Introduction
Chapter 1

INTRODUCTION

Indian textile sector has been enjoying a rich traditional reputation in the world market for a number of decades. Cotton textile is considered to be India's gift to humanity. The growth of this industry in terms of its output and export trends substantiates this. In recent years it has been the victim of many challenges that have come up in the context of industrialisation. One of the most challenging problems for the human race today is the environmental problem. As a result, individuals, business organisations, the judiciary and the governments all over the world have recognised the need of eco-friendly textiles so as to avoid or reduce environmental issues. Industries, on a global basis, have now decided to modify their technology and production process in order to have an environmental friendly output to satisfy their customer need. Indian industries have also felt the necessity as is evident from the fact that the Indian Textile Industry is committed to produce an environmental friendly textiles in order to face the global competition.

The concept of "eco-friendly" in the field of textile industry is of recent origin in which due consideration is given to all the factors in our ecosystem. But more importance is given to human factor, which has been supplemented along with the already existing environmental factors like air, water and land. These factors have been subjected for the studies from the
point of view of the textile industry for the last few decades. Any textile product, which is made, used or disposed of in any way that significantly reduces the harm it would have otherwise caused to the ecology, can be termed as eco-friendly textiles. It involves complete life cycle assessment of the product, right from its raw material stage to the final disposal with regard to its impact on environment.

1.1 INDIAN TEXTILES - BACKGROUND AND SIGNIFICANCE

Indian textile industry has its own glorious tradition. India’s pride in the world of textiles is mostly on cotton, since it was this textile that was fully developed in India right from its source of raw material. Cotton textile is one of the oldest industries of India and really considered to be India’s gift to humanity. The Indian Muslin is also equally well known.

Indian Textiles have a rich tradition in the world market. In 445 BC the Greek historian Herodotus made descriptions about Indian Cotton. He has praised it as “King Cotton”. Further, he goes on to record in his book that in the city of Mohanjo-Daro in the Indus Valley, people were weaving the cotton into fabrics from 3000 BC onwards. He also certified that by 63 BC Cotton was being exported to Europe from India as a luxury material.¹

Indian Textile Industry provides employment to millions of people and has made a significant contribution towards the nation’s industrial

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production as well as the overall export from the country. The import of global textile and clothing has gone up from US$ 310 to US $334 billion during 1996-2000 registering a growth of 7.8%. The total export during the year 2000-01 was US$12 billion. During that period India’s total export was US$ 3.5 billion. Thus textiles and clothing have formed the single largest group of commodity in the country’s export. It has been considered as the single largest foreign exchange earner. This industry which has been performing well both in the domestic and overseas markets all these years is now beset with several problems arising out of basic changes in the areas of production, marketing and environment in the emerging global context.

1.2 TEXTILE INDUSTRY - SOME ISSUES

Textile sector has been facing many problems right from the time of Industrial Revolution. In those times, the English people, who were controlling our economy and had started mechanical production in their land were using the Indian raw materials. At present, the global changes are throwing further challenges on the textile industry especially in the export front. The handloom sector is particularly facing the problems of tariff reduction, free market access, complete elimination of quota restrictions etc.

Dismantling of export quotas by the World Trade Organisation (WTO) in 2005 will open up the global market for Indian Textile manufacturers. But

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for the smaller units, accounting for the large portion of the industry, the free trade could cause more problems.

Further, exporters as a whole are now at a disadvantage with some of the competitors’ currencies of India like those of China, Malaysia, Thailand, Taiwan and Philippines, either not appreciating or appreciating less than the Indian rupee vis-a-vis the dollar. In other words, rupee gets simply depreciated. Exporters have been hit and their competitive edge blunted. China’s accession to World Trade Organisation (WTO), the Agreement on Textiles and Clothing (ATC), and the lifting of Quota Systems are to be analysed with some of the recent trade developments between China and USA. That is, in 2002 US import of textiles from China rose in volume by 125 percent. As a result China became the leading supplier to the U.S. in terms of volume. Taiwan also exported 14 percent more than what has been exported during the year 2001.  

Further, Preferential Trading Agreements (PTAs) entered into by the US and the EU with some of their trading partners could pose a major threat to India’s textile exports. “With the signing of PTAs, the tariff advantage shifts in favour of exporters from the partner countries, making export from countries like India uncompetitive.”

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4 Ibid.
Above all, the environmental approach of the textile industry became more sophisticated, and as a result new issues related to environment have emerged. With the ecology being the password of the world today, the country has to focus on environment friendly products and production processes.

The United States Environmental Training Institute (USETI) has organized a training programme entitled “Cleaner Production Process and Technology for the Textile Industry”. As a part of the training programme, a publication entitled “Best Management Practices for Pollution Prevention in the Textile Industry”, based on the detailed case study conducted by the Institute of the country, has been published. The Textiles Committee, Government of India, specially with the intention of helping the different segments of the textile industry of the country, has published its Indian edition in 1997 which is very beneficial to the various organizations, including research associations engaged in the promotion of eco-friendly textiles in the country.

The study highlighted the enormous diversity of operations found in textile industry and also identified issues that are common to a variety of textile processes and corresponding pollution prevention approaches that can be applied to these problems. The study analyses a process-by-process examination of textile operations starting from the raw fiber production and handling, through yarn manufacturing, fabric formation, fabric preparation finishing and of cutting of fabric. It describes the process, equipment and chemicals that are used, identifies the pollutants that the process generates.
and their sources and discusses the pollution prevention opportunities in the textile industry. It highlights the need for a global approach to pollution prevention because many pollution problems faced by the textile facilities are the result of the process used at upstream production facilities or design or product or finishing decisions made elsewhere. The study establishes its aim of achieving excellence in pollution prevention with the object of reducing the generation and emission of waste and striving to minimize the adverse impact on water, air and land.

In India, the textile industry being the major foreign exchange earner and being one of the biggest industries of the country, has to focus its attention on the production of environment friendly textiles. Some of the European countries have already imposed a ban on the import of the textiles goods processed with certain harmful dyes, which release carcinogenic amines. In fact, towards the beginning of 1990s Indian Textile Industry became aware of the fact that Germany might pass a legislation banning textile imports to that country on the ground that the chemicals and dye substances remain on the fabrics cause carcinogenic and allergic problems.

Realising the above mentioned fact, the agencies like, the Textiles Committee, the various textiles research associations and the textiles export promotion councils have conducted several seminars all over the country, for creating the necessary awareness among the Indian textiles and clothing manufacturers as well as exporters so that they will be well prepared to face the ban and to use only safe dyes and chemicals. In January 1996 the German
ban on the sale of textile items, dyed or printed with the banned dyes came into effect. Textiles Committee, under the Ministry of Commerce of Government of India, has already taken a lead role on this issue and has adopted steps to create awareness about the ban imposed by European countries and to disseminate valuable information for the manufacture of eco-friendly textiles. Now it is the need of the hour, to inculcate a sense of environmental friendly activities in the textile industry of the country. 

A number of studies have been conducted in the field of textile industry on environmental issues. Before reviewing those studies, it is essential to share an overview about the current situation and of the industry.

The Indian Textile Industry is currently one of the largest and most important sectors in the economy in terms of output, foreign exchange earnings and employment in India. It includes several sub-sectors, spinning, weaving, knitting and garmenting. Also, it uses different materials like cotton, jute, wool, silk, man-made and synthetic fibers. The textile (non-clothing) industry has three main sectors: the organized mill sector (traditional weaving and spinning), the powerloom sector (mechanized looms) and the handloom sector.

The total production of fabrics in all the three sectors combined was around 42 billion square meters, with 59 percent of the total fabric production

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produced by the powerloom sector, 19 percent by the handloom sector, 17 percent by the knit (hosiery) yarn sector, and the rest by the organized mill sector. The large share of powerlooms (an intermediate category of looms, operated by power) has resulted from a government policy that supports the unorganized sector in the form of reservation of product categories, mandatory export entitlement quotas, and input pricing interventions.

Fiber mix

Cotton is the predominating fabric used in the Indian textile industry—nearly 60% of all overall consumption in textiles and more than 75% in spinning mills is cotton. India is among the world’s largest producers of cotton with over 9 million hectares and an annual crop of around 3 million tonnes. In 2001 cotton fiber production was of the order of 14 million bales, and has been declining steadily from the 18 million bales in 1996, mainly due to crop disasters and calamities in important growing areas. To meet its consumption demand India imported more than 2 million bales of cotton fiber each in 2000 and 2001. The cotton sectors controlled by the government through intervention pricing, export licensing, and diversion of specified yarns to the handloom sector. Quantitative restrictions on yarn exports are announced every year, depending on the local supply position.
Man-made fiber and filament yarn

In 2000-01, man-made fiber and yarn output each stood at 0.9 million tonnes. Polyester fiber and polyester filament yarn are the major products in the segment, accounting for more than three quarters of the overall production. The man-made fiber industry consists of fewer than 100 medium and large players. During the last five years, imports have shown a generally declining trend, and were a little over 98,000 tonnes last year. India also exports man-made fibers and yarns, and export volumes have been higher than imports in the last two years.

Wool

India’s wool industry is principally located in the northern state of Punjab, Haryana, and Rajasthan. These three state alone have more than 75% the production capacity. The sector consists of both licenced players (composite mills, combing units, worsted and non worsted spinning units and machine-made carpet manufacturing units), and the decentralized players (hosiery and knitting, powerloom, handlooms, and hand-knotted carpets, and independent dyeing processing houses). India’s apparel wool consumption is approximately 32 million kg clean, of which knitwear consumes nearly 12 million kg. In all, there are more than 700 registered units in the sector, and more than 7000 powerlooms and other unorganized units. The large players in the sector have made significant inroads into the world market, as a result of supply tie-ups and joint ventures with important brands in EU and other developed
countries. India depends upon imports of fine quality wool required by the organized mill and, to a lesser extent, the decentralized hosiery sector. Imports, estimated at Rs 6 billion in 2001, have been mainly from Australia and New Zealand: the major supplier is Australia. New Zealand wool is being imported mainly for the carpet sector for blending it with indigenous wool.

**Silk**

*India is the second largest producer of silk, contributing about 18 per cent to world production. The sericulture industry is concentrated in the three Southern states of Karnataka, Tamil Nadu and Andhra Pradesh, and to an extent in Assam and West Bengal, too. Growing demand for traditional silk fabrics and exports of handloom products drives silk demand. India’s requirement of raw silk is much higher than its current production, resulting in net imports.*

**Apparel/Clothing**

*The total apparel market in India, including tailored and ready-made goods, is estimated to be U.S.$20 billion. More than 50% of the Indian market is for traditional wear (sari, dhoti, salwar, etc.), which does not go into fabrication or is tailored at home. The western apparel sector market is around U.S.$9 billion, of which exports accounted for more than U.S. $5.5 billion in 200-01. The $3.5 billion domestic market is essentially in urban areas, where the consumption of ready-made apparel has risen significantly in recent years.*
Ready-made apparel accounts for only 20% of the domestic market (with revenues of $1.05 billion). Given the low penetration of ready-mades, most of non-urban India still depends on custom tailoring as the major source of apparel. However, brands account for nearly two-thirds of the ready-made apparel segment. Overall, apparel consumption has grown at a pace of 5-6%. India’s domestic apparel market size is given in the I.A (see Appendix I).

The industry is highly dispersed and unorganized on account of government policies that restricted the entry of large players in manufacturing woven garments and several items of knitwear such as socks, inner wear, and woolen apparel.

The review of some selected studies which empower the arguments for eco-friendly textiles are given below:

1.2.1 Dyes

Whaley W.M. (1984)\(^6\) has identified 20 dye classes and their properties, the chemicals used during the process of dyeing and their substrate. Azo dyes are one among the dye classes. Further the study establishes that the use of azo dyes has declined over the years because of the concern about the possible presence of carcinogenic naphthylamines in the effluent. It was only by 1984 that the information concerning the environmental impact of azo dyes was made available even for dye manufacturers and they have substantially eliminated

hazardous dyes from their product lines, while actively searching for safer substitutes.

### 1.2.2 Pentachlorophenol (PCP)

In the study made by Wimbush J.M (1989), the main concern about wool processing are FOG (Fats Oil and Grease) and aquatic toxicity arising from pesticide residue on raw wool. Pesticides are applied directly to sheep to reduce parasitic infection and these residues are released into wool-processing water during preparation and dyeing. Wimbush reported that a specific agricultural residue Pentachlorophenol (PCP) was found at a level as high as 100 parts per million (ppm) in consumer products such as wool carpets. PCP causes indoor air pollution and respiratory distress in human beings and pets. Harmful PCP levels in consumer textile products are, in some cases, too low to be quantified accurately using traditional methods. The study reveals that some countries are more conscious about the effect of PCP and so restrain the use of these chloro-organic pesticide.

### 1.2.3 Fiber contamination

A variety of contaminants may already be present in fibers when they arrive at the textile mills. This may further lead to environmental pollution. Many textile operations lack an incoming Quality Control (QC) System for

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fibers. Major studies conducted in 1991 by Richardson S,8 Raleigh N.C. and also in the American Association of Textile Colorists and Chemists (AATCC). Technical Manual have pointed out the importance of checking incoming fibers for impurities and residues from previous processing. Standard fiber-extraction tests for water-enzyme and solvent-extractable materials are available for testing incoming fibers. These methods can detect oils, fats, waxes, spin finishes, lubricants, starches and other contaminants. Standard test methods can also be easily adopted to detect specific contaminants by simply performing the appropriate tests on the extracts obtained. Traditional effluent tests such as biological oxygen demand (BOD) and chemical oxygen demand (COD) as well as specific chemical tests can be done, in addition to high-performance liquid chromatography (HPLC). Most of the water and waste water laboratories can conduct these tests.

1.2.4 Textiles chemicals

Cooper P (1989)9 argues that the textile manufacturing being a chemically intensive process, the primary focus for pollution prevention should be on textile process chemicals. Best management practices for preventing pollution involve substituting less polluting chemicals wherever possible.


Opportunities for chemical substitution vary substantially among mills because of the differences in:

i) Environmental conditions
ii) Process condition
iii) Product nature
iv) Raw material type

One of the most fundamental elements of any pollution prevention plan in the textile industry is optimization of chemical handling. Proper chemical handling procedures ensure that right chemicals are used, that they are used in the correct amounts, that they are used in such a way as to minimize the amount of unreacted chemicals that enter the waste stream thus damaging the environment. All wastes from processes involving chemicals are to be properly handled.

Good chemical handling does not occur accidently; it results from many preliminary planning steps including:

i) Attention to purchasing specifications
ii) Packaging requirements
iii) Chemical receiving, storage and mixing
iv) Proper worker training
v) Engineering controls such as automated chemical handling
It must be stressed, however, that the best environmental solution may not be achievable without co-operation across the industry. In some cases, environmental problems can be created by a lack of communication between suppliers and customers in the supply chain. For instance, the German buyers are apprehensive about placing orders with India because they are not sure whether such supplies may contain banned dyes and chemicals. It is likely that this will result in the same type of partnership arrangements as are currently being created in the pursuit of total quality management and just-in-time programmes. It is certain that the accelerating pace of internationalization of both the textile industry and environmentalism will serve as powerful forces of pressure to change the technical face of textile processing in the coming decades.

There is an urgent need for textile professionals to come together and sort out these issues through interaction. The professionals of other fields such as chemical and microbiology industry should also try to weed out any environmental hazard for which our future generations will not forgive us or let us see beyond tomorrow. A number of textile chemicals and dyes used in the industry pose a great danger to the environment, which includes air, water as well as human beings and all living bodies in nature.

The management experts of the modern world have now realised the necessity of adopting “consumer need based” marketing strategy. Further, the

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success stories of some of the entrepreneurs who are using safe and non-
hazardous chemicals in their production processes, have convinced the
industrial world for producing eco-friendly articles to accelerate their export
and sales. Thus Indian textile industry has also adopted some survival strategies
to maintain its glorious tradition in the present day market economy.

Hence, it is high time that India should adopt some survival strategies
to maintain its glorious tradition even in the present day market economy. It is
a relief that the Textile Ministry has decided to create a consortium of
various stake-holders in the industry. The Textile Commissioner has been
convinced that the formation of a consortium would benefit Indian textile
exporters to promote their product as ‘eco-friendly’.

1.3 STATEMENT OF THE PROBLEM

The textile industry of India has an economic significance at present,
especially in the context of modern concept of global market. In India
handloom is the largest, next to agriculture, in terms of employment generation.
Indian textiles as a whole has a major role in the economy in terms of its
contribution to the industrial production, employment generation and foreign
exchange earnings.

Textile is an industry involving a number of processes in which
chemicals and dyes are used. In January 1996 the German ban on the sale of
textile items, dyed or printed with the banned dyes, came into force. The
violation of the regulation was to be treated as criminal offence. Followed by Germany, other European countries also imposed eco-regulations so that Indian textile manufacturers had to act fast if they wanted to retain their share of German and other European markets which absorb nearly 48 per cent of Indian textile products.

In this context, the real problem for the textile manufacturers is whether it is easily possible for them to switch over to safer and acceptable dyes and chemicals. Substitutes are available. But they are more costly especially for smaller units. Moreover it creates an additional responsibility for the textile manufacturers to submit a legally binding guarantee at the time of export that the banned dyes and chemicals have not been used for processing the items exported. The controversy deepened further with the dye stuff manufacturers refusing to budge from their stand that they could guarantee their products only up to the exfactory and would not be responsible for the items brought through agents and dealers.

Nowadays, the manufacturer is expected to make sure that the raw material i.e. cotton used for the manufacture of cloth is cultivated without using D.D.T (Dichloro diphenyl trichloro ethane) or any other pesticide beyond the permitted limit. The buyer should be satisfied even with the PCP (Penta chloro phenol) test conducted on the raw materials used. The buyer has every legitimate right to know that the chemicals and dyes used are not hazardous to his health. The importers also enjoy the same privilege. They have made it a prevalent
practice to visit the place of manufacture, for a personal inspection to their best satisfaction, to assess the quality and the environment factors before they place their order. Further the buyers insist that the packing materials used by the trader or manufacturer should be recyclable or biodegradable.

At this juncture a number of research questions come up. How far do the Government or the governmental agencies intervene in this problem to ensure product genuineness? Will it adversely affect the export drive of Indian textiles? A successful export drive depends on the joint effort of the industry, textiles ministry, dyestuff manufacturers and dealers. An in-depth study will help us to answer all these questions.

1.4 OBJECTIVES

1) To analyse the performance and export trend of textile mills.

2) To analyse textile mills in the context of eco-friendly aspects.

3) To assess the impact of eco-friendly aspects on performance in the directions of output and export.

4) To find out the problems and short-comings of the mills particularly, in the light of eco-friendly aspects.

5) To make suggestions for improvement of the industry.
1.5  METHODOLOGY

1.5.1  Design of the study

Secondary data have been collected from various sources. Ahmedabad Textiles and Industrial Research Association (ATIRA) at Ahmedabad, journals of Textiles Committee (Kochi, Mumbai, Chennai etc) were largely depended on for the secondary data. Attempt has been made to collect data from journals and other publications published during 1995 to 2003 by Indian Institute of Foreign Trade and from others who are publishing textiles related magazine, books, periodicals, brochures etc.

Primary data have been collected by using a structured interview schedule from the selected samples.

1.5.2  Sample selection

For a study of this kind only exporting textile units which are manufacturing their products are eligible to be selected as sample. According to the statistics of The Kerala Handloom Manufacturers Association and the Kerala Handloom Manufacturers Association and the Kerala Handloom Exporters Association there are 65 textile units registered as manufacturing mills and 40 as textile exports units in Kannur under the Society Act XXI of 1860.
As per the information obtained from Textiles Export Promotion Council (TEXPROCIL), Kochi, at present there are only 20 active units functioning in Kerala of which 18 units are situated in Kannur alone and one unit each in Kozhikode and Thiruvananthapuram districts. So in order to have a representative sample, all the 18 units functioning in Kannur have been surveyed and they comprise the universe of the study.

1.5.3 Primary data collection

Information relating to exports and eco-friendly aspects has been collected afresh with the help of schedules from the selected sample mills. General Managers, Dye Masters and Chemists of these units have co-operated to supply information. Primary data collection focussed mainly on two aspects viz., eco-friendliness and exports. Eco-friendly aspects right from the state of cotton cultivation till the packing of finished goods have been included in the schedule. Export details from 1993 to 2003 have been collected. The copy of the schedule is given as appendix.

In addition to this, informal meetings were arranged with the officials of Textiles Committee, Textile Export Promotion Council, Textile Manufacturers’ Association, Handloom Export Promotion Council and Directorate of Textiles for gathering information to proceed with the study. As a result, the problems and shortcomings faced by the textile mills were
identified. A number of suggestions for the improvement of the mills was made them in the discussions.

1.6 RELEVANCE OF THE STUDY

Consumers all over the world now consider three factors as important criteria while selecting textiles - aesthetics, economy and ecology. Aesthetic appeal of textile items are concerned with the colour, design and such other matters. Economy means the price. The latest concern is ecology which is due to the increasing awareness about the environmental problems posed by the textile industry and its products coupled with the increase in the number of textile related allergies and carcinogenic problems. It is in this context that a study of eco-friendly textiles has its significance.

Modern trade has emerged into the present state of condition after an evolutionary process of a number of changes from the basic barter system. In the present context of globalisation only consumer-oriented products can survive in the highly competitive market. Even testimonials like ISO or other internationally reputed organisations assuring the quality of the product has only a little and sometimes even no acceptance, among the buyers. The steady increase of pollution due to the indiscriminate use of chemicals and pesticides affects our food, water and even breast milk. The same is the cause for the deterioration in the quality of the products. Ignorance in selecting genuine and proper raw materials and unfair and improper methods of the production processes are also added factors to this.
In such a context the concept of eco-friendly textiles assumes greater significance to develop confidence among the buyers about the goods used by them. This will also lead to increased market share and provide incentives to companies to change their process and product lines to meet the criterion.

1.7 CHAPTER SCHEME

Apart from the first chapter, which is an introduction consisting of research problem, objectives of the study, methodology and significance of the study, there are six more chapters. While chapter II portrays the Indian textile sector, chapter III sketches out the eco-friendly textiles. Chapter IV, V and VI deal with the analysis. Performance and export trend, eco-friendly aspects and problems of textile industry are the concerns of these chapters respectively. Chapter VII includes summary and conclusion.
Indian Textile Exports and The Role of Kerala