CHAPTER 1
INTRODUCTION

Cotton is one of the most useful commodities for the human being. Probably, after air, water and food; cotton is the most important material human being needs. The cotton industry has long and complex supply chain shown in figure 1.

![Figure 1.1 Structure of Indian Cotton Textile Industry](image)

1.1 History of Cotton

“White Gold” is a historical and appropriate term for cotton, the natural fibre which continues to play an important role in the Indian economy. Cotton cultivation became more widespread during the Indus Valley Civilization, which covered parts of modern eastern Pakistan and northwestern India. Between 2000 and 1000 BC cotton became widespread across much of India. Cotton has been spun, woven and dyed since prehistoric times. Cotton has played a vital role in updating Indian economy in evolution of human ethical, moral and cultural values. Until the middle of the 18th century only ideogram arboreum and herbaceum varieties of cotton were grown in different regions of the country. The most significant development and spread of American
Cotton (variety Cambodian) in India was introduced in 1904-05. Prior to 1914, India produced 40-50 lakh bales of desi cotton with short staple length (below 19 mm).

1.2 Cotton Crop

Cotton is a soft, fluffy staple fibre that grows in a ball, or protective capsule, around the seeds of cotton plants of the genus Gossypium. Current estimates for world production are about 25 million tons annually from about 2.5% of the world's arable land. Cotton fibres occur naturally in colors of white, brown, pink and green. Successful cultivation of cotton requires a long frost-free period, plenty of sunshine and a moderate rainfall; usually from 600 to 1200 mm. Soils usually need to be fairly heavy, although the level of nutrients does not need to be exceptional. Large proportion of the cotton grown today is cultivated in areas with less rainfall that obtain the water from irrigation. Production of the crop for a given year usually starts soon after harvesting the preceding autumn crop. Cotton is somewhat salt and drought tolerant which makes it an attractive crop for arid and semi-arid regions. After many years of stagnation, the productivity of cotton in the country has increased significantly during the last 2-3 years and it has been viewed as a major breakthrough. Apart from the yield, the quality of cotton has also improved in the recent years. India is one of the major cotton producers in the world having the largest acreage under cotton and is also the second largest consumer of cotton. India is placed as the second largest cotton producing country leaving behind USA since the year 2006-07 by contributing 21% of the world production. But average productivity of the country is still the lowest among the major cotton growing countries of the world. India produces the widest range of cottons capable of spinning from 6s to 120s counts.

1.3 GM Cotton

Genetically modified (GM) cotton was developed to reduce the heavy reliance on pesticides. The gene coding for Bt (Bacillus thuringiensis) toxin was inserted into cotton and the newly developed variety is called Bt cotton. This variety is capable of producing natural insecticide in its tissues. Bt cotton is ineffective against many cotton pests. GM cotton area in India grew at a rapid
rate, increasing from 50,000 hectares in 2002 to 10.6 million hectares in 2011. The total cotton area in India was 12.1 million hectares in 2011; GM cotton was grown on 88% of the cotton area. This made India the country with the largest area of GM cotton in the world.

1.4 Spinning

The spinning sector has evolved into a modern, organized group with strong lobbying abilities. Spinning is the most consolidated and technically efficient sector in India’s textile industry. It is the main vertical of the cotton textile industry. It has about 3300 mills in India and produces about 12 million kg (kilogram) of yarn every day. India’s current installed ring spindle capacity is 43 million and this is expected to increase by another 2 to 3 million spindles in the next 2-3 years. In terms of spindleage, the Indian textile industry is ranked second and accounts for 23% of the world’s spindle capacity. From 1993 to 2003, yarn exports grew from 2.38 per cent to 15.8 percent of production. This has in turn squeezed domestic supply, as spinners seek to market their wares abroad and weavers are left with the price effects of competing for less yarn. Production of cotton yarn has increased over a period of time but quality yarn has not increased. In order to increase superior yarn, higher count has to be increased to have better earning through value addition. Yarn count reflects the amount of yarn packed into a given area. A significant portion of the crop is used to produce cotton yarn, a derived commodity in which India is now the world’s largest exporter, with a global market share of 25 per cent. Technology is central to reducing the costs of production, improving yarn and fabric quality and expanding information access along the value chain. More has to be done to ensure that an adequate supply and quality of cotton yarn reaches India’s handloom weavers and that exploitative links along the value chain are controlled and minimized.

1.5 Weaving

Weaving is the most important process in the making of cotton cloth. In India this sector is mainly unorganized. The sector consists of fragmented, small, labour-intensive and often, un-registered units that invest low amount in technology and practices especially in the power loom, processing, handloom
and knits. Higher power tariff is also one of the biggest challenges the industry often faces. Unlike spinning industry, weaving sector is mostly concentrated in limited areas of the country, where power fluctuation is a regular affair due to which productivity gets affected. Though weaving is one of the important sectors for Indian textile industry, it has not been given due attention like the spinning sector. There are approximately 5 million looms in the country. The sector contributes significantly in the production of cloths and generation of employment. The Indian powerloom industry contributes 60.39% of the total powerlooms in the world. It also contributes 62% of the total cloth production and provides employment to 5.26 million persons. It produces around thirty thousand millions square meters annually and employs about 5.5 million workers. India now ranks first in the total number of powerlooms in the world. But in terms of modernization, Indian loom industry still lags significantly behind the US, China, Europe, Taiwan etc. The powerloom industry is spread all over the country. The major states are Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Punjab, Rajasthan and Karnataka. The Maharashtra state is pioneering in the powerloom industry in India. Owners of powerloom units fail to provide basic amenities to the workers. The majority of the workers are not satisfied with the working conditions of the factory. They work under dust and fumes, without proper lighting and ventilation, in absence of cleanliness and hygienic conditions. No safety measures are undertaken to avoid accidents. Their jobs are insecure and majority of the workers are not satisfied with their jobs in terms of welfare facilities and wages. Weaving industry are supporting some 32 other sectors that include marketing, financial, transportation, hotels and even maintenance services. Value addition and the manufacturing of fabrics according to customer’s compliances are not possible due to obsolete technology of looms. A number of composite mills in the organized mill sector are investing in new weaving and finishing technologies.

1.6 Processing

The ultimate objective of processing is to produce fabric that is clean and rid of all impurities that interfere with dyeing and finishing. About 70% of India’s woven processed fabric is produced by decentralized sector, which faces
investment constraints. Low investment in processing technology has restricted India's capacity to export value-added textiles. Number of processing units using conventional technologies is about 95%. The decentralized processing sector is highly fragmented with hand processors, semi-power processors and power processors together sharing major portion of our textile processing activities. This has led to low quality and high cost of processing since the decentralized processing units lack the advantages of economies of scale and is unable to access or absorb modern technology. Wet processing of textiles is the most complex stage in the manufacturing of fabric requiring immense personal attention and knowledge having potential for true value addition. It is a challenging task to attain the desired appearance, feel and function right first time at competitive cost with the best of quality. The key to success in textile wet processing technology will be the indication of highly trained manpower at lucrative wages in a structured manner. Wet textile cotton processing involves the following number of stages.

**Singeing:** Singeing is the process of removing the hairs of fabrics or fibres. Then the cloth passes through a gas flame that singes the fuzz off its surface. Boiling the cloth in an alkaline solution removes natural waxes, colour substances or discolouration. At the end of this process, fabric is smoother than before and its wettability is increased.

**Desizing:** Desizing is the process of removing the starch or size material from the warp yarns in woven fabrics using enzyme, oxidizing agent or other chemicals.

**Scouring:** Scouring is the process of washing cotton in hot water and detergent to remove the contaminants followed by drying.

**Bleaching:** Cloth is bleached in hypochlorite or peroxide. The cloth may then pass through a machine that prints the design on it.

**Mercerizing:** Mercerizing is the process of improving the luster and other properties of cotton by using strong caustic alkaline solution. It gives the material strength and in some cases lends a silky appearance. Swelling of the cross section of cotton fibre improves the hand feel and appearance of the garment.
Dyeing: Dyeing is the process of changing the color of a yarn or cloth by treatment with dye.

Printing: Textile printing is the process of applying colour to fabric in definite patterns or designs. In properly printed fabrics, the colour is bonded with the fibre so as to resist washing. The method of printing is simply adapted in a multi coloured pattern on a white fabric.

Every operation under wet processing such as pre-treatment, dyeing, printing or finishing aims at maintenance of high quality, cost effectiveness, improved functionality, generation of low waste, minimum use or reuse of water and chemicals, overall environment friendliness and application of appropriate machinery and technology.

1.7 Apparel and Garment

The textile and apparel industry plays a major role in India, ranking among the country’s largest sources of economic activity, foreign exchange and employment. The industry benefits from low wage rates and access to a huge domestic market, an abundant supply of skilled labor and a large production base for raw materials and intermediate inputs. The Indian apparel industry, which took off in the mid-60s, is worth around $15 billion now. A significant part of the apparel export from India is dominated by cotton garments. India’s labor is inexpensive; hourly labor costs in the textile and apparel industry average less than 5 percent of those in the U.S. textile and apparel industry. Garments have been subjected to a wide range of performance-enhancing functional finishes in the recent years. Some of the more widely used functional finishes include but not limited to water and oil repellent, wrinkle resistant, anti-microbial, anti-ozonate, ultra violet resistant, fire retardant, moisture management, sensory perception etc. During the post-quota period, India’s competitors Bangladesh, China, Pakistan and Vietnam could achieve higher export growth rate than India due to their better competitiveness. One of the major strategies adopted to increase exports is to tap new markets. The household sector consumes the largest share of textiles and garments in India (60% share), followed by the non-household sector (21% share), and then the exports sector (19% share). Both rural and urban markets are growing significantly; the rural market is estimated to be growing twice as fast as the
urban market. As disposable income increases, consumers are expected to spend more on purchases of quality clothing. The Indian market for branded products such as jeans, trousers, shirts and other consumer goods is estimated at no larger than 40 million consumers. Brands are more prominent in menswear, particularly shirts, trousers and jackets. To help achieve the apparel export target, Indian industry and GOI officials are calling for fabric mills to increase their range of apparel fabrics and fabric quality and for a massive restructuring of the apparel sector and large-scale investment in modern production equipment in order to benefit from greater economies of scale. 152 Apparel firms are being encouraged to adopt the “batch system” of apparel production, 153 diversify and differentiate their products and improve product quality, productivity, and marketing efforts. India’s apparel exports are consistently of low-value-added goods, in part because of the absence of recognized brands. Because few Indian brands are known internationally, India can increase its unit value realization only through moving up the value chain with superior product quality, changing its product mix or entering into joint ventures with producers of established U.S. or foreign branded apparel. Several of India’s major competitors, such as Hong Kong and Taiwan have small domestic markets; their textile and apparel industry cannot sustain production levels against a backdrop of rapidly rising wages, which reduces the price competitiveness of their products in the global market.

The Indian apparel or Indian garment industry is pegged at more than 900 billion with nearly 13% growth per annum. The men’s garment or clothing segment constitutes nearly 45% of the total apparel market and growing at a constant rate each year. Indian garment Sector can lead the industry to greater competitiveness through economies of scale.

1.8 Home Furnishing

The Home Furnishings Industry in India falls under the purview of the textile industry. Indian home furnishings manufacturers and home furnishings exporters offer a spectacular range of bedspreads, furnishing fabrics, curtains, rugs, durries, carpets, placemats, cushion covers, table covers, linen, kitchen accessories, made-ups, bath linen and other home furnishings accessories to the world. The total urban market for the home textiles in India in 2006-07 was
estimated to be Rs.93 billion. With a modest growth rate of about 14%, the market in 2008-09 is about Rs.140 billion. The market for home textiles is dominated by bed and bath linen, which have more than two-third of the market share in value terms. Bed linen alone has a market of about Rs.76 billion according to the estimates. Majority of the market is still in the unorganized sector and highly dispersed. As per discussions with various industry players in different parts of country, the overall average growth rate of domestic urban market is about 15%, for bath linen it is 15%, for kitchen linen it is 10%, for curtains it is 12%, for upholstery it is 15% and for other remaining products it is about 10%. It should be noted that the above estimate is only for urban India, which is considered as the relevant market for the foreign brands. In terms of the market size, the rural India can be assumed to consume about equal quantity of the home textiles, but in value terms it will not be more than half of the urban India. The urban population is about one-third of the total population.

India is the major source for garment and made ups for many global countries especially for Europe and US at low and mid-price.

1.9 Value Addition

A value chain is a sequence of production, processing and marketing activities where products pass through all activities of the chain in a certain order and with each activity, the product gains value. In a well-managed value chain, the value of the end-product is often greater than the sum of valued-added. This value added products will not only reward him with considerable increase in profit but also build the brand image. People now are fashion conscious; want to look different, feel different and want something unique. Now the textile has its wider application in industry as well as in household. Thus demand of more and more value added product is increasing day by day. Cotton textile industry is buyer driven value chains in which large retailers, marketers and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries. This supply chains compete on low cost, high quality, accurate delivery and flexibility in variety and volume. Managing such a complex supply chain requires economies of scale and economies of scope with proper
coordination through excellent managerial practices, technology, long term planning and facilitating policies.

1.10 Importance of Cotton Industry

Cotton is grown in over seventy countries and is one of the most important cash crops in the world. The fibre is used universally as a textile raw material while cottonseed is a major source of vegetable oil and cottonseed cake which is a source of high quality protein is used for stock feed or with better processing for human food. Cotton plays a vital multi-sectoral role in the Indian economy.

Cotton is the backbone of textile industry, which consumes 70% of India’s total fibre production. It accounts for 38% of the country’s export and fetches over Rs.800 billion annually to the exchequer. India is the only country which grows all the four species of cultivated cotton i.e. Gossypium arboreum and G. herbaceum (Asiatic cotton), G. barbadense (Egyptian cotton) and G. hirsutum (American upland cotton) besides hybrid cotton. India annually cultivates around nine million hectares, the largest in the world. About four million farmers grow the crop in about 13 States. Around 60 million people are estimated to depend on it one way or the other to eke out their living. It provides raw material for 1500 mills, 4 million handlooms, and 7 million powerlooms. The livelihood of 60 million people depends on cotton cultivation, processing, trade and textiles. Textiles including cotton contribute 20.24% of total Indian export. Textile Industry contributes 4% of gross domestic product, 14% of the total Industrial product, 20% of total work force, 17% share of country’s export earning, 12% of world textile production, employment to 30 million people. The industry is predominantly cotton based, with the fibre consumption ratio being nearly 70% cotton and 30% non-cotton.
With the above points in view, this study is taken up with the following specific objectives:

1.11 Objectives

- To analyze the growth trend and instability of economical factors of production and marketing of cotton textile industry
- To establish the relationship between various economical factor of cotton textile industry with those of affecting indicators
- To forecast the future trend and prospects of cotton textile industry
- To assess the value addition in cotton textile industry

1.12 Limitations

- Study is limited to cotton textile sector. Other textile sectors are not included.
- Global cotton statistics has not been taken into account.
- Major cotton producing states are only considered.
- No secondary data are used in processing and home furnishing sector.
- Woven fabric is the only area of study. No knitted fabric is considered.
- Study period is limited to (1980-81 to 2010-11).
- Average working time is considered in companies for simplifying the study.