



## TAILORED FOR INDIA : THE TEXTILE INDUSTRY

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### **ABSTRACT**

*India is the second largest producer of cotton in the world. The Indian textile industry based on the local production of its main raw material-cotton remains dominantly cotton based. The textile value chain extends from raw material, i.e., fibres to finished products, i.e., clothing and made-ups, with spinning, weaving, knitting and processing coming in between as intermediate processes. The structural pyramid of Indian textile industry is inverse in terms of 'strength'. Thus the fibre manufacturers are more efficient and healthier than the final product manufacturer.*

*The global textile industry is still adapting to the structural (long-term) (end of quota system, China's accession to the WTO, etc.). This has led to a surge in investments in new textile machinery due to rising demand. The structural changes mentioned has fuelled new trade opportunities, new consumers with higher disposable income that has translated into higher fibre consumption. It has had to endure the immediate and mid-term effects of the Great Recession in 2008/2009. All these short-, mid- and long-term effects are posing a real challenge that requires textile companies around the world to be flexible, efficient and innovative. There are no standard solutions for textile industry how best to weather these challenging times and how to benefit from the promising long term outlook. The business environment in the countries around the world differ requiring different approaches and solutions. Nevertheless, it would certainly be beneficial to the global textile industry if some of the unnecessary uncertainties were to disappear*



## **I. THE OVERVIEW**

### **INTRODUCTION: Trends in the global textile industry**

In India, the textile industry, after agriculture, has generated huge employment for both skilled and unskilled labor in textiles. The textile industry continues to be the second largest employment generating sector in India. Textile engineering today is shattering decades-old stereotypes of a labour-intensive, factory-based industry in which men and women toiled over looms and spinning jacks. The early production machinery has been replaced by a computer-driven enterprise that is making significant contributions to fields ranging from athletic performance equipment to human health and rehabilitation.

The textile sector was one of the engines of the Industrial Revolution. The textile industry has seen remarkable developments in technology. The ever-evolving needs of the global market, are having a strong impact on the textile and clothing sector. There are fresh developments in knitting, linking, pleating, decorating and embroidery. Computerized flat knitting machines have changed the way knitwear is done. Intelligent machines with easy to use screens and camera have increased productivity. There are easy to use pleating machines and it is possible to seam embroidery on the legs of finished jeans for the first time and to laser patterns on to them. Similar developments have been introduced in appliqué and fuwari embroidery. Electronics has been used to design and aid in anti counterfeiting in textiles.

The industry is undergoing a restructuring process that began with the manufacture of technical and industrial fabrics designed for a specific function, whether in clothing, household use, decoration or other production sectors that are not necessarily textile-based. These include healthcare fabrics made to higher quality standards in terms of hygiene and bacteriostatic protection, geotextiles used in civil engineering for construction purposes, extremely sophisticated fabrics for protection in the industrial, transport and automotive sectors, and high protection fabrics for clothing for the military, law enforcement agencies, fire services, special forces and athletes. The manufacture of these



technical fabrics marked the beginning of the sector's diversification and the textile industry branch currently generates most innovation due to its strategic importance.

The global textile industry is still adapting to the structural (long-term) (end of quota system, China's accession to the WTO, etc.) changes. Trends in textile markets and their implications for textile products and processes are changing the way the industry operates. The impact of environmental regulation on future textile products and processes, especially in the developed markets has redirected the industry towards the developing countries.

## **II. INDIAN ISSUES**

India is the second largest producer of fibre in the world. Cotton remains the major fibre produced in the country. Silk, wool, man-made fibres and jute are the other fibres produced. 60% of the Indian textile industry is cotton based.

India is the largest producer of jute in the world. It is the second largest producer of silk, the second largest in cotton and second largest in cellulosic fibres. The textile value chain extends from raw material, i.e., fibres to finished products, i.e., clothing and made-ups, with spinning, weaving, knitting and processing coming in between as intermediate processes.

In the international market, the main competition is from China. Comparatively, the biggest factories in India look like lightweight players in China. To overcome wage differentials, the Chinese companies cut the costs even lower than their Indian and other competitors through mass production and returns-to-scale of the economy.

For example, the largest spinning company in India, Vardhman Group, has a capacity of 500,000 spindles. In contrast, the largest Chinese spinning company, Weiqiao Textile, is running 3,000,000 spindles. The largest weaving company in India, Arvind Mills produces 110 million meters of denim and 30 million meters of fabric per year, while Weiqiao Textile has a capacity of 157 million



meters of denim and 844 million meters of fabric in total. On average, the size of Chinese textile companies is five times larger than that of the Indian ones.

India does not enjoy a high degree of market integration. It needs to reduce transport costs and trading expenses through internet, product differentiation and diversification. There is a need for a greater commitment to innovation and new technologies. India can cement its place in the market if it has new products, new designs, new formats, new uses and new techniques. Such an outlook will enable business expansion and access to new markets.

Apart from management, the infrastructure conditions in India are not friendly to mass production. The road traffic, train transportation, and harbor facilities in India are of poor quality. Restrictive labor laws prevent companies from recruiting large numbers of workers. When the enterprises hire more than 100 workers, they have to deal with worker unions. Under the unions' pressure, only 2% of Indian textile factories have three shifts, whereas about 20% of Chinese counterparts are operating 24 hours a day.

### **III. CURRENT PERFORMANCE**

Before the analysis, it should be pointed out that technological innovations do not always refer to automation or hi-tech. Sometimes enterprises may simply reorganize production procedures to increase the workers' productivity. Structural and organizational changes are innovations too. Every country has its own unique experience in establishing and developing new business models, in which the factors of cost, productivity, quality, technology and design are adjusted according to market demands and the capacity of the enterprise. These improvements may be based on upgrading hardware, but often they are just the result of better management of the existing technology.

The Indian textile industry has been able to maintain its competitive edge in world trade. International data shows that India emerged as the second largest exporter of textiles and clothing in



the world after China in 2013-14. On the global stage, the Indian textiles industry has emerged as the second largest textile exporter beating competitors like Italy, Germany and Bangladesh in 2013-14.

Most Indian companies are quite experienced in maintaining high quality and have an established control system. This also gives an advantage to Indian companies in customized production, as quality control is more important in the high-end market. Customized products bring more profit to the entrepreneur.

The rise in textiles exports from India is largely due to the growth in exports of cotton textiles at USD 15.18 billion in 2013-14, Textiles did remarkably well in an otherwise dull exports scenario in 2013/14. A weaker rupee and firm overseas demand helped the sector add \$4 billion to overall exports of \$312 billion, second only to engineering goods, which accounted for a \$4.83-billion increase. **Textile exports were worth \$30.37 billion in 2013/14, up from \$26.36 billion in the previous year - a growth of 15.24 per cent, compared to a decline of 3.11 per cent in 2012/13.** All major segments in the sector grew at a healthy rate. Readymade garments, which accounts for nearly half of all textile exports at \$14.93 billion, grew 15.53 per cent. Cotton yarn and fabrics grew 18 per cent to \$8.88 billion, while manmade textiles grew nearly 13 per cent to \$5.69 billion.

According to commerce ministry data, the share of textiles in export earnings increased from 8.78 per cent in 2012-13 to 9.72 per cent in 2013-14. Overall exports grew four per cent to \$312.6 billion in the year ended March 2014. Had textile exports remained unchanged, overall export growth would have been less than three per cent.

Improving export competitiveness over Asian peers such as China (on a depreciated rupee), a drop in raw material prices, and healthy demand from US and Europe not only boosted exports but also helped Indian textile companies earn higher profits in the last fiscal. "The trends (weaker rupee, and improving demand for garments and yarn), if sustained in 2014/15, are likely to improve the financial metrics of yarn and garment manufacturers", the rating agency said. Some say the



advantage that Indian textiles enjoy in export markets has narrowed, and this will impact profitability. Dinesh Oswal, Managing Director of Nahar Spinning Mills, says the current fiscal year will be challenging. "We were alive due to rupee depreciation, which helped us be competitive in the export market," he says. "Exports to China helped prevent a glut in the Indian market. This kind of profit may not be sustainable now."

The picture remains the same if the data for handicrafts and jute is considered. As per DGCIS data, Textiles (incl. Handicrafts, Coir & Jute) exports during FY 2013-14 registered a growth of 13.91% in US\$ terms and 27.04% in Rupee terms. Textiles (incl. Handicrafts, Coir & Jute) exports have touched US\$ 41.58 billion 2013-14 as against US\$ 36.50 billion FY 2012-13. In Rupee terms, it is 2,52,142.16 crore in 2013-14 against 1,98,481.63 crore in 2012-13. The share of textiles export in the Indian Exports Basket significantly increased from 12.15% to 13.26% in USD during 2013-14 as against overall Indian export growth of 4.37%.

As per UN Comtrade data, in the Global exports of textiles, India's global ranking has improved in 2013 with India now replacing Germany as the second largest exporter after China.

India's top items of export in Textiles in 2013-14 consisted of apparel (both knitted and not knitted), cotton and made ups. While the top countries for export for apparel and madeups are USA, UAE, UK and Germany, the top countries for export of cotton are China, Bangladesh, Pakistan and Vietnam. Our major items of import in Textile consist of Man Made Filament Fibre, Impregnated or coated Textiles for industrial use, Cotton and Man Made Staple fibre. Our major import partners in respect of the top imports in respect of the above commodities are China, Japan Taiwan, Korea, Thailand, Germany and USA.

Textile cluster policy is bearing fruit. Some centers in India (Bangalore, Mumbai) are able to execute large orders at short notice. It is also able to produce the entire range of woven wear and knitwear at low cost with reasonably good quality within specified schedules.





However these centers are constrained by occasional delays in delivery. It also suffers from failures to meet standards demanded by higher price niche markets and inability to compete with China, Bangladesh and Sri Lanka in the low price product segment. Non-tariff barriers have emerged along with quota phase out (on account of environmental and social issues like child labour and personal safety norms) which also affected the growth of the industry. Its inability to reap benefits of economies of scale due to fragmented holdings is yet another threat. At the same time, it also failed to reap the full benefits of a cluster model due to absence of professionalism and snail pace of government systems

This is in line with India's overall garment export profile, concentrated on cotton, semi-fashion, middle price segment. The minimum scale for efficient production in India is much lower than for example in China or Bangladesh, and the degree of subcontracting is much higher. The increasing dependence on agents and buying companies is a matter of serious concern. A part of value realization would be drained into the pockets of these agents. This part is lost from accumulating in the hands of the producers and thus leads to reduced trickle down to the lower ends of production to the workers. Middlemen are classically inclined to create artificial and non-price factors that would influence production processes and costs

#### **IV. RECENT CHALLENGES**

India's cotton and apparel exports are set to climb by around 10 per cent this year as higher wages, political instability and concerns about workplace conditions in other producing markets steer international buyers toward Indian exporters.

The rise in textile shipments from India - currently around 4.5 per cent of world trade - may eat into top exporter China's 36 per cent share of the market and will be a boon for Indian textile merchants keen to exploit rising demand stemming from weak cotton prices and global economic growth.

International developments in the growth of textile trade include a strategy of buyer driven value chains. Buyer-driven value chains are made by large retailers, marketers and branded manufacturers who play the pivotal role in setting up decentralized production networks. This pattern of buyer



driven industrialization has become common in labour-intensive, consumer-goods industries such as garments,. In some cases large manufacturers control the producer-driven value chains at the point of production. Large retailers and merchandisers control the buyer-driven value chains at the design and retail stages. The emerging market economies are eager to set up clothing companies. The EM economies protect their own industries leading to a large number of such industries in the third world. **Apparel is an ideal industry for understanding the dynamics of buyer-driven value chains. This has resulted in competition that India will have to engage in and master.**

#### V. ENVIRONMENTAL CHALLENGES.

The global diversification and shift of textile manufacturing and exports to developing countries has had significant implications for the Indian textile sector. Since most of the textile centres have developed as small-scale clusters, pollution management and enforcement is not at a satisfactory level. Hence in many places the pollution load discharged into the environment has exceeded the assimilative capacity and caused severe degradation of the quality of the environment. Even though these types of tradeoffs between development and environment are common in many countries, most of the research has emphasized either the development aspect or the environmental aspect, but not from a sustainable development perspective.

The main factor attributed to this shift is the cheap labour costs in developing nations compared to the western countries. (Vijayabaskar, 2001). **The environmental policies, which are relatively less stringent in developing nations might also have contributed to the shift in the location of textile manufacturing.** However, the wet processing (bleaching and dyeing) segment of the textile industry has caused severe environmental damage. The textile processing units use huge quantities of water and different chemicals. The effluents discharged by the units are generally hot, alkaline, strong smelling and coloured. Some of the chemicals which are discharged are toxic too. The majority of the textile units especially the smaller ones are not treating their effluents properly and the untreated or partially treated effluents are discharged into water bodies or on land and sometimes the effluent is used for irrigation (Mukherjee and Nellyyat, 2006). In many clusters





around the country, textile effluents have caused serious environmental impacts at the regional level. The technological development in the wet processing segment of the textile industry is not adequate. Most of the small units are using traditional processing technology, which are not environment friendly. Cleaner Production technology like soft flow machines has a lot of scope in textile processing. **Textile consumers in Europe and US have become more concerned about environmentally sound products with eco-labels.**

Consequently, the market for products produced in an environmentally friendly way is growing. After realizing the seriousness of the above issue, the Government of India and the textile industry took certain measures to set up eco-testing facilities in various textile centres.

#### **Facts about sustainability**

The growth of cotton is divided into two segments i.e. organic and genetically modified. Cotton crop provides livelihood to millions of people but its production is becoming expensive because of high water consumption, use of expensive pesticides, insecticides and fertiliser. Genetically Modified products aim to increase disease resistance and reduce the water required. The production from genetically modified cotton has overtaken the production from organic cotton crops. The organic sector was worth \$583 million. Genetically Modified cotton, in 2007, occupied 43% of cotton growing areas.

Cotton is farmed intensively and uses large amounts of fertilizer and 25% of the world's insecticides. Native Indian varieties of cotton are rainwater fed, but modern hybrids used for the mills need irrigation. The irrigation facilities spread pests. The 5% of cotton-bearing land in India uses 55% of all pesticides used in India.

The consumption of energy in form of water and electricity is relatively high, especially in processes like washing, de-sizing, bleaching, rinsing, dyeing, printing, coating and finishing. Processing is time consuming. The major portion of water in textile industry is used for wet processing of textile (70 per cent). Approximately 25 per cent of energy in the total textile



production like fibre production, spinning, twisting, weaving, knitting, clothing manufacturing etc. is used in dyeing. About 34 per cent of energy is consumed in spinning, 23 per cent in weaving, 38 per cent in chemical wet processing and five per cent in miscellaneous processes. Power dominates consumption pattern in spinning and weaving, while thermal energy is the major factor for chemical wet processing. Most of the environmental footprint of textiles occurs during production, largely due to amount of chemical auxiliaries required to produce finished fabrics.

**The different aspects of sustainability center round the use of water, chemicals, electricity and landfills management.**

**WATER:**

Water is a finite resource that is becoming scarce. It is used at every step of the process both to convey the chemicals used during that step and to wash them out before beginning the next step. The water becomes full of chemical additives and is then expelled as waste water; which in turn pollutes the environment. The environment is polluted due to the heat it carries, and increased acidity. It becomes saturated with dyes, de-foamers, bleaches, detergents, optical brighteners, equalizers and many other chemicals used during the process.

Wastewater is one of the largest sources of effluents produced by the textile and apparel industries. Wastewater is produced throughout the manufacturing process, as the production of textile and apparel goods requires different steps. High volumes of wastewater are produced in manufacturing operations such as desizing, dyeing, rinsing, printing, bleaching, finishing, and cleaning. In fact, each pound of goods produced can be the source of approximately 60 litres of waste from dyeing and rinsing processes alone. Facilities that are involved in the dyeing of goods often turn out more than one million gallons of wastewater each day.

**The chemicals that can be used by the textile industry number 2000 including dyes, transfer and bleaching agents, etc. Most of these are carried by the waste water generated by the production of textiles.**



The textile and apparel industries also release waste in the form of air emissions. However, the amount of polluted air produced is relatively small in comparison to other manufacturing industries. Whilst modern machines have reduced it, noise pollution remains a serious hazard for the workers and those in the vicinity of the units.

## **VI. LANDFILL**

Most of the clothes find themselves in landfill after their useful life. Synthetic material can take up to 45 years to degrade, thus putting pressure on land resources. Decomposing clothing releases methane, a harmful greenhouse gas and a significant contributor to global warming. There are dyes and chemicals in fabric and other components of clothing that can leach into the soil, contaminating both surface and groundwater.

Wastewater and air emissions generally receive the most attention due to their hazardous nature. Yet, there is another set of nontoxic, residual wastes that results from the production of textiles and apparels. A large amount of fabric waste and other scraps are left over at the end of production. For example, most production methods waste anywhere from 6 to 25 percent of fabric. Furthermore, packaging materials are not always able to be reused or recycled.

## **VII. CONCLUSION**

- The textile industry in India is poised on the cusp of sustainable and strong growth. The other countries of the world are facing different challenges like higher wages, unstable economies leading to uncertain currency values, serious concerns regarding environment and sustainability. The industry worldwide is set to change its character thanks to the increased demand for technical and speciality textiles.
- Most countries are dependent on external sources for raw material and lack the skilled manpower that the industry requires now. The assessment of the environmental impact of a



product is a complex issue, and solutions cannot be achieved without action by the government, industry, and the consumers. India has the strengths to rise to the challenge.

- "Textiles are also showing up in road construction and environmental applications," says Stevens. "There is much activity today that extends far beyond clothing and home furnishings.
- To bring high-value innovations to the marketplace, engineers will require training in areas ranging from the classic disciplines of materials science and thermodynamics to specialties like polymeric biomaterials engineering, mechanics of tissue implants, and composite structures.
- We now have an idea of the competition and the direction that the industry will have to evolve. Clothing is ripe for some futures thinking. There are thorny issues like water and pesticide use in cotton fields; residual chemicals in the fabrics we live with and the water used to produce them. The industry faces massive challenges over worker conditions (the recent fire in a Bangladesh factory made news in the West this time.). **We have to remember that the global textile industry generates a trillion dollar in business.**

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