pitloom weaving area in Tangail. In the mid-sixties an entrepreneur called Haji Solaiman introduced the semi-automatic Chittaranjan loom to his area where many weavers were loosing their jobs. This history illustrates the radical transformation in loom technology in traditional weaving areas. According to Haji Solaiman:

> "Once I went to Enayelpur in Pabna for tannery business. I was waiting in a tea stall while I heard the shuttle of looms which sounded different to what we have in Tangail. I enquired about this loom and decided to start in our area.
>
> I organized three weavers to work in a factory. I brought the looms from Pabna and also took the weavers there to get training. They were not interested; but I forced them. Everybody thought I was mad. But gradually I could convince the weavers."

In Balla, the weavers are producing coarse saris with 40x40 count yarn to meet the demand of common people. Haji Solaiman tried to improve the quality of the saris by using higher count yarn, but the majority of the looms are still producing coarse clothes.

Women are involved in the pre-weaving processing of yarn. In our sample factory, named Haji Habibullah, there are 200 looms with 150 women involved in the pre-weaving processing. They are working in one common place. The supervisor of the female workers is also a woman. All the women employed in the pre-weaving processes are from the local areas. They come very early in the morning and stay for about 12 hours. These women have to cook their lunch before coming to the factory and cook dinner after going back. They bring along their small children to the factory. Women who are working in these factories are poor. The other options they have are to work as earth cutters under the food-for-work programme. Women prefer these jobs which guarantee a longer term employment. Socially they feel it is better to work under the shed of a house than to work on the roads. The income is based on the productivity of the workers measured in the number of bobbins made. The average earning is Tk.40 to 60 per week.

Women were not found in the operation of the looms. Neither are local weavers employed in these jobs. Most of the weavers are from other parts of Tangail and Sherpur. They are known in the village as "Bideshi" -the foreigners. Those who want to learn the skill of the semi-automatic loom operations have to make "kinship" relations with the weavers coming from outside by calling them uncle, big brothers etc. For women it is difficult to make such relationships with these "foreign" weavers and therefore do not have the opportunity to learn the necessary skills. But they all feel that if they were taught, they certainly would learn the skills.

4.2.3 Semi-automatic looms in Pabna

In Pabna, the Chittaranjan semi-automatic looms have been used for a long time. The looms are set up as a Karkhana or factory system. There are more than 100 looms in each of these factories. Here they use yarn of much finer qualities. They use yarn of at least 60 x 80 counts,

even 82 x 82 counts. They are also using jacquard machines for designs.

The processes of weaving are the same as with the pitlooms except that the production is carried out on a larger scale. They consist of pre-weaving processing of yarn, warping, combing, reed making, fixing the loom, weaving and starching.

The weavers are employed by the owner of the factory. The weavers, mostly male, are coming from different places of the country. Women are employed in the pre-weaving processing sections. They are also working as helpers in the dyeing sections together with the male workers. The female workers are an integral component of this industry.

Wages paid at different levels of production

(i) Warping is done in the drum. The Drum Master is paid Tk.1,000 monthly. The Drum Masters usually are men.

(ii) Dyeing is done in the factories. Women work as helpers in these activities. The wages paid are in accordance with the amount of yarn dyed. For dyeing 10 pounds of yarn, Tk.42.00 is paid.

(iii) Bobbin making is done by women in the factory. They are paid according to the number of bobbins made per day. The rate of payment is Tk.2.00 for a bobbin with 0.25 pound yarn. A woman can earn Tk.20.00 per day by making bobbins with 2.5 pounds of yarn.

(iv) Reed making and baw fitting is done by two persons in three hours time. They are paid Tk.30.00 for this job, both men and women do this job.

(v) Weaving is done by male weavers. They make saris or other products in the semi-automatic Chittaranjan looms. Simple Than sari of which a weaver can make four in a day, fetches Tk.15.00-18.00 per sari. Thus a weaver earns a minimum of Tk.60.00 per day. With jacquard design, a weaver can make 3 saris per day for which he receives Tk.22.00-Tk.35.00 per sari: thereby earning a minimum of Tk.66.00 per day.

The women are quite visible in these factories. But unfortunately, due to the problems of accomodation for the female research team in Pabna, the interviews with the female workers could not be carried out. Therefore, the information we have about women workers comes mostly from the male weavers.

5. LABOUR AND EMPLOYMENT

5.1 General information about the workers

5.1.1 The sample of workers

The industrial workers selected in 29 factories are broadly categorized as textile, handloom and garment workers. The total number of workers interviewed is 242 out of which 49 are female. Thus, 20 per cent of the total sample consisted of female workers. It is important to note that although the focus of the study is mainly on the female workers and every effort was made to interview women, a large number of male workers were sampled. The reasons were:

(a) There were no female workers in some of the preselected factory establishments;

(b) since we had to depend on the permissions from the Department of Textiles, we had little choice in changing of samples according to our need: and

(c) in order to get a complete picture of the entire industry and to be able to analyse the situation of the female workers in it, it was important to interview male workers as well.

In each factory we tried to obtain as large a sample of female workers as possible. Except in garments, we took a maximum proportion of female workers and a minimum proportion of male workers.

The total number of workers selected for the interviews was constrained by management personnel who were concerned about letting the workers take time off from production. Moreover, the managers believed that they are perfectly in position to provide information about the workers.

Every attempt was made to reflect in the sample the correct proportions of skilled to unskilled workers. But as shown in table 9, it turned out that workers who are already on the payroll as a permanent worker are considered "skilled" regardless of actual skills. In other words, "skill" is not really based on specific skills but mostly on the basis of length of working in the respective factory. Therefore, in the random selection of workers it appears that 95 per cent of the workers belong to the category of skilled workers.

Female workers are not employed in all sections of the sample factories. Management believes very strongly that female workers will not be able to work with big and complicated machines. Due to this belief the division of labour among the male and female workers is very sharp and shows the sexual bias in the recruitment of male and female workers in different sections. Among the different sections of the textile industry, female workers are mostly found in the spinning sections and sometimes in the blow room; in dyeing and printing, female workers are helpers or auxiliary workers; in handlooms, they are mostly

Table 9. Sample of workers by skill and gender

Industry sections	Male	Female	TOTAL	Skilled male	Skilled female	TOTAL	Unskilled male
	Percentage						Absolute number
Textile							
Spinning	39	26	37	42	27	39	
Weaving	24	4	20	21	4	17	9
Dyeing	7	0	5	7	0	6	
Printing	8	6	7	8	4	7	1
Handloom							
Winding	1	4	2	1	4	2	1
Drumming	3	4	3	3	4	3	
Dyeing	1	0	1	1	0	1	
Loom-operator	2	0	2	2	0	2	
Garment							
Cutting	7	4	6	7	4	6	
Sewing	3	26	7	3	27	8	
Finishing	2	6	3	2	6	3	
Quality control	3	18	6	3	19	6	
TOTAL %	100	100	100	100	100	100	
Total number	193	49	242	182	48	230	11

in the pre-weaving processes of spinning, winding and drumming; and in garments, the involvement is mostly in sewing and quality control type of works.

However, in one textile factory we found that a large proportion of the female workers are used to operate machines. This is an interesting case; therefore a case study of this mill will be provided in the last section of this chapter.

5.1.2 Basic information about the workers

Some basic information about the workers is presented in the following. It concerns age, educational qualifications, original home districts, background information before joining the industries and reasons for joining as industrial workers. The comparison of the conditions of the female workers to those of the male workers will give a better understanding of the role of the former in the textile and garment industry in Bangladesh.

Age and educational qualifications of the workers

The age structure of the workers in the textile, handloom and garment branches is very different. While the majority of the workers in the textile branch are over 24 years of age, the situation in garments is just the opposite. In handlooms, however, the age distribution is more even. The kind of work and division of labour requires both young and old workers. Often family members including children, wife and husband and a number of hired workers constitute a factory. The consolidated table on age and education of workers in the sampled factories is given in the Appendix. For quick reference, the salient characteristics of the workers' age are shown in the figures below.[1]

The educational attainment of the industrial workers in general is higher than for the population in general. According to the national statistics for males [BBS 1989], 58.9 per cent are illiterate, 24.2 per cent have read up to primary level, 10.6 per cent have read up to secondary level, 5.1 per cent have got an HSC, and 1.2 per cent have a graduate degree. Among the 193 sampled male workers, only 14 per cent were illiterate, 12 per cent could sign their names, 23 per cent have education up to primary level, 32 per cent have got secondary level education, 7 per cent have a SSC, 6 per cent have an HSC and 3 per cent have a graduate degree. On the other hand, the national statistics about the education of women show that 76.2 per cent are illiterate, 17.8 per cent have read up to primary level, 4.7 per cent have read up to secondary level, 1.1 per cent have got an HSC and 0.2 per cent have got a graduate degree. Among the 49 sampled female workers, only 12 per cent were illiterate, 6 per cent could sign their names, 22 per cent have education up to primary level, 43 per cent have got secondary level education, 6 per cent have a SSC, and 10 per cent have an HSC. It

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[1] Carefully note that the absolute numbers behind the figures are in many instances very small (see the table in the Appendix) rendering any general impressions very uncertain (remark by UNIDO Secretariat).

Fig. 5 Age Structure of Male and Female Workers, Textile Branch

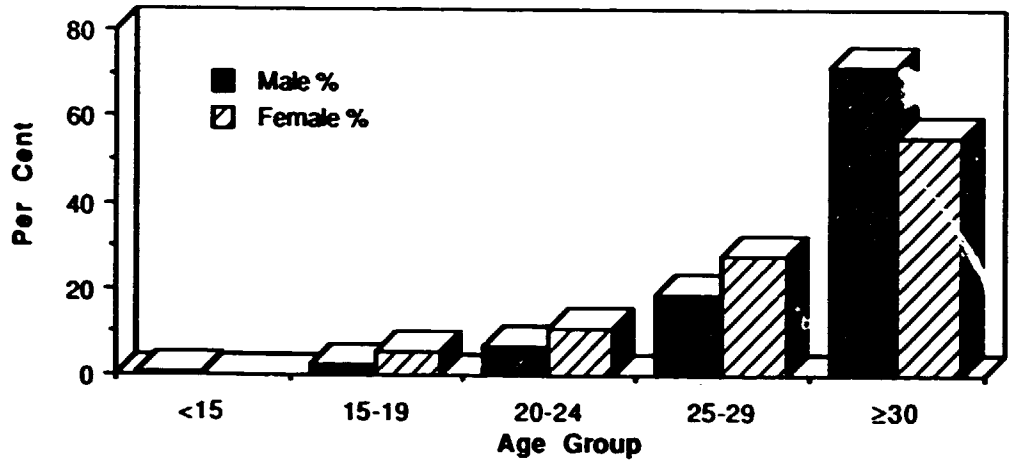


Fig. 6 Age Structure of Male and Female Workers, Garments Branch

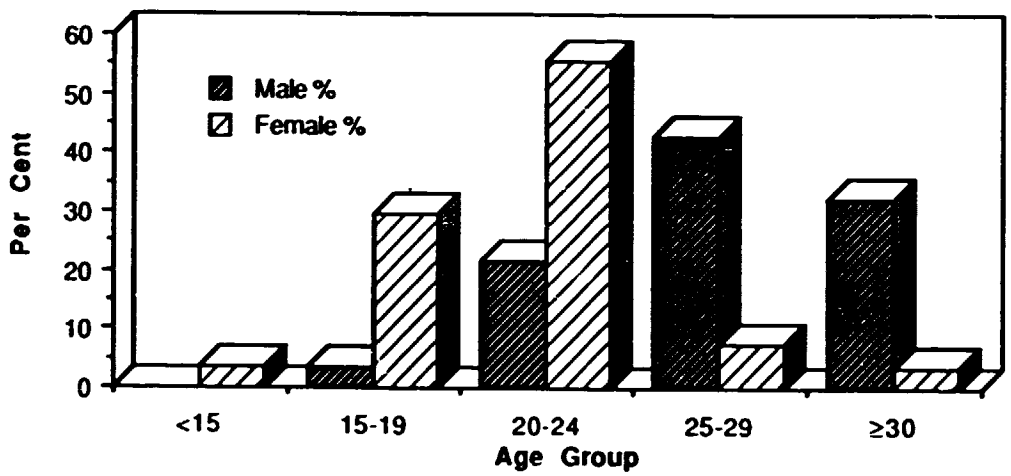
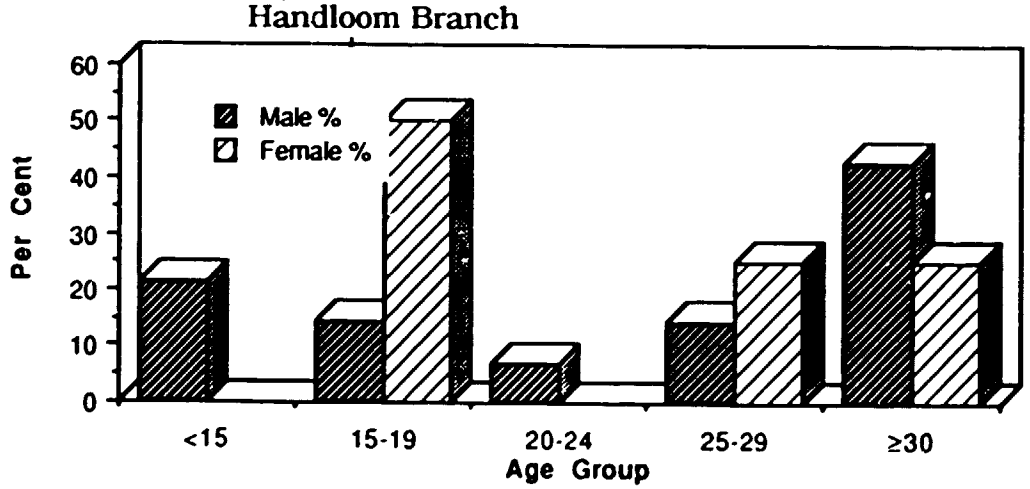


Fig. 7 Age Structure of Male and Female Workers, Handloom Branch



needs to be mentioned, however, that the sample is too small for a definite comparison, but it is important to see where the situation of the sampled workers lies in terms of national statistics. Perhaps the higher level of education is found because of the job requirements in those industries. But it was also found in some cases that overqualified male and female workers have taken up a job in the sampled factories. This trend is especially noticeable among female workers because the options open for a woman holding a SSC or an HSC degree are very few. Therefore, they seek jobs as workers in the textiles, garments or similar industries. In the handloom factories, being traditional and hereditary, the educational requirement is less important than the skill.

In the following figures 8-10 the educational attainment of the workers in the textiles (including dyeing and printing), handloom and garment branches are shown. The figures show very clearly that the garment factories draw more educated workers. They also show that the new generation of the educated men and women consider working in industry as one of their options. Nonetheless, the lack of other options is clearly the most important reason for the educated people to seek jobs as workers in the textile and garment industry.

Original home districts of the workers

The industrial workers have been moving from one district to another for the sake of getting a job. The mobility of workers is very interesting and industries like textiles and garments have created a lot of temporary migration from one area to another. The sampled male workers in 6 areas came from more than 23 districts of the country. Female workers were found to have come from at least 13 districts.

An investigation into the mobility of female workers shows that in the textile and garment factories located in Chittagong, women have come to work from as far as Barisal, Pirojpur and Bagerhat. In Dhaka, workers are coming from Faridpur, Comilla, Noakhali, and Chandpur. The mobility is less, however, in areas such as Pabna, Jessore and Satkhira. The mobility of both male and female workers is shown on the map in the Appendix to this chapter.

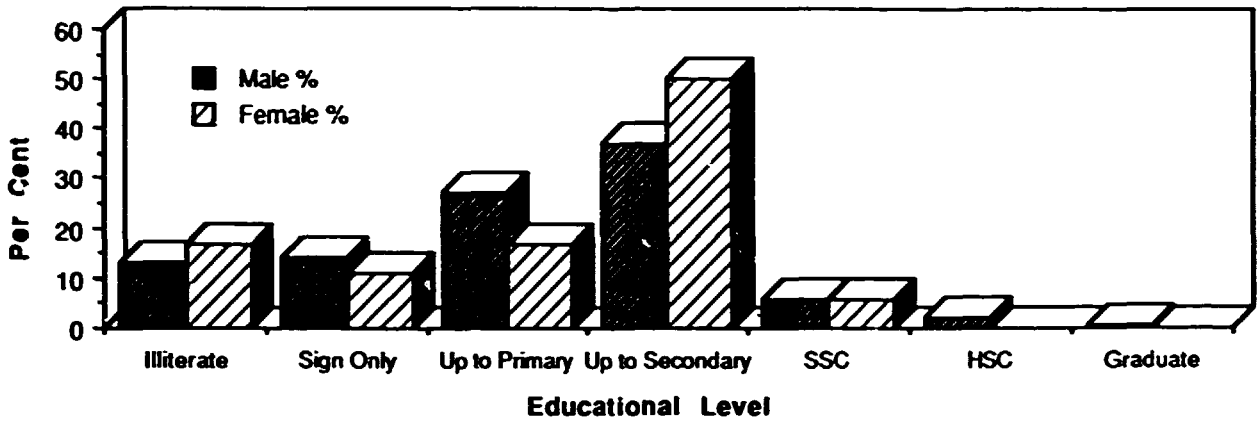
The handloom factories rely mostly on local workers, especially women.

Previous experience of the workers

There are variations in the previous working experience of workers in the textile, handloom and garment industries. The previous working experience includes working for wage. About 50 per cent of the male workes in the textiles have previous working experience either in similar industrial work, other formal employment, small business, or wage labour. In the case of female workers in textiles, 13 (72 per cent) out of 18 workers had no previous experience, only two were working as wage worker and three had worked in other industries also.

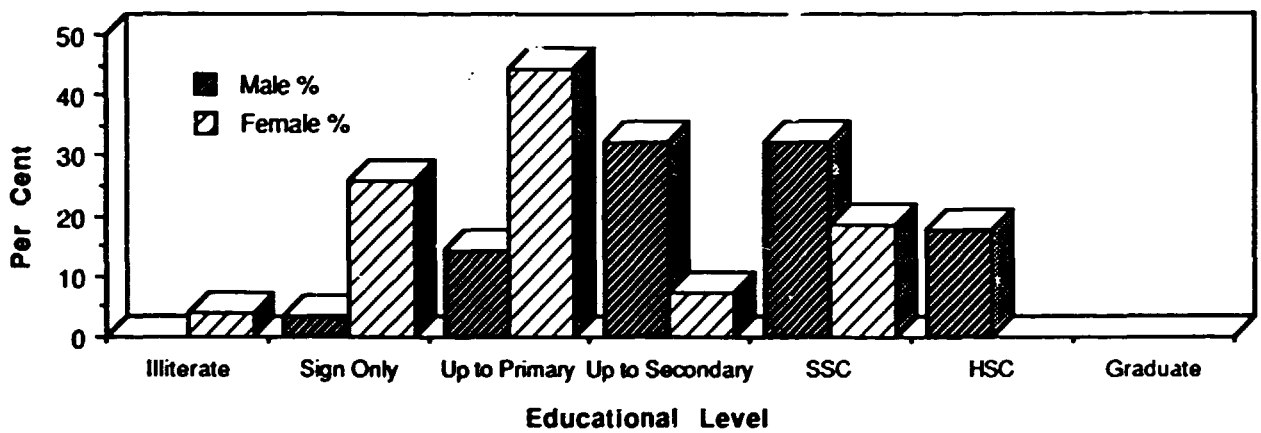
Working in a handloom factory often emerges out of the traditional family connection to the occupation. This is seen both in

Fig. 8 Educational Attainment of Male and Female Workers. Textile Branch



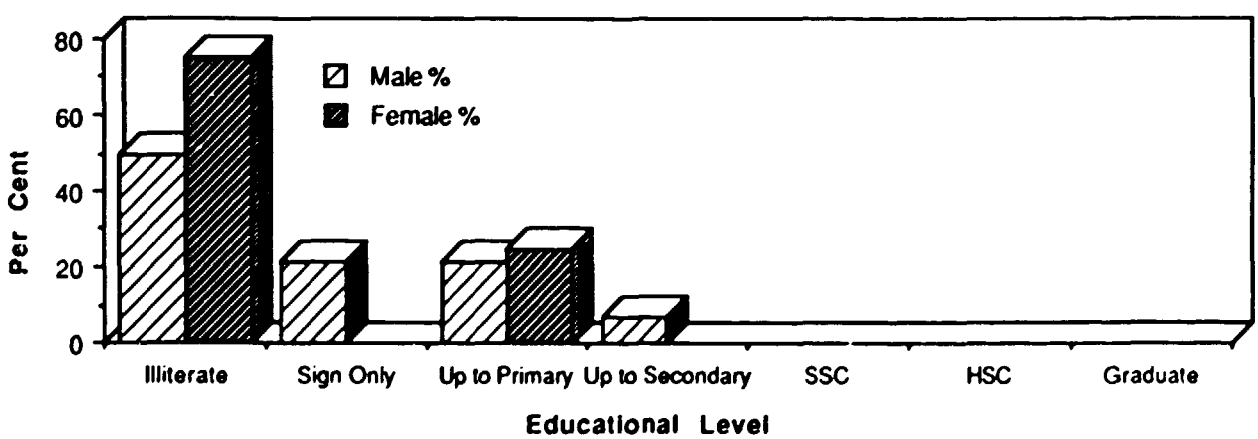
Source: UNIDO Secretariat after UBINIG data

Fig. 9 Educational Attainment of Male and Female Workers. Garments Branch



Source: UNIDO Secretariat after UBINIG data

Fig. 10 Educational Attainment of Male and Female Workers. Handloom Branch



Source: UNIDC Secretariat after UBINIG data

the case of male and female workers who reported that they had experience only in this field.

Garments industries are attracting the new labour force, mostly young men and women, just at the time of their entering into the labour market. As is seen in the age structure of the workers, most of the market workers are young. Therefore, it is very unlikely for them to have any previous experience. We found that 19 (70 per cent) out of 27 female workers did not have any experience prior to the present job. For male garment workers, the percentage with no experience is 50. But they can also have experience in the same industry. We found that about 30 per cent of the male and female workers had experience in similar work in garments before their present job. The workers who are new to these industries are likely to leave one factory and join the other in search of better salary and good working conditions (see table 10).

In the light of the above information the following figures 11-13 show a comparative picture of the three types of industries.

Reasons for joining the industrial labour force

Seeking employment to earn income is the main reason for any kind of job. Male workers, as soon as they become an elder person (over 15 years) and have completed or stopped education, are expected to earn an income to support the family. In contrast, a woman of this age should get married and serve in the husband's family. It is the case of her inability to get married at the right time or a dissolution of marriage that leads to the situation where a woman is expected to take a job.

The reason for the female workers to take a job in industry or in other fields of employment and to become a worker for wages is the result of social and economic factors. That is, normally when a man can bear the expenses of the family through his income, the patriarchal norms force women to be confined to the household and serve the family. But, when the economic and social forces become stronger, and men in the family are unable to meet family needs or there is no adult male member in the family (called "destituteness of women"), then she is forced to go out for her livelihood. In general, it can be said that the large number of female workers joining the industrial labour force is due to these social and economic forces.

We have broadly classified the reasons for seeking an industrial job on the basis of the answers received from an open-ended question on this issue. For 55 per cent of the female workers in textiles, 50 per cent in handlooms and 37 per cent in garments, the reason is purely financial. But, interestly enough, about 33 per cent of the female workers in textiles, 50 per cent in handlooms and 7 per cent in garments reported social reasons for joining the industrial labour force. Another feature to be noticed among the garment workers is that though there may be social reasons for them to seek a job in garments, 13 (48 per cent) out of 27 revealed that they are becoming conscious of doing something on their own by joining the emerging female industrial labour force. Some respondents were not explicit about any particular economic or social reasons, but simply said "we joined the industry because others are doing so".

Table 10. Previous experience of the male and female workers

Background	Textile		Handloom		Garments		Total	
	M	F	M	F	M	F	M	F
No working experience	79	13	1	1	11	19	91	33
Housewife/housework	61	8		0	1	6	62	14
Unemployed	2	4		1		6	2	11
Student	16	1	1	0	10	7	27	8
Have working experience	72	5	12	3	19	8	101	16
Had worked in similar jobs	22	3	11	2	8	8	41	13
Other formal employment	11	2	1	0	4	0	16	2
Wage labour	20	0		1	2	0	22	1
Small business	19				3		22	
Not available			1				1	
Grand TOTAL	151	18	14	4	30	27	193	49

Fig. 11 Previous Work Experience of Male and Female Workers in the Textile Branch

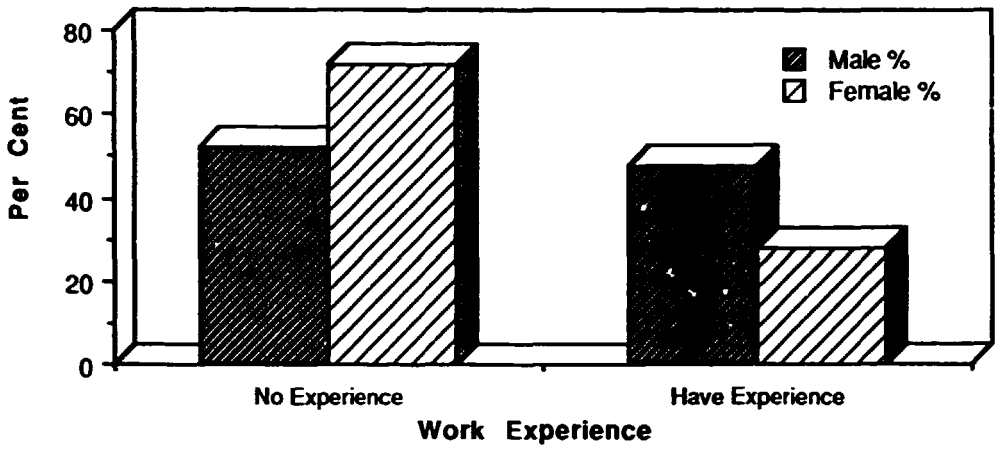


Fig. 12 Previous Work Experience of Male and Female Workers in the Garments Branch

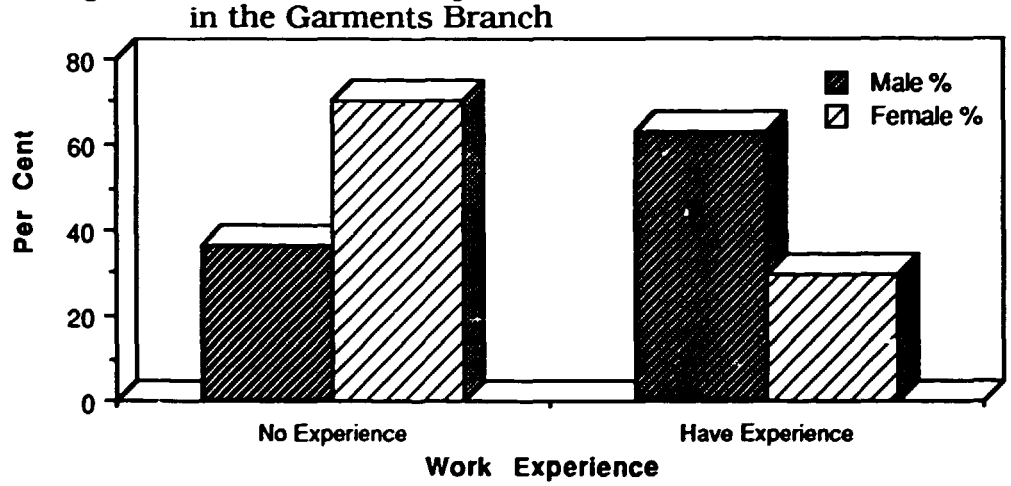
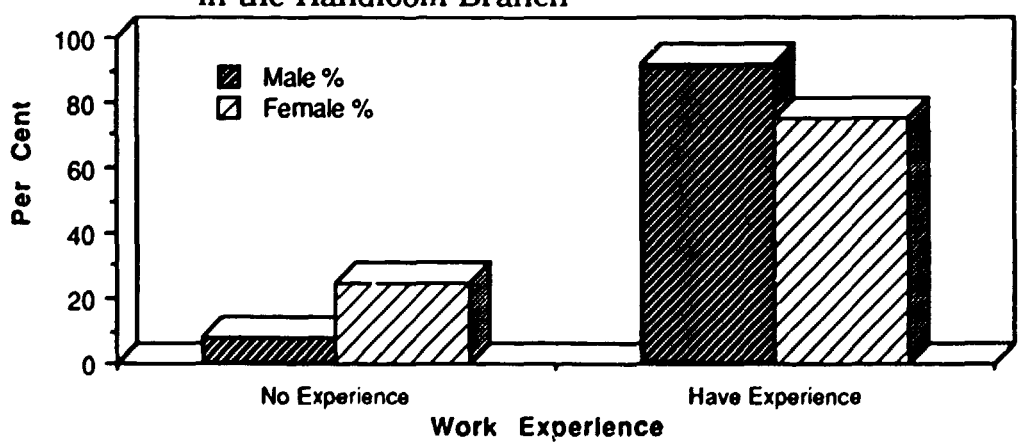


Fig. 13 Previous Work Experience of Male and Female Workers in the Handloom Branch



Another interesting feature worth noting is that many workers have chosen an industrial job as an alternative to their previous occupation in order to better their conditions.

5.2 Conditions of employment

This section explains the conditions of employment in the three types of industries studied.

5.2.1 Labour recruitment

Textile

The labour recruitment policy of the textile mills requires that the worker should start in the mill as an apprentice or learner for a period of at least 3 to 6 months. Sometimes an apprentice may not get a regular appointment in which case he or she is given a certificate useful for recruitment by another mill.

Whether or not an apprentice will receive a regular appointment depends on the availability of vacant posts in the mill and a satisfactory medical certificate. Absence of TB and other infectious diseases is especially important.

With the regular appointment, the worker receives a token with an identity number.

The supply of workers comes from the nearby surrounding areas of the mill. In the situation of high demand for temporary labour or vacancies created by irregular workers, the Labour Welfare Department recruits so-called "Badli" on a daily basis. The Bangladesh Textile Mills Corporation (BTMC) as well as the privately owned mills follow similar recruitment but less bureaucratic policies.

Workers consider recruitment in a textile mill less prestigeous than before. According to an administrative officer of the Bengal Textile Mills Ltd., "it used to be considered as a good and prestigeous employment opportunity for the educated people to get a job in the textile mills. But now the educated people come here only when other employment is not available."

Again, already recruited labour shows a trend towards overqualification. Generally, the educational requirement for a worker is only up to eighth grade of secondary school. But in some mills there are workers with educational qualifications up to intermediate and graduate. Since there is a possibility of loosing their jobs on the grounds of overqualification, many workers hide their educational attainment level when applying for the job. This was brought to our attention by a Production Manager of the Bengal Textile Mills Ltd. when we wanted to know about the educational level of the recruited workers. He said: "So in these mills (officially) all the labours [sic] have educational qualification up to grade eight, no matter what their actual educational level is".

In all the mills surveyed, the labour recruitment policy was similar, except at Shuttle Fight Textile Mills, which is small and was going through management problems.

Dyeing and printing mills

The recruitment of new labour is made through the existing labour force. To get skilled workers, usually skilled workers from other factories are approached. This is mainly because there is a shortage of skilled personnel and skills are only learned on the job. Another form of recruitment is through pleading with the political and influential persons of the area.

Garments

There is an informal and non-obligatory but still uniform system of recruitment among the garment factories. Advertisement in the newspaper is a common approach. But in times of emergency needs, the factories recruit workers through various other sources, notices on the gate, for example. Recruitment is also made through the connections of the existing workers.

According to the management at Frank Garments, the recruitment is made "automatically", meaning that those who are to be recruited as helpers are taken from the large supply of workers waiting for appointment. The skilled workers often try to improve their lot by frequent "job hopping".

Recruitment of female workers is a special feature of the garment industry. It is still known as the major employer of female labour. The most common reason, already established world-wide, is that women are willing to accept lower wages than their male counterparts. From the employer's point of view there are a few other "unwritten", but commonly known reasons for female employment. These are:

(a) women are cool-headed;
(b) women will not revolt against the management;
(c) the nature of job suits women.

In the Export Processing Zone (EPZ), the experience of recruiting male workers has not been pleasant from the point of view of the investors who came here hoping to get cheap and docile labour. In fact, some labour unrest was organized by the male workers in the EPZ. Since then, the EPZ has decided that there should be less new male workers recruited and the existing male labourers should be gradually replaced by female workers. In the ten garment factories which we interviewed, the proportion of male workers out of the total work force was only 20 to 25 per cent. But in the EPZs, the proportion is only 3 to 5 per cent.

For the recruitment of female labour, advertising in the newspapers brings very little result, because most of them do not read any newspaper. It is more effective to recruit through the existing employed workers. In the EPZ areas, women are coming from different districts in groups to seek jobs in the garment factories. They get information about the possibility of recruitment through their friends

and relatives working in the garment industry and therefore come to Chittagong and enter names on a waiting list. The management of the selected firms within the EPZ told us that they recruit female workers from the waiting list. The research team noted that 25 women were standing outside the gate of EPZA on the day of the interview. The management told us that this was the normal scene.

Handloom

In handlooms, workers are recruited in a traditional way through apprenticeship leading to final involvement in the entire production process. Since the family members are the workers, the process of recruitment is not a question. The small children of the family as early as 10 years of age start working in different processes of handloom weaving, and gradually become skilled weavers. But the rare recruitment of hired labour is mostly done among skilled weavers from the local area. The handloom area becomes a community of weavers and therefore the supply of labour comes from the community itself.

5.2.2 Labour categorization under Labour Acts and Ordinances: a critical view

According to "The Employment of Labour (Standing Orders) Act, 1965 (as modified up to 31 May 1983), East Pakistan Act No. VIII of 1965, Ministry of Law and Land Reforms, Law and Parliamentary Affairs Division, Government of People's Republic of Bangladesh, the following categories of labour are found in the industries:

(i) "apprentice" means a learner who is paid an allowance during the period of *his* training;

(ii) "badli" means a worker who is appointed in the post of a permanent worker or of a probationer who is temporarily absent;

(iii) "casual worker" means a worker whose employment is of casual nature;

(iv) "permanent worker" means a worker who has been engaged on a permanent basis or who has satisfactorily completed the period of his probation in the shop or the commercial or industrial establishment;

(v) "probationer" means a worker who is provisionally employed to fill a permanent vacancy in a post and has not completed the period of *his* probation;

(vi) "worker" means any person including an apprentice employed in any shop, commercial establishment to do any skilled, unskilled, manual, technical, trade promotional or clerical work for hire or reward, whether the terms of employment be expressed or implied, but does not include any such person

  (a) who is employed mainly in managerial or administrative capacity; or
  (b) who, being employed in a supervisory capacity, exercises, either by nature of the duties attached to the office or by reason of power vested in him, functions mainly of managerial or administrative nature.

[Note: Italics used under (i) and (v) are from author]

These categories of labour are important to note because in our sample most of the workers fall in the category of apprentice or permanent worker. But it is also important to note that the Employment of Labour Act does not consider the possibility of having female workers in the industries. This is very much evident in the drafting of the Act which only describes the worker category as male - note the italics in the above text. Since the Act was made in 1965 it could be assumed that the emergence of the female workers was not evident at the time. But the Act was modified in 1983, when the female labour force had already appeared in the very eyes of the industrialists and the Ministry of Law and Land Reforms. Therefore, it is significant that the Act has no single line which shows that the industrial workers can belong to the female sex. This ignorance of the policy makers about the female labour force may become a hindrance for policy formulations in favour of female workers.

5.2.3 Salary and payments system and other benefits

Textiles

In the textile mills, three systems of payments are found:

(a) Monthly salary;
(b) time rate;
(c) piece rate or production rate.

Monthly salary

For an eight-hour work day in the mill, the apprentice labour gets Tk. 300.00 for a period of 3 to 6 months.

The minimum salary for a temporary or permanently recruited worker is Tk.560.00 per month.

Overtime

Overtime pay is double the regular wage rate.

Incentive bonus

The mills provide a bonus to the workers if the target production is achieved. For example, if the target production is fully achieved, then the workers are paid a bonus equivalent to 15 per cent of their wages. However, the total bonus amount will not exceed 25 per cent of the wages, no matter how much the target production is exceded.

Bonus for night shifts

Workers are paid Tk.5.00 per night of overtime work. This payment is made at the time the monthly wages are paid. According to one worker, Tk.7.00 would be required to cover the cost of tea and betel leaf.

Leave

There are three kinds of leaves granted to the workers.

(a) Earned leave: for every 18 days of attendance, a worker is entitled to one day of earned leave.

(b) Sick leave: The yearly granted sick leave is 14 days. It can be extended to 15 days more depending on the extent of sickness.

(c) Optional leave: a worker can take 10 days of optional leave.

Other benefits

If a worker has an accident or dies or retires he or she can refer a friend or relative for the same job. However, workers have reported that such benefits are no more available to them.

In Alhaj Textile Mills, a new system has been introduced. If a worker stays with the firm continuously for 10 years, then he or she can nominate a relative or friend for the job. This system has sometimes been abused. The workers are selling their post for a price. It is now an accepted fact that to get a job in the Alhaj Textiles, a worker has to pay a down payment of Tk.20,000 to Tk.25,000.

Group insurance

There is a group insurance system for the workers. According to this system, if a worker dies as the result of an accident while working at the mill, beneficiaries nominated by the worker are supposed to get a sum of money correspondent to a 36 months salary, excluding benefits.

This benefit was equivalent to a 24 months salary before 1984, when a revision was made by the Government to increase this benefit.

Medical services

The workers are entitled to receive medical services from the mills. For accidents occured in the mill or for illness, some medicines are provided to the workers free of cost. However, in most cases, the workers are given a free prescription.

The BTMC mills provide family planning services to the workers. In the Dhaka Cotton Mills Ltd., a sign board shows "family planning services provided free of cost."

Dyeing factories

Monthly salary

In a dyeing factory, a Dyeing Master gets between Tk.2,000 to Tk.4,000 per month. A permanent worker receives Tk.1,500 to Tk.2,000 and an assistant to the worker receives Tk.750 monthly.

Overtime

In the dyeing mills, there is no overtime work because the production capacity is not fully used.

Printing

Monthly salary

During apprenticeship, an apprentice receives Tk.300 per month for 3 months.

The monthly salary of a Printing Master is Tk.2,000 to Tk.3,000 in all the sample mills. The salary of an operator is Tk.1,000 to Tk.2,000. This, however, varies among the mills, ranging from a low of Tk.800 to a high of Tk.1,200. The salary of the assistants to the operator is Tk.600 to Tk.800.

Garments

Slight differences in the salary structure have been observed among the garment factories. However, the pattern is almost uniform.

An unskilled worker, called "helper", is initially hired to work as an apprentice for three months and another three months on probation. During this period the wage is usually between Tk.300 to Tk.500 per month for the first three months of the apprenticeship. During the probation period, it increases to between Tk.800 to Tk.1,500 per month. After the probation period is over, the worker may be employed as a temporary worker and gets a wage according to performance. But the worker may also remain a "helper" and continue to be paid at the same rate as during the probation period. In this way, much of the unskilled labour gets exploited.

Normally, after six months a worker is entitled to:

Casual leave:	10 days per year
Sick leave:	14 days per year
Earned leave (granted only to those who have worked for one year):	14 days per year.

During the apprenticeship, a worker can take sick leave only for certain diseases recognised by the factory management.

Overtime: the rate of payment for overtime is double the regular wage.

Festival bonus: workers are given a festival bonus on the occasion of Eid.

5.2.4 Working hours

Eight hours is the normal working day in all the sampled factories, except the handloom factories where an exact determination of working time is difficult. Both the management and the workers interviewed reported that work generally starts at 7.30 a.m./8.30 a.m. and ends at 4 p.m./4.30 p.m. Some variations like 7 a.m. to 4 p.m. or 8.00 a.m. to 5.00 p.m. were also noticed.

In the dyeing, printing and textile branch, there is a "shift system" which needs to be mentioned. These shifts are organized in the following way:

Dyeing and printing mills

1. Overlapping shift system of four hours: total shifts: 3, total working hours: 24

Shift A: 7 a.m. to 11 a.m.; 3 p.m. to 7 p.m.
Shift B: 11 a.m. to 3 p.m.; 7 p.m. to 11 p.m.
Shift C: 11 p.m. to 7 a.m.

2. Overlapping shift system of eight hours: Total shifts: 3, total working hours: 24

Shift A: 7 a.m. to 3 p.m.
Shift B: 3 p.m. to 11 p.m.
Shift C: 11 p.m. to 7 a.m.

3. Non-overlapping shift system of eight hours: total shifts: 2, total working hours: 16.

Shift A: 6 a.m. to 2 p.m.
Shift B: 2 p.m. to 10 p.m.

4. Single shift of 8 hours: 8 a.m. to 5 a.m.

Textile mills

1. Connected shifts of four hours: total shifts: 3, total working hours: 24.

Shift A: 6 a.m. to 10 a.m.: 2 p.m. to 6 p.m.
Shift B: 10 a.m. to 2 p.m.: 6 p.m. to 10 p.m.
Shift C: 10 p.m. to 6 a.m.

2. Non-connected continuous shift of eight hours: total shifts: 3, total working hours: 24.

Shift A: 6 a.m. to 2 p.m.
Shift B: 2 p.m. to 10 p.m.
Shift C: 10 p.m. to 6 a.m.

3. Double shift of 12 hours: total shifts: 2, total working hours: 24.

Shift A: 6 a.m. to 6 p.m.
Shift B: 6 p.m. to 6 a.m.

The dyeing and printing factories and the textile mills utilize all 24 hours of the day for production in different shifts. Sometimes there is overtime work.

In the garment factories there is no such thing as a shift. There is only one regular work day from 7 a.m. to 4 p.m. with a variation in some of the factories by half an hour or an hour. However, there is always overtime work that sometimes is carried on for the whole night.

The four hourly division of the working day into blocks of four hours has been followed because of the ILO regulations. But when the workers have a connection to their families and live far from the factories they do not find it worth while to go and come back for a break of four hours. "It takes two hours to go and two hours to come back; so how do we enjoy the four hour break?" According to the management, the system has not been productive because the workers who are staying nearby become engaged in the family affairs and do not show up for the second four hour part of the working day. Due to such problems at the sampled establishments, most factories preferred continuous eight hour shifts instead of a four hour break system.

Working hours and female workers

According to the Factory Act of 1965, "the female workers should work only within 7 a.m. to 8 p.m. and should not be allowed beyond this time". The Act has been followed properly in the textile mills and in the dyeing and printing factories. No female workers are recruited for night shifts.

In the garment factories, however, the labour laws are violated with respect to overtime work. Firstly, overtime work exceeds 2 hours. Secondly, women are even forced to work for the whole night to meet shipment dates.[2]

The problem of recruiting women for the night shifts is not because women cannot work at night but because of other social problems. But these problems are caused by men in the factories and outside. Therefore, the solution is not to prevent women from working but to change the social attitude towards women.

5.3 Case studies of factories using female workers

5.3.1 Sunderban Textile Mills Ltd.

At Sunderban Textile Mills, Ltd. owned by the Bangladesh Textile Mills Corporation (BTMC) a considerable proportion of the workers are women in response to the government policy of recruiting female workers in industry. We note that this mill was selected at the suggestion of the BTMC authority when we explained that our research focus was on the female workers.

At other textile mills, we were told that women are not able to operate the big machines. Therefore, they can only be recruited in the spinning sections or in the blow room to do manual cotton separation. The proportion of female to male workers hardly exceeded 20 to 1000 on the average. But at the Sunderban Textile Mills Ltd., the number of female workers was 131 compared to 1,260 male workers. In other words, about 10 per cent of all workers were women. At another BTMC textile mill in Narayanganj, women also accounted for 10 per cent of the total work force.

Sunderban Textile Mills was set up in Satkhira according to the Third Five Year Plan (1980-85). The mill started its production in 1983, at least two years ahead of schedule. The special interest of the Ministry in charge of textiles expedited the process.

Funding for the mill came from the Chinese aid and the Annual Development Programme. The mill started with the spinning and weaving sections. It now employs 1,129 skilled male workers, 131 skilled female workers and 122 unskilled male labourers. Eighty per cent of the

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[2] Reportedly this "forcing" takes the form of locking up the women in the factories for the night, or they are being told that they will be fired unless they comply.

workforce comes from the greater Khulna area (comprising the Khulna, Satkhira and Bagerhat districts) and the rest are from other districts such as Jessore, Faridpur, Comilla and Noakhali. There is an excess recruitment of 10 per cent because the rate of absence is high among the local workers. Those who have their homes close to the mill are too involved in their household activities. To make effective use of the working time, the shifts are made 8 hours continuous.

The mill produces 32 count yarn, marking and long cloth. The mill is running a profit and is considered one of the successful BTMC mills. Table 11 shows the yearly profitability.

Table 11. Yearly profitability in the Sunderban Textile Mills Ltd.

Fiscal year	Profit (Taka)	Target (in hundred thousands)	Achievement (percentage)
1983-84	25.1	68.3	36.75
1984-85	232.19	94.42	245.91
1985-86	278.18	253.65	109.67
1986-87	353.58	319.02	110.83
1987-88	287.15	319.44	89.89
1988-89	500.96	311.92	160.71

The recruitment of female workers at the Sunderban Textile Mill was done from the outset thanks to the initiative of the first general manager of the mill. The use of Chinese machines may also be a reason for recruiting females. According to the management in China women are already operating textile looms and their machines are suited to women. The female workers are engaged in the finishing section. The reasons as stated by the management are the following:

a. Female workers are unable to work in the spinning and weaving sections for physical reasons;
b. the labour law for working hours for female labourers needs to be changed if women are to be recruited in other sections;
c. machines that require less physical labour are required if more women workers were to be utilized;
d. Social conditions are not favourable for women to work in factories.

There are three shifts at the mills: but the female workers are working only the first shift from 6 a.m. to 2 p.m. They wear a special sari (yellow sari with red border) as uniform which brings discipline to the factory and creates solidarity among the women.

The female workers wear masks during their working hours within the mills. But it was observed that the male workers are reluctant to follow such rules. Although the workers have been at the mill for the past six years, the typical character of an industrial worker is yet to develop.

The intensive discussions with a few female workers reveal some interesting points. These are:

a. The female workers feel very confident about working with machines. Even if they are recruited in one section, they learn the work of other sections.

b. The uniform helps them to be recognised as a mill worker outside the mill area. They purchase these saris with their own money.

c. Maternity leave is available for three months with full salary. But the policy of population control limits the full maternity leave to 2 children. After the second child, the leave is granted only without pay. The mill also gives a special bonus on the occasion of having a child. A worker gets Tk.200 for a son and Tk.100 for a daughter.

d. The workers were happy with the management because pay dates are kept regularly: overtime is also paid in due time. The relation between management and workers is good because both consider the mill a government institution and feel secure in their jobs.

The experience of the Sunderban Textile Mills shows that it is possible to utilize female workers. But it requires lots of initiatives and a change of attitude on part of the management to recruit women. However, certain government policy changes are also required to increase the involvement of women. For example, appropriate labour laws and corresponding measures for the security of women is essential.

5.3.2 Haji Habibullah Weaving Factory, Balla, Tangail

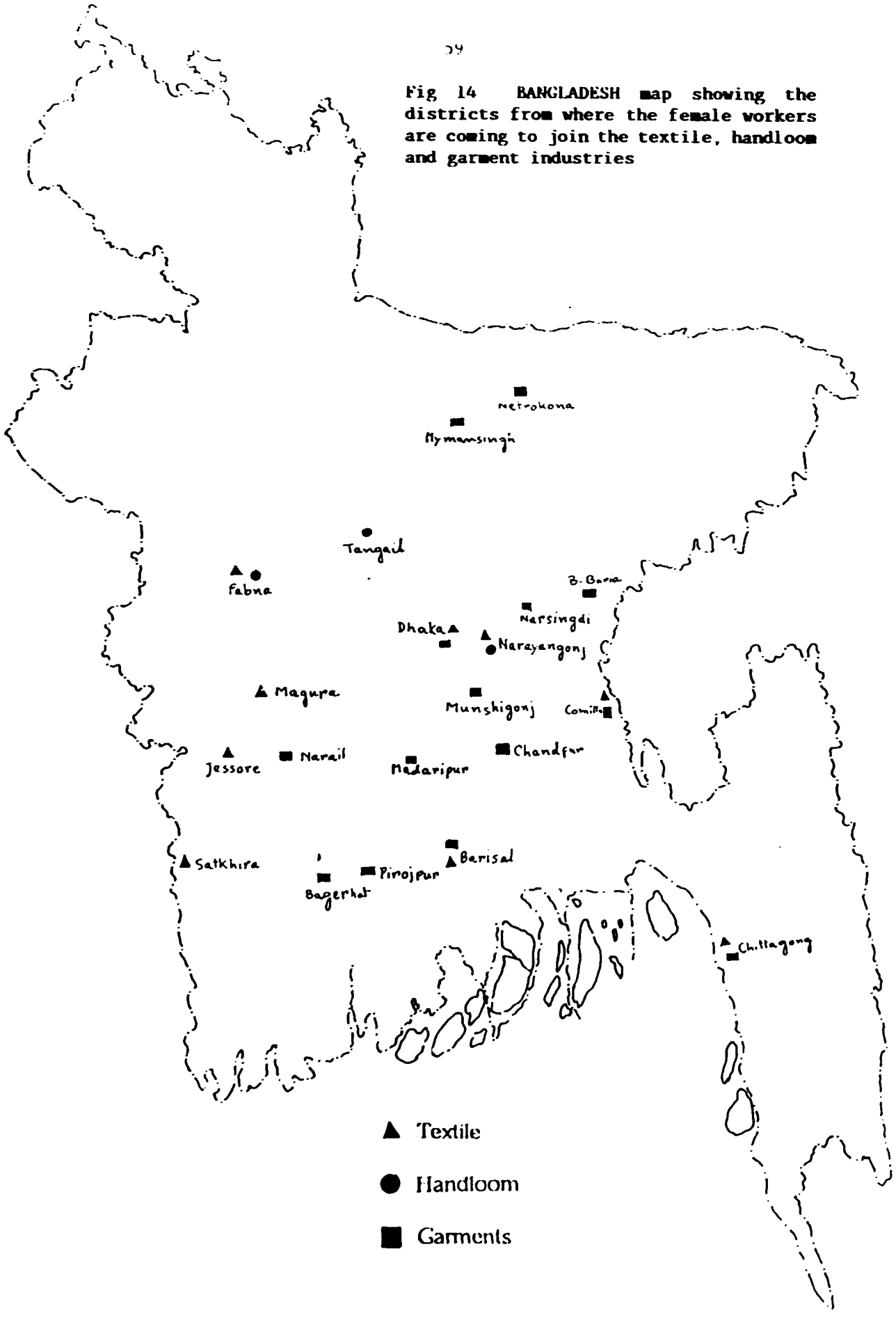
Female workers commonly are employed at the Chittaranjan semi-automatic handloom establishment. They are involved in all the pre-weaving processes whereas the main weaving is done by male workers.

Balla upazilla in Tangail started using Chittaranjan semi-automatic looms in the mid-sixties. In Tangail, the use of such looms was very rare; the weavers used mostly pitlooms producing fine quality clothes. But a certain Haji Mohammed Solaiman went to Pabna on business and heard the sound of the semi-automatic looms in operation. He was attracted by the to him different production process and decided to try it in his own area. But in Tangail there was nobody who knew the technique of installing and operating such looms, so he hired skilled

weavers from Pabna and trained other in this job. For the first two years, the operation was very difficult because there was no spare parts available for the looms. However, he continued with great difficulty. At present the factory is running 200 looms with more than 200 skilled weavers hired from different areas of the country. The pre-weaving processes are done by 150 women. They had previously been involved in such activities as members of weaving families. However, the semi-automatic looms introduced a new form of relationship between the owner and the workers. In the family operation of the pitlooms, the women's contribution as labour was hardly recognized. Now, after the factory system was introduced, the female workers became visible as paid labour.

The female workers come early in the morning and leave in the evening. They come from within the village as well as neighbouring villages. They earn according to their output. The weekly earnings of a female worker ranges between Tk.60.00 to Tk.80.00. The female workers are still discriminated against, but at least the importance of their work is acknowledged in theory.

Fig 14 BANGLADESH map showing the districts from where the female workers are coming to join the textile, handloom and garment industries



6. POTENTIAL FOR FUTURE: THE EMERGENCE OF FEMALE WORKERS

6.1 The emergence of the female industrial workers

6.1.1 Women emerging as industrial labour

For a long time, it was a real struggle among researchers to prove and substantiate with statistics the involvement of women in the economic activities. Women have contributed to the economy in various forms, but only in the position of wife, daughter or mother both in agricultural and home-based industrial activities. But over time changes in economic and social conditions, usually the increasing poverty forced women out of the household to join the wage-earning population. Since 1975, the opportunities for women in this respect have also increased substantially. Notably, however, women have joined mostly the informal sectors of earth cutting, brick breaking and other construction works where the national statistics fail to recognize them as workers. They are only seen as workers when they join the industrial labour force.

According to the statistics of 1985-86, the total labour force (10 years and above) employed in all the manufacturing industries was 3,051 thousand, out of which 64 per cent were male and 30 per cent were female. Among the industries employing large numbers of female workers are food, beverage & tobacco, textile, wearing apparel & leather industries and wood and wood products, the textile & wearing apparel being the biggest employer of women (BBS, 1989). Note, however, that women are involved in the traditional and cottage-based industries which are not reported in the statistics.

Table 12. Male and female participation in the labour force in the major industries, 1974, 1984-85 and 1985-86

Year	Male	Female	Total	Female labour	Male labour
	(in thousands)			(percentage)	
1974	909	36	945	4	96
1984-85	2,021	648	2,669	24	76
1985-86	1,947	1,104	3,051	36	64

The emergence of female industrial labour is, therefore, a new and a real phenomenon. The statistics available from the Bangladesh Bureau of Statistics (BBS) show that since 1974 the participation of female workers in different manufacturing industries is quite significant (see table 12 and figure 15). The change since 1974, i.e. within a relatively short period, is very dramatic. The proportion of women in the total industrial labour force increased from 4 per cent to 24 per cent by 1984/85 and within one year the share was already more than one third.

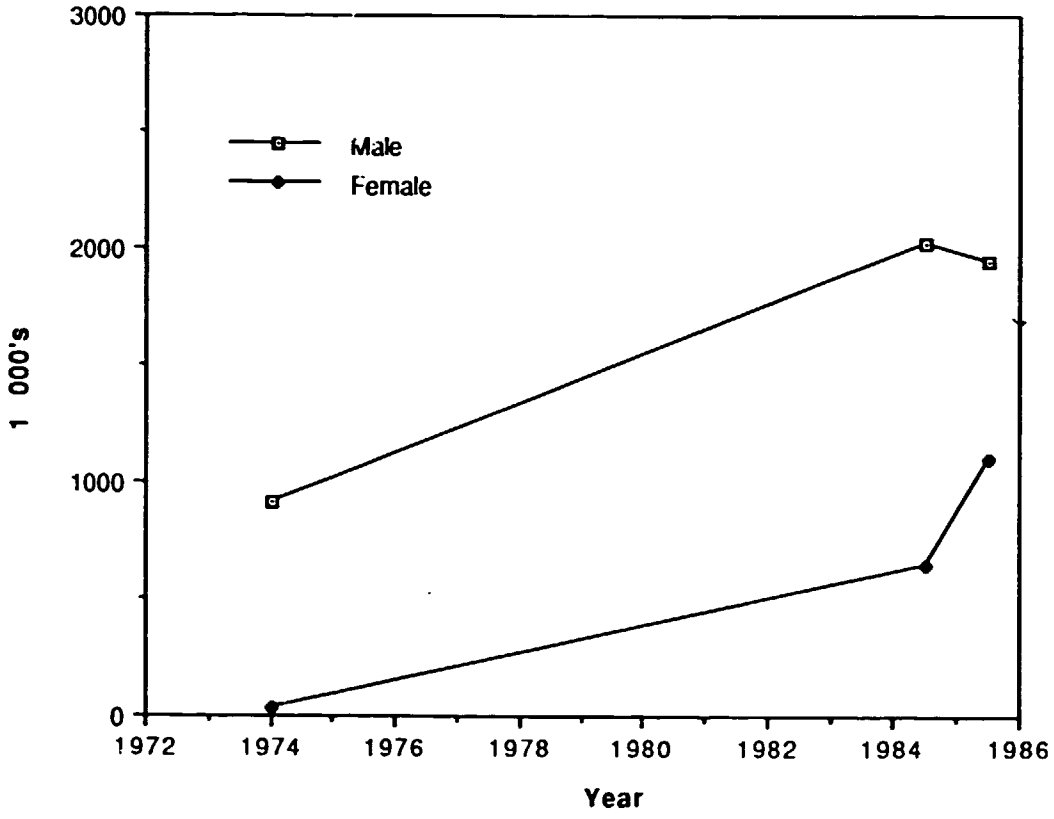
6.1.2 Textile, garments and handloom industries: the employment of female workers

Textiles

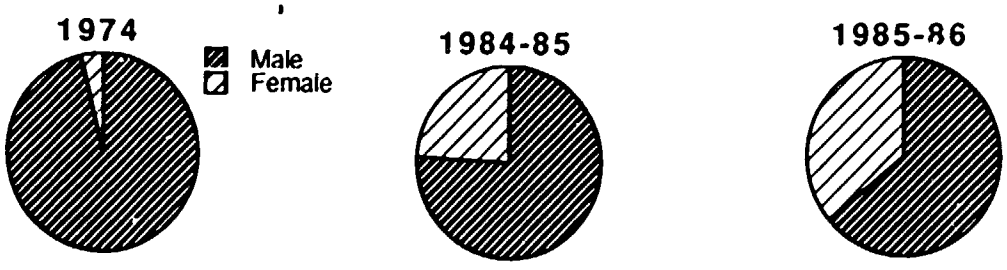
It is often believed that the garments industries and other export-oriented industries were the pioneers in employing female workers. Although this is true to a great extent, it is not the garments industry alone that started employing female workers. The information available from the textile mills shows that they employed women way back in 1972. According to a government note of February 1989 written by an official in the Bangladesh Textile Mills Corporation (BTMC), "the socio-economic condition forced women to offer themselves as labours in the factories. As a result, more than thousand female labours are found in the textile mills which was not available at all before independence [sic]". Due to this availability of the female workers, the policy makers at the textile mills decided to employ women in the BTMC mills. A circular was issued to all the BTMC mills in March 1989 to recruit female workers in all the posts "appropriate for women" and increase their share in total recruitment to 20 per cent. The circular explicitly mentioned that the recruitment of female workers will serve the purposes of establishing the status of women in the society as well as achieve the goal of family planning. Clearly, the policy to employ women in the textile mills suffers from the existing patriarchal ideology. For example, recruiting women in the "appropriate posts" is only based on the assumption that women are not able to do all kinds of works. Thus, women are deliberately excluded from certain posts. Furthermore, the good intentioned objective of increasing women's status and thereby achieving family planning goals makes women the means to an end, and not a goal by itself. However, it is still better than those family planning programmes which only focus on contraceptives. The provision of employment opportunities for women in industry is certainly a positive step.

In the sampled textile mills, the proportion of female workers in the total labour force did not exceed 10 per cent. In 4 of the 6 BTMC mills, the share of female workers ranged from less than 1 to 10 per cent of the total number of workers. In contrast, out of seven privately owned mills, only two have a female work force of less than 10 per cent of all workers. In general, the privately owned mills are employing a higher proportion of female workers than do the publicly owned mills. While the privately owned mills are looking for cheap and available labour, no matter men or women, the public industries have to follow policies and bureaucratic procedures. This is important for the analysis of female workers in the textile mills.

Fig. 15 Male and Female Participation in the Industrial Labour Force, 1974,...,1986



Source: UNIDO Secretariat after UBINIG original



In the BTMC mills, the recruitment of female workers is a very recent phenomenon and it was brought about only as a result of a policy change by the Government. In the privately owned textile mills, women are hired for different reasons. For example, according to the management of the Asiatic Cotton Mills Ltd., "there are some sections of the textile, it is better to employ female workers than the male workers. For example, in the blow room the female workers are putting cotton in the machine and also sorting it out. A male worker will go out for a break after every 20 minutes." That is, the private mills are looking for greater output for the wage they are paying to workers.

According to the BTMC management, BTMC mills are using Chinese machines which are easier for female workers to operate. The policy of recruiting female workers is going hand in hand with the machine import policy.

Garments

In the garments industries an average of 86 per cent of the workers are female. It is quite obvious that the recruitment of female workers is primarily to have cheap labour and because the nature of work needs "nimble fingers." But another factor has lately been added. This concerns labour rights and the power of labour over industrial management. The gains that labour has made during a long history of struggle are now being overturned by simply changing the sex of the workers, and sometimes not even calling them workers any more. The newly emerging female workers who have been living in such bad social and economic conditions that for them even an exploitative industrial environment is a way of freedom from oppression. The at times successful struggle for wage increases which labour has undertaken for a long period of time is recognized mostly only in the cases of male workers. A female worker is not yet the "labour", therefore labour rights do not automatically go to her. She is the alternative to the existing concept of "labour".

Cheap and unconscious labour is popular especially among the garment industries located in the export processing zones (EPZs). The industrial unrest during 1986-87 has become a policy issue leading to the exclusion of male workers, emphasizing female workers and reducing the number of male labourers.

According to the report of an administrator at a foreign owned garment factory: "During the labour unrest of 1986-87, the production of the garment industries in the EPZ areas was hampered. This was because in the EPZA Act of 1980 nothing was specified about the organization of labours. So in 1986-87 the labours brought out their demands. The EPZA requests the Government to ban all trade union activities in the EPZ areas. The Government agreed to it. However, the garment industries in the EPZ areas have also decided to look after the interest of the labours [sic]".

The situation is different in the garment factories owned by industrialists having interests in other industries as well. There the guiding principle in recruitment is not always cheap labour but the recruitment of female workers is based on the division of labour being suitable or not suitable for women. In terms of technology, the management sometimes thinks that there are certain sections which use

heavy machines that cannot be operated by women.

General notions about the recruitment of female workers are expressed in the following statements made by the management in the sampled industries:

"Actually the male labours can work better. But if you want to get the labour work harder then it is only possible on a female labour. The male labours will revolt against such pressures. It is still possible to "handle" women because they do not have alternative opportunities [sic]".

"The female workers work more than men because they do not go out for smoking or taking betel leaves."

"Actually sewing is a woman's occupation. It perfectly suits female labours [sic]".

There were female workers in the textile mills of Chittagong even during 1972, whereas the garment factories began recruiting female workers mostly after 1976. It is, however, the garment industry that made women visible as an emerging labour force.

Dyeing & printing

Dyeing and printing factories are mostly found in Comilla. Although some technological advancements have been made in this industry, the role of the female workers has not changed. The women are performing the role of helper and not skilled labour. In two of the three dyeing and printing mills selected for the study, around one-third of the total workforce is female. The third dyeing factory employed no women.

Women employed in this industry are not considered regular labour because they are neither desperately looking for a job nor are they competing with men on the basis of lower wages for the same work, nor are they working fulltime. Moreover, the traditional notion among the employers is that women are not reliable in terms of skill training. According to the management of one factory:

"Women are irregular, they have many problems. They are actually helpers; they are not printers. Women must try on their own and acquire enough knowledge to do such jobs. It is not safe to train a woman. She will learn today and leave tomorrow. And then the entire factory will be closed."

The prejudice of the male employers regarding female workers is a big hurdle in the employment of women. Only when they are seen as a real alternative to male workers is there a corresponding change in attitudes.

6.1.3 The economic and social factors supporting the emergence of female industrial workers

Female workers emerged because of social and economic reasons. The income of one member of the family was no longer enough for supporting the family. Added to this is the present social situation where women increasingly are being divorced or abandoned; a lot of young girls are not getting married because of dowries.

About one half of the female workers interviewed had either done household work as housewife or as unmarried daughter or sister prior to their present job. Twenty-six per cent had been working in the same or similar profession but in another factory before the present job. Sixteen per cent were students meaning they have decided to work immediately after finishing school. The involvement in other employment in the formal sector or in the wage sector is less significant. Clearly, the emergence of female workers in Bangladesh is a first generation phenomenon.

A most interesting response (31 per cent) by the interviewed workers was that they have joined the labour force because their friends, relatives etc. have started working, too. In most cases, the replies were "we have followed the others" or "we were curious about garment works" etc. This means that while economic reasons undoubtedly are important, the joining of the labour force also has become a social process in which women are gradually participating.

But it is not enough to say that the opportunities for women brightened when they offered themselves to industry as cheap labour. It is important to see whether the reality permits them to be qualified as labour. For example, to become an industrial worker they have to have a certain level of education and skills.

Among the interviewed female workers who were already in the industrial labour force, 48 out of 49 are skilled and only one is unskilled. About 43 per cent of the female workers have educational attainment up to the secondary level, and 16 per cent have education above that level. About 22 per cent of the female workers have education up to the primary level. The proportion of illiterate is only 18 per cent.

It is important to note that the illiterate workers are found mostly in the handloom and in the some specific sections of the textile mills. The educational requirement for a skilled labour in the textile industries is up to secondary. In the garment industries, that level is required even for the unskilled helpers. "It is important that the workers can read the numbers and that they can sign their names. Initially the garment industries themselves taught the workers to sign their names, nowadays it is a pre-requisite to get the job," remarked a personal officer of a garment industry.

The management of the garment factories also feels that without education the workers will have no perception about the loss and gain of the industry and specially "how it affects when the workers do not work."

Thus, education is one of four basic requirements for a job in garments. The other three are: regularity, skill and loyalty. For the

nation's women at large, this is bad news. Only 16 per cent of the total female population is literate. Among female youths (15-29 years) 17.8 per cent received education up to class 5. 4.7 per cent have education up to class 9. 1.1 per cent have up to HSC, and 0.2 per cent have graduate level education. Thus, in terms of educational requirements, no more than 6 per cent of the female youth are potential industrial workers in the garment industry. Therefore, any policy to increase female participation in this industry should incorporate increased education facilities for women.

6.2 Female workers' own perceptions of their future

6.2.1 Female workers are confident about their skills and learning ability

We have attempted in different ways to get the perceptions of the female workers about their ability to learn the skills and their ability to operate the machines. From the interviews with the management, it appeared that the constraints of recruiting female workers was their inability to handle machines and to learn new skills. But the interviews with the female workers revealed the opposite perception. In most of the cases we found that they are knowledgeable about the machines and have learnt the operation by observing their male colleagues. In some cases, they were even working as substitutes for absent male workers. They strongly believed that if they are given the training, they can do any job in any section of the factories.

6.2.2 Female workers are not afraid of displacement by machines

"The machines displace workers" is a common enough notion. In a factory, however, the workers think of the machines as part of the set-up in which they are working. They cannot conceive of a factory with no machines. In fact, a machine can create employment and in some cases ease their labour. Therefore, the machine and the workers complement each other in a factory.

Loosing one's job is a question of industrial management. The workers do not blame the machines; rather they think that displacement can only be caused by the decision of the management.

The following statements of the female workers in the sampled factories are important to note in this respect:

Textile mills

1. "A machine can increase our skill. The management should bring those machines, then we will survive, the mill will survive and even the country will survive."

2. "If we are being laid off because of the introduction of new machines then we will go back; because we cannot do anything. But if there is a law that such lay offs are illegal, then we will join the movement.

However, if a machine is brought which increases production then I am sure it will accommodate the workers. We will definitely survive and the country will survive as well. If there is a possibility of

displacement by the new machines then we will start cultivation again."

"I do not think that there should be imported machines. We should develop our own technology and create more employment for the people. But if we are displaced by machines then we will start smuggling of goods." (Satkhira)

"We will hold strikes if machines are brought which displace labour."

"A machine cannot take our skills, we will possess skill. We will get job somewhere."

Garments

"If a machine displaces the labour, we cannot do anything. There is no possibility of movement. The owner will simply hand us over to the police."

"We have to keep quite even if a machine is brought to displace labour."

Analysis of the statements:

The displacement of labour by machines is mostly a question within the textile and garment industries. In the handloom industry and dyeing and printing factories, the question of displacement by machines was not a matter of much interest.

The workers in the textile mills see themselves as "labour" and are conscious about their rights. They are not worried about displacement or lay-offs. They know that they can join the labour movement and also go to court. They have the confidence that an illegal lay-off will not be acceptable.

The workers also, believe in the strength of the skill which they possess. Whatever machine is introduced, it will need the skill of a labour.

On the other hand, the workers in the garment industries only experienced suppression. They are the newly emerging labour force, mainly women who had a distressing past. The question of displacement worries them a lot and they do not see the possibility of joining the labour movement.

We further investigated the introduction of machines in each textile mill and whether this created employment for the workers or displaced them.

It was found that the factories that have introduced different types of machines in the factories over a long period of time, have only done so in four different situations:

a. to replace an old machine:
b. to increase production:
c. to modify an existing machine: and
d. to improve the quality of the products.

None of these technologies have ever displaced labour. The industrialists in Bangladesh have not faced the problem of worker shortage. The idea of machines displacing workers was not even on their minds. In general, the reasons for introducing new technologies are:

i. Production increase;
ii. expansion of the existing factory;
iii. balancing the different sections of the factory.

6.2.3 "We will not go back to the villages"

The female workers who entered the labour market, whether in garments or textiles, are not willing to go back home. They have joined the labour force both for economic and social reasons. Employment in the industries have not only contributed to the solution of economic problems but also has led to freedom from the patriarchal family and social, oppressive relations. So even if they loose their job in one factory, they try to find another industrial job and will not think about going back to the villages they have left.

"We will not become dependent on others"

The female workers have enjoyed the freedom of non-dependence on their husbands and other male family members. This they are not willing to surrender any more. Self-reliance at the cost of physical labour is preferable to dependence.

Only if desperate will they resist the introduction of new, potentially labour-displacing technology and would consider joining the labour movement.

"We will learn any new technique"

The female workers always said that they wanted to learn new techniques and adjust to new working conditions. They are willing to follow rules because it will help them stay employed.

6.3 Training of workers

6.3.1 Training in the textile mills and the role of TIDC

There are two kinds of training of workers: a. institutional training and b. training in the factory.

In accordance with a recommendation of a UNDP survey, the Government set up the Textile Industry Development Centre (TIDC) in 1979. It started giving training to workers and management of the textile mills on both technical and management aspects.

At the TIDC, workers are taught mainly operation and maintenance of machines. Training in the factory or in-plant training is done while the workers are working in the factories. The reasons are (i) it is expensive to take the workers to the training institute; and (ii) production will be hampered by the absence of the workers. Both types of training are provided by the trainers from TIDC. The duration of the training is between 7 to 11 days. Training is given mostly on spinning, weaving, dyeing and printing.

Management training is given by the general manager, administrators, labour welfare officers and spinning, weaving, dyeing masters, etc.

TIDC has set aside a quota of 40 per cent for workers in privately owned factories against payment for the training.

Training organized and administered by the TIDC management is regularly held. But on-the-job training which is to be planned and organized by the factory management is irregular or even non-existent. The training does not cover health and workers' rights.

The role of the Bangladesh Department of Textiles

The Bangladesh Department of Textiles is running textile institutes in 6 districts, 18 mobile weaving schools and 6 inspection teams.

In the 6 institutes at the district level, a two years Certificate in Textile course is offered. Another course called artisan course of one year duration is offered to participants nominated by the district and upazilla authorities.

Did any female worker ever receive training in the TIDC?

Over the last ten years, no female worker from any textile mill ever received training from the TIDC for the following reasons:

a. there are no accommodation facilities for female workers in the TIDC;
b. female workers are so intimately involved in the production that they are not selected for any training; and
c. for workers in general and female workers in particular, the TIDC training is not very attractive because during training an allowance of Tk.30.00 per day is paid to the trainees, which is less than the actual wage.

6.3.2 Training of garment workers

No training institute has yet been established for the training of garment workers. Most of the workers have received their training on the job.

Skills are not very necessary even for the cutter because the design and specimens are all sent by the buyers. The cutters simply set the design on the fabrics and cut the number of pieces required.

6.3.3 Training of workers in the dyeing & printing factories

The dveing & printing factories often have to bring technicians from the country of origin of the machines. Primarily this is required for the maintenance of the machines, and not necessarily to develop the skills of the workers.

6.4 Trade union activities and their impact on female workers

6.4.1 The Employment of Labour Act, 1965

According to "The Employment of Labour Act of 1965" and "The Industrial Relations Ordinance, 1969" the industries selected for the study fall in the category that can form trade unions. The handloom factories, however, do not because of the special rule according to which the handloom factories having between 1 to 19 looms fall under the Handloom Board and those having more than 20 looms, under the Bastra Department.

The legal definitions in the Acts are as follows:

According to "The Employment of Labour Act of 1965"

2h. "employer" means a person, a body or persons or body corporate, company or institutions, owning or managing a shop commercial establishment or industrial establishment, or their heirs, successors or assigns....

2v. "worker" means any person including an apprentice employed in any shop, commercial establishment to do any skilled, unskilled, manual, technical, trade promotional or clerical work for hire or reward, whether the terms of employment be express or implied, but does not include any such person

i. who is employed mainly in managerial or administrative capacity: or
ii. who, being employed in a supervisory capacity, exercises, either by nature of the duties attached to the office or by reason of power vested in him, functions mainly of managerial or administrative nature.

2j. "industrial establishment" means any workshop or other establishment in which articles are produced, adapted or manufactured or where the work of making, altering, repairing, ornamenting, finishing or packing or otherwise treating any article or substance, with a view to their use, transport sale delivery or disposal, is carried on or such other class of establishments including water transport vessels or any class thereof which the Government may, by notification in the official gazette, declare to be an industrial establishment for the purpose of this Act.

According to "The Industrial Relations Ordinance", 1969:

3. Trade unions and freedom of association: Subject to provisions contained in this Ordinance

a. Workers, without distinction whatsoever, shall have the right to establish and subject only to the rules of the organization concerned, to join associations of their own choosing without previous

authorization:

b. Employers, without distinction whatsoever, shall have the right to establish and, subject only to the rules of the organization concerned, to join associations of their own choosing without previous authorization:

c. Trade unions and employers associations shall have the right to draw up their constitutions and rules, to elect their representatives in full freedom, to organize their administration and activities and to formulate their programmes:

d. Workers' and employers' organizations shall have the right to establish and join federations and confederations and any such organization federation and confederation shall have the right to affiliate with international organizations and confederation of workers' and employers' organizations.

6.4.2 Trade unions in the textile mills

The state of formation of trade unions is an indication of the state of workers' organization in the respective mills. In the 10 textile mills studied, only one mill having 20 workers did not have any trade union. In this textile mill, those in charge reported that the mill is too small to have a trade union. "We look after the interest of the labours".

In the mills having trade unions, at least one third of the workers have joined. But the trade unions are not able to meet the needs of the workers because of the political situation of the country. The trade unions are not growing independently of the political parties but are becoming affiliated to specific parties. As a result, the weaknesses of the political parties in relation to the ruling party are reflected in the weak activities of the trade unions.

In one factory there are several trade unions affiliated with different political parties. According to a Spinning Master, the workers tend to support the trade union which is more effective in raising the demands on behalf of the workers. The workers elect a body called the Collective Bargaining Agent (CBA) which should be strong enough to bargain with the mill employers on behalf of the workers.

The trade union activity has become very narrow. It concentrates on demands rather than on education of the workers about their rights, about industrial and labour policies, and the development of the industries. That means that the CBA is the only effective component of the trade unions.

An example of an effective trade union was found in the Chittaranjan Cotton Mills, where the three trade unions were merged into one in order to be more effective vis-à-vis the employers.

The participation of female workers is very minimal partly because the number of female workers is insignificant and partly because they have been recruited only recently under a special policy. The number of female workers so far in all the BTMC mills is approximately 1000 compared to 35,127 male workers. That is, only an average of 2 per cent of the total workers employed in the BTMC mills are female. (Source: BTMC, Dhaka)

Even then, in the collective Bargaining Agency, there are 6 female workers' representatives from Barisal, Dinajpur, Rajshahi (2 mills) and Jessore. One of the sample mills in Jessore have women representatives in the CBA.

6.4.3 Trade unions in the garments industries

All the registered garment industries fall under the factory laws and industrial relations ordinance. Therefore, the garment workers have the right to form trade unions.

According to a survey conducted by UBINIG in 1986, in Dhaka city alone there were 23 trade unions. These trade unions grew out of the demands for salary increase, overtime payment, working hours etc. The retrenchment of the workers was one of the important issues of these trade unions because it is the most threatening factor for the garment workers.

The garment factory owners who are not in the category of industrialists imply that such activities are illegal. They consider that they have the right to suppress the workers because the industry is bringing in foreign exchange. According to some management personnel, the trade union is a means of labour unrest. If the management is "solving" the problems faced by the workers, then there should not be any trade unions. It is also evident from the nature of the demands raised by the trade unions that even those who form trade unions do it in the very narrow sense of the term.

The workers' involvement in the trade unions is, however, an indication of the consciousness of the workers about their rights. Since more than 80 per cent of the workers in the garment industries are women and belong to the category of newly emerged labour leaving behind an oppressing past, it is unlikely that they are conscious of their rights. They do not see the owners as the oppressors, rather they think of them as saviours by having recruited them in their factory. Even when the salary is not paid timely, they try to "understand" that the owner must have had problems. Therefore, the attempt to form trade unions and to organize the workers against the management is seen as counter-productive to the interest of the workers themselves. There is the chance of retrenchment of the workers if they upset the management. The initiatives of the trade unions failed in many cases because most of the workers are vulnerable in their status as labour and do not want to take any risk which will lead to the termination of their jobs. The female workers who had a very oppressing past both socially and in the families, "do not want to go back home".

Yet, in those garment factories where the trade union initiatives were successful, female workers played a leading role. Female workers in the status of operators and confident in their skills and abilities have raised their voices against the malpractices of the management of

the owners specially in the payment of salaries. overtime works. physical tortures and even sexual assaultment of the workers. The successful stories of the garment workers' trade unions are very rare. The oppression of the workers in the garment industries have become a part of the discussion on violence against women.

The trader-type garment owners expropriate the profit from the wages of the workers and even hire local "goons" to suppress the workers raising their genuine demands.

There are evidences of retrenchment and punishment by the management. Common punishments include termination of the job and harrassments by the "goons" - the hired musclemen. Many female workers who have become involved in trade union activities and also in leadership position had to face termination. We have got a concrete example which would be worth noting here. In the following we have translated from a letter (written in Bengali) from a female trade union leader who has been laid off for her involvement in the trade union:

To
The Managing Director
_____Garments Ltd.

Sub: Claim of job according to 25(1)(a) of the Labour Employment Act, 1965

Dear Sir,

I have been working as a machine operator in your garment since the beginning (April 1, 1984) of this factory. My job history has been very satisfactory with the management. But unfortunately, I was terminated from the job on April 1, 1986 for unknown reasons. I am not aware whether I was terminated, dismissed or discharged according to law.

It may be mentioned here the management has terminated me from the job only verbally because I was involved in trade union activities and is holding the position of the treasurer. The termination for this cause is illegal because all the workers have the right to form and join trade unions. It is also to be noted that termination of workers without showing any reason is a violation of the labour law.

For your knowledge and information, I would like to say that on 19 March, 1986. I was asked to work in separate room with 11 other workers and on April 1, 1986 I was told verbally that my services are no more required. Yet I went for work on the next day, I was not allowed to enter into the factory. My identity card was seized. On 10 April I went to get my due salary but then I was told that unless I write my resignation I will be paid half of my salary. I do not understand why I should be forced to write resignation letter to receive my due salary for a whole month of my work.

Sincerely,
Namita Das Gupta

This letter is a classic example of the consequences of trade union activities in the garments industry. There was no response to this letter from the management to Namita Gupta.

6.4.4 The Export Processing Zone and the experience of the trade unions

The industries in the EPZ grew out of the Export Processing Zones Authority Act 1980 (Act No. XXXVI of 1980). The main reason for the setting up of the EPZA was our "capital formation is low and know-how is limited. Foreign investment can play a catalytic role in economic development ...". There was nothing specific mentioned about any restriction on the formation of trade unions.

In 1984 the industries under the EPZA started functioning and labour was recruited. Between 1984 to 1986 the workers organized themselves and formed trade unions. One of the trade unions even got registration from the Government. The demands of the trade unions formed in the EPZ had demands different from those outside. They demanded transport for the workers, canteen facilities etc. because the EPZ is far from the city of Chittagong. The trade unions within the EPZ formed an Action Committee and took up cat-call strike programmes in 1986. The owners of the factories fought such activities with the help of the police. The Action Committee drafted a 20-point list of demands to the EPZA as follows:

1. The retrenched labours on account of revolting against the tortures or joining the movement, should be reinstated with the continuity of their services. They should be paid allowances until they are reinstated.

2. Termination, retrenchment and lay off should be stopped. If for some reason the factory has to be closed, the workers should be paid their allowances.

3. No action should be taken against any worker without consulting the labour representative of the respective industry.

4. The workers under the EPZA should be given full trade union right.

5. All the workers under the EPZA should be given appointment letters with date of joining, designation, salary and benefits, the letter of permanent recruitment, service book and the identity card.

6. Every worker should be given a minimum of Tk.1000.00 as the basic salary, other allowances and two bonuses per year. Gratuity should be introduced.

7. The system of contracting should be eliminated because it is a means of labour exploitation. Strong actions should be taken against the owners of these industries.

8. The female labours should be provided maternity leave and maternity allowances.

9. There should be creche facilities for the children of the female workers.

10. All the factories must be equipped with qualified doctors and necessary medical equipment.

11. The labour having an accident within the factory should be compensated according to the Labour Compensation Law. The factory should bear all the cost of treatment and full salary should be paid until the recovery of the injured labour.

12. Overtime rate should be double of the basic salary. Under no circumstances, the overtime hours should be more than 2 hours. The overdue payment for overtime should be paid.

13. The labours should be given weakly leave, yearly leave, casual leave and medical leave.

14. The physical assault on the female labours should be stopped and the person who is committing such violence should be punished.

15. Stoppage should be given.

16. Transport facilities should be increased in proportion to the number of labours.

17. Every factory should introduce subsidized canteen system. Housing colonies should be made for the workers.

18. The court cases filed on 3rd January, 1989 should be withdrawn.

19. The police raids on the workers in EPZA should be stopped.

20. The agreement signed between the labour representatives and EPZA should be implemented.

The management of the EPZA banned trade union activities within the EPZA and also decided to reduce the number of male workers because they more than the women are the potential agitators.

6.5 Impact of technology on female workers

6.5.1 Impact of the design of technology on women

In the discussion of the impact of technology on women one needs to begin with the implicit notion of technology as gender neutral. This should be done before one attempts to evaluate empirically the impact of technology on women. We should not assume that technology has no inbuilt bias. Indeed it has. The machines and tools are designed and produced keeping the need of male workers in mind. These machines and tools therefore set into motion a trend in production processes with which female workers cannot cope. As a result, the exclusion of female labour from the process of industrialization takes place simply due to the patriarchal premise of technology.

In the course of this study we became aware of this fact while visiting the Sundarban Textile Mills. Usually the textile mills of

Bangladesh have a very small number of female workers. The Sundarban Textile Mills employed 131 women while we were visiting. This constitutes only 9 per cent of the total labour force and is in no way exceptional.

In general, management thinks that women cannot work for physical reasons in the spinning and weaving sections, the two most important sections of a mill. They feel strongly that the machines are designed in a way that excludes the employment of women. But at Sundarban Textiles things are different. This mill employs imported Chinese machines. In China most of the labour in the textile sector operating the machines are women. There the machines are designed to keep with the body structure of women. At Sundarban, this fact has a visible impact. Women are operating the machines and management feels quite comfortable with their performance. Thus, once the nature of technology changes, the inclusion of women in the production process is accelerated.

From the experience at Sundarban it is clear that in other mills the exclusion of women from the operation of machines is not only due to the patriarchal values of the management. Indeed, the design of the machine is a discouraging factor to employ women.

In garment factories, the cutting and ironing is done by male labour. It has to do with the design of the machines. The women interviewed said that these operations are not hard for them to execute physically but they feel somehow uncomfortable with the tools. This is striking once we recollect that, at the level of the household, it is the women who perform the ironing of the family clothes and they are the ones that sew the dresses. There they execute all the phases of sewing, including cutting. The division of labour at the family level is surprisingly reversed in the garment factories. This is something that cannot be explained by the patriarchal culture or the anti-women mentality of the management.

6.5.2 Social division of labour and the impact of technology

In the home-based weaving women are involved in pre-weaving processes such as spinning the bobbin, starching and dyeing, etc. The disintegration of the home-based weaving is a pre-requisite for the emergence of the factory-based production. This disintegration is not caused by technology but by the social and economic processes such as marginalization of the weaving families, irregularities of the market, over-exploitation by the middle men known as mahajon, etc. The home-based weavers, as a consequence of being marginalized and poor, seek employment with rich weavers who own 5 to 20 looms under a single factory roof in the rural villages of Bangladesh.

This process has an immediate consequence for the women of the household. They are delinked from the weaving operation to which they were related within the familial space since the male members of the family do not operate looms within the household. But the internal familial division of labour may reappear as an external social division of labour. This occurs for women in two directions.

One form of the social division of labour is that a group of women specializes in the preparation of bobbins, starching, etc. and is hired by persons who are engaged only in pre-weaving operations

conducted under a single roof in a kind of factory environment. The second form is that as a wife or female members of the weaver's household, the women still set up the bobbin of yarn at home to be supplied to a factory. Women retain this role due to their familial connection to the weavers. In Pabna, the factory owners prefer this arrangement whereby their weavers are in control of the supply of bobbins required to weave the weft.

The impact of technology is different in the two cases. The women still working within the share of the household prefer mechanization to increase productivity and are prone to accept new experiments and arrangements with pre-weaving tools. Increased productivity brings more return in cash. The women working in the factory environment for an entrepreneur do not feel any extra enthusiasm to increase productivity. It does not bring any extra income for these women. In Pabna this difference of perception with regard to the introduction of new tools in pre-weaving processes was felt very clearly. In Tangail we saw a woman using innovatively the ceiling fan to mechanize her spinning tool known as Charka. The spinning tool made of a bicycle ring is more common in the households supplying bobbins to the factories than the factory-type bobbin-making.

6.5.3 Machinery and women

There are enormous barriers for the introduction of new technologies in textile. In Bangladesh the greatest problem is the scarcity of capital. Managerial ability and the lack of the skilled workers are two other important problems. Nonetheless, the mills are eager to introduce new technologies. But, unfortunately, the eagerness has not proven itself very effective due to mostly economic reasons.

A major portion of the machinery in the textile industry is quite old. It was imported in the 50s and 60s (see Table Appendix C). A few of the machines have been modified, but the number is insignificant. On the other hand there are new machines in recently established mills. However, comparing the old and new machines, it seems that there has been no large shift in technology. Thus, if only machines suitable for women were imported and a proper policy not to restrict the entry of women were enacted and implemented, there would be a significant increase in the employment of women in the textile sector.

Women are engaged in operations like pirn winding, cone winding, printer, etc. While management is not against employing women in these operations, the low number of women in textiles shows patriarchal legacies. When the textile industry was established in the early days of the 50s, women workers either were not available or the social prohibition for their entry into factory work was strong. The situation changed considerably when a large flow of female labour appeared in the 80s to feed the garment industries.

6.6 Technology and displacement of women

New technologies may displace women. But in Bangladesh, it seems that the industrial policy of the Government and patriarchal values displace women more than the introduction of new technologies.

Technologies may become male-oriented due to the skill required to operate the machines. The skill development required for the introduction of new technologies is always systematically ignored, especially when it comes to women. They as well as men can acquire new skills if they have the opportunity. All women workers we spoke with confidentially said that they want to and are capable of learning new skills. The table in the Appendix shows the required days of training for a number of machines that women could, if trained, operate. It is to be noted that women should also be trained in supervision and management.

From a purely economic point of view, what still determines the employment of women in industry is that women workers are cheap and they are loyal to the management. On the other hand, women are available for hire because the socio-economic conditions allow, or sometimes force them, to seek paid employment. They are indifferent about the technologies they have to deal with. They are ready to learn any skill in order to remain on the job. Thus, the introduction of new technologies does not affect women's willingness to seek a job in industry. Therefore, the impact of technology on women's employment will remain negligible for a long time to come.

ANNEX 1: Statistical tables

Table: Appendix A
STATE OF INSTALLED AND ACTUAL CAPACITY

YEAR	NO OF MILLS REPORTED	INSTALLED CAPACITY		ACTUAL NUMBER IN OPERATION	
		No. of spindles ('000)	No. of looms ('000)	No. of spindles ('000)	No, of looms ('000)
1946-47	n.a	110	2	108	2
1954-55	n.a	234	3	230	3
1959-60	n.a	359	3	351	3
1960-61	n.a.	364	3	361	3
1961-62	20	403	3	389	3
1962-63	25	492	3	399	3
1963-64	28	521	4	459	4
1964-65	29	617	5	564	5
1965-66	33	654	6	573	3
1966-67	38	661	7	555	4
1967-68	37	662	7	563	4
1968-69	42	731	7	646	4
1969-70	44	750	7	660	3
1970-71	44	750	7	643	4
1971-72	44	836	7	530	3
1972-73	45	853	7	633	4
1973-74	46	871	7	675	5
1974-75	48	810	7	679	5
1975-76	49	818	7	673	5
1976-77	49	839	6	765	4
1977-78	49	982	8	803	5
1978-79	49	994	7	750	5
1979-80	49	1030	8	750	5
1980-81	56	1059	8	863	5
1981-82	56	1012	6	761	5
1982-83	56	1014	6	870	4
1983-84	58	1088	6	892	5
1984-85	58	1025	6	922	5
1985-86	58	1173	6	857	5
1986-87	59	1064	6	920	4
1987-88	61	1120	6	938	4

SOURCE:

Statistical Yearbook of Bangladesh, Bangladesh Bureau of Statistics; For the years from 1947 to 60 estimation of A.Z. Muslim (Muslim 1969) has been used. Actually operating spindles and looms for these years has been estimated.

Table: Appendix B

STRUCTURE OF COTTON TEXTILE INDUSTRIES BY LOCATION (1988)

Districts	No. of Spindle	No. of Looms	Annual production		No. of Employees
			Kg. of Yarn	Meter of Cloth	
Dhaka	243944	1431	171.15	296.76	13736
Narayanganj	163010	2562	114.39	531.32	10365
Norshingdi	27460	0	19.27	0	585
Pabna	40560	176	28.46	36.5	1846
Tongi	178740	930	125.41	192.87	12192
B-Baria	14800	0	10.38	0	762
Barisal	12448	97	8.73	20.12	1105
Bogra	20000	208	14.03	43.12	1789
Chittagong	187564	1811	143.22	375.54	11833
Comilla	52688	175	36.97	109.91	3010
Dinajpur	25056	0	17.58	0	995
Feni	12800	0	8.98	0	740
Gajipur	14136	0	9.92	0	0
Jessore	37584	0	26.37	0	1137
Kishoreganj	25056	0	17.58	0	1143
Kurigram	12528	0	8.79	0	574
Kushtia	59608	537	41.82	111.37	1868
Lakshmipur	25056	0	17.58	0	880
Madaripur	25056	0	17.58	0	952
Rajbari	12528	0	8.79	0	622
Rajshahi	25056	0	17.58	0	1078
Ranganati	12096	0	8.49		565
Rangpur	25056	0	17.58		939
Satkhira	25056	0	17.58		977
Sirajganj	12400	0	8.7		746
Sylhet	25056	0	17.58	0	873
Tangail	24900	0	17.47	0	1257
Khulna	24960	260	17.51	53.92	1569
Magura	10000	0	n.a	n.a	n.a
Total	**1375202**	**8187**	**969.49**	**1771.43**	**74138**

Source: Textile Directorate 1988

TAB: Appendix C

MACHINES IN SELECTED INDUSTRIES BY YEAR OF INTRODUCTION

	MACHINE	YEAR OF INTRODUCTION
	A.	**CHAND TEXTILE MILLS LIMITED**
1	BALE MACHINE (PRESS MACHINE)	1963
2	BUNDLING MACHINE	1963
3	POWER LOOM	1958
4	PIRN WING MACHINE	1958
5	DRAWING MACHINE	1958
6	SIZING MACHINE	1958
7	WARPING MACHINE	1958
8	REELING MACHINE	1963
9	CONE WINDING MACHINE 1963	1963
10	RING FRAME 1963, 1982	1963
11	SIMPLEX MACHINE 1963	1963
12	COMBING MACHINE 1982	1982
13	DRAWING MACHINE 1963, 1982	1963
14	CARDING 1963	1963
15	SCUTCHER ONE 1963, ONE 1982	1963
	B.	**QUYUM DYEING & PRINTING MILLS**
16	INSPECTION MACHINE	1987
17	SINZING & DESIZING MACHINE	1987
18	ZIGGER MACHINE	1987
19	ROTARY PRINTING MACHINE	1987
20	STANTERING MACHINE	1987
21	DRY MACHINE	1987
22	PLANE WASH MACHINE	1987
23	MERCEREZING MACHINE	1987
	C.	**DHAKA COTTON MILLS LIMITED**
24	PIRN WINDING MACHINE	1941
25	WARPING MACHINE	1854, 1941
26	SIZING MACHINE	1954
27	DRAW IN REACHING	1954
28	POWER LOOM	1954
29	REELING MACHINE	1854
30	CONE WINDING MACHINE	1954
31	RING FRAME MACHINE	1954, 1982
32	DRAWING MACHINE	1954

Appendix C: Contd...

33	COMBING MACHINE	1962
34	CARDING SECTION	1954
35	SCUTCHER MACHINE	1954
36	SIMPLEX MACHINE	1954
	D.	**AHMED BAWANI TEXTILES MILLS LIMITED**
37	POWER LOOM	1962
38	PIRN WINDING MACHINE	1962
39	DRAW IN RECHING FRAME	1962
40	WARPING MACHINE	1962
41	SIZING MACHINE	1962
42	BALEING MACHINE	1957
43	BUNDLE MACHINE	1957
44	REELING MACHINE	1957
45	CONE WINDING MACHINE	1957
46	RING FRAME MACHINE	1957, 1962, 1967
47	SIMPLEX MACHINE	1957, 1962
48	DRAWING	1957
49	COMBING MACHINE	1962
50	CARDING MACHIE	1957
51	SCUTCHER MACHINE	1957
	E.	**SHABOTHY TEXTILES MILLS LIMITED**
52	STEMING MACHINE	1985
53	CALENDERING MACHINE	1985
54	POLYMARIZAR MACHINE	1985
55	PRINTING MACHINE	1985
56	STENTER MACHINE	1985
57	GAS SINGING MACHINE	1985
58	JIGGER MACHINE	1985
59	JET DYEING MACHINE	1985
60	SOAPER MACHINE	1985
61	MARCERIZING MACHINE	1985
	F.	**BENGAL TEXTILE MILLS LIMITED**
62	REELING MACHINE	1989
63	CONE WINDING MACHINE	1989
64	RING FRAME MACHINE	1989

Appendix C: Contd...

65	SIMPLEX AMCHINE	1989
66	DRAWING MACHINE	1989
67	COMBING MACHINE	1989
68	CARDING MACHINE	1989
69	SCUTCHER	1989
	G. ARIF PRINTING & DYEING	
70	ZIGGER MACHINE	1973
71	PRINTING (MANUAL)	1965
	H. PHOENIX FABRIC PRINTING & DYEING	
72	STENTER MACHINE	1987
73	STEMING HACHINE	1987
74	ROTARY PRINTING MACHINE	1987
75	BATCHINE MACHINE	1987
76	SOAPER MACHINE	1987
77	JET DYEING MACHINE	1987
78	JIGGER MACHINE	1987
79	CARE MACHINE	1987
	I. CHITTARANJAN COTTON MILLS LIMITED	
80	CALENDERING MACHINE	1940
81	LOOM	1964
82	PIRN WINDING	1982
83	DRAW-IN-REACH (FRAM)	1930
84	SIZING MACHINE	1930
85	WARPING MACHINE	1930
86	REELING MACHINE	1967
87	CONE WINDING MACHINE	1967
88	RING FRAME MACHINE	1980
89	SIMPLEX MACHINE	1980
90	DRAWING MACHINE	1980
91	COMBING MACHINE	1980
92	CARDING MACHINE	1930
93	SCUTCHER MACHINE	N.A.
	J. MOHAMMADI DYEING & FINISHING	
94	CALENDER MACHINE	1982
95	STENTERING MACHINE	1982
96	DYEING MACHINE (JIGGER)	1982
97	MERCERIZING MACHINE	1962
98	BLEACHING MACHINE	1958
99	WASHING MACHINE	1958

Appendix C: Contd...

100	DESIZING MACHINE	1958
	K. ALHAJ TEXTILES MILLS LIMITED	
101	POWER LOOM	1964
102	PIRN WINDING MACHINE	1967
103	DAAW-IN-REACH (FRAME)	1964
104	SIZING MACHINE	1964
105	WARPING MACHINE	1964
106	REELING MACHINE	1960
107	CONE WINDING MACHINE	1960
108	RING FRAME MACHINE	1962
109	SIMPLEX MACHINE	1962
110	DARAWING MACHINE	1962
111	COMBING MACHINE	1962
112	CARDING MACHINE	1962
113	SCUTCHER AMCHINE	1962
	L. ASIATIC COTTON MILLS LIMITED	
114	CONE WINDING MACHINE	1973
115	RINGFRAME MACHINE	1954
116	RING FRAME MACHINE	1973
117	SIMPLEX MACHINE	1973
118	COMBING MACHINE	1973
119	DRAWING MACHINE	1954
120	CARDING MACHINE	1965
121	SCUTCHE MACHINE	1973
122	SCUTCHER	1954
123	POWERLOOM	1965
124	PIRN-WINDING MACHINE	1964
125	DRAW-IN	1975
126	SIZING NACHINE	1982
127	WARPING MACHINE	1975
	M. SUNDARBAN TEXTILE MILLS	
128	REELING MACHINE	1983
129	CONE WINDING MACHINE	1983
130	RING FRAME MACHINE	1983
131	SIMPLEX MACHINE	1983
132	COMBING MACHINE	1983
133	DRAWING MACHINE	1983
134	CARDING MACHIN	1983

Appendix C: Contd...

135	SCUTCHER MACHINE	1983
136	FOLDER MACHINE	1983
137	CLOTH CHECKING MACHINE	1983
138	POWER LOOM	1983
139	PIRN-WINDING MACHINE	1983
140	DRAW-IN-REACH (FRAME)	1983
141	SIZING MACHINE	1983
142	WARPING MACHINE	1983

N. NATIONAL COTTON MILLS LTD

143	REELING MACHINE	1983
144	CONE WINDING MACHINE	1983
145	RING FRAME MACHINE	1983
146	SIMPLEX MACHINE	1983
147	DRAWING MACHINE	1983
148	CARDING MACHINE	1983
149	SCUTCHER	1983
150	POWER LOOM	1958
151	POWER LOOM	1939
152	PIRN WINDING	1939
153	DRAW-IN-REACH (FRAME)	1939
154	SIZING MACHINE	1939
155	WARPING MACHINE	1939

Number of days of training required for different machines

MACHINE	TRAINING REQUIRED (DAYS)
1 BALEING MACHINE	7
2 BATCHINE MACHINE	30
3 BEAL MACHINE (PRESS MACHINE)	0
4 BLEACHING MACHINE	30
5 BUNDLE MACHINE	7
6 CALENDERING MACHINE	7
7 CARDING 1963	30
8 CARDING SECTION	0
9 CARE MACHINE	90
10 CLOTH CHECKING MACHINE	15
11 COMBING MACHINE	30
12 CONE WINDING MACHINE	15
13 DRAW-IN-REACH (FRAME)	60
14 DRAWING MACHINE	30
15 DESIZING MACHINE	60
16 DRAWING MACHINE	30
17 DRY MACHINE	30
18 DYEING MACHINE (JIGGER)	90
19 FOLDER MACHINE	15
20 GAS SINGING MACHINE	30

contd_

21	INSPECTION MACHINE	30
22	JET DYEING MACHINE	90
23	JIGGER MACHINE	90
24	LOOM	30
25	MARCERIZING MACHINE	30
26	PIRN WINDING	15
27	PLANE WASH MACHINE	30
28	POLYMARIZAR MACHINE	30
29	POWER LOOM	30
30	PRINTING MACHINE	60
31	PRINTING (MANUAL)	30
32	REELING MACHINE	15
33	RING FRAME 1963, 1982	60
34	ROTARY PRINTING MACHINE	90
35	SCUTCHER MACHINE	30
36	SIMPLEX MACHINE	30
37	SIZING & DESIZING MACHINE	60
38	SOAPER MACHINE	30
39	STANTERING MACHINE	30
40	STEMING MACHINE	30
41	WARPING MACHINE	30
42	WASHING MACHINE	30
43	ZIGGER MACHINE	90

Appendix Table : District of origin for female workers by branch

District	Textile		Handloom		Garments		All	
	No.	%	No.	%	No.	%	No.	Percent
1. Comilla	2	7%			2	7%	4	8%
2. Chittagong	4	22%			7	26%	11	22%
3. Netrokona					1	4%	1	2%
4. Madaripur					1	4%	1	2%
5. Dhaka	1	5%			3	11%	4	8%
6. Chandpur					2	7%	2	4%
7. Mymensingh					1	4%	1	2%
8.Barisal	1	5%			2	7%	3	6%
9. Pirojpur					1	4%	1	2%
10. Munshigonj					2	7%	2	4%
11. Bagerhat					2	7%	2	4%
12. B. Baria					1	4%	1	2%
13. Narail					1	4%	1	2%
14. Narsingdi					1	4%	1	2%
15. Pabna	2	11%	1	25%			3	6%
16. Narayangonj	1	5%	2	50%			3	6%
17. Tangail			1	25%			1	2%
18. Jessore	4	22%					4	8%
19. Satkhira	2	11%					2	4%
20. Magura	1	5%					1	2%
Total	18		4	100%	27	100%	49	98%

Appendix 1:CHII: Sample establishments by location

	NAME OF ESTABLISHMENT	TYPE	LOCATION
1	BENGAL TEXTILE MILLS	A	Jessore
2	SHUTTLE FIGHT TEXTILE MILLS BSCIC	B	Pabna
3	ASIATIC COTTON MILLS LTD	C	Chittagong
4	CHAND TEXTILE MILLS LTD	C	Dhaka
5	NATIONAL COTTON MILLS LTD	C	Chittagong
6	SUNDARBAN TEXTILE MILLS LTD.	C	Satkhira
7	AL HAJ TEXTILE MILLS LTD	D	Pabna
8	CHITTARANJAN COTTON MILLS LTD	D	Narayanganj
9	DHAKA COTTON MILLS LTD.	D	Dhaka
10	AHAMAD BAWANI TEXTILE MILLS LTD.	E	Dhaka
11	SAROTHI TEXTILE MILLS LTD.	F	Jessore
12	CONCORDE GARMENTS LTD	G	Dhaka
13	FRANK GARMENTS LTD.	G	Chittagong
14	JULEKHA GARMENTS LTD	G	Chittagong
15	LIBERTY GARMENTS LTD	G	Dhaka
16	NAHAR GARMENT LTD	G	Dhaka
17	PENINSULA GARMENTS LTD	G	EPZ
18	RISHAL GARMENTS LTD	G	Dhaka
19	SIAM SUPERIOR (HONGKONG) LTD	G	EPZ
20	UNIVOGE GARMENTS LTD, EPZ	G	EPZ
21	SAYEDIA WEAVING FACTORY	HF	Tangail
22	MUNIRA WEAVING AND DYEING FACTORY	HF	Pabna
23	CHAND MIA'S ZAMDANI FACTORY	HT	Narayanganj
24	MOHAMMADI CALENDERING & PRINTING MILLS	M	Dhaka
25	ARIF DYEING AND PRINTING MILLS	N	Comilla
26	RUPALI DYEING PRINTIG AND READYMADE GARMENTS	N	Comilla
27	QUYYUM DYEING & PRINTING MILLS	O	Comilla
28	PHOENIX FABRICS LTD.	O	Dhaka
29	HAZI HABIBULLAH WEAVING FACTORY	HF	Tangail

Note: Code for type not indicated (UNIDO Secretariat)

Appendix CHV: Table
Age and education of the sampled male and female workers

Educational Categories	Age (in Years) <15 M	<15 F	15-19 M	15-19 F	20-24 M	20-24 F	25-29 M	25-29 F	30+ M	30+ F	Total M	Total F	Total
Textiles													
Illiterate	1		1		1		2	1	15	2	20	3	23
Sign only			1				4		16	2	21	2	23
Upto Primary			1		3		5		32	3	41	3	44
Upto secondary			1	1	6	2	14	3	35	3	56	9	65
SSC							2	1	7		9	1	10
HSC							1		2		3		3
Graduate									1		1		1
Total	1		4	1	10	2	28	5	108	10	151	18	169
Handloom													
Illiterate	3		2	1			1	1	1	1	7	3	10
Sign only									3		3		3
Upto Primary				1	1				2		3	1	4
Upto secondary							1				1		1
SSC													
HSC													
Graduate													
Total	3		2	2	1		2	1	6	1	14	4	18
Garments													
Illiterate													
Sign only						1						1	1
Upto Primary		1	1	3		2		1			1	7	8
Upto secondary				4	2	7	2			1	4	12	16
SSC					3	2	4		2		9	2	11
HSC				1		3	4	1	5		9	5	14
Graduate					1		2		2		5		5
Total		1	1	8	6	15	12	2	9	1	28	27	55
Grand Total	4	1	7	11	17	17	42	8	123	12	193	49	242

M= Male; F= Female

APPENDIX 2

About UBINIG

UBINIG (Policy Research for Development Alternative) is essentially a research organization. The Organization was formed by a group of persons to conduct research on development issues from the people's perspective, to project the popular perception of the people on issues that affect their lives directly. The objective is to raise debate at the policy level as well as at the popular level so that the policy makers can better understand why developmental efforts fail to meet the aspirations of the people and on the other hand what the people should do to realize a policy having positive contents for their own upliftment and emancipation. UBINIG works to create conditions so that policy decisions can be taken democratically and can be executed effectively.

UBINIG was formed in 1984 but the process of its formation started since 1981 from the study circles of concerned social scientists. We have done research on various development issues. The area of health, primary health care in particular, received our special attention since the formation of the organization. We have also been greatly involved in carrying out research on women in development and the whole question of industrialization.

Since 1986, we have conducted extensive research on the condition of weavers, the possibilities of women entrepreneurship development, the condition of the workers of garment industries and examined critically the question of export-oriented industrialization. The present research on the "Implications of the introduction of new technologies for the role of women in the textile and clothing industry in Asian developing countries" is an extension to our work in the field of industrialization as a whole and women and industrialization in particular.

Over the years UBINIG has developed its own research methodology and data processing system. We have our own documentation and research unit and facilities to train the researchers to specialize in social research.

UBINIG strongly emphasizes collective initiative and effort in its work and both failure and success of an initiative are shared by all members of the group. This study, like others, therefore should be considered as a collective contribution of all of us at UBINIG. Some of us have worked for the project directly and others have contributed indirectly in many different ways.

The research team specially assigned for this study worked collectively in the field. But there was a division of labour among the researchers to collect socio-economic information and to collect technical information about the machines used in the selected industries. The members of the two teams are the following:

A) The socio-economic survey was led by Mr. Palash Baral and Mr. Ashrafuddin. The other members of the team were: Mr. Lutful Kabir, Mr. Rafiqul Titu. Mr. Mizanur Rahman. Ms. Josna Ara Begum. and Ms. Shahinur Begum.

B) The technical survey team consisted of two members: Mr. S.M. Golam Rabbi Badal and Mr. Abu Baki.

The other members of UBINIG involved in the study were Mr. Shahid H. Shamim and Ms. Rushia Begum.

Besides the names mentioned above, all members of UBINIG have contributed to the work in many different ways.

Report-writing is a collective activity at UBINIG. Each and every member of the research team has contributed to the report-writing However, the concretization and articulation of the information was the responsibility of Mr. Harhad Mazhar, Managing Director and Farida Akhter, Executive Director of UBINIG.

Authorship. therefore. lies collectively with all of us. with UBINIG.

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