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CHANGING LANDSCAPE OF TEXTILES IN INDIA: A TECHNICAL TEXTILES

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ABSTRACT

The textile industry is usually recognized as an industry satisfying clothing requirements of human beings for protection, grace, and improves aesthetic sense which is known as traditional textile or general textile. On the other hand, the textile that used for specific purposes; use of textile in industry, for human protection from extreme situation etc. are known as technical textile, industrial textile, and functional textile. The present paper attempts to show that how the textile consumption in India has shifted from the Traditional textile to Technical textile. For the purpose, value-wise share, its CAGR and market size for various technical textile segments in India from 2001-02 to 2011-12 have been studied. In addition, researchers try to find out the reasons responsible for slow growth of the industry and trace various initiatives taken by the Government for the Promotion of Technical Textiles Industry in India.

KEYWORDS

Technical Textiles, Smart Fabrics and Interactive Textiles, Compound Annual Growth Rate and Market Size.

INTRODUCTION

The textiles Industry fulfills the physiological needs of mankind and therefore touches the lives in one or the other way. The textile Industry is primarily concerned with the production of yarn and cloth and the subsequent design of clothing and their distribution. India Textile Industry is one of the leading textile industries in the world. Though was predominantly unorganized industry even a few years back, but the scenario started changing after the economic liberalization of Indian economy in 1991. The opening up of economy gave the much-needed thrust to the Indian textile industry, which has now successfully become one of the largest in the world.

India textile industry largely involves the textile manufacturing and export. It plays a major role in the economy of the country. The industry contributes about 14% to Industry production, 4% to country's G.D.P & 17% to country's export earnings. Indian textile industry is also the largest in the country in terms of employment generation. The sector employs nearly 35 million people and after agriculture, is the second-highest employer in the country. India has the largest area under cotton cultivation- a million hectares- constituting 25% of the world's total cultivation area. It has largest producer of raw cotton and jute (1900 Mn kg). It is 2nd largest producer of cotton yarn (2700 Mn kg), cellulose fibre/ yarn and also 2nd largest producer of silk (15 Mn kg)¹. Keeping in view the usages of textile, the textile can be divided into two main sectors; traditional textile and technical textile. Traditional textile deals with the general demands of human being, mainly it covers clothing, made ups, bead wears, etc. whereas, technical textile is a product made to serve a particular and technical requirement; water proof jackets, filters, fire proof seats etc.

TECHNICAL TEXTILES: MEANING AND CONCEPT

"Comprising all those textiles based products which are used principally for their performance or functional characteristics rather than for their aesthetics or are used for non – consumer (i.e. industrial) application": David Rigby Associates (David Rigby Associates is a consultancy specializing in the fiber, textiles and clothing industry, based in Manchester UK.)

"Technical Textiles are materials meeting high technical and quality requirements (mechanical, thermal, electrical, durability...) giving them the ability to offer technical functions": Nemoz²

From the above definitions we may conclude that Technical textiles understood as textile materials and products used for technical performance and functional properties and are not only concerned to traditional or decorative characteristics rather than their aesthetic or decorative characteristics. Some terms which are often used in place of technical textile are industrial textiles, functional textiles, performance textiles, engineering textiles, invisible textiles and hi-tech textiles. They are desired because of their strength, performance and other functional properties. Some often areas are food industry and paper mills where they are more demanded. Technical textiles have great features like functional requirement, health, safety, cost effectiveness, durability, high strength, light weight, versatility which makes it even more popular now a days and this is the reason for their higher growth and demand in the market. Depending on the product characteristics, functional requirement and end use application, the highly diversified range technical textiles products have been divided into 12 sectors:

- i) **Agrotech** (Agriculture, horticulture and forestry)
- ii) **Buildtech** (building and construction)
- iii) **Clothtech** (technical components of shoes and clothing)
- iv) **Geotech** (geotextiles, civil engineering)
- v) **Homotech** (components of furniture, household textiles and floor coverings)
- vi) **Indutech** (filtration, cleaning and other industrial usage)
- vii) **Meditech** (hygiene and medical)
- viii) **Mobiltech** (automobiles, shipping, railways and aerospace)
- ix) **Oekotech** (environmental protection)
- x) **Packtech** (packaging)
- xi) **Protech** (personal and property protection)
- xii) **Sporttech** (sport and leisure)

OBJECTIVES

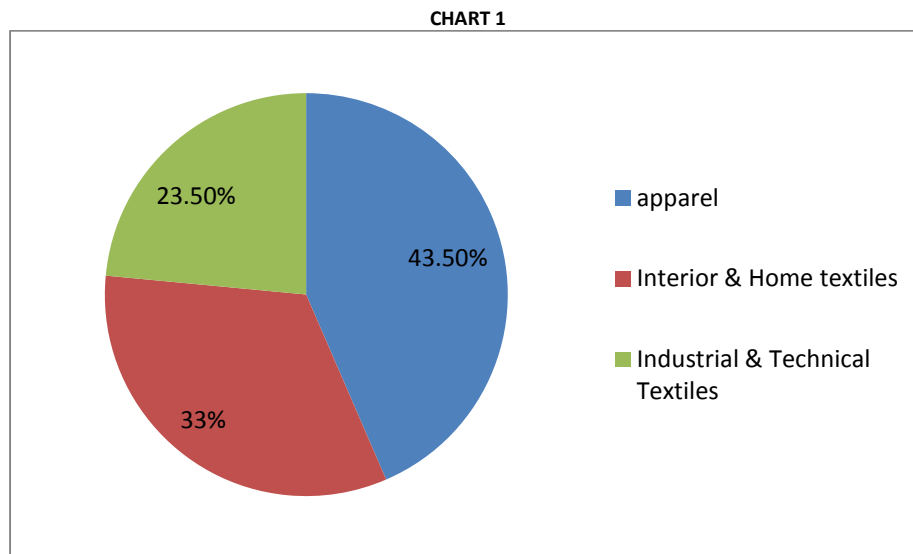
The objectives of the paper are

1. To explore the developments or innovations in Indian Textile sector due to the presence of Technical Textiles in recent years.

2. To investigate the value-wise share, CAGR and assess market size for various technical textile segments in India.
3. To search out the factors responsible for slow growth of the Technical Textile industry in India.
4. To draw various initiatives taken by the Government for the Promotion of Technical Textiles Industry in India.

RATIO OF GLOBAL TEXTILES PRODUCTION

Fabric manufacture is the most important part of textiles industry. The manufacture of Technical textiles can be divided into three segments broadly: **Apparel, Home textiles & Industrial/ technical textiles**. The ratio of global textiles production of these segments have been & shown in the following chart 1:



Source : Textiles exchange

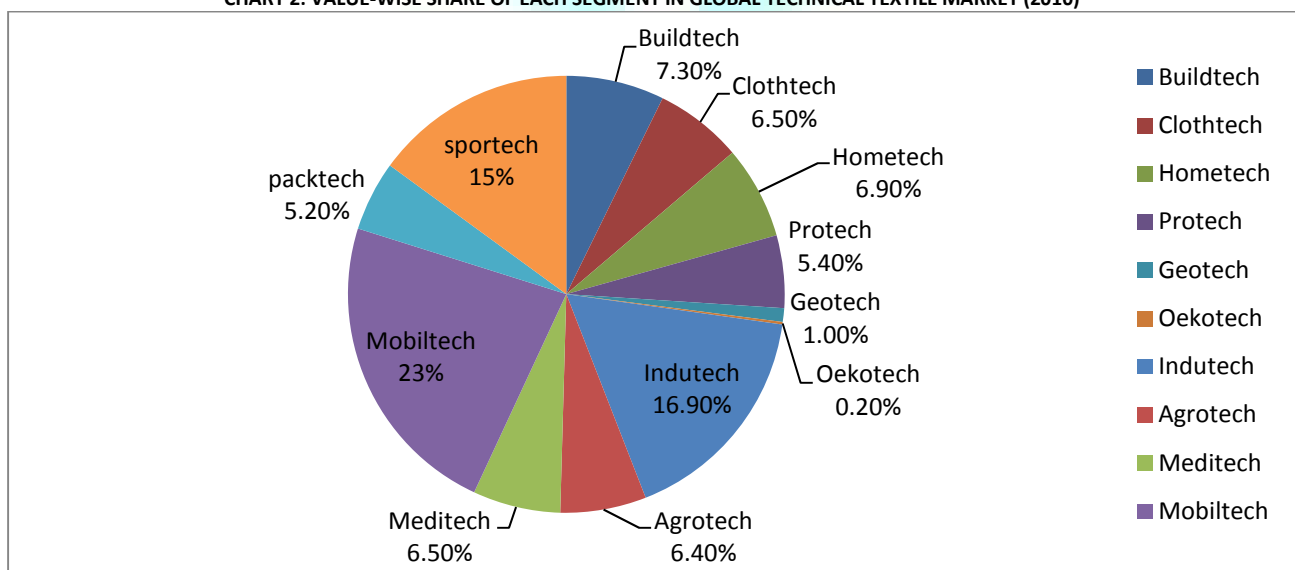
Here we may conclude that Interior and home textiles constitutes a substantial proportion of total global textiles i.e. 33%, meaning almost one third of the total textiles production.

TECHNICAL TEXTILES – GLOBAL SCENARIO

Technical textiles are growing in the global market at a faster rate than expected. In the global markets the US and EU remain major manufacturers and consumers of technical textiles. The Asian countries like China and India are emerging as chief producing centers of technical textiles. On consumption aspects, Russia is developing in to an important growing market for technical textiles. Turkey's technical textiles market has also started to develop in the recent years³. Some of the facts related to world technical textile markets will throw some more light on the issue:

1. The total global sale of technical textiles is expected to touch US\$126 billion by 2010.
 2. Asia is fast emerging as the chief producer and consumer of technical textiles.
 3. The Texas Tech University has predicted the growth of nonwovens and technical textiles markets in India by 13.3% per annum during 2005-50.
 4. The demand for filters in China is forecast to rise by 14.4% a year up to 2011 due to developments in motor vehicle production, manufacturing output, construction activities, and urbanization of the population.
 5. Turkey is developing as an important center for technical textiles production and is exporting technical textile raw material and end products to the world.
- The chart 2 given below presents a value wise share (in terms of percent) of each segment of the technical textiles market in the year 2010. As evident from the graph below, Mobiltech, Indutech and Sportech are the largest segments of global Industry, together accounting for 55% of the world market.

CHART 2: VALUE-WISE SHARE OF EACH SEGMENT IN GLOBAL TECHNICAL TEXTILE MARKET (2010)



Sources: Report of the Expert Committee on Technical Textiles (ECTT) Volume – I, 'World Market Forecasts for 2010 of technical textiles and industrial nonwovens' by David Rigby Associates

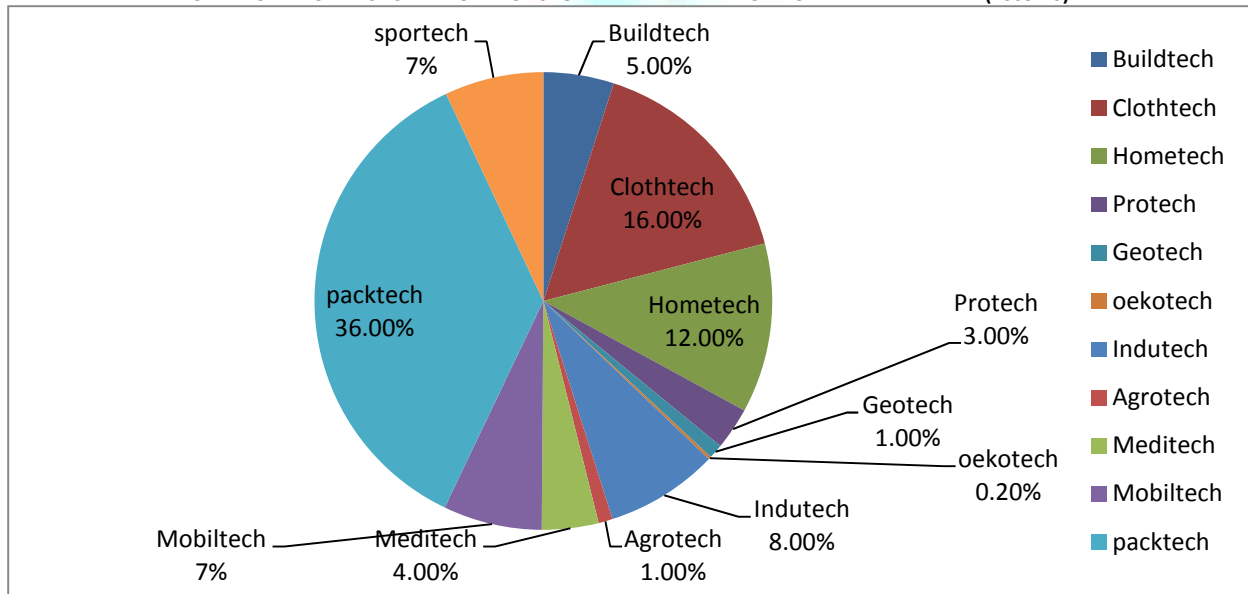
The Industry has witnessed a Compound Annual Growth Rate (CAGR) of over 3% from 2000 to 2010, with Buildtech, Geotech, Oekotech and Indutech being the fastest growing segments. Going forward, the major growth areas for technical textiles in the global context are projected to be medical and personal hygiene, sports and leisure, environmental protection, pollution control and filtration, garment and shoe industry. The US is the largest consumer of technical textiles,

followed by Western Europe and Japan. However, Technical Textile industry in the developed world is maturing in a significant way resulting in moderate growth in these economies. In contrast, China, India and other countries in Asia, America and Eastern Europe are expected to experience healthy growth in the near future. Asia is emerging as a powerhouse of both production as well as consumption of technical textiles. China, Japan, Korea, Taiwan and India have great potential to make an impact in this industry in the coming decade.

TECHNICAL TEXTILES – INDIAN SCENARIO

India is emerging as a significant player in technical textiles. The fast-paced economic growth leading to infrastructure creation as well as higher disposable income has made India a key market for the technical textile products. Moreover, the country has developed a foothold in the production of technical textiles owing to its skilled and technical manpower as well as abundant availability of raw material. More investments are underway in this sector. As per the Ministry of Textiles, as on September 2010, 26,163 applications for technical textile projects with a project cost of US\$ 14.5 billion² were disbursed under Technology Upgradation Fund Scheme (TUFS). Indian Technical Textile industry is estimated at US\$ 11 billion² (2009-10), with domestic consumption of US\$ 10.3 billion. The Industry has witnessed a significant growth of 16% from 2001-02 to 2009-10 and, is expected to grow at a rate of 11% year-on-year and reach a market size of US\$ 15.1 billion by the year 2012-13. Domestic consumption is expected to increase to US\$ 14.1 billion by the year 2012-13⁴. The following chart 3 brings out the share each segment holds in India in 2009-2010:

CHART 3: VALUE-WISE SHARE OF EACH SEGMENT IN INDIAN TECHNICAL TEXTILE MARKET (2009-10)



Source: Baseline survey of the Technical Textile industry in India, IMaCS Analysis

The following table shows the segment wise Technical textiles production in India from 2002-03 to 2011-12.

TABLE 1: SEGMENT WISE MARKET SIZE OF INDIAN TECHNICAL TEXTILE INDUSTRY (Values in Rs. Crore)

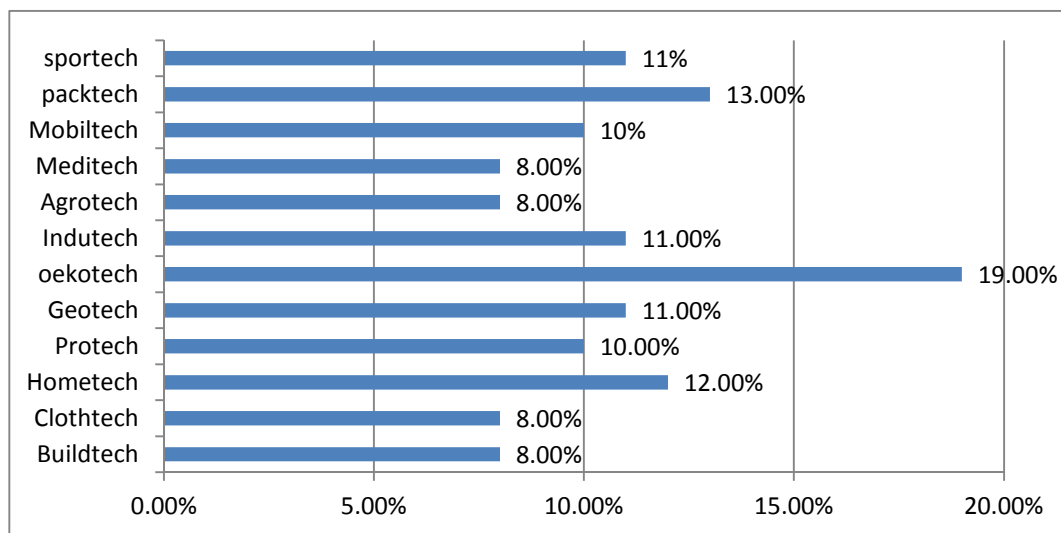
Segments	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Clothtech	6071.7	6833.2	7198.5	7583.3	7988.7	6908	8157.3	8483.1	8808.9	9454
Packtech	3614.6	4086	4588.3	5152.4	5785.9	14630	11537.2	12955.3	14373.4	23710
Sporttech	1417.5	1534.1	1649.3	1773.2	1906.3	2851	2611.6	2820.2	3028.8	4297
Mobiltech	1270.9	1381.5	1454.9	1532.1	1613.5	3183	2640.3	2885.9	3131.5	4689
Buildtech	1114.4	1181.5	1254.8	1332.7	1415.4	2157	1939.6	2085	2230.4	2980
Hometech	883.3	1029.7	1199.7	1397.8	1628.7	5025	3797.5	4321	4844.6	7831
Indutech	887.5	961.9	1050.6	1147.5	1253.3	3206	2486.2	2774.7	3063.2	4892
Meditech	851.8	932.9	1036.7	1152.1	1280.3	1669	1635.7	1769.6	1903.5	2298
Protech	425.1	520.2	652.6	818.7	1027.1	1302	777.03	792.9	808.8	1890
Geotech	196.2	350	591.4	999.4	1688.9	272	1189.8	1336.9	1484.1	410
Agrotech	281.4	303.5	337.6	375.5	417.7	553	535.7	579.3	622.9	751
Oekotech	0	14.7	24.7	41.5	69.9	68	84.1	97.4	110.6	135
Total	17015.7	19129.59	21039.64	23306.8	26076.1	41756	37392.6	40901.9	44411.2	63202

Source: Report of the working group on Textiles & Jute industry for the Tenth Five year plan (2007-12); Eleventh Five year plan (2012-17). In Expert Committee on Technical Textiles Report from 2002-03 to 2006-07 and ICRA baseline survey report for the years 2007-8 and 2011-12.

Notes: i) Data for years 2008-09, 2009-10 and 2010-11 have been calculated by using extrapolation.

The above Table 2 demonstrates the segment wise details of Technical Textiles production in India during 2002-2012. In the year 2002-03, the technical textile production was at Rs. 17015.06 cr., after that it kept on rising and reached to 26076.1cr. during 2006-07. We see an exceptional improvement in the year 2007-08. In the following year 2008-09, it got down due to the financial crisis during this period but thereafter it started rising and reached to 63202 cr. in 2011-12. The following chart 4 reveals the value-wise CAGR for various technical textile segments from 2009-10 to 2012-13

CHART 4: VALUE-WISE CAGR FOR VARIOUS TECHNICAL TEXTILE SEGMENTS FROM 2009-10 TO 2012-13



Source: Baseline survey of the Technical Textile industry in India

Overall CAGR is 11% as shown in above chart 4, out of which Packtech, Clothtech and Hometech are the largest segments of the Indian Industry, comprising around 65% of the Indian technical textile market. Going forward, Sportech, Indutech, Geotech, Oekotech, Packtech and Hometech are expected to achieve high growth rates. Though the country consumes products belonging to all 12 categories of technical textiles, the share of indigenous production varies drastically across products. India is a key producer of technical textile products including flexible intermediate bulk containers (FIBCs), tarpaulins, jute carpet backing, hessian, fishnets, surgical dressings, crop covers, etc., which are typically commoditized. The technology-intensive technical textile products such as incontinence diapers, high altitude clothing, etc., are majorly imported with its imports accounting for 90% of the domestic consumption. The industry is characterized by the presence of multi-nationals like Ahlstrom, Johnson & Johnson, Du Pont, Procter & Gamble, 3M, SKAPs, Kimberly-Clark, etc., who have set up their manufacturing plants in India, as well as large domestic players like SRF, Entremonte Polycoaters, Kusumgarh Corporates, Supreme Nonwovens, Garware Wall Ropes, Century Enka, Techfab India, Pacific Non Woven, Vardhman, Unimin, etc. The small scale segment also plays a key role, with production of certain goods like canvas tarpaulin, carpet backing, woven sacks, shoe laces, soft luggage, zip fasteners, stuffed toys, fabrication of awnings, canopies and blinds, etc., being concentrated in the small scale.

Technical Textiles industry is growing at a pace faster than expected. India has emerged as key player of this Industry on both production and consumption frontier. But still overall participation of India in global technical textiles Industry is confined up to a limited area. Growth pace of Indian technical textiles Industry is slower in comparison to its competitors. Out of 12 major elements of technical textiles, only Hometech, packtech, clothtech have made a dominant position in the domestic industry comprising 65% and others are yet either unexplored or explored to a very little. There are various factors responsible for this slower growth rate which is discussed below:

FACTORS RESPONSIBLE FOR SLOW GROWTH RATE OF TECHNICAL TEXTILE INDUSTRY

There are various factors responsible for the slow growth rate of technical textile industry in India. In order to promote the production of technical textiles, the first and foremost need would be to attract entrepreneurs in the field of technical textiles. Entrepreneurs have so far kept away from the technical textiles in view of the following deterrents:

1. Technical textile and marketing aspects thereof are highly complex. Indian entrepreneurs in textiles have so far not faced this complex situation and therefore, may have genuine doubts and apprehensions about success in such ventures.
2. Specific technical textiles demand specific raw materials, machinery and equipment, mostly to be imported and therefore, requiring huge capital towards the project cost.
3. Technical textiles being at an evolving stage in India, generation of technology for product development and establishing specific markets with adequate volumes require huge working capital for a minimum period of 5 years before the entrepreneur could expect fruits of high value addition usually associated with technical textiles. Besides, market development will require sustained promotional efforts which need substantial investments as well as lead time.
4. Developed countries have reached a point of saturation or maturity in bulk of the technical textiles and they are gearing up to enter developing countries including India in a competitive manner in globalized markets. They have the backing of overall experience in various facets of technical textiles and financial muscle, while Indian entrepreneurs have little or no experience in this direction.
5. India being a developing country, the existing norms and mandatory requirements of technical textiles for specific end applications are either outdated or non-existing. As a result, entrepreneurs have an uphill task of introducing technical textiles to end users in the Indian market.
6. Raw material in India is costly, as most of the raw material is needed to be imported from the foreign countries. Attempts should be made to use indigenously available fibers - both natural and manmade, for the technical textile products. However, it is not a deterrent to import high performance fibers for specific products where volume is less development of polymer technology will be prohibitively costly. To exploit the traditional eco-friendly natural fibers like cotton, jute, coir, hemp, etc. by product diversification with value addition for medical textiles, agro textiles etc. The growth in industry will provide raw material at cheaper rate as the competitive market would be created.
7. Research & development, consultancy, quality management, testing and evaluation hold the key to the success of capturing a substantial share of the competitive global market of technical textiles. Accordingly substantial investment in R & D is unavoidable. Strong world class testing facilities for accurate and relevant evaluation of technical textile must be made available in India to satisfy the stringent and critical requirements of performance related products parameters in the global market. Since most of the technical textiles lose almost their total market value if any of the parameters fails to conform to the specifications, the quality control and quality culture should be of a high order to ensure "Right the First Time and Right Every Time".
8. The manpower available in India is not too skilled in their technical and managerial skills. But, India having a large population labor is cheaper so the companies are attracted. Thus the people are needed to be made trained and educated.
9. So far, no attempt has been made by the Government to boost the market development of technical textiles. For example, there is no legislation for mandatory use of the fire retardant fabrics in high-rise buildings, in public places like exhibitions, cinema halls etc. There is no environmental legislation for the use of Geotextiles and geo-membranes in waste containment for disposal of hazardous wastes as well as for industrial and municipal effluent treatment facilities. Technical developments need support from a regulatory framework based on scientific rationale. For example, airbag technology in automobile is identified as a future prospect in western countries because there is a regulation that new car on road must incorporate airbag technology for the safety of the driver and passengers.

10. Technical textiles sector in India is at a nascent stage in terms of market development.
11. There is lack of awareness amongst the entrepreneurs as well as consumers about the usage, benefits and high growth potential. At present, the major deterrent for expansion of the sector is low demand.
12. There exist duty anomalies in the technical textiles industry wherein an excise duty is levied on the raw material while the finished product has been exempt from the duty. Some of the products exhibiting such anomaly are – Baby diapers, Incontinence diapers and Sanitary napkins. Anomaly also exists with respect to customs duties. One of the customs duty related anomaly has been observed in case of aramid yarn. At present aramid yarns can be imported without attracting any import duty only if conditions specified in Sr. no. 16 under general exemption 9 of provisions for Government imports including for defence and police are met. Customs duty on aramid yarn is waived off only if it is used in the manufacture of bullet-proof jackets. However, independent manufacturer of aramid fabric (which is used in manufacture of bullet-proof jackets) is not entitled to this exemption and has to pay customs duty. Further, currently, the VAT rate in some states (like Tamil Nadu, Karnataka) is different for the same products based on the base fibre used. There also exists a discrepancy in fiscal treatment of nonwovens and other textile products. Also, DEPB for nonwoven and converted products do not find a mention and needs to be notified.
13. One of the reasons for low penetration of technical textiles, especially in the Meditech segment is the existence of regulations that discourage use of modern technical textile products. For instance, the Indian Drugs & Cosmetics Act 1940 and Indian Pharmacopoeia recognize only woven medical products, due to which the consumption of nonwoven fabrics in medical area is very low. Similarly, in other segments like Geotech, absence of Indian standards has led to a low consumption of geo-textiles over conventional methods. Further, the usage of fire retardant textiles in public places is currently suggested in the National Building Code (NBC) but is not mandatory.
14. Textile industry is concerned over the applicability of GST as the industry involves a lot of inter-state transfers especially at the fabric stage. As GST would be applicable on inter-state depot transfers, it could lead to blockage of funds/cash flow issues as no credit would be available on the finished goods stock at such depots, unless they are sold. The same concern holds for imported goods as well. Another area of concern is the treatment of stock transfers and job work under GST. It is also not clear whether optional cenvat would be available for textile industries under GST.⁵

GOVERNMENT'S INITIATIVE IN PROMOTION OF THE TECHNICAL TEXTILES INDUSTRY

Technical textiles are textile materials and products used for their technical performance and functional properties. Technical textiles are critical for the thrust areas of Government of India in terms of Infrastructure development, social responsibility, security of nation and food security. Government has taken many initiatives like implementing scheme for Growth and Development of Technical Textiles (SGDT) inclusion of major machinery for technical textiles under modified TUFs for 10% capital subsidy etc. In spite of government taking such initiative the Technical textile industry still suffers from a number of problems like lack of basic infrastructure in terms of testing facilities, lack of market development support, skilled manpower, lack of R&D, absence of regulatory measures, absence of specifications and standards for technical textiles etc. To address these issues Government has launched Technology mission on Technical textiles (TMTT) with two mission for a period of Five years (from 2010-11 to 2014-15) with a fund outlay of Rs. 200 crore.

The main objective of Mini Mission- I are standardization, creating common testing facilities with National/ International accreditation, indigenous development of prototypes and resource centre. To serve the purpose four centre of excellence (COEs) were established which aimed to provide infrastructure support at one place for the convenience of manufacturers of Technical textiles. In addition to four COEs already established, four additional COEs will be set up for Non woven, Composites, Indutech and Sportech to support the manufacturers of Technical textiles of respective segments.

The essential facilities to be created in the COEs are as follows

1. Facilities for testing and evaluation of products of identified segment of technical textile with National/ International accreditation and collaboration with foreign institute/ laboratories.
2. Resource centre with Technical textile infrastructure.
3. Facilities for indigenous development of prototypes.
4. Facilities for training of core personnel and regular training of personnel from the Technical textile industry.
5. Knowledge sharing with stakeholders.
6. Incubation centre.
7. Setting up of standard at par with global level.

To extend Support for domestic & export market and development of Technical Textiles Mini Mission II was introduced which aimed to provide Support for Business start-up and market development to the domestic manufacturers and exporters. Adequate fund support was ensured to organize workshops, seminars, conferences to impart technical know-how of the industry and thus create awareness. Mini Mission II gave ample space to research and development to ensure overall development of technical textiles industry.⁶

CONCLUSION

Reasons for the gaining popularity of technical textiles are that they are preferred for their highly specific performance quality. The products are on more scientific lines, technically suitable in producing more durable and convenient end products. They enhance the life and add to the functions of the end products in which they are used. As already discussed above various segments and functions, technical textiles convert the traditional textiles into more commercial and glorious products. Another reason that contributes to gaining importance of technical textiles is that industrialized countries being rich in technologies can compete well in terms of innovations and modern productions in comparison to the traditional textiles rich nations which are instead rich in labor and raw material. Technical Textiles survive on innovations. Thus, technical textile manufacturers must be ready to invest in research and development and newer equipments too, of which industrialized countries must be capable of. India in order to compete in the global market particularly needs to invest further in general awareness and training of the industrialist and technology development.⁷

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