TEXTILES IN INDIA

Textiles is one of the oldest and largest organized industries in India. The textile industry occupies a place of pride in the Indian economy not only because of its being the foremost indigenous industry, but because of its contribution to the wealth and prosperity of the country. In its older form as a cottage industry our cotton textiles had won worldwide admiration, from time immemorial, and it has been established beyond controversy that India was the birthplace of cotton agriculture and cotton textiles. With a very modest beginning in 1818, the organized industry has so developed and expanded that it has now assumed a position of international importance. From the point of view of capital invested in it, the addition it has made to the wealth and income of the country, and the volume of labour employed by it, this industry has become the largest economic sector in India, serving one of the subcontinent's basic needs.

Although the first cotton textile mill started near Calcutta in 1818 as an English enterprise, Western India saw the appearance of the first Indian textile mill in 1851. The mill was set up in Bombay with 17,000 spindles. This successful venture was followed by other enterprising merchants in Bombay and Ahmedabad.
The first mill in Ahmedabad began working in 1861. A start was thus given to a new industrial life in the city. Due to enormous difficulties in procuring machinery and in its erection, the progress in setting up mills was rather slow in the initial years. During the next twenty years only three new mills were started in Ahmedabad. By the turn of the century, however, there were already about 80 spinning and weaving mills in Bombay Presidency with a total of 25,00,000 spindles and 25,000 looms. There were 29 mills in and around Ahmedabad with a total of 4,58,000 spindles and 8,700 looms.

The earliest textile factories were spinning mills. Yarn produced in these mills was woven into fabric and given finishes elsewhere, mostly in Britain, before re-entering the country for consumption. As manufacturing rights were liberalised for Indian enterprises, the vertical integration in production followed. Spinning, weaving and processing/finishing gradually came to be undertaken in "composite" mills. For a variety of historical reasons the concentration of composite mills remained in Western India.

The task of the manufacture of cloth and clothing is distributed into several sub-sectors depending on the nature of raw material used, the nature of ownership, the nature of technology employed, and the range of production process activity undertaken.
The textile industry in the country faced many adverse factors from time to time. In the early days of industrialisation, it was very difficult to attract outside capital and day-to-day running expenses had often to be financed from paid up capital. Moreover, many other social, political, and economic factors affected the growth of the industry. Kulkarni (1979) has described in detail the obstacles which the textile industry had to face during its early days.

Approximately 40% of the country's total production of cloth comes from the composite mill sub-sector (sometimes also referred to as the mill sector). The total number of mills in India, the total spindlage and loomage and average number of workers employed by the mill sector, along with the main features of this sub-sector are given in Table 2.

TABLE 2 : NUMBER AND SIZE OF MILLS

<table>
<thead>
<tr>
<th></th>
<th>No. of Mills</th>
<th>Number of Spindles*</th>
<th>Number of Looms</th>
<th>Average No. of Workers employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmedabad</td>
<td>66</td>
<td>2674</td>
<td>47,638</td>
<td>1,41,303</td>
</tr>
<tr>
<td>Gujarat</td>
<td>112</td>
<td>3941</td>
<td>64,127</td>
<td>1,90,465</td>
</tr>
<tr>
<td>India</td>
<td>636</td>
<td>20452</td>
<td>2,10,409</td>
<td>8,29,088</td>
</tr>
</tbody>
</table>

* Figures of installed spindlage are in thousands

Characteristics of Textile Technology

In the textile industry, there is a logical sequence of processes converting raw material into finished consumer goods. Figure 3 depicts
Note: Steps 1-4 : Spinning preparatory; Step 5 : Spinning proper
Steps 6-8 : Weaving preparatory; Step 9 : Weaving proper
Step 10 : Preparatory for all processing/finishing, singly or in combination
the sequence of operations in a typical composite mill.

The following characteristics of textile technology are significant:

1. The technology demands "process" departmentation over "purpose" or "product" departmentation.

2. There is quite a lot of division of work and specialization with respect to academic qualification and skill.

3. The various departments function independently and at distinct stages of manufacturing process.

4. The technology is fairly labour intensive.

5. The proportion of defectiveness is fairly high.

TEXTILE INDUSTRY OF AHMEDABAD

Ahmedabad has a concentration of 66 textile mills within a radius of 8 to 10 kilometres, of which 62 are composite mills. The paid up capital in 1980 was Rs.5,303.60 lakhs. The spindlage, loomage and employment figures are presented in Table 2 separately for Ahmedabad, Gujarat and India.

As with most industries with a regional concentration, the textile industry in Ahmedabad, too, has evolved for itself certain distinct characteristics that together may be referred to as the 'Ahmedabad tradition'. Hence, while a group of mills might differ markedly on the
parameters of product-mix and technology, they are likely to show remarkable similarities in a wide range of other parameters, including those of management practices, staffing, organization, and norms of behaviour in mill premises. Indeed, over 30 years of research and extension work at ATTRA have amply established that major differences in management traditions do exist across regions and across sub-sectors of the industry. The programmes of research at the Human Resources Division, selectively summarised earlier, have in their own way attempted to define and quantify aspects of these traditions.

In Ahmedabad, in contrast to other large cities, the reputation of the major trade union, the Textile Labour Association, is high and the history of industrial relations is better than anywhere else in India. Mahatma Gandhi's influence has had much to do with the good relationships between mill-owners on the one hand and trade union leaders and workers on the other. Even today the Textile Labour Association has maintained its reputation, and its contribution in maintaining industrial peace may be termed significant.

Mills differ considerably in size, as determined by the installed spindlage and loomage. However, it may be worthwhile attempting a profile of an 'average' Ahmedabad mill of, say, 35,000 spindles and 600 looms. Such a mill is likely to have a staffing pattern in the following ratios.
1. Top management: 2 to 3 (from the owner families)
2. Production Managerial staff: 6 to 7
3. Production Supervisory staff: 45 to 50
4. Administrative/Clerical staff: 100 to 110
5. Operatives - Direct and Indirect: 2,300 to 2,400.

The typical staff organization in such a mill is shown in Figure 4. In and around Ahmedabad city alone there are over 3,000 technicians at the supervisor levels and about 400 technicians at the departmental head level. The issues related to technical manpower planning, particularly the technician's career in the textile industry were discussed elaborately in a seminar series organized jointly by Ahmedabad Management Association and ATIRA (Padaki, 1973). The obstacles in task achievement faced by technicians are also described in Shrivastava and Padaki (1981). The "traditional" management style prevailing in the owner-managed industry has caused many problems related to career, growth, and the professional development of technicians.

RESEARCH STUDIES IN THE INDUSTRY

One of the earliest action research projects regarding social and technological change on which the "socio-technical system" theory rests was carried out by Rice in a textile mill of Ahmedabad (Rice, 1955; 1958). The social organization of the loomsheds was examined and reorganized to improve the productivity. "The concept of a socio-technical system arose
Note: 1. Jobbers and operatives are classed as labour. Supervisors upwards are technicians.

2. In average, small-sized, single units, the Head of a department may report directly to the Managing Director. In some mills they may be a Production Manager to whom all the Heads report. In a small number of mills, the designation General Manager may be employed.
from the consideration that any production system requires both a technological organization, equipment and process layout—and a work organization, relating to each other those who carry out the necessary tasks" (Rice, 1958, P. 4). The planned changes introduced in the loomshed over a period led to changes in the system. This experiment is well-known in the field of organizational behaviour and is considered a milestone in the literature.

Soon after India's independence the need for research in the various fields related to manufacturing functions was felt by both industry and Government and with their joint effort a co-operative research institute, Ahmedabad Textile Industry's Research Association (ATIRA) came into existence in 1949. It is supported jointly by the textile mills and associated industries and the Government of India. ATIRA is the oldest of the co-operative research institutions in the country. The membership of ATIRA accounts for about 40% of the manufacturing capacity of the Indian textile industry based on the cotton system. The research, consultancy and training activities at ATIRA are concerned with all aspects of the industry's manufacturing functions, from fibre to finished fabric. In addition, the management functions have also been served by specific groups of researchers and consultants at ATIRA.

It is now a quarter of century since the textile industry of Ahmedabad pioneered the modern management movement for itself and for the country.
as well, through the annual management conferences at ATIRA. It provided a platform to exchange views on new concepts, methods and techniques appearing on the scene as alternatives in management practice. However, on the whole, the industry has remained traditional in its management practices. Padaki (1978, 1981) has reviewed the diffusion of management practices in the Ahmedabad textile industry and commented on the considerable gap between the teaching and research activities in management and the practice of management in India. In the evolution of modern management practice elsewhere, the emergence and development of newer tools and techniques has generally been in step with the revision of basic assumptions about the nature of the management task itself and its changing responsibilities. In the textile industry, according to Padaki, the openness to newer techniques that is apparent periodically seems to reveal a preoccupation with a one-sided view of maximisation, for surer and speedier returns. It lacks a corresponding appreciation of the processes of organizational functioning and the nature of the management role in planning, initiating and directing change in the organization.

Research studies related to management and human resources have been undertaken at ATIRA since inception. Programmes of research, training and consultancy at the Human Resources Division, complementing the work programmes of the other Divisions of ATIRA have maintained an intimate contact with the industry. The Division was the first Indian agency to be engaged in imparting Training Within Industry (TWI) programmes,
supported by ILO and the Technical Co-operation Mission of USA, after the second world war. A large number of supervisory personnel participated in these programmes. In these ways the Ahmedabad textile industry was the first to welcome many new areas of work beyond improvements in technical performance (Chowdhry and Trivedi, 1958).

The present study grew out of the researcher's continued application in the field of supervisory and managerial motivation over the last decade. Research at ATIRA related to the present study has been cited in the previous chapter. However, the one research engagement that suggested the directions and specific formulations for the study was an action research project undertaken in one mill to introduce a programme of job enrichment for its production supervisory staff. The nature of the assignment did not permit its reporting for publication, but selected aspects of the research pertaining to a pilot scale validation of the climate related measures developed by Hackman and Oldham (1974) and Litwin and Stringer (1968) have been reported elsewhere (Padaki and Gandhi, 1981a; 1981b).