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ENHANCING EXPORTS OF TECHNICAL TEXTILES

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INTRODUCTION

The increase in demand for value addition has given impetus to the development of an innovative variety of textiles, namely 'Technical Textiles'. Technical textiles include fibres and materials which are manufactured for their functional properties and associated utilities and not so much for their aesthetic worth. Unlike conventional textiles used traditionally for clothing or furnishing, technical textiles are used basically on account of their specific physical and functional properties. The rapid industrialisation in the developing nations of the world has been the key growth factor of the technical textiles sector.

There are innumerable end user industries which benefit from products classified as technical textiles. These industries include automotive, agriculture, aerospace, construction projects, sports, transportation, defence, shipping, water treatment, and healthcare services. On the basis of the product properties, utility and end user requirements, the technical textile industry has been categorised into twelve segments: namely; Agrotech, Buildtech, Clothtech, Geotech, Hometech, Indutech, Meditech, Mobiltech, Oekotech, Packtech, Protech and Sportech.

The Study examines the trends in global and Indian technical textile industry and analyses India's position in the global market. The Study also makes an attempt at identifying the export potential of India's technical textiles. Furthermore, the Study enumerates challenges faced by Indian players and recommends select strategies to enhance the competitiveness of the industry globally.

GLOBAL SCENARIO

The world latent demand for technical textiles was estimated at US$ 226.5 billion during 2017, recording a CAGR of 2.4% during the period 2014 to 2017. A rapid expansion in the awareness regarding the multiple advantages of technical textile products has augmented the demand and application of these products. It is anticipated that there will be an escalated demand from the construction, automobiles, packaging and healthcare sectors, particularly for technical textile products. An upsurge in the application of extensive research and development is expected to further enhance the development of the global technical textile industry. The development of technical textiles industry has been given prime importance by the governments of various countries across the globe. Various initiatives have been taken to establish research organisations with the objective of bolstering and promoting research in this segment.

After reaching a high of US$ 129.8 billion in 2014, world exports of technical textiles registered two years of continuous decline to stand at US$ 117.6 billion in 2016. However, over a longer time frame, world exports of technical textiles recorded a CAGR of 0.7% between the period 2012 and 2016. China was the leading exporter of technical textile products in the world, with its exports valued at US$ 34.3 billion in 2016. The share of China in world exports increased from 27.5% in 2012 to 29.2% in 2016. Germany was the second largest exporter, although its share declined marginally from 8.0% to 7.9% during the same period. The US was the third biggest exporter with exports worth US$ 9 billion in 2016. Other major exporters of technical textiles products in 2016 included Italy (4.6%), Belgium (3.4%), France (3%), the UK (2.9%), Japan (2.8%), Vietnam (2.7%) and the Netherlands (2.6%). India was the thirteenth leading exporter of technical textile products in the world, with exports worth US$ 3.6 billion in 2016.

The US was the leading importer of technical textile products, with its imports registering a CAGR of 3.4% during the period 2012 to 2016. Germany, the second

largest importer of technical textile products, had a share of 7.9% in total imports, with imports worth US$ 8.7 billion. China, France, Japan, the UK, Mexico, Belgium, Italy and S Korea were the other significant importers of technical textiles. India, which had a share of around 1.4% in the total global imports, held the nineteenth position in 2016.

According to the study 'The 2019-2024 World Outlook for Technical Textiles', the global latent demand for technical textiles has been projected to record a CAGR of 2.4% during the period 2018 to 2024, with demand estimated to increase to US$ 267 billion in 2024. It is estimated that Asia would continue to be the leading market for technical textiles in 2019, accounting for approximately 37.8% of the world demand. Within the Asian region, the Chinese market is anticipated to account for 46.4% share, followed by India at 15.5%.

INDIAN SCENARIO

India has a share of approximately 3% of the global technical textile production which is estimated at 90,000 MT (metric tonnes). India has the advantage of having a strong raw material (fibre) base – of cotton, manmade fibre, silk, wool and jute. Moreover, India possesses excellence in the entire value chain extending from fibre to fabric to garments.

Despite achieving a high growth rate, the per capita consumption of technical textiles in India is 1.7 per kg vis-a-vis 10-12 kg in developed countries. Globally, the technical textiles sector accounts for approximately 27% of the aggregate textile industry, and in some of the advanced nations, the contribution is as high as 50% of the aggregate; however, the share of technical textiles in the aggregate textiles market is low in India (13%).

The Indian technical textiles market has been valued at Rs. 1,00,519 crore, recording a CAGR of 15.2% during the period 2013-14 to 2016-17. Currently, technical textiles contribute approximately 0.7% to the country's GDP and constitutes nearly 13% of the aggregate textile market in the country. The market size is expected to touch Rs. 1, 54,909 crore by 2020-21.

With an estimated market size of Rs. 40,300 crore, the Packtech segment of technical textile products, was by far the biggest segment, accounting for nearly 40.1% of the Indian market in 2016. The Packtech segment is projected to continue as the leading segment, although its share is forecast to decline marginally and reach 38.3% in 2020-21. The share of products in the Indutech category is projected to increase to Rs. 18,935 crore, while the Hometech product category is expected to record an increase in share and account for nearly 11.5% of the total market size by 2020-21.

INDIAN TRADE SCENARIO

India is a net exporter of technical textiles products, with exports touching US$ 1849.8 million in 2017-18. Exports recorded a CAGR of 3.3% in the five year period 2013-14 to 2017-18. After two consecutive years of decline, exports of technical textiles recovered remarkably in 2017-18 to register a significant y-o-y growth of 18.4%, increasing from US$ 1562.5 million from a year-ago to US$ 1849.8 million in 2017-18.

The US was the leading export destination of technical textile products from India, with exports estimated at US$ 336.8 million in 2017-18. The value of exports to the US recorded a healthy CAGR of 10.6% in the period 2013-14 to 2017-18, as its share in India's exports of technical textiles increased from 13.9% to 18.2%. China, which was ranked as the fifth largest exporter in 2013-14, improved its position to emerge as the second leading destination in 2017-18. The share of China in India's exports also increased from 4.9% to 6.9% during this period. Other major export destinations of technical textile products from India included Germany, the UK, Spain, the Netherlands, UAE, Italy, France and Belgium.

Among the export technical of textiles products, the Packtech products accounted for the largest share

of nearly 43.2%. Indutech products ranked second in terms of exports, although its share in aggregate exports recorded a decline of 4.7 percentage points between 2013-14 and 2017-18. As against this, the share of Hometech products exports registered a marginal rise, increasing from 10.2% in 2013-14 to 11.6% in 2017-18.

The imports of technical textiles products increased substantially in the year 2017-18, recording a growth rate of 21.7% to amount to US$ 1744.8 million. The imports recorded a CAGR of 8.1% in the period 2013-14 to 2017-18. China was the largest import source of technical textile products, and accounted for more than 50% of the share in both 2013-14 and 2017-18. Thailand, emerged as the second largest import source in 2017-18, with the value of imports at US$ 85.4 million during this period. Other major import sources in 2017-18 included Taiwan, the US, Bangladesh, Germany, S Korea, Malaysia, Hong Kong and Nepal. Indutech products was, by far, the leading category in terms of imports accounting for a share of 86.1%.

Packtech Products

The exports of Indian Packtech products – the largest segment of technical textile exports – were valued at US$ 798.7 million in 2017-18, recording an impressive year-on-year growth rate of 26%. During the period 2013-14 to 2017-18, exports of Packtech products recorded a CAGR of 5.2% as the value of exports increased from US$ 650.9 million to US$ 798.7 million. The US was the largest export destination for Indian Packtech products, accounting for a share of 21.4% in 2017-18, up from 17.6% in 2013-14. Germany, the UK, the Netherlands, Spain, France and Italy were the other major export destinations for Packtech products.

The imports of Packtech products declined considerably to US$ 28.1 million in 2017-18 after reaching its peak in 2015-16 when it touched US$ 79.2 million. Overall, imports recorded a negative CAGR of (-) 15.5% during the period 2013-14 to 2017-18. Nepal was, by far, the leading import source of Packtech products, accounting for 60.1% of total imports in 2017-18.

Indutech Products

The exports of Indutech products, the second largest segment of technical textile exports, peaked at US$ 705 million in 2015-16, after which it registered a y-o-y decline of 22.8% next year, before rebounding back in 2017-18 to record a healthy growth of 8.6% as compared to the year-ago period, to amount to US$ 591.1 million. The US was the leading export destination of Indutech products, further improving its share in India's exports from 10.4% in 2013-14 to 19.1% in 2017-18, as exports nearly doubled from US$ 62.3 million to US$ 113.0 million during this period. The UAE continued to be the second largest importer of Indutech products from India, although its share declined from 9.8% to 6.5% during the same period. Other major countries sourcing Indutech products from India in 2017-18 included Japan, China, Germany, S Korea and Sri Lanka.

India is a net importer of Indutech products, which incidentally was by far, the largest segment of technical textile products imported by the country, with the value of imports reaching US$ 1502.6 million in 2017-18. China was the largest importing source of Indutech products, accounting for more than half of India's imports in both 2013-14 and 2017-18, although its share reduced marginally from 55.0% to 54.6% during this period. Thailand emerged as the second leading import source of Indutech products.

Hometech Products

India was a net exporter of Hometech products, with the value of exports having recorded a fairly impressive CAGR of 6.6% in the five year time frame 2013-14 to 2017-18. China strengthened its position as the leading export destination for Hometech products from India, with its share increasing from 35.4% in 2013-14 to 47.4% in 2017-18. The US also maintained its second position as an export destination for Hometech products from India.

Imports of Hometech products, after having grown steeply in 2014-15 from the year-ago period, recorded negative growths in the following two years, before rebounding sharply in 2017-18, increasing by 149% as compared to the previous year to amount to US$ 81.3 million. Imports of Hometech products from Bangladesh witnessed a precipitous rise elevating it to the top source of India's imports in 2017-18, with imports from the country touching US$ 56.4 million. Nepal was the second largest import source, with imports estimated at US$ 17.6 million in 2017-18.

Meditech Products

Exports of Meditech products have picked up pace, after having witnessed three years of continuous decline from 2013-14 to 2015-16. The following two years recorded healthy y-o-y growths of 14.1% and 37.5% as exports touched US$ 106.5 million in 2017-18. Spain remained the top market for Meditech products with exports valued at US$ 19.2 million in 2017-18, up from US$ 17.7 million in 2013-14. The Netherlands emerged as the second largest export destination for Meditech products, accounting for a share of 8.2% in 2017-18.

The imports of Meditech products by India has grown consistently, increasing from US$ 39.5 million in 2013-14 to US$ 60.9 million in 2017-18, thereby recording a CAGR of 11.5% during this period. The US continued to remain the leading import source of Meditech products, although its share recorded a significant decline from 32.6% in 2013-14 to 13.9% in 2017-18. Other leading import sources included Indonesia, Germany, S Korea, Puerto Rico, Norway, Lithuania and China.

Agrotech Products

The exports of Agrotech products during the year 2017-18 was estimated at US$ 53.2 million, recording an increase of 8.5%, as compared to the previous year. India was a net exporter of Agrotech products, with exports registering a CAGR of 10.1% during the five year period 2013-14 to 2017-18. Canada was the leading export destination for the exports of Indian Agrotech products during the period 2017-18, maintaining its position as the largest export destination during the five year period 2013-14 to 2017-18. The UAE was the second leading export destination, with exports valued at US$ 6.2 million in 2017-18 (a share of 11.7%).

The imports of Agrotech products were estimated at US$ 7.7 million in the year 2017-18, registering a significant year-on-year growth of 32.5%. China has continued to be the largest import source for Agrotech products in India, although its share in India's aggregate imports declined from 69.2% in 2013-14 to 40.5% in 2017-18, when the value of imports amounted to US$ 3.1 million. Bangladesh, Malaysia, Thailand, Portugal, Singapore, Vietnam, the UK, Hong Kong and Japan were the other major import sources in 2017-18.

Sportech Products

The exports of Sportech products in 2017-18 stood at US$ 37.7 million, recording a CAGR of 1.5% in the five year period 2013-14 to 2017-18. The US strengthened its position as the leading export destination of Sportech products from India, as its share increased from 32.9% in 2013-14 to 36.8% in 2017-18. The UK retained its position as the second largest export destination although its share reduced from 12.1% to 9.1% during this period. Other major export destinations for Sportech products in 2017-18 included Germany, Australia, Italy, UAE and France.

The imports of Sportech products recorded a CAGR of 11.7% as imports increased from US$ 8.4 million in 2013-14 to US$ 13.1 million in 2017-18. China was, by far, the largest import source of Sportech products, with a share of 61.5% in 2017-18.

Protech Products

India is a net exporter of Protech products, with exports valued at US$ 33.8 million in 2017-18. Philippines emerged as the leading export destination of Protech products, accounting for 19.3% of India's total exports in 2017-18. Belgium was the second

largest export market, with exports to the country having increased from US$ 2.7 million in 2013-14 to US$ 5.7 million in 2017-18.

The imports of Protech products by India has recorded a consistent increase during the past five years, shooting up from US$ 6.9 million in 2013-14 to US$ 21.9 million in 2017-18. The share of China, by far the leading import source of Protech products, increased from 36.5% in 2013-14 to 58.9% in 2017-18 as the value of imports rose from US$ 2.5 million to US$ 12.9 million during this period.

Clothtech Products

India's exports of Clothtech products recorded a negative CAGR (-) of 4.3% in the five year period 2013-14 to 2017-18. Sri Lanka emerged as the leading export destination of Clothtech products from India with exports estimated at US$ 2 million in 2017-18, as against US$ 1.3 million in 2013-14, when it was ranked as the third largest export destination. Other leading export destinations of these products included Bangladesh, Hong Kong, Pakistan, UAE, Egypt, the US, Italy, Jordan and Kenya.

India remained a net importer of Clothtech products with imports recording a CAGR of 1.3% during the period 2013-14 to 2017-18. During this five year period, steep negative growth rates were observed in the years 2015-16 and 2016-17. However, imports picked up in 2017-18, registering a y-o-y growth of 24.7%, with the value of imports estimated at US$ 26.8 million. Hong Kong remained the largest import source of Clothtech products for India, although the value of imports from the country declined from US$ 12.9 million in 2013-14 to US$ 10.7 million in 2017-18, thereby reducing its share in aggregate imports from 50.8% to 40% during this period.

Geotech Products

The exports of Geotech products were valued at US$ 3.6 million in 2017-18. Australia emerged as the leading export destination of Geotech products, as value of exports to the country more than doubled from US$ 301.8 thousand in 2013-14 to US$ 612.6 thousand in 2017-18. The US, the UK, Germany, Japan, France, UAE, Bhutan, Spain and Canada were the other major export destinations of Geotech products from India.

The imports of Geotech products recorded a CAGR of 17.4%, increasing from US$ 1.2 million in 2013-14 to US$ 2.4 million 2017-18. Thailand was the largest import source of Geotech products in 2017-18, replacing Bangladesh which held the top position in 2013-14. The share of Bangladesh declined from 82.6% to mere 0.5% during this period. Other major import sources of Geotech products were China, Canada, Poland, the US, Denmark and Malaysia.

ENHANCING EXPORTS OF TECHNICAL TEXTILES: SELECT STRATEGIES

Increase focus on research & development and technology

Research and development forms the backbone of the technical textile industry, given these textiles are primarily based on a combination of scientific and engineering design knowledge. Technical textiles is a technology intensive sector and a wide variety of high-end products are imported by India for the production of technical textile output. For further development, there is an urgent need for indigenous production of inputs, which adds to the importance of R&D in the sector. The Government bodies, industry players and the academic organisations can work in collaboration for the betterment of the technical textile industry. Interactive sessions can be held by the industry players in which experts from the research organisations such as CSIR and IITs can be invited for knowledge sharing. The Government can fund the establishment of research organisations which are particularly entrusted with the responsibility of engaging in research related to the technical textile sectors. This will ensure smooth flow of information and foster the development of innovative technologies. Moreover, research tie ups can also be attempted with research organisations

of foreign countries. By building associations with universities abroad, Indian firms can better track the global trends in the field of product and process technologies, and learn best practices for cost control, augmenting productivity, energy efficiency, eco friendliness, product quality, operating flexibility and efficiency. Eco-friendly technical textiles are expected to be highly demanded by global markets in the future, and thus collaborations with research organisations can enable industry players to gain appropriate understanding of futuristic technologies for production of such environmentally sustainable products.

Setting up an Export Promotion Council for Technical Textiles

Given the emerging importance of technical textiles globally, and the possibility of India playing a pivotal role in the industry, the Government of India may like to explore the opportunity to set up an Export Promotion Council for Technical Textiles. This Council would aim at promotion of Indian technical textile products in the world, and apprise the Government of the challenges the industry faces, and suggest possible remedies. The Council may further be entrusted with the responsibility of identifying prospective markets and fostering exports by organising meetings, conferences, exhibitions and workshops. While there is an existing association in the technical textiles space in India, called the Indian Technical Textile Association (ITTA), presence of a dedicated export promotion Council under the aegis of Ministry of Textiles will help to enhance exports of a very specialised and upcoming industry from India. Under the Ministry of Textiles, there are already various existing "Promotion Councils" which are working towards creating the requisite facilities for augmenting exports for their respective segments– these includes apparels; cotton; synthetic & rayon; wool & woollens; silk; carpet; handicrafts; power loom; handloom; and jute.

Raise domestic production of speciality fibres

There are various speciality fibres which are used as inputs in the production of certain high-end and advanced technical textile products. There are many such speciality fibres which are not manufactured in sufficient quantities indigenously. These products are being imported from China, several European countries, and the USA. The import duties levied on such products increases the cost of production thereby adversely impacting price competitiveness.

Thus for instance, a major share of the aramids requirement in India is met through imports which were valued at US$ 20.1 million in 2017-18. The Netherlands was the leading import source of aramids, with a share of nearly 29.6%, followed by Spain, the US, South Korea and China. Similarly, although India produces glass fibres, a substantial amount is imported from China. The aggregate value of imports in 2017-18, was US$ 10.3 million, with China accounting for a share of 60.8%. Carbon fibres, which find application in defence, automobile and aerospace sectors, is another technical textiles input which is imported substantially.

The production of speciality fibres should be encouraged in India to reduce import dependence. This would require certain financial incentives which can be provided to manufacturers to boost production. Furthermore, certain special financial packages could be made available by the government to enhance private investment in this area. The Government could identify and earmark high technology zones in collaboration with state governments where investments can be catalysed exclusively for the technical textile sector. While sector-specific special incentives could be thought of as a catalyst during the first few years, in order to promote investments in a sustainable manner, it is essential to undertake measures that help in creating an enabling ecosystem which engenders investments. The initial incentives could include fiscal measures

for establishment of manufacturing facilities, R&D centres, world class logistics and infrastructure facilities and easy to do business facilities. It would be extremely advantageous for the Indian players to enter into a joint venture with overseas producers, such that the production of these speciality fibres, particularly aramid fibres, can be undertaken domestically, helping Indian firms get access to the specialised technology whilst providing the overseas partner a huge domestic Indian market.

Development of the Agrotech and Geotech Segments

There is immense scope for development of the agrotech and geotech segments of technical textile industry in India. The Indian agrotech industry is at a nascent stage. India is majorly an agrarian nation, with 58% of the population engaged in agricultural activities. The widespread proliferation of knowledge related to the advantages of using agrotech products and implementing the usage of such products will lead to overall development of the nation. The promotion of geotextiles is another measure which can be taken for the development of the Indian technical textile industry. Geotextiles is an integral constituent of civil engineering and agricultural developmental operations globally. The non-woven category of geotextiles is widely used for road and railways construction, soil reinforcement and soil separation. The usage of geotextiles by various Ministries can also be encouraged to result in an increase in demand. Regulations have been incorporated in various countries including Austria, France, Germany, Hungary, Italy, Switzerland, Japan and the UK for the usage of geotextiles in municipal solid waste (MSW) landfills.

Increase Production of Technical Textile Machinery

According to industry sources, a large variety of machinery which is employed in the production of technical textile products is not available in India. Indian technical textile players import machinery largely from either the European countries or the East Asian countries like China, Taiwan and South Korea. In order to reduce the reliance on imports, the Government could encourage manufacturing of such machineries locally in India – either through facilitating technology transfer, or providing incentives for foreigners to collaborate with locals in India/set up independent manufacturing units in the country.

Promotion of FDI in the Technical Textiles sector

FDI in the technical textile sector shall facilitate the transfer of technology from overseas firms to Indian players. The industrial units abroad can use the FDI medium for the transfer of technical expertise to the Indian subsidiaries. The Ministry of Textiles in collaboration with the state governments can initiate the creation of mega technical textile parks in planned industrial corridors. It should however ensured that there is sufficient connectivity of the region with seaports and airports. Cheap and consistent power supply should be ensured in the area. Individual firms and countries should be identified to attract FDI and fitting action plans can be formulated. Customised textile parks may be set up with the required facilities for meeting the requirements of investors located overseas[1].

Extend emphasis on formulation of standards

Technical textile products possess certain functional characteristics and are manufactured for their properties and associated utilities. The development of specifications and standards for technical textile products consequently becomes crucial. Although, standards have been formulated for various products, the standardisation process in India needs to be expedited. A mechanism should be developed to motivate the users to ensure that the products for which tenders are placed have adhered to the standards. Generally, exports of technical textile products to developed countries mandatorily entail

[1]Vision, Strategy and Action Plan for Indian Textile and Apparel Sector

undertaking quality tests of such products in labs which are situated in their country. This exercise of testing the products overseas becomes very expensive for Indian exporters. Although, the testing equipment available in the Indian laboratories are equally capable and efficient, developed countries still insist on the requirements of tests being conducted on their own soil. In order to overcome this avoidable transaction cost, the Government of India could raise this issue at an appropriate platform with key markets while simultaneously setting up more state of art facilities, if required with foreign assistance, to gain more credibility in the discernible overseas markets.

Boosting Exports of High Technology Products

Packtech products occupy a major share in the exports of technical textile products from India. The share of Packtech products was nearly 43.2% of the aggregate exports during the period 2017-18. These products are less technology intensive products and do not involve the usage of significant R&D. For enhancing the share of Indian technical textile products overseas and for improvement of its performance globally, it is critical for the exporters to undertake exports of hi-tech products. The Indian exporters should focus on the exports of technology intensive products such as Protech, Geotech, Meditech and Mobiltech Products. The Government should concomitantly increase export incentives for these categories of technical textile products. The proposed Technical Textiles Export Promotion Council can sensitise the Government of the various opportunities and challenges that India's technical textiles face in the international arena. Opportunities to collaborate with foreign players could also be sought by the local industries to facilitate market and tech know-how.

Compulsory Standards for Usage

There are various nations which have mandated the use of technical textile products for safety and protection purposes such as the use of fire retardant fabrics, safety office wear in hazardous industries and the application of geosynthetics in infrastructure projects. CE marking has been made compulsory for geotextile products provided for public work in the European region. These measures have been taken to standardise test methods across Europe and mandate the use of particular geotextile applications. Likewise, in a majority of advanced economies of the world, in the protech category, regulations have been implemented which make the usage of personal protective clothing and equipment necessary. In the USA, under the Occupational Health and Safety Act, the federal regulations have made it compulsory for the employers to ensure that the employees use standardised personal protective equipment. Besides, in a large number of countries including Australia, South Africa, and nations in the EU, similar regulations and acts have been formulated mandating the application of technical textiles.

Recommendations for improvements in Government schemes

Technology Upgradation Fund Scheme

In order to augment the productivity, quality, investments and employment in the textiles sector, the Ministry of Textiles has been implementing Technology Upgradation Fund Scheme (TUFS) since 1999. In 2015, the Amended Technology Upgradation Fund Scheme (ATUFS) was introduced which provides one time capital subsidy for eligible benchmarked machinery. Segments with higher employment and export potential such as garments and technical textiles are eligible for capital subsidy at the rate of 15% subject to a cap of Rs. 30 Crore. It may be noted that the revision in TUFS has reduced the quantum of benefit accruing to the textile industry. ATUFS stipulates only a capital subsidy instead of the interest cum capital subsidy prevalent under the earlier version of TUFS. A capital subsidy of 10% - 15% replaced the capital (0-15%) cum interest subsidy (2% - 6%).

Moreover, in the ATUFS, the subsidy amount is capped. Technical Textiles manufacturing inherently has interdependent processes and end-to-end cost optimisation is the key for establishing economic viability. Integrated textile projects can compete

better in the international market with other low cost producers due to economies of scale. These integrated projects cannot be created with small investments. Manufacturing technical textile products require abundant investment owing to the need for innovation and inclusion of research and technology. Given this, the Rs. 30 crore limit on capital subsidy can be further increased by the Government taking into account the requirement of high cost investments in the technical industry.

MEIS Scheme

The Government of India introduced the Merchandise Exports from India Scheme (MEIS) under its Foreign Trade Policy (FTP) 2015-20 with effect from 1st April 2015. The MEIS seeks to boost the exports of a certain basket of goods produced in India. Prior to this scheme, there existed 5 different schemes for rewarding merchandise exports involving the use of a variety of duty scrips and with different conditions associated with it. In the period 2015, all of those schemes were merged into the MEIS. It has been noted that the scheme is biased towards the promotion of exports of labour intensive products such as handloom, coir, jute and handicraft products like carpets and shawls; which have been provided the maximum support at the rate of 5%. Technical textile products have not been included in the enhanced support package of the scheme. It is crucial for the Ministry of Textiles to identify the tariff lines of technical textile products which could then be granted higher incentive to boost their exports.

1. INTRODUCTION

Overview

The textiles and clothing industry constitutes an integral part of the Indian economy. Besides providing clothing – a basic necessity of life – the industry is instrumental in employment generation and is one of the largest exporting sectors, undergoing continuous transformations due to innovation and value addition. The Indian textile industry is renowned globally and has a substantial raw material base and manufacturing expertise. The proficiency associated with the Indian textile industry is prominent not only in the industrialised mill sector but also in the traditional handloom industry.

According to the Ministry of Textiles, the textile sector accounts for approximately 7% of the industrial production, 2% of the GDP, 13% of the aggregate export revenue and facilitates direct employment to more than 45 million people.

Technical Textiles

In order to augment the competitiveness of the Indian textiles and clothing industry in the global market and realize its complete potential, it is vital to adopt an advanced approach and explore new opportunities in the sector. In this context, it is crucial for the Indian textile players to consider the production of non-conventional textile products, keeping pace with the amplified demand for technologically advanced solutions. The increase in demand for value addition has given impetus to the development of an innovative variety of textiles, namely 'Technical Textiles'.

Technical textiles include fibres and materials which are manufactured for their functional properties and associated utilities and not so much for their aesthetic worth. Unlike conventional textiles used traditionally for clothing or furnishing, technical textiles are used basically on account of their specific physical and functional properties. The rapid industrialisation in the developing nations of the world has been the key growth factor of the technical textiles sector. Various traditional products have been substituted by value added technical textile products on grounds of superior properties and features. Technical textiles have applications in automobiles, civil engineering and construction, agriculture, healthcare, industrial safety, personal protection, etc. The technical textiles industry is anticipated to progress exponentially consequent to the augmentation in innovations and technological advancements. Another factor contributing to the growth of this sector is the rise in consumer awareness coupled with increase in disposable incomes, making these products more affordable.

Raw Materials and Product Sequence

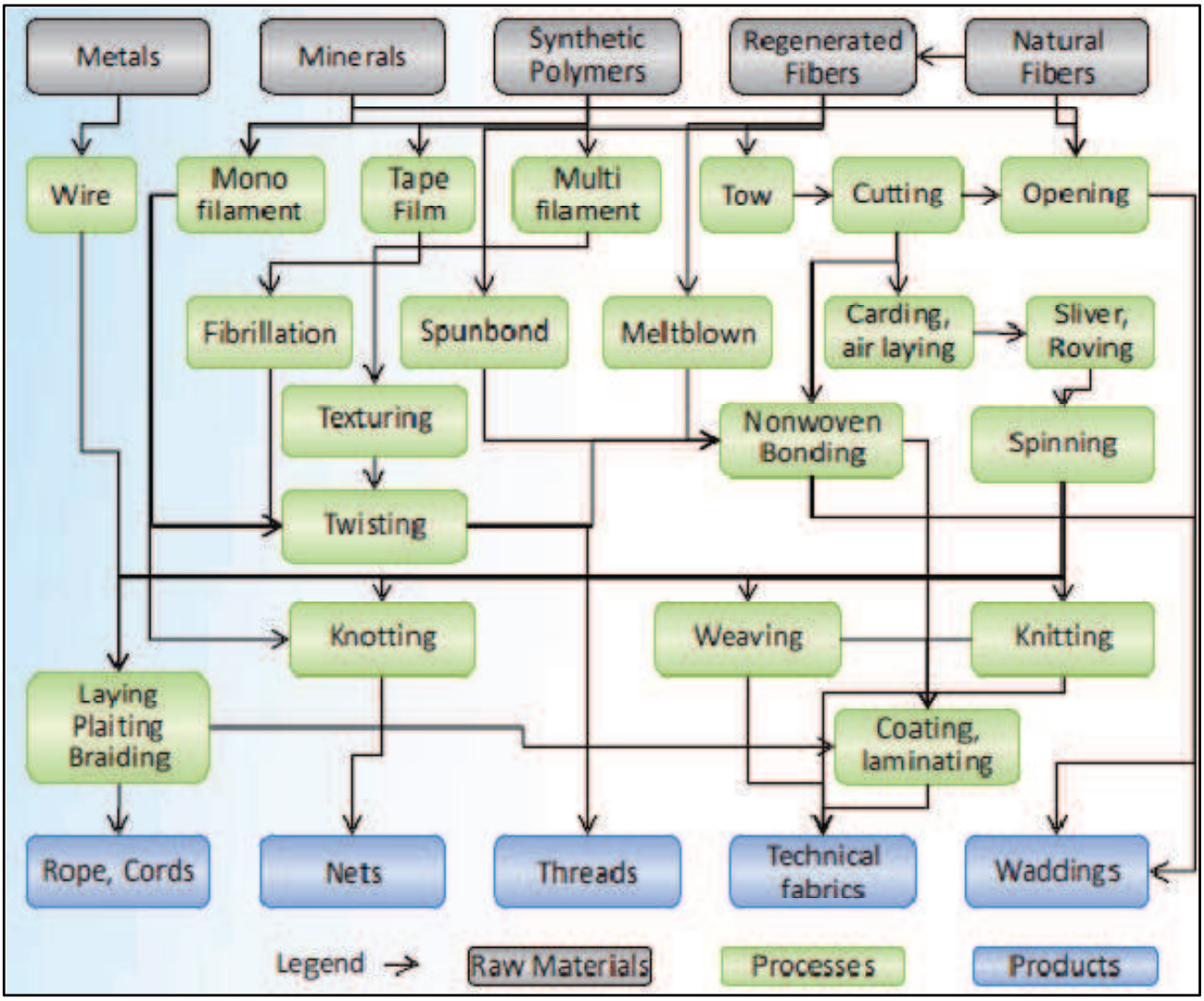
Typically, different kinds of fibres are used in the production of technical textile materials, including natural fibre, synthetic fibre and high performance fibres.

- Natural Fibre: cotton, silk, sisal, flax, wool, etc
- Synthetic Fibre: viscose, polyamide, polyolefin, polyester, etc
- High Performance Fibre: aramid, ultra-high molecular weight polyethylene, carbon, glass, etc

Exhibit 1.1 demonstrates the different types of raw materials used and the various processes undertaken in the production of diverse technical textile products. The text boxes in grey represent raw materials utilized in technical textiles production, while the ones in

green depict the various procedures undertaken in manufacturing, followed by the blue text boxes exhibiting the technical textile outputs. The five major process categories in the manufacture of technical textile products include weaving, knitting, non-woven bonding, braiding and knotting.

Exhibit 1.1 : Technical Textiles Manufacturing Value Chain



Source: Enabling Framework for Accelerating Growth and Investments in Technical Textiles in India; Ministry of Textiles, Department of Chemicals and Petrochemicals, FICCI

Various types of Technical Textiles

There are innumerable end user industries which benefit from products classified as technical textiles **(Table 1.1)**. These industries include automotive, agriculture, aerospace, construction projects, sports, transportation, defence, shipping, water treatment, and healthcare services. On the basis of the product properties, utility and end user requirements, the technical textile industry has been categorised into twelve segments:

Table 1.1: Technical Textiles: Types and Uses

	Variety	Description	Products
1	**Agrotech**	The Agrotech sectors refers to those technical textile products which are utilized in the agriculture, horticulture, forestry and fishery segments. These products are used to increase efficiency in harvesting, production and safety of crops and agricultural items.	The major products in this segment include: shade-nets, mulch-mats crop covers, anti-hail nets, bird protection nets, and fishing nets.
2.	**Buildtech**	The commodities in this category are majorly manufactured for their usage in the construction and architectural projects. These textile products have various applications such as in insulation, facade establishment, air conditioning, noise prevention among others.	The major products in this segment include architectural membranes, awnings & canopies, hoardings & signages, floor & wall coverings, scaffolding nets, and cotton canvas tarpaulins.
3.	**Clothtech**	The Clothtech category, as the name suggests, are manufactured to meet particular functional requirements of the clothing, garment and footwear industry.	The major products in this segment include shoelace interlinings, zip fasteners, elastic fabrics, garments, and umbrella cloth.
4.	**Geotech**	The Geotech segment of the technical textile industry is an emerging field, especially in developing countries. The application areas of these products include roads, railway tracks, embankments, water works, soil erosion and slope stabilisation for the purpose of filtration, separation, reinforcement and drainage.	The materials used in the production of these commodities are polypropylene and polyester. The major products in this segment include geogrids, geonets, and geocomposites.
5.	**Hometech**	The products in the Hometech segment are used in the fabrication of household furnishing such as carpets, curtains and wall coverings. These commodities are manufactured using natural and synthetic fibres.	The major products in this segment include fibrefill, mattress & pillow components, carpet backing cloth, stuff toys, and blinds.
6.	**Indutech**	These are industrial textile products which are applied in various ways in the industrial sector, typically for the separation and purification of products, transportation of materials in various stages of processing and clearing gases and effluents.	The major products in this segment include filtration products, conveyor belts, driving belts, bolting cloth, computer printer ribbon, and paper making fabrics.

	Variety	Description	Products
7.	**Meditech**	The Meditech products are employed in the hygiene and personal care sector, besides being used in the provision of healthcare services through surgical applications.	The major products in this segment include diapers, sanitary napkins, contact lenses, surgical products, artificial implants, and surgical gowns.
8.	**Mobiltech**	The Mobiltech component of technical textiles consists of items used in the automotive sector, including airplanes and railways. The commodities in this segment are divided into two sub categories, viz. the visible constituents such as seat upholstery and seat belts, helmets, in addition to the concealed constituents including the nylon tyre cords and noise vibration and harness (NVH)[2].	The major products in this segment include seat belt webbings, airbags, helmets, seat upholstery, airline disposables and nylon tyre cords.
9.	**Oekotech**	The Oekotech textile products are used majorly in the field of environmental engineering. The key applications of these textile products are erosion protection, air and water purification, checking water pollution, waste recycling and treatment.	The major products in this segment include those pertaining to environmental engineering, environmental protection, recycling, and waste disposal.
10.	**Packtech**	The Packtech segment comprises packaging products which are demanded in the household, agricultural and industrial sectors. The items included in this category range from products demanded in the industrialised sector such as synthetic bags as well as jute bags which are used in the agricultural sector	The major products in this segment include polyolefin woven sacks, flexible intermediate bulk containers, leno bags, wrapping fabrics, and jute hessian sacks.
11.	**Protech**	Protech comprises textile materials used in the production of clothing which is fabricated for protective purposes. The key end users of this category of textiles include defence, fire service, police, para-military forces, industrial and border security forces.	The major products in this segment include bullet proof jackets, fire retardant apparels, fire retardant furnishing fabrics, chemical protection clothing, high visibility clothing, and industrial gloves.
12.	**Sportech**	The Sportech category refers to the technical textile products manufactured for the sports enterprises. Artificial turfs account for a major share in the sportech segment.	The major products in this segment include sports composites and nets, artificial turf, parachute fabrics, sports shoes components, tents and swimwear.

Source: Make in India; Government of India

This Study

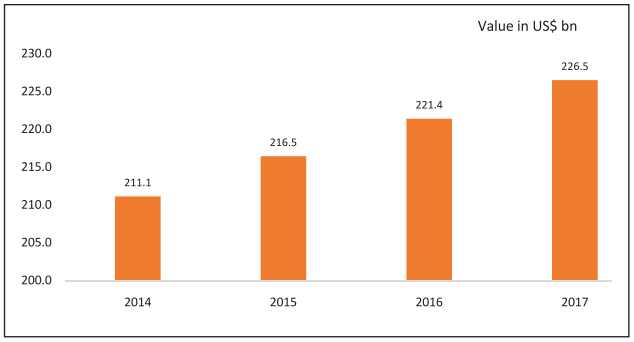
Set against this background, this Study examines the trends in global and Indian technical textile industry and analyses India's position in the global market. The Study also makes an attempt at identifying the export potential of India's technical textiles. Furthermore, the Study enumerates challenges faced by Indian players and recommends select strategies to enhance the competitiveness of the industry globally, with the objective of enhancing exports from the sector.

[2]Technical Textiles in India, IMACS

2. TECHNICAL TEXTILES: THE GLOBAL MARKET

The global market for technical textiles has been expanding, given their increasing application across industries. The world latent demand[3] for technical textiles was estimated at US$ 226.5 billion during 2017, recording a CAGR of 2.4% during the period 2014 to 2017 **(Exhibit 2.1)**.

Exhibit 2.1: World Latent Demand for Technical Textiles (2014-2017)



Source: The 2019-2024 World Outlook for Technical Textiles Philip M. Parker, INSEAD; ICON Group International

There are various factors which have stimulated the development of technical textiles. These include changes in consumer preferences and the expansion in demand for superior quality products by various user-industries. A rapid expansion in the awareness regarding the multiple advantages of technical textile products has been augmenting the demand and application of these products. It is anticipated that there will be an escalated demand from the construction, automobiles, packaging and healthcare sectors, particularly for technical textile products. An upsurge in the application of extensive research and development is expected to further enhance the development of the global technical textile industry.

The development of technical textiles industry has been given prime importance by the governments of various countries across the globe. Various initiatives have been taken to establish research organisations with the objective of bolstering and promoting research in this segment. Furthermore, financial support is also being offered to players and various incentives are being rendered for boosting the growth of the technical textiles industry.

Global Production

Fibre is the most important raw material used in the textile, clothing and technical textile industry. They can be broadly divided into two categories, namely natural fibres and man-made fibres. While natural fibres include jute, cotton, wool and silk, polyester, nylon and acrylic constitute the major part of man-made fibre.

As far as the world production of jute is concerned, it decreased from 3.45 million tonnes in 2012 to approximately 3.31 million tonnes in 2016 **(Table 2.1)** recording a negative CAGR of (-) 1.0% during this period. India was the leading producer of jute in the world with a share of 57.4% in the aggregate production in the year 2016 with Bangladesh being the second largest producer.

On the other hand, the global production of silk was estimated at 192.7 thousand metric tonnes during 2016, registering a decline of 4.6% as compared to the previous year **(Table 2.1)**. China continued to be the largest producer of silk, as its share in aggregate production increased further from 79.8% in 2011 to 82.2% in 2016. India was the second largest silk producing country. The aggregate production of cotton in the world registered a 15.8% year-on-year growth in 2017-18 to aggregate to 123.5 million bales **(Exhibit 2.2)**.

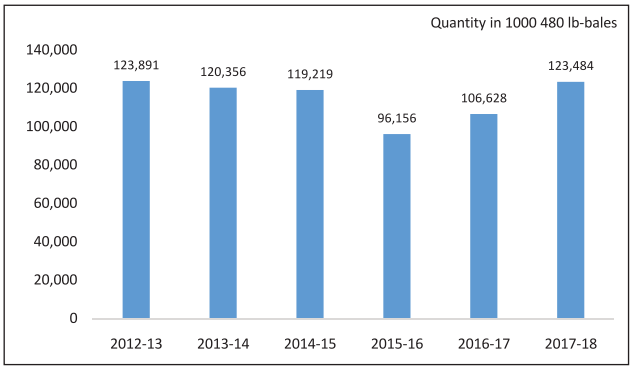
[3]Latent demand is commonly defined as the industry earnings of a market when that market becomes accessible and attractive to serve by competing firms. It is a measure, therefore, of potential industry earnings or total revenues (not profit) if a market is served in an efficient manner. It is typically expressed as the total revenues potentially extracted by firms. The "market" is defined at a given level in the value chain.

Table 2.1: Global Production of Jute and Silk

Year	Jute	Silk
	million tonnes	thousand metric tonnes
2012	3.45	152.9
2013	3.42	159.7
2014	3.39	178.1
2015	3.26	202.1
2016	3.31	192.7

Source: Production of jute sourced from FAO; Production of Silk from International Sericultural Commission

Exhibit 2.2: Global Production of Cotton



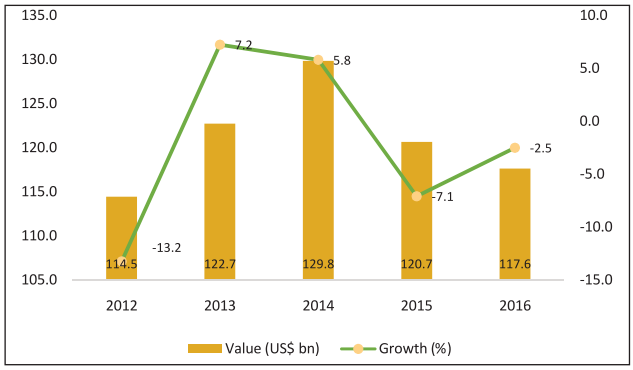
Period here refers to beginning August 1 of every year
Source: USDA

The production of man-made fibres has escalated tremendously with the increase in its demand for manufacturing the various varieties of textile products. The global production of manmade fibre stood at 71.6 thousand tonnes in the year 2017, with synthetic fibres accounting for 90.6% of the share **(Table 2.2)**. The important varieties of synthetic man-made fibres include polyester, polyamide and acrylic polypropylene.

Global Exports

After reaching a high of US$ 129.8 billion in 2014, world exports of technical textiles registered two years of continuous decline to stand at US$ 117.6 billion in 2016. However, over a longer time frame, world exports of technical textiles recorded a CAGR of 0.7% between the period 2012 and 2016 **(Exhibit 2.3)**.

Exhibit 2.3: Global Exports of Technical Textiles



Source: UNCOMTRADE; Exim Bank Research

China was the leading exporter of technical textile products in the world, with its exports valued at US$ 34.3 billion in 2016. The share of China in world exports increased from 27.5% in 2012 to 29.2% in 2016. Germany was the second largest exporter, although its share declined marginally from 8% to 7.9% during the same period. The US was the third biggest exporter with exports worth US$ 9 billion

Table 2.2: World Production of Manmade Fibres

Category of Fibres	1995	2000	2005	2010	2015	2017
	thousand tonnes					
Polyester	11.95	18.9	24.7	36.21	52	53.7
Polyamide	3.74	4.12	3.8	3.97	4.5	5.73
Acrylic Polypropylene	2.44	2.53	2.5	2.48	2.4	4.3
Other Synthetic Man-made Fibre	1.06	2.85	3.8	2.97	1.8	1.17
Total of Synthetic Man-made Fibres	19.19	28.4	34.8	45.63	60.7	64.9
Cellulosic Man-made Fibre	3.01	2.64	3.3	3.97	6.1	6.7
Total of Man-made Fibres	**22.2**	**31.04**	**38.1**	**49.6**	**66.8**	**71.6**

Source: Industrievereinigung Chemiefaser e.V. (IVC)

in 2016. Other major exporters of technical textiles products in 2016 included Italy (4.6%), Belgium (3.4%), France (3%), the UK (2.9%), Japan (2.8%), Vietnam (2.7%) and the Netherlands (2.6%).

India was the thirteenth leading exporter of technical textile products in the world, with exports worth US$ 3.6 billion in 2016. India's share in aggregate exports rose from 2.2% in 2012 to 2.5% in 2016, although its rank remained the same **(Table 2.3)**.

Global Imports

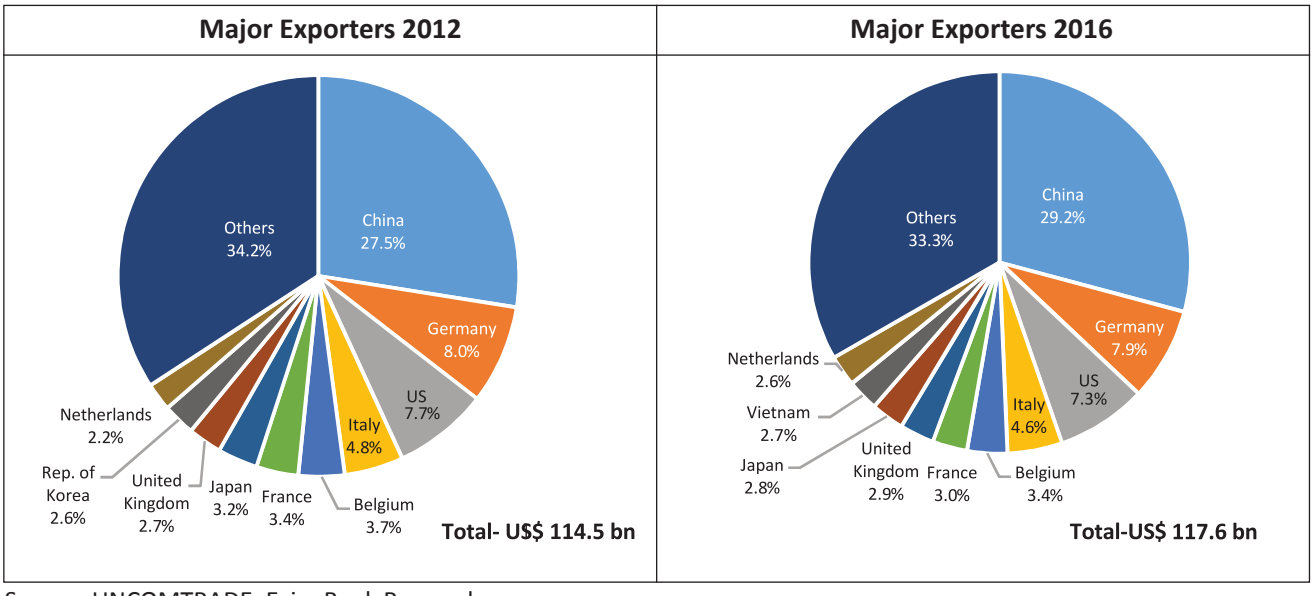
The US was the leading importer of technical textile products, with its imports registering a CAGR of 3.4% during the period 2012 to 2016 **(Table 2.4)**. It has continued to remain the largest importer during this period, with its share increasing from 12.8% to 14%. Germany, the second largest importer of technical textile products, had a share of 7.9% in total imports,

Table 2.3: Major Exporters of Technical Textiles in the World

Rank	Exporters	2012	2013	2014	2015	2016	CAGR	Share
		US$ bn					%	
1	China	31.5	35.1	38.0	36.3	34.3	2.2	29.2
2	Germany	9.1	9.7	10.3	9.0	9.3	0.4	7.9
3	The US	8.8	9.2	9.5	9.4	9.0	0.7	7.7
4	Italy	5.5	5.8	6.2	5.3	5.5	0.1	4.6
5	Belgium	4.3	4.7	4.5	4.1	4.0	-1.6	3.4
6	France	3.9	4.0	4.1	3.4	3.5	-2.7	3.0
7	The UK	3.1	3.3	3.8	3.6	3.4	2.4	2.9
8	Japan	3.7	3.3	3.3	3.1	3.3	-2.8	2.8
9	Viet Nam	3.6	3.4	3.6	3.3	3.1	-3.4	2.7
10	The Netherlands	1.9	2.4	2.9	3	3.1	12.5	2.6
13	*India*	*2.6*	*2.9*	*3.2*	*2.8*	*3.0*	*3.6*	*2.5*
	World	**114.5**	**122.7**	**129.8**	**120.7**	**117.6**	**0.7**	**100**

Source: UNCOMTRADE; Exim Bank Research

Exhibit 2.4: Share of Major Exporters of Technical Textiles in the World



Source: UNCOMTRADE; Exim Bank Research

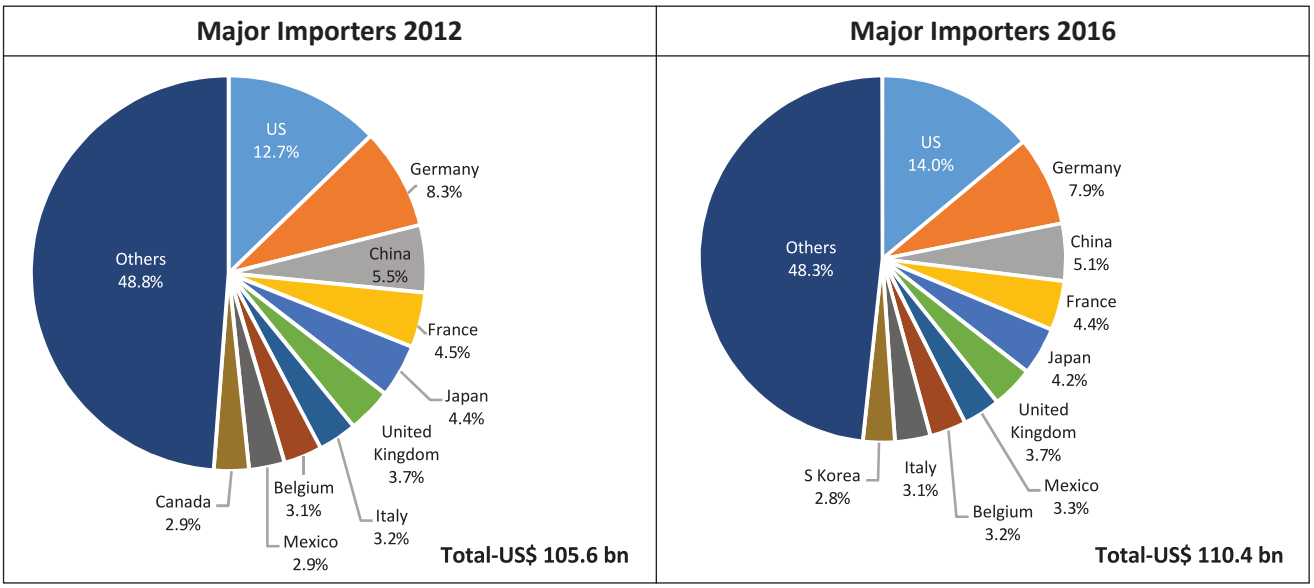
with imports worth US$ 8.7 billion. China, which was the third largest importer in both the years 2012 and 2016, recorded a marginal fall in share from 5.5% to 5.1% during this period. France, Japan, the UK, Mexico, Belgium, Italy and South Korea were the other significant importers of technical textiles **(Exhibit 2.5)**. India, which maintained a constant share of around 1.4% in the total global imports during the analysed period, held the nineteenth position in 2016 **(Table 2.4)**.

Table 2.4: Major Importers of Technical Textiles in the World

Rank	Exporters	2012	2013	2014	2015	2016	CAGR	Share
		US$ bn					%	
1	The US	13.5	13.8	15.1	16.0	15.4	3.4	14.0
2	Germany	8.8	9.3	9.8	8.8	8.7	0.0	7.9
3	China	5.8	6.1	6.4	5.9	5.6	-1.1	5.1
4	France	4.8	5.0	5.3	4.7	4.8	0.4	4.4
5	Japan	4.6	4.8	4.8	4.6	4.7	0.4	4.2
6	The UK	3.9	4.1	4.5	4.2	4.1	1.3	3.7
7	Mexico	3.1	3.4	3.6	3.7	3.7	4.3	3.3
8	Belgium	3.3	3.8	3.7	3.4	3.5	1.6	3.2
9	Italy	3.3	3.5	3.8	3.4	3.5	0.9	3.1
10	South Korea	2.6	3.0	3.3	3.1	3.1	5.0	2.8
19	*India*	*1.5*	*1.4*	*1.5*	*1.6*	*1.6*	*2.1*	*1.4*
	World	**105.6**	**111.3**	**117.4**	**111.7**	**110.4**	**1.1**	**100.0**

Source: UNCOMTRADE; Exim Bank Research

Exhibit 2.5: Share of Major Importers of Technical Textiles in the World

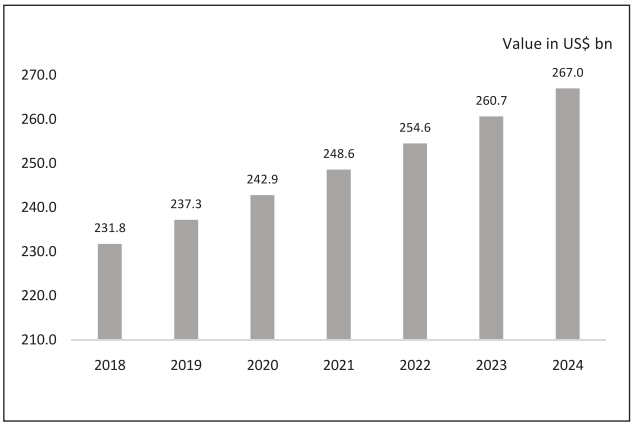


Source: UNCOMTRADE; Exim Bank Research

Outlook

According to the study 'The 2019-2024 World Outlook for Technical Textiles[4]' the global latent demand for technical textiles has been projected to record a CAGR of 2.4% during the period 2018 to 2024, with demand estimated to increase to US$ 267 billion in 2024 **(Exhibit 2.6)**. It is estimated that Asia would continue to be the leading market for technical textiles in 2019, accounting for approximately 37.8% of the world demand. Within the Asian region, the Chinese market is anticipated to account for 46.4% share, followed by India at 15.5%. The potential industry earnings in the North American and Caribbean region is anticipated to be at nearly US$ 50 billion, holding nearly 21.1% of the total pie. Europe, Latin America, Middle East, Africa and Oceania are expected to account for 21%, 8.5%, 6%, 4.2% and 1.3 %, respectively in 2019 **(Table 2.5)**.

Exhibit 2.6: World Latent Demand for Technical Textiles (2018-2024)



Source: The 2019-2024 World Outlook for Technical Textiles; Philip M. Parker, INSEAD; ICON Group International

Table 2.5: Region-wise Share in World Latent Demand for Technical Textiles (2019)

Region	Value (US$ bn)	Share (%)
Asia	89.69	37.8
North America & the Caribbean	49.97	21.1
Europe	49.91	21.0
Latin America	20.12	8.5
Middle East	14.29	6.0
Africa	10.06	4.2
Oceania	3.20	1.3
Total	**237.25**	**100.0**

Source: The 2019-2024 World Outlook for Technical Textiles; Philip M. Parker, INSEAD; ICON Group International

[4]The 2019-2024 World Outlook for Technical Textiles; Philip M. Parker, INSEAD; ICON Group International

3. THE INDIAN SCENARIO

Technical textile constitutes high end manufacturing with technology, and is a sunrise sector steadily gaining ground in India. The Indian technical textile industry has immense potential for further development and growth. India has a share of approximately 3% of the global technical textile production which is estimated at 90,000 MT (metric tonnes)[5].

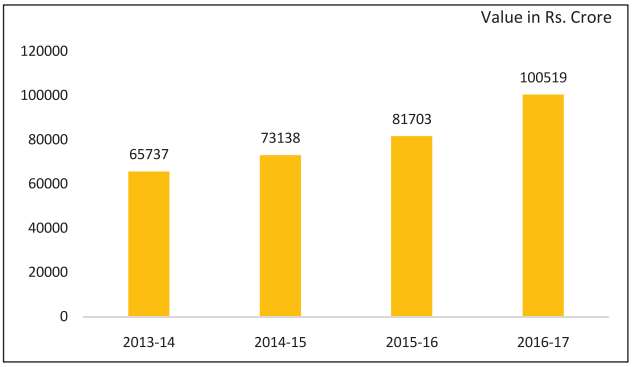
India has the advantage of having a strong raw material (fibre) base – of cotton, manmade fibre, silk, wool and jute. Moreover, India possesses excellence in the entire value chain extending from fibre to fabric to garments.

Despite achieving a high growth rate, the per capita consumption of technical textiles in India is 1.7 per kg vis-a-vis 10-12 kg in developed countries. Globally, the technical textiles sector accounts for approximately 27% of the aggregate textile industry, and in some of the advanced nations, the contribution is as high as 50% of the aggregate; however, the share of technical textiles in the aggregate textiles market is low in India (13%).

Market Size

The Indian technical textiles market has been valued at Rs. 1,00,519 crore, recording a CAGR of 15.2% during the period 2013-14 to 2016-17 **(Exhibit 3.1)**. Currently, the technical textiles contribute approximately 0.7% to the country's GDP and constitutes nearly 13% of the aggregate textile market in the country. The market size is expected to touch Rs. 1,54,909 crore by 2020-21.

Exhibit 3.1: Market Size of Domestic Textiles Industry



Source: Knowledge Paper; TECHNOTEX 2018

With an estimated market size of Rs. 40,300 crore, the Packtech segment of technical textile products, was by far the biggest segment, accounting for nearly 40.1% of the Indian market in 2016. Indutech was the second major category in the technical textiles market, valued at Rs. 11,211 crore. The Hometech segment was worth Rs. 10,547 crore, contributing approximately 10.5% to the aggregate market. The Mobiltech segment occupied a share of 10.3%, followed by Clothtech, Sportech, Meditech, Buildtech, Protech, Geotech, Agrotech and Oekotech with shares of 7.3%, 6.5%, 4.7%, 3.9%, 2.8%, 1.3%, 1.3% and 0.2%, respectively **(Table 3.1)**.

Table 3.1: Segment-wise Technical Textiles Market Size and Share (2016-17)

Segment	Value	Share
	(Rs. Crore)	(%)
Packtech	40300	40.1
Indutech	11211	11.2
Hometech	10547	10.5
Mobiltech	10354	10.3
Clothtech	7326	7.3
Sportech	6526	6.5
Meditech	4690	4.7
Buildtech	3960	3.9
Protech	2818	2.8
Geotech	1311	1.3
Agrotech	1300	1.3
Oekotech	176	0.2
Total	**100519**	**100.0**

Source: Knowledge Paper; TECHNOTEX 2018

[5]Annual Report 2017-18; Ministry of Textiles, Government of India

Production

The abundant availability of raw materials is one of the key advantages which could help the technical textile industry in India to flourish. India is among the major producers of natural fibre, synthetic fibre as well as high performance fibres. The section below elaborates the production trends of these different varieties of fibres in India.

Natural Fibres

The production of cotton recorded a CAGR of 0.4% as the production rose from 367 lakh bales in 2011-12 to 377 lakh bales in the period 2017-18 **(Table 3.2)**. The acreage under cotton production has been estimated at 122.4 lakh hectares for the year 2017-18. India is the leading producer of cotton in the world, however the yield is low as compared to the world average. India is possibly the only country in the world which produces each of the five commercial varieties of silk including mulberry, tropical tasar, oak tasar, eri and muga. During the period 2016-17, the total silk production was nearly 30.3 thousand metric tonnes, of which mulberry accounted for approximately 70.1%, tasar nearly 10.8%, eri 18.6% while the share of muga stood at 0.6% respectively. India produced approximately 43.6 million kgs of wool during the year 2015-16. The States which are majorly engaged in the production of wool are Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh, Uttarakhand, Gujarat, Maharashtra, Andhra Pradesh and Karnataka. During the year 2017-18, while the total jute produced in India was estimated at 1178.1 thousand metric tonnes, the consumption for the same period stood at 1112.6 thousand metric tonnes. The sacking segment accounted for 76.6% of the total jute production in the year 2017-18.

Manmade Fibres

The man-made fibres (MMF) industry, an integral part of the technical textiles industry, comprises fibre and filament yarn manufacturing units of both the cellulosic[6] and non-cellulosic origin. These manmade fibres are chiefly utilized in the production of blended fabrics and 100% non-cotton fabrics, which are eventually put to use in the manufacture of readymade garments, home textiles, technical textiles and various other industrial textiles. The main components of domestic MMF industry are polyester and viscose. The production of staple fibre recorded a CAGR of 0.2 % during the period 2013-14 to 2017-18, while the production of filament registered a negative CAGR of (-) 2.1 % during the same period **(Table 3.3)**.

Outlook

There are various factors which are expected to drive the expansion and development of the

Table 3.2: Production of Natural Fibres in India

Year	Cotton	Silk	Wool	Jute
	(lakh bales)	(metric tonnes)	(million kgs)	(thousand metric tonnes)
2011-12	367	23,060	44.7	1581.8
2012-13	370	23,679	46.1	1591.3
2013-14	398	26,480	47.9	1527.7
2014-15	386	28,708	48.1	1267.3
2015-16	332	28,523	43.6	1217.3
2016-17 (P)	345	30,348	N/A	1142.5
2017-18 (P)	377	N/A	N/A	1178.1

Source: Cotton Advisory Board, Central Silk Board, Ministry of Agriculture, Ministry of Textiles

[6]Cellulose is a fibrous material of plant origin and the basis of all natural and man-made cellulosic fibres. The natural cellulosic fibres include cotton, flax, hemp, jute, and ramie.

Table 3.3: Installed Capacity and Production of Manmade Fibres

	Installed Capacity (mn kgs)						Production (mn kgs)					
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Staple Fibre												
Viscose	418.7	418.7	418.7	418.7	418.7	418.7	361.01	365.15	341.9	364.99	369.82	179.64
Polyester	1182.7	1182.7	1182.7	1182.7	1182.7	1182.7	845.95	881.56	893.95	898.98	852.29	263.65
Acrylic	167.0	167.0	167.0	167.0	167.0	167.0	96.11	92.54	106.79	96.36	93.21	33.02
Polypropylene	13.2	13.2	13.2	13.2	13.2	13.2	3.71	4.62	4.71	3.65	3.48	1.26
Total	**1781.6**	**1781.6**	**1781.6**	**1781.6**	**1781.6**	**1781.6**	**1306.8**	**1343.9**	**1347.4**	**1364.0**	**1318.8**	**477.57**
Filament												
Viscose	79.5	79.5	79.5	81.3	81.3	81.3	43.99	44.24	45.41	46.09	47.03	15.4
Nylon	32.0	32.0	32.0	36.6	36.6	36.6	24.09	32.55	37.26	41	39.38	13.8
Polyester	2118.9	2103.2	2103.2	2103.2	2103.2	2103.2	1212.43	1158.2	1068.8	1060.42	1090.12	341.36
Polypropylene	17.6	17.6	17.6	17.6	17.6	17.6	12.91	12.77	12.66	11.44	10.89	3.6
Total	**2248.0**	**2232.4**	**2232.4**	**2238.8**	**2238.8**	**2238.8**	**1293.4**	**1247.8**	**1164.1**	**1159.0**	**1187.4**	**374.16**

*2017-18 and 2018-19 Data is Provisional
Source: Ministry of Textiles, Government of India

Table 3.4: Projected Segment-wise Technical Textiles Market Size and Share

Segment	2016-17	2020-21 (E)	Share (E)
	(Rs. Crore)		(%)
Packtech	40300	59269	38.3
Indutech	11211	18935	12.2
Hometech	10547	17814	11.5
Mobiltech	10354	16293	10.5
Clothtech	7326	11122	7.2
Sportech	6526	10269	6.6
Meditech	4690	6621	4.3
Buildtech	3960	6232	4.0
Protech	2818	3978	2.6
Geotech	1311	2137	1.4
Agrotech	1300	1982	1.3
Oekotech	176	257	0.2
Total	**100519**	**154909**	**100.0**

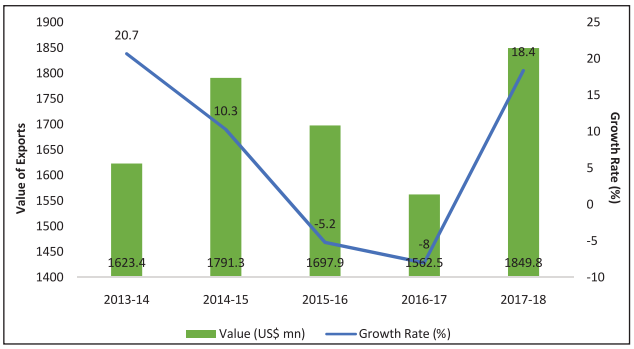
Source: Knowledge Paper; TECHNOTEX 2018

domestic technical textiles market in the future. As per estimates, the market is anticipated to reach approximately Rs. 1,54,909 crore by 2020-21, thereby recording a CAGR of 11.4% during the period 2016-17 to 2020-21 **(Table 3.4)**. The Packtech segment is projected to continue as the leading segment, although its share is forecast to decline marginally and reach 38.3% in 2020-21. The share of products in the Indutech category is projected to increase to Rs. 18,935 crore, while the Hometech product category is expected to record an increase in share and account for nearly 11.5% of the total market size.

4. INDIA'S TRADE IN TECHNICAL TEXTILES: AN ANALYSIS

Technical textile is a high technology sunrise sector which has the potential for considerable development in India. There has been a substantial rise in the demand for technical textiles globally, with healthcare and infrastructure sectors being the major drivers of the technical textile market. India is expected to be not only a key growth market but also a significant player serving the international market for technical textile products, given its cost-effectiveness, and durability and versatility of its technical textiles. This chapter examines India's recent export and import trends in technical textiles with the objective of identifying dynamic product segments and markets which could be targeted by Indian players.

Exhibit 4.1: India's Exports of Technical Textiles Products: Recent Trends



Source: DGCIS; Exim Bank Research

An analysis of exports and imports of technical textile industry is carried herein. The HS code of these technical textile products has been sourced from Ministry of Textiles. However, of the 12 categories identified by the Ministry of Textiles as Technical Textiles, HS codes have been classified for only 9 categories by the Sub Committee on HSN Codes. Categories whose HS codes have not been categorised include Buildtech, Mobiltech, and Oekotech. Hence, the total trade of technical textiles as covered in the Study would be an underestimate. The List of 247 items classified by the HSN Codes under 9 categories of technical textiles is at Annexure.

India is a net exporter of technical textiles products, with exports touching US$ 1849.8 million in 2017-18. Exports recorded a CAGR of 3.3% in the

Table 4.1: India's Major Export Destinations of Technical Textiles Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	The US	224.9	13.9	1	The US	336.8	18.2
2	The UK	94.7	5.8	2	China	127.2	6.9
3	UAE	85.7	5.3	3	Germany	104.5	5.7
4	Germany	80.5	5.0	4	The UK	97.7	5.3
5	China	80.1	4.9	5	Spain	86.6	4.7
6	Spain	58.0	3.6	6	The Netherlands	81.7	4.4
7	The Netherlands	54.8	3.4	7	UAE	62.4	3.4
8	Thailand	49.9	3.1	8	Italy	61.7	3.3
9	France	45.9	2.8	9	France	58.9	3.2
10	Belgium	43.3	2.7	10	Belgium	45.1	2.4
	World	**1623.4**	**100.0**		**World**	**1849.8**	**100.0**

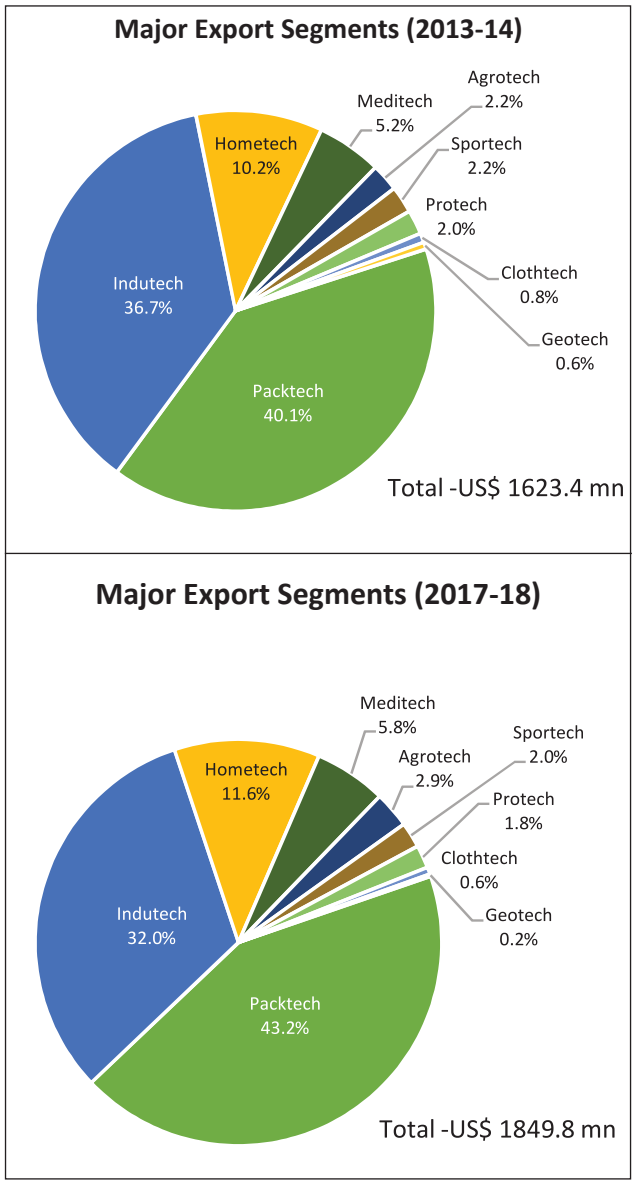
Source: DGCIS; Exim Bank Research

five year period 2013-14 to 2017-18. After two consecutive years of decline, exports of technical textiles recovered remarkably in 2017-18 to register a significant y-o-y growth of 18.4%, increasing from US$ 1562.5 million from the year-ago period to US$ 1849.8 million in 2017-18 **(Exhibit 4.1)**.

The US was the leading export destination of technical textile products from India, with exports estimated at US$ 336.8 million in 2017-18. The value of exports to the US recorded a healthy CAGR of 10.6% in the period 2013-14 to 2017-18, as its share in the India's exports of technical textiles increased from 13.9% to 18.2%. China, which was ranked as the fifth largest export market in 2013-14, improved its position to emerge as the second leading destination in 2017-18. The share of China in the India's exports also increased from 4.9% to 6.9% during this period. Exports of technical textiles products to Germany also exhibited dynamism, rising from US$ 80.5 million to US$ 104.5 million, thereby recording a CAGR of 6.7% during this period. Although, the value of exports to the UK also registered a rise, the increase was tepid, as a result of which its share as a market for Indian technical textile products recorded a decline, from 5.8% to 5.3% in the five year period. Other major export destinations of technical textile products from India included Spain, the Netherlands, UAE, Italy, France and Belgium **(Table 4.1)**.

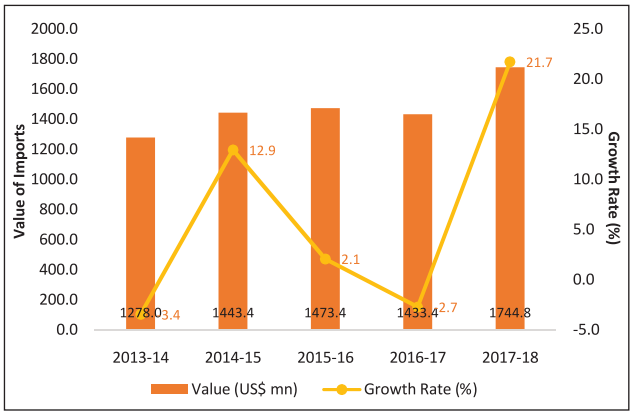
Among the technical textiles products, the Packtech products accounted for the largest share of nearly 43.2%. Packtech has all along been the leading export segment, accounting for a share of 40.1% in 2013-14. Indutech products ranked second in terms of exports, although its share in aggregate exports recorded a decline of 4.7 percentage point between 2013-14 and 2017-18. As against this, the share of Hometech products exports registered a marginal rise, increasing from 10.2% in 2013-14 to 11.6% in 2017-18. Similarly, the shares of Meditech and Agrotech products also increased, while those of Sportech, Protech,

Exhibit 4.2: India's Major Export Segments of Technical Textile Products



Source: DGCIS; Exim Bank Research

Exhibit 4.3: India's Imports of Technical Textiles Products: Recent Trends



Source: DGCIS; Exim Bank Research

Clothtech and Geotech experienced a decline during this time frame **(Exhibit 4.2)**.

The imports of technical textiles products increased substantially in the year 2017-18, recording a growth rate of 21.7% to amount to US$ 1744.8 million. The imports recorded a CAGR of 8.1% in the period 2013-14 to 2017-18 **(Exhibit 4.3)**.

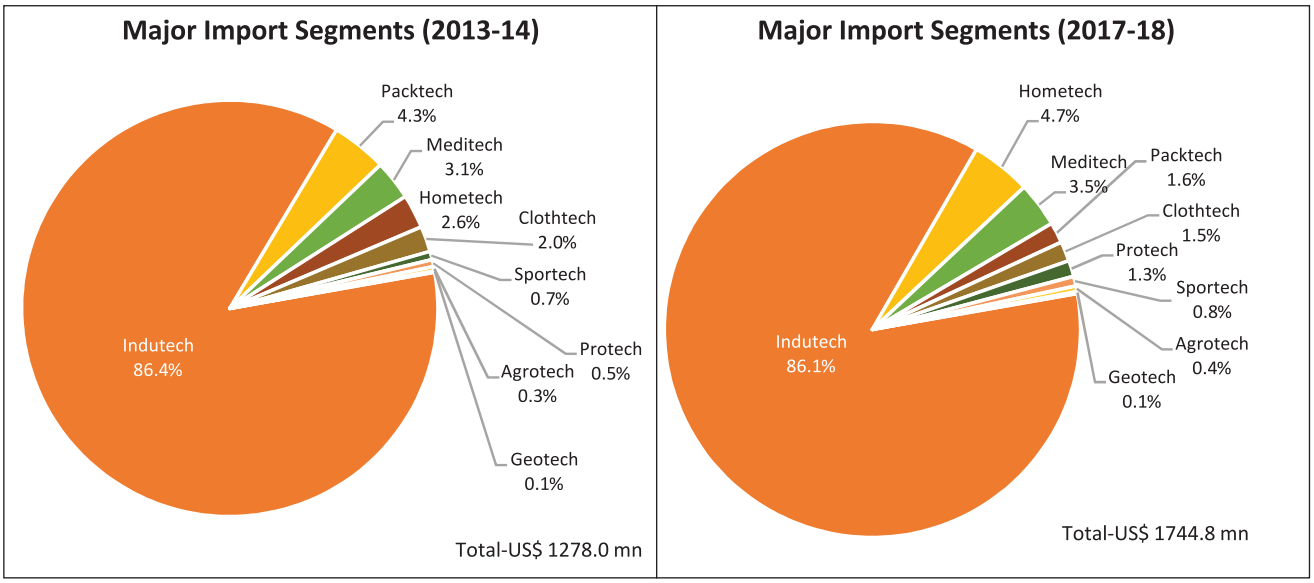
China was the largest import source of technical textile products, and accounted for more than 50% of the share in both 2013-14 and 2017-18. The value of imports from China recorded a CAGR of 8.2% in the five year analysed period. Thailand, which was the sixth largest import source in 2013-14, emerged as the second largest import source in 2017-18, with the value of imports increasing from US$ 39.5 million to US$ 85.4 million during this period. Other major import sources in 2017-18 included Taiwan, the US, Bangladesh, Germany, S Korea, Malaysia, Hong Kong and Nepal **(Table 4.2)**.

Table 4.2: India's Major Import Sources of Technical Textiles Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	China	640.1	50.1	1	China	877.6	50.3
2	Taiwan	114.5	9.0	2	Thailand	85.4	4.9
3	Bangladesh	48.8	3.8	3	Taiwan	80.4	4.6
4	The US	48.7	3.8	4	The US	62.7	3.6
5	South Korea	45.5	3.6	5	Bangladesh	57.6	3.3
6	Thailand	39.5	3.1	6	Germany	56.1	3.2
7	Germany	34.7	2.7	7	S Korea	51.7	3.0
8	Nepal	32.1	2.5	8	Malaysia	47.9	2.7
9	Hong Kong	31.2	2.4	9	Hong Kong	39.2	2.2
10	Malaysia	27.0	2.1	10	Nepal	36.8	2.1
	World	**1278.0**	**100.0**		**World**	**1744.8**	**100.0**

Source: DGCIS; Exim Bank Research

Exhibit 4.4: India's Major Import Segments of Technical Textile Products



Source: DGCIS; Exim Bank Research

Table 4.3: India's International Trade in Technical Textiles: Product Categories

Product Categories	Exports			Imports		
	2013-14	2017-18	CAGR	2013-14	2017-18	CAGR
	(US$ mn)	(US$ mn)	(%)	(US$ mn)	(US$ mn)	(%)
Packtech	650.9	798.7	5.2	55.0	28.1	-15.5
Indutech	596.3	591.9	-0.2	1103.5	1502.6	8.0
Hometech	166.1	214.3	6.6	33.6	81.3	24.7
Meditech	85.2	106.5	5.7	39.5	60.9	11.4
Agrotech	36.2	53.2	10.1	4.4	7.7	15.0
Sportech	35.5	37.7	1.5	8.4	13.1	11.8
Protech	31.9	33.8	1.5	6.9	21.9	33.5
Clothtech	12.2	10.2	-4.3	25.4	26.8	1.4
Geotech	9.0	3.6	-20.5	1.2	2.4	18.9
TOTAL	**1623.3**	**1849.9**	**3.3**	**1278.0**	**1744.8**	**8.1**

Source: DGCIS; Exim Bank Research

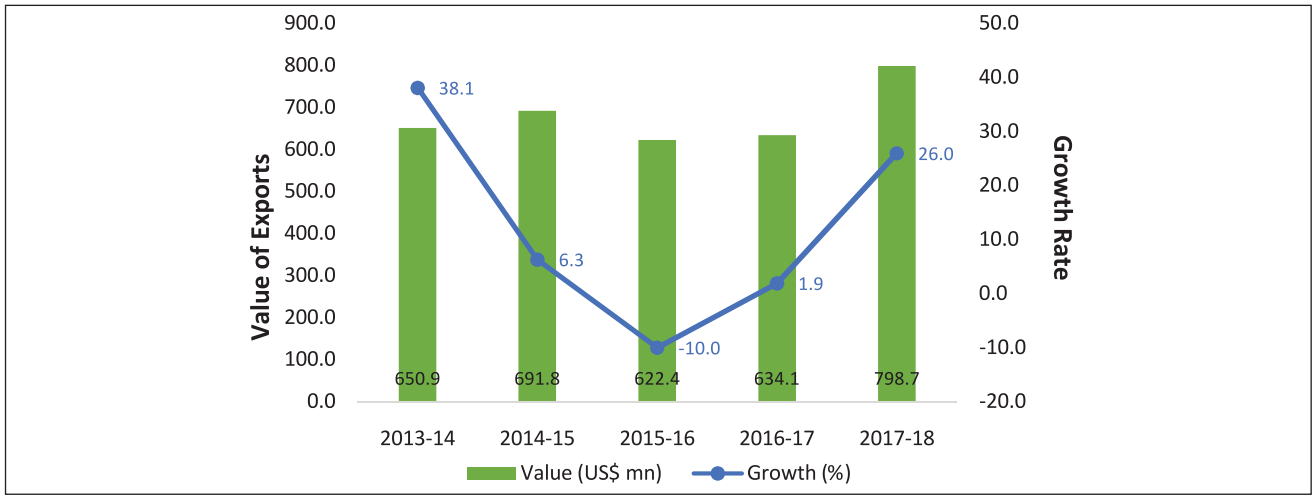
Indutech products was, by far, the leading category in terms of imports accounting for a share of 86.1%. The share of Packtech products in total imports diminished from 4.3% to 1.6% **(Exhibit 4.4)**.

Packtech Products

The exports of Indian Packtech products – the largest segment of technical textile exports – were valued at US$ 798.7 million in 2017-18, recording an impressive year-on-year growth rate of 26%. Exports have fared reasonably well over the last five years, registering positive and consistent growths in four out of the five years between 2013-14 and 2017-18. During this period, exports of Packtech products recorded a CAGR of 5.2% as the value of exports increased from US$ 650.9 million to US$ 798.7 million **(Exhibit 4.5)**.

The US was the largest export destination for Indian Packtech products, accounting for a share of 21.4% in 2017-18, up from 17.6% in 2013-14. The value of exports to the US recorded a CAGR of 10.5% during this period. Germany was the second leading export destination, with its share increasing from 6.3% to 8.2% over this period. As compared to this, the share of the UK fell down to 7.6%, although the value of

Exhibit 4.5: India's Exports of Packtech Products



Source: DGCIS; Exim Bank Research

Table 4.4: India's Major Export Destinations of Packtech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	The US	114.8	17.6	1	The US	171.2	21.4
2	The UK	57.0	8.8	2	Germany	65.5	8.2
3	Thailand	41.2	6.3	3	The UK	60.5	7.6
4	Germany	41.1	6.3	4	The Netherlands	55.1	6.9
5	The Netherlands	35.9	5.5	5	Spain	49.3	6.2
6	Spain	33.9	5.2	6	France	49.3	6.2
7	France	33.8	5.2	7	Italy	43.3	5.4
8	Ghana	31.2	4.8	8	Ghana	28.6	3.6
9	Italy	27.8	4.3	9	Australia	28.4	3.6
10	Belgium	19.2	2.9	10	Belgium	26.4	3.3
	World	**650.9**	**100.0**		**World**	**798.7**	**100.0**

Source: DGCIS; Exim Bank Research

exports touched US$ 60.5 million in 2017-18. The Netherlands, Spain, France and Italy were the other major export destinations for Packtech products **(Table 4.4)**.

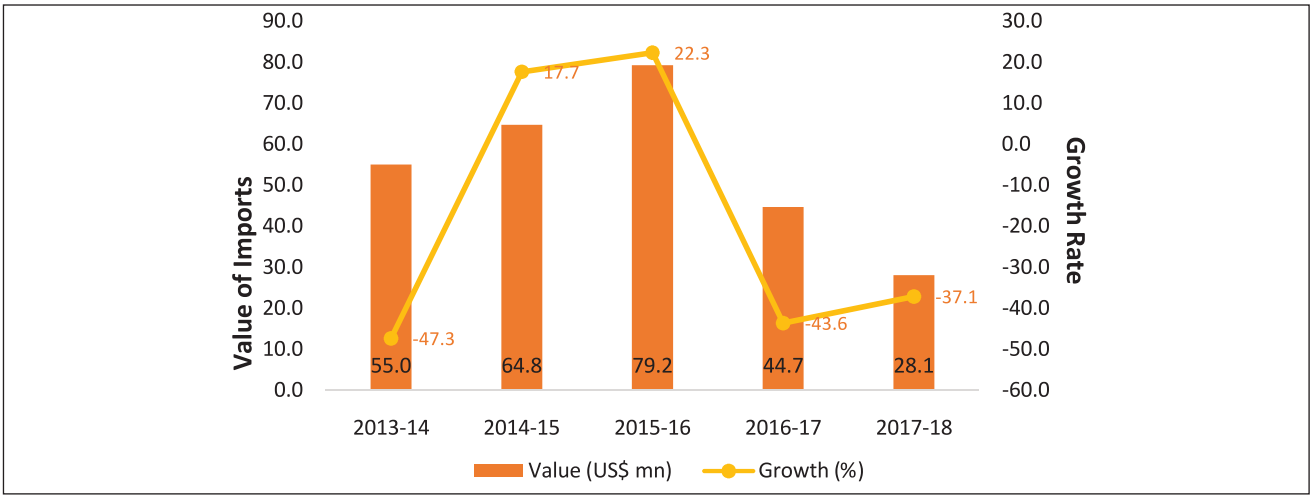
The imports of Packtech products declined considerably to US$ 28.1 million in 2017-18 after reaching its peak in 2015-16 when it touched US$ 79.2 million. Overall, imports recorded a negative CAGR of (-) 15.5% during the period 2013-14 to 2017-18 **(Exhibit 4.6)**.

Nepal was, by far, the leading import source of Packtech products, accounting for 60.1% of total imports in 2017-18. Other major import sources of Packtech products included China, Bangladesh, Turkey, Malaysia, Thailand and Vietnam **(Table 4.5)**.

Indutech Products

The exports of Indutech products, the second largest segment of technical textile exports, peaked at US$ 705 million in 2015-16, after which it registered

Exhibit 4.6: India's Imports of Packtech Products



Source: DGCIS; Exim Bank Research

Table 4.5: India's Major Import Sources of Packtech Products

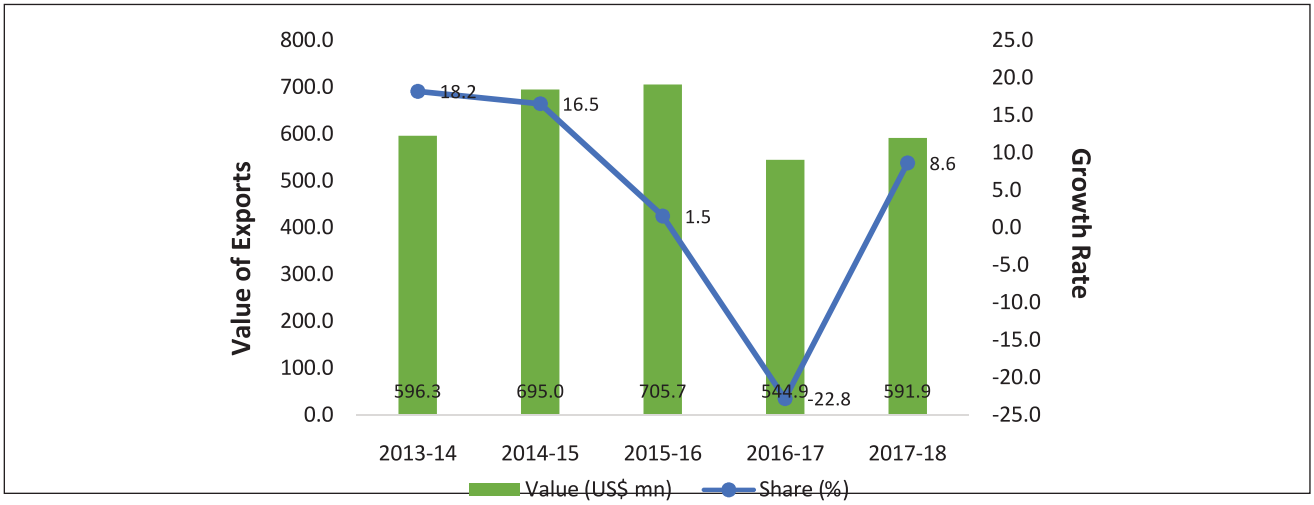
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Bangladesh	30.0	54.5	1	Nepal	16.9	60.1
2	Nepal	19.0	34.6	2	China	4.0	14.3
3	China	2.3	4.2	3	Bangladesh	2.7	9.7
4	Pakistan	0.8	1.5	4	Turkey	0.8	3.0
5	Netherland	0.4	0.7	5	Malaysia	0.5	1.7
6	Germany	0.3	0.6	6	Thailand	0.4	1.4
7	Indonesia	0.3	0.6	7	Vietnam	0.3	1.2
8	Hong Kong	0.2	0.4	8	Hong Kong	0.3	0.9
9	Vietnam	0.2	0.4	9	Netherland	0.2	0.9
10	The US	0.2	0.4	10	The UK	0.2	0.6
	World	**55.0**	**100.0**		**World**	**28.1**	**100.0**

Source: DGCIS; Exim Bank Research

a y-o-y decline of 22.8% in the following year, before rebounding back in 2017-18 to record a healthy growth of 8.6% as compared to the year-ago period, to amount to US$ 591 million **(Exhibit 4.7)**.

The US was the leading export destination of Indutech products, further improving its share in India's exports from 10.4% in 2013-14 to 19.1% in 2017-18, as exports nearly doubled from US$ 62.3 million to US$ 113.0 million during this period. The UAE continued to be the second largest importer of Indutech products from India, although its share declined from 9.8% to 6.5% during the same period. Japan emerged as the third largest export destination with exports to the country estimated at US$ 22.0 million in 2017-18, up from US$ 18.2 million in 2013-14. Other major countries sourcing Indutech products from India in 2017-18 included China, Germany, South Korea and Sri Lanka **(Table 4.6)**.

Exhibit 4.7: India's Exports of Indutech Products



Source: DGCIS; Exim Bank Research

Table 4.6: India's Major Export Destinations of Indutech Products

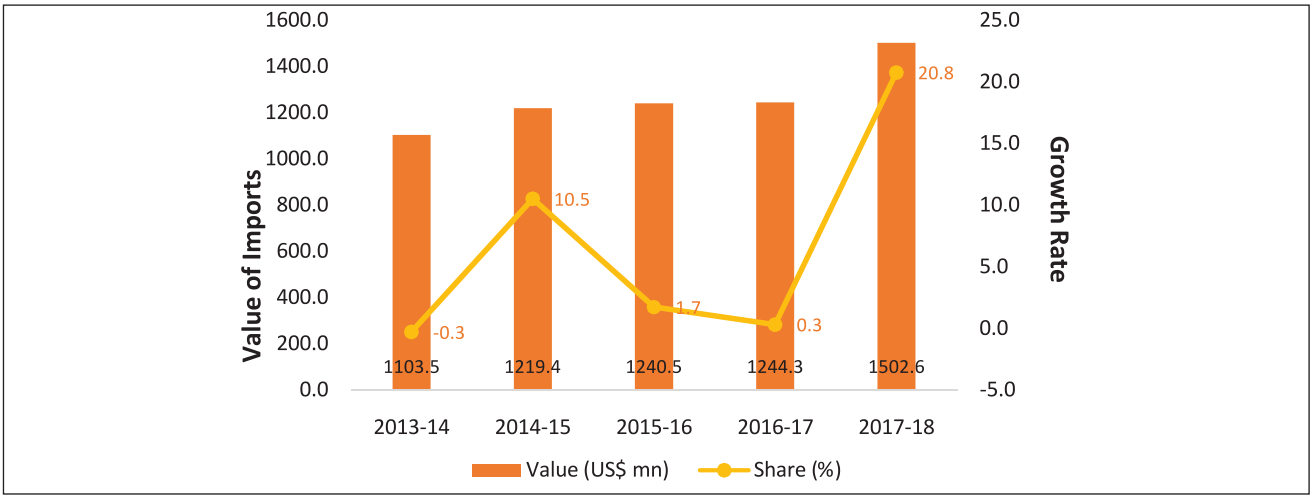
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	The US	62.3	10.4	1	The US	113.0	19.1
2	UAE	58.5	9.8	2	UAE	38.7	6.5
3	Indonesia	27.3	4.6	3	Japan	22.0	3.7
4	Saudi Arabia	22.5	3.8	4	China	21.8	3.7
5	China	20.1	3.4	5	Germany	20.2	3.4
6	Belgium	18.3	3.1	6	South Korea	18.8	3.2
7	Japan	18.2	3.0	7	Sri Lanka	18.5	3.1
8	Turkey	17.9	3.0	8	The UK	14.5	2.4
9	Vietnam	17.6	3.0	9	Saudi Arabia	14.4	2.4
10	Singapore	16.9	2.8	10	Bangladesh	13.9	2.3
	World	**596.3**	**100.0**		**World**	**591.9**	**100.0**

Source: DGCIS; Exim Bank Research

India is a net importer of Indutech products, which incidentally was by far, the largest segment of technical textile products imported by the country, with the value of imports reaching US$ 1502.6 million in 2017-18. The imports of these products by India has increased consistently over the last five years, registering a CAGR of 8.0% during the period 2013-14 to 2017-18 **(Exhibit 4.8)**.

China was the largest importing source of Indutech products, accounting for more than half of India's imports in both 2013-14 and 2017-18, although its share reduced marginally from 55.0% to 54.6% during this period. Thailand emerged as the second leading import source of Indutech products, increasing its share from 3.4% in 2013-14, when it was ranked fourth, to 5.3% in 2017-18. The imports of Indutech products from Taiwan, the third major source, were valued at US$ 76.2 million, constituting a share of 5.1% in 2017-18 **(Table 4.7)**.

Exhibit 4.8: India's Imports of Indutech Products



Source: DGCIS; Exim Bank Research

Table 4.7: India's Major Import Sources of Indutech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	China	606.9	55.0	1	China	820.3	54.6
2	Taiwan	112.0	10.2	2	Thailand	79.7	5.3
3	S Korea	44.0	4.0	3	Taiwan	76.2	5.1
4	Thailand	37.1	3.4	4	The US	50.7	3.4
5	The US	34.3	3.1	5	Germany	49.1	3.3
6	Germany	29.7	2.7	6	South Korea	46.1	3.1
7	Malaysia	26.3	2.4	7	Malaysia	45.6	3.0
8	Japan	22.4	2.0	8	Vietnam	31.6	2.1
9	Hong Kong	17.6	1.6	9	Japan	29.5	2.0
10	Italy	14.6	1.3	10	Indonesia	29.1	1.9
	World	**1103.5**	**100.0**		**World**	**1502.6**	**100.0**

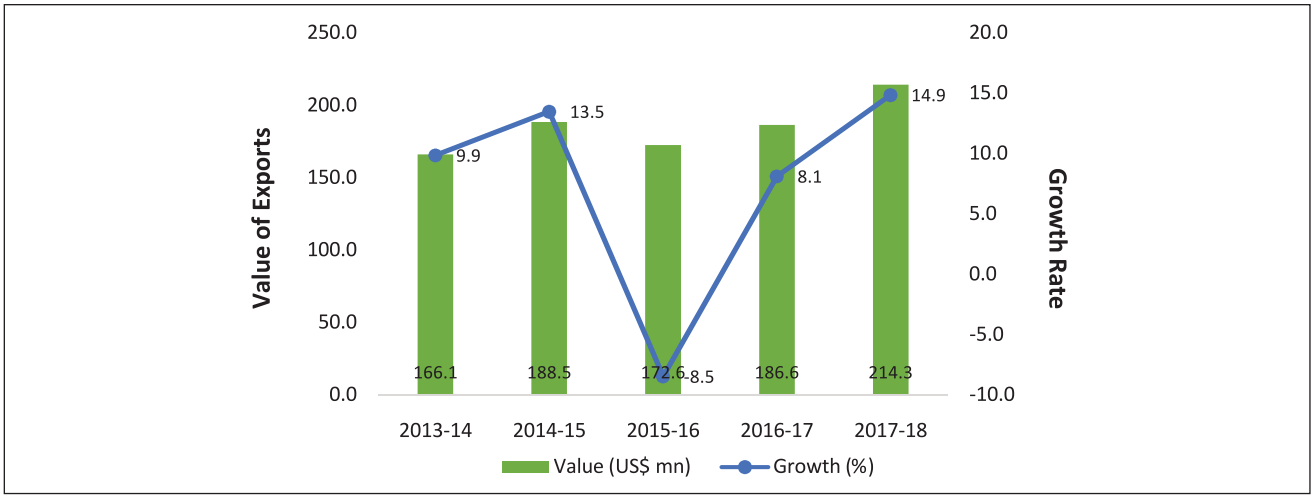
Source: DGCIS; Exim Bank Research

Hometech Products

India was a net exporter of Hometech products, with the value of exports having recorded a fairly impressive CAGR of 6.6% in the five year time frame 2013-14 to 2017-18. The encouraging aspect of this growth has been that exports recorded healthy positive y-o-y growths in all but one year – in 2015-16, when exports declined by (-) 8.5% as compared to the year-ago period. As against this, exports of Hometech products registered an impressive y-o-y growth of 14.9% in 2017-18 to touch US$ 214.3 million **(Exhibit 4.9)**.

China strengthened its position as the leading export destination for Hometech products from India, with its share increasing from 35.4% in 2013-14 to 47.4% in 2017-18. The US also maintained its second position as an export destination for Hometech products from India, although, unlike China, its share recorded a decline – from 13.2% to 11.5% during the same period. Similar was the case with the Netherlands, which not only registered a fall in share but exports to the country also declined from US$ 12.9 million to US$ 8.4 million during the analysed period **(Table 4.8)**.

Exhibit 4.9: India's Exports of Hometech Products



Source: DGCIS; Exim Bank Research

Table 4.8: India's Major Export Destinations of Hometech Products

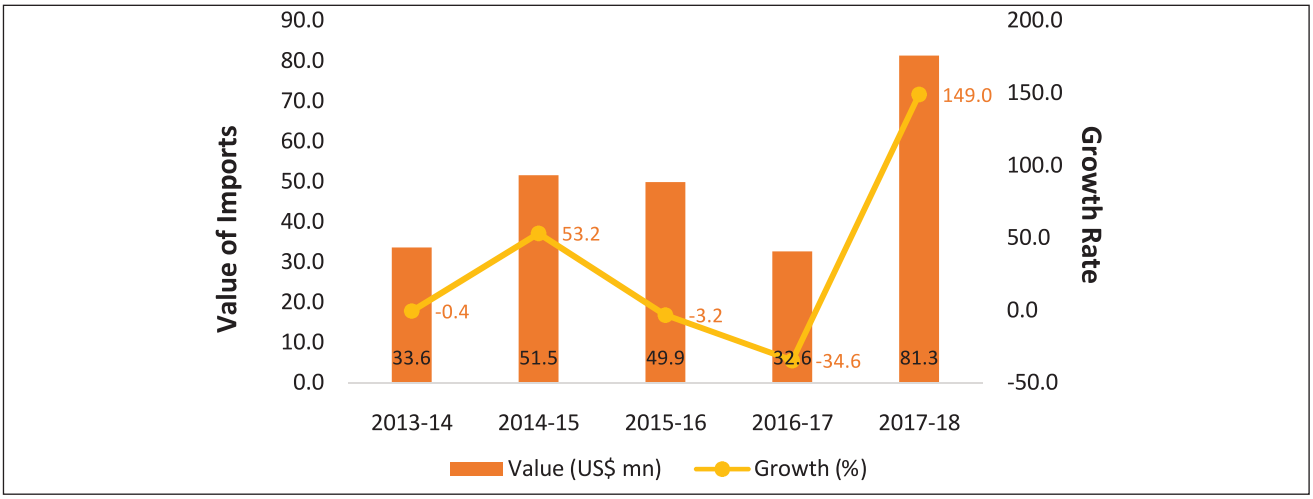
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	China	58.9	35.4	1	China	101.5	47.4
2	The US	22.0	13.2	2	The US	24.7	11.5
3	Netherlands	12.9	7.8	3	Netherlands	8.4	3.9
4	Germany	11.8	7.1	4	Germany	8.2	3.8
5	UAE	6.4	3.8	5	UAE	6.3	3.0
6	Saudi Arabia	6.2	3.8	6	The UK	5.8	2.7
7	Egypt	4.7	2.8	7	Egypt	5.2	2.4
8	The UK	3.6	2.2	8	Saudi Arabia	4.8	2.3
9	Australia	3.2	1.9	9	Spain	3.7	1.7
10	Italy	3.0	1.8	10	Italy	3.2	1.5
	World	**166.1**	**100.0**		**World**	**214.3**	**100.0**

Source: DGCIS; Exim Bank Research

Imports of Hometech products, after having grown steeply in 2014-15 from the year-ago period, recorded negative growths in the following two years, before rebounding sharply in 2017-18, increasing by 149.0% as compared to the previous year to amount to US$ 81.3 million **(Exhibit 4.10)**.

Imports of Hometech products from Bangladesh witnessed a precipitous rise elevating it to the top source of India's imports in 2017-18, with imports from the country touching US$ 45.9 million. The share of Bangladesh in India's imports more than doubled from 27.0% in 2013-14 to 56.4% in 2017-18. Nepal was the second largest import source, with imports estimated at US$ 17.6 million in 2017-18. The other major countries from which Hometech products were imported by India was China, accounting for a share of 18.8%, down from 40.1% in 2013-14 **(Table 4.9)**.

Exhibit 4.10: India's Imports of Hometech Products



Source: DGCIS; Exim Bank Research

Table 4.9: India's Major Import Sources of Hometech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	China	13.5	40.1	1	Bangladesh	45.9	56.4
2	Bangladesh	9.1	27.0	2	Nepal	17.6	21.6
3	Nepal	8.6	25.6	3	China	15.3	18.8
4	Pakistan	0.4	1.1	4	The US	0.6	0.8
5	UAE	0.3	1.0	5	Vietnam	0.4	0.5
6	The Netherlands	0.3	0.8	6	Sri Lanka	0.3	0.3
7	The US	0.2	0.7	7	Malaysia	0.1	0.2
8	Turkey	0.2	0.7	8	France	0.1	0.2
9	Italy	0.2	0.5	9	The Netherlands	0.1	0.2
10	Germany	0.2	0.5	10	The UK	0.1	0.1
	World	**33.6**	**100.0**		**World**	**81.3**	**100.0**

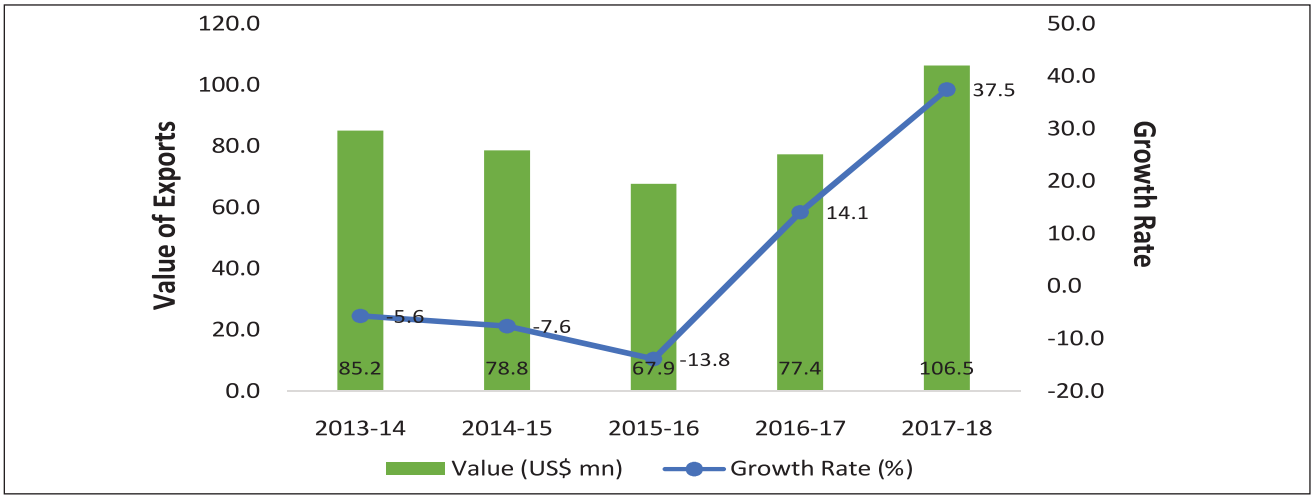
Source: DGCIS; Exim Bank Research

Meditech Products

Exports of Meditech products have picked up pace, after having witnessed three years of continuous decline from 2013-14 to 2015-16. The following two years recorded healthy y-o-y growths of 14.1% and 37.5% as exports touched US$ 106.5 million in 2017-18 **(Exhibit 4.11)**.

Spain remained the top market for Meditech products with exports valued at US$ 19.2 million in 2017-18, up from US$ 17.7 million in 2013-14. The Netherlands emerged as the second largest export destination for Meditech products, accounting for a share of 8.2% in 2017-18. The US also improved its position as a market for India's exports, with exports to the country increasing from US$ 3 million in 2013-14 to US$ 8 million. Poland, which did not rank among the top 10 export destinations in 2013-14, emerged up as the fifth largest export destination in 2017-18, contributing 6.5% to the aggregate exports **(Table 4.10)**.

Exhibit 4.11: India's Exports of Meditech Products



Source: DGCIS; Exim Bank Research

Table 4.10: India's Major Export Destinations of Meditech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Spain	17.7	20.8	1	Spain	19.2	18.0
2	Germany	12.2	14.4	2	The Netherlands	8.8	8.2
3	The UK	9.3	10.9	3	The US	8.0	7.5
4	UAE	6.2	7.2	4	Germany	7.2	6.8
5	Australia	4.4	5.2	5	Poland	7.0	6.5
6	Switzerland	3.5	4.1	6	The UK	6.6	6.2
7	Nepal	3.3	3.9	7	Italy	4.9	4.6
8	The US	3.0	3.5	8	Russia	4.3	4.0
9	Sri Lanka	2.4	2.9	9	Nepal	3.5	3.3
10	South Africa	2.0	2.3	10	South Africa	2.9	2.8
	World	**85.2**	**100.0**		**World**	**106.5**	**100.0**

Source: DGCIS; Exim Bank Research

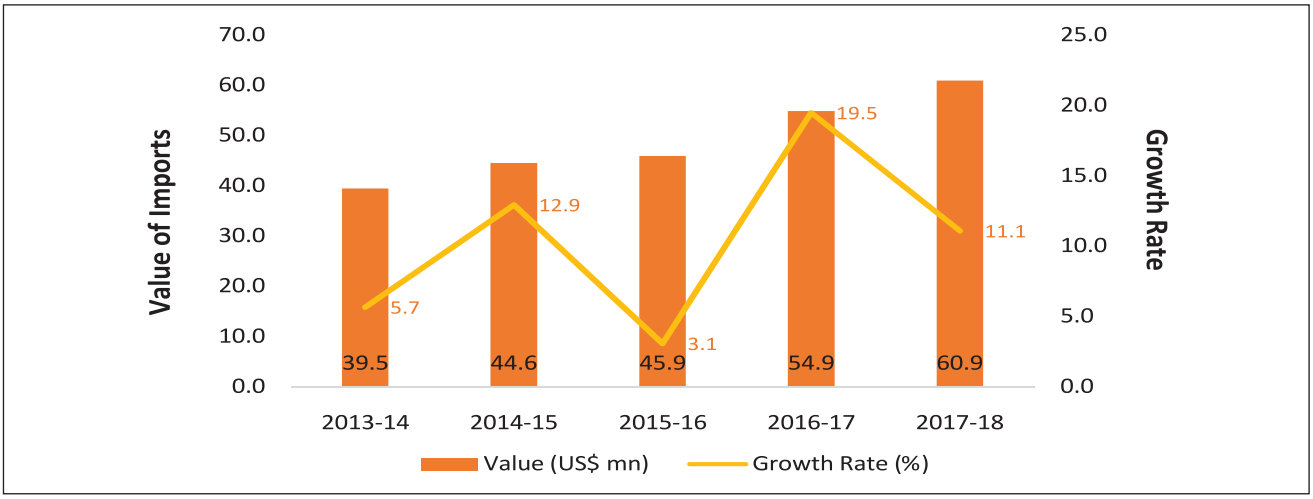
The imports of Meditech products by India has grown consistently, increasing from US$ 39.5 million in 2013-14 to US$ 60.9 million in 2017-18, thereby recording a CAGR of 11.5% during this period **(Exhibit 4.12)**.

The US continued to remain the leading import source of Meditech products, although its share recorded a significant decline from 32.6% in 2013-14 to 13.9% in 2017-18 as imports from the country fell from US$ 12.9 million to US$ 8.5 million in this period. Indonesia became one of the leading import sources for Meditech products with imports aggregating US$ 6.8 million in 2017-18. Other leading import sources included Germany, South Korea, Puerto Rico, Norway, Lithuania and China **(Table 4.11)**.

Agrotech Products

The value of exports during the year 2017-18 was estimated at US$ 53.2 million, recording an increase of 8.5%, as compared to the previous year. India was a net exporter of Agrotech products, with exports

Exhibit 4.12: India's Imports of Meditech Products



Source: DGCIS; Exim Bank Research

Table 4.11: India's Major Import Sources of Meditech Products

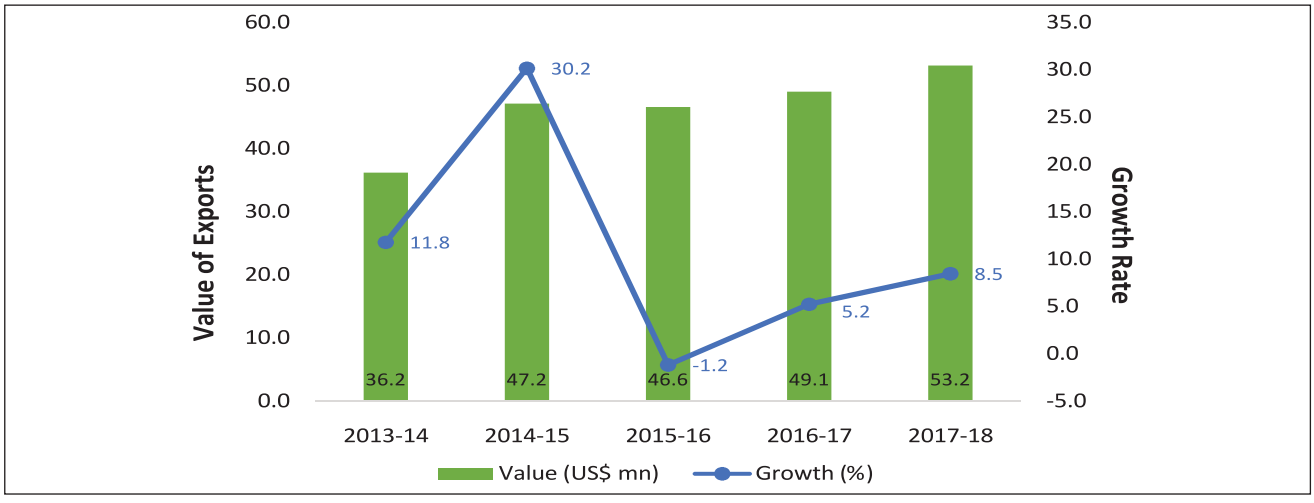
2013-14				2017-18			
Rank	Country	Value	Share	Rank	Country	Value	Share
		US$ mn	%			US$ mn	%
1	The US	12.9	32.6	1	The US	8.5	13.9
2	China	3.1	7.9	2	Indonesia	6.8	11.1
3	Germany	2.8	7.2	3	Germany	5.0	8.3
4	Brazil	2.5	6.2	4	S Korea	5.0	8.3
5	The Netherlands	2.4	6.0	5	Puerto Rico	4.2	6.8
6	Norway	2.2	5.5	6	Norway	3.6	5.9
7	The UK	2.1	5.2	7	Lithuania	3.6	5.9
8	Japan	1.6	4.0	8	China	3.5	5.7
9	Taiwan	1.4	3.4	9	Japan	3.0	4.9
10	S Korea	1.3	3.4	10	Thailand	2.7	4.5
	World	**39.5**	**100.0**		**World**	**60.9**	**100.0**

Source: DGCIS; Exim Bank Research

registering a CAGR of 10.1% during the five year period 2013-14 to 2017-18. While positive growth rates were recorded in the period 2013-14 and 2014-15, exports registered a decline in the following year, after which it recovered during the subsequent two years growing by 5.2% and 8.5%, respectively **(Exhibit 4.13)**.

Canada was the leading export destination for the exports of Indian Agrotech products during the period 2017-18, maintaining its position as the largest export destination during the five year period 2013-14 to 2017-18. However, its share witnessed a decline from 17.0% in 2013-14 to 14.8% in 2017-18. The UAE was the second leading export destination, with exports valued at US$ 6.2 million in 2017-18 (a share of 11.7%). Norway was the third largest export destination, with its share expanding from 9.1% in the year 2013-14 to 9.8% in 2017-18. Other major export destination of Agrotech products in 2017-18 included the UK, Sri Lanka, the US, Morocco, Oman, Kenya and Iran **(Table 4.12)**.

Exhibit 4.13: India's Exports of Agrotech Products



Source: DGCIS; Exim Bank Research

Table 4.12: India's Major Export Destinations of Agrotech Products

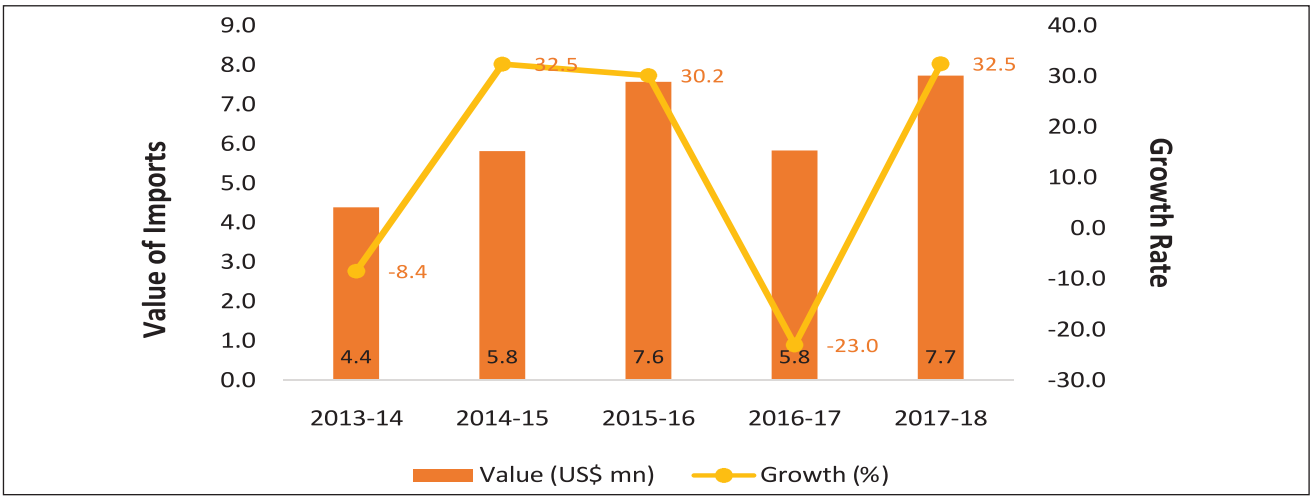
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Canada	6.1	17.0	1	Canada	7.9	14.8
2	Norway	3.3	9.1	2	UAE	6.2	11.7
3	UAE	3.2	8.8	3	Norway	5.2	9.8
4	US	3.0	8.2	4	UK	5.1	9.6
5	UK	2.4	6.6	5	Sri Lanka	3.4	6.3
6	Oman	2.2	6.0	6	US	3.3	6.3
7	Sri Lanka	2.1	5.7	7	Morocco	2.9	5.5
8	Kenya	1.7	4.8	8	Oman	2.8	5.3
9	Morocco	1.5	4.1	9	Kenya	2.0	3.7
10	Australia	1.2	3.3	10	Iran	1.8	3.4
	World	**36.2**	**100.0**		**World**	**53.2**	**100.0**

Source: DGCIS; Exim Bank Research

The imports of Agrotech products were estimated at US$ 7.7 million in the year 2017-18, registering a significant year-on-year growth of 32.5 %. Even over a larger time frame, imports recorded an appreciable growth, clocking a CAGR of 15.2% in the five year period 2013-14 to 2017-18 with the year 2016-17 being the only outlier, when imports experienced a y-o-y decline of 23.0% **(Exhibit 4.14)**.

China has continued to be the largest import source of Agrotech products for India, although its share in India's aggregate imports declined from 69.2% in 2013-14 to 40.5% in 2017-18, when the value of imports amounted to US$ 3.1 million. Bangladesh was the second leading import source for India, with imports from the country increasing from US$ 0.4 million to US$ 2.7 million, resulting in a marked jump in its share from 8.7% to 34.3%. Malaysia, Thailand, Portugal, Singapore, Vietnam, the UK, Hong Kong and Japan were the other major import sources in 2017-18 **(Table 4.13)**.

Exhibit 4.14: India's Import of Agrotech Products



Source: DGCIS; Exim Bank Research

Table 4.13: India's Major Import Sources of Agrotech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ thousand	%			US$ thousand	%
1	China	3039.9	69.2	1	China	3133.9	40.5
2	Thailand	788.4	18.0	2	Bangladesh	2650.2	34.3
3	Bangladesh	380.7	8.7	3	Malaysia	1193.4	15.4
4	Singapore	74.6	1.7	4	Thailand	590.0	7.6
5	UK	68.3	1.6	5	Portugal	53.8	0.7
6	Austria	11.8	0.3	6	Singapore	33.4	0.4
7	Hong Kong	10.0	0.2	7	Vietnam	24.2	0.3
8	Germany	5.3	0.1	8	UK	16.5	0.2
9	US	3.6	0.1	9	Hong Kong	12.5	0.2
10	Japan	3.6	0.1	10	Japan	10.3	0.1
	World	**4392.3**	**100.0**		**World**	**7734.8**	**100.0**

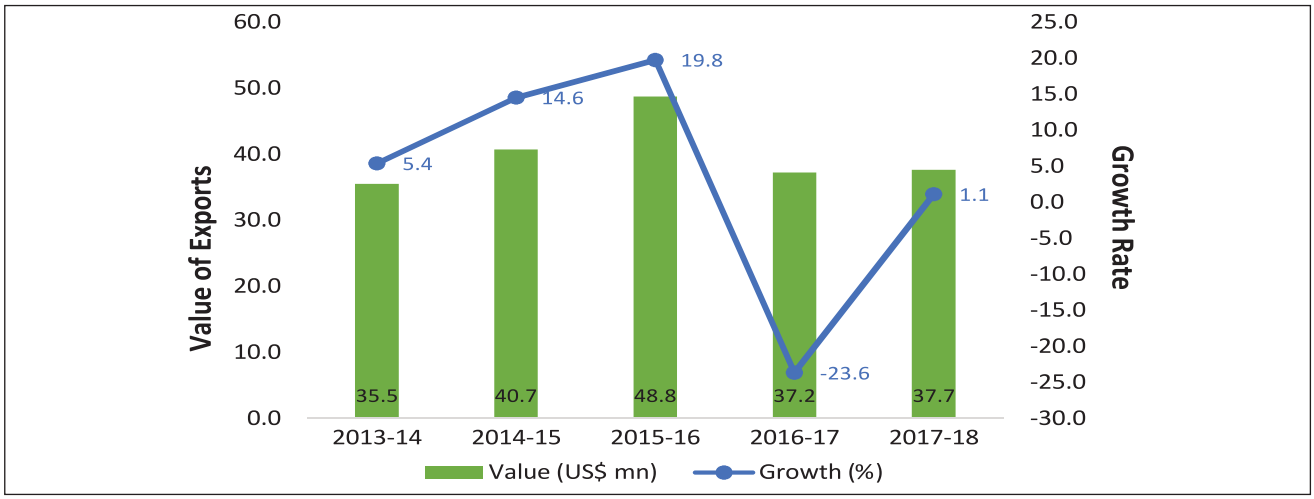
Source: DGCIS; Exim Bank Research

Sportech Products

The exports of Sportech products in 2017-18 stood at US$ 37.7 million, recording a CAGR of 1.5% in the five year period 2013-14 to 2017-18. The encouraging aspect was that exports picked up in 2017-18, registering a y-o-y growth of 1.1%, as compared to a steep fall of (-) 23.6% in the previous year **(Exhibit 4.15)**.

The US strengthened its position as the leading export destination of Sportech products from India, as its share increased from 32.9% in 2013-14 to 36.8% in 2017-18. The UK retained its position as the second largest export destination although its share reduced from 12.1% to 9.1% during this period. Other major export destinations for Sportech products in 2017-18 included Germany, Australia, Italy, UAE and France **(Table 4.14)**.

Exhibit 4.15: India's Exports of Sportech Products



Source: DGCIS; Exim Bank Research

Table 4.14: India's Major Export Destinations of Sportech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	The US	11.7	32.9	1	The US	13.8	36.8
2	The UK	4.3	12.1	2	The UK	3.4	9.1
3	UAE	1.7	4.9	3	Germany	1.5	4.0
4	France	1.5	4.1	4	Australia	1.5	4.0
5	Australia	1.3	3.6	5	Italy	1.5	3.9
6	The Netherlands	1.2	3.3	6	UAE	1.4	3.8
7	Italy	1.1	3.1	7	France	1.4	3.7
8	Saudi Arab	1.1	3.0	8	South Africa	1.3	3.4
9	South Africa	1.0	2.9	9	The Netherlands	1.2	3.3
10	Canada	0.9	2.6	10	Nepal	1.2	3.1
	World	**35.5**	**100.0**		**World**	**37.7**	**100.0**

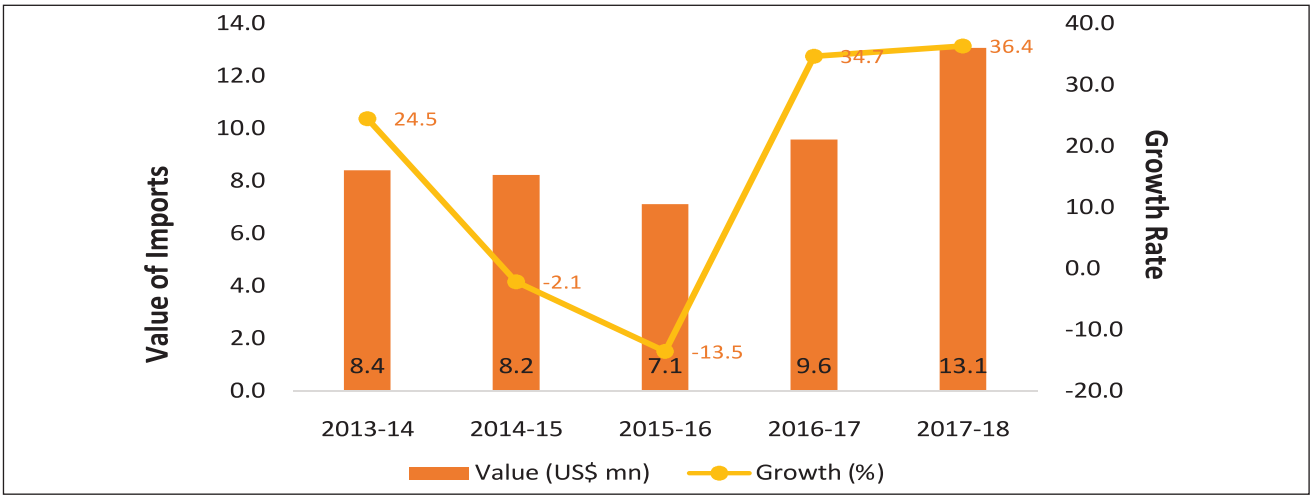
Source: DGCIS; Exim Bank Research

The imports of Sportech products recorded a CAGR of 11.7% as imports increased from US$ 8.4 million in 2013-14 to US$ 13.1 million in 2017-18 **(Exhibit 4.16)**. China was, by far, the largest import source of Sportech products, with its share strengthening further from 41.0% in 2013-14 to 61.5% in 2017-18. Other major import sources of Sportech products in 2017-18 included Germany and the US **(Table 4.15)**.

Protech Products

India is a net exporter of Protech products, with exports valued at US$ 33.8 million in 2017-18. After declining for two consecutive years in 2014-15 and 2015-16, export was flat in the following year after which it picked up substantially to clock a steep y-o-y growth of 61.0% **(Exhibit 4.17)**.

Exhibit 4.16: India's Imports of Sportech Products



Source: DGCIS; Exim Bank Research

Table 4.15: India's Major Import Sources of Sportech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ thousand	%			US$ thousnad	%
1	China	3448.8	41.0	1	China	8040.5	61.5
2	Germany	1298.6	15.4	2	Germany	1258.0	9.6
3	Kenya	763.6	9.1	3	The US	910.8	7.0
4	Malaysia	392.5	4.7	4	Taiwan	350.1	2.7
5	The US	352.9	4.2	5	Vietnam	269.9	2.1
6	Australia	347.2	4.1	6	Spain	247.2	1.9
7	Singapore	313.5	3.7	7	The Netherlands	226.3	1.7
8	Taiwan	266.3	3.2	8	Sweden	205.4	1.6
9	Iran	260.9	3.1	9	Malaysia	195.6	1.5
10	Bangladesh	207.9	2.5	10	S Korea	190.4	1.5
	World	**8411.7**	**100.0**		**World**	**13078.0**	**100.0**

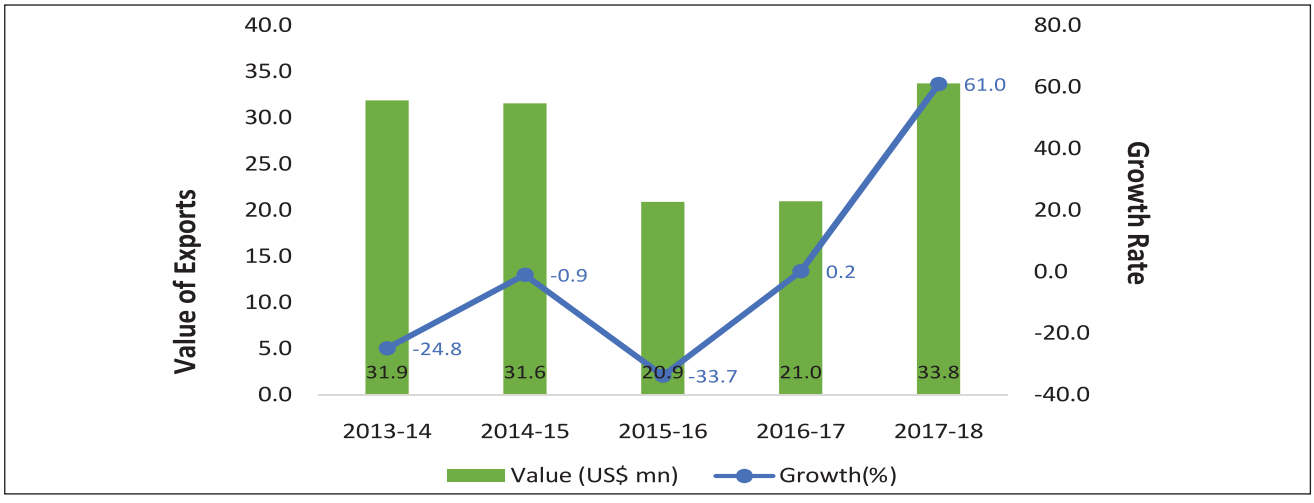
Source: DGCIS; Exim Bank Research

The Philippines emerged as the leading export destination of Protech products, accounting for 19.3% of India's total exports in 2017-18. Belgium was the second largest export market, with exports to the country having increased from US$ 2.7 million in 2013-14 to US$ 5.7 million in 2017-18. France replaced Ghana as the third largest export destination, although its share declined from 11.9% in 2013-14 to 7.9% in 2017-18. Other major export destinations of Protech products included Egypt, the US, Germany, Turkey, the UK, Italy and UAE **(Table 4.16)**.

The imports of Protech products by India has recorded a consistent increase during the past five years, shooting up from US$ 6.9 million in 2013-14 to US$ 21.9 million in 2017-18 **(Exhibit 4.18)**.

The share of China, by far the leading import source of Protech products, increased from 36.5% in 2013-14 to 58.9% in 2017-18 as the value of imports rose from US$ 2.5 million to US$ 12.9 million during this period. As against this, the share of Spain reduced significantly from 17.8% to 6.4%, relegating it to the

Exhibit 4.17: India's Exports of Protech Products



Source: DGCIS; Exim Bank Research

Table 4.16: India's Major Export Destinations of Protech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Turkey	4.7	14.7	1	Philippines	6.5	19.3
2	The US	4.6	14.3	2	Belgium	5.7	16.9
3	Ghana	4.0	12.4	3	France	2.7	7.9
4	France	3.8	11.9	4	Egypt	2.2	6.6
5	Belgium	2.7	8.6	5	The US	1.7	5.0
6	Germany	1.9	6.1	6	Germany	1.4	4.2
7	Argentina	1.6	5.1	7	Turkey	1.3	4.0
8	Italy	1.2	3.8	8	The UK	1.3	3.9
9	UAE	0.9	2.9	9	Italy	1.2	3.4
10	Spain	0.7	2.3	10	UAE	1.1	3.2
	World	**31.9**	**100.0**		**World**	**33.8**	**100.0**

Source: DGCIS; Exim Bank Research

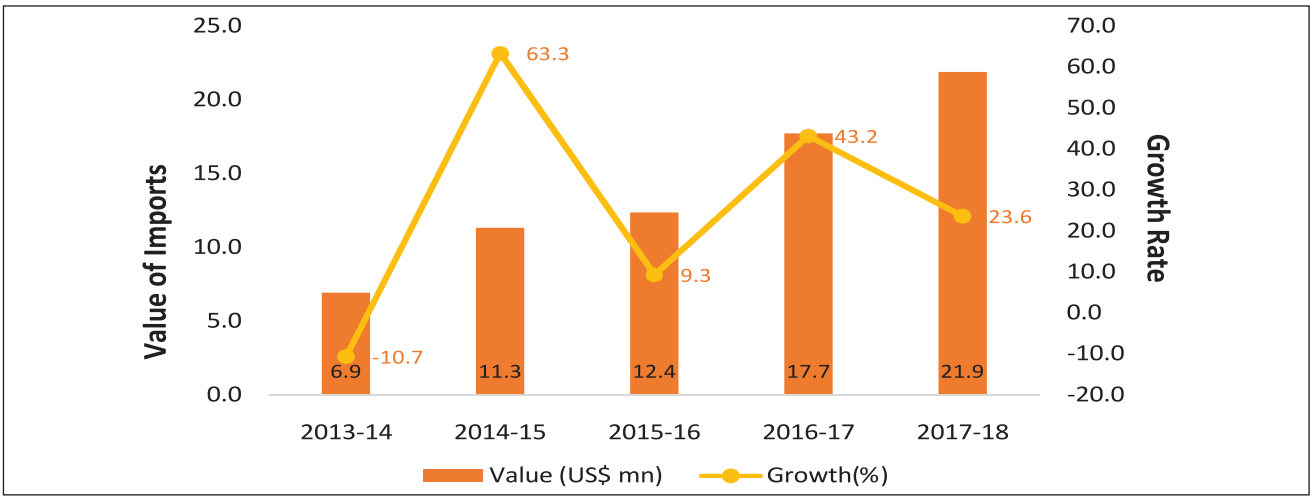
third position as an import source for India, behind the US, which jumped from fourth to second most important source of Protech products **(Table 4.17)**.

Clothtech Products

India's exports of Clothtech products recorded a negative CAGR (-) of 4.3% in the five year period 2013-14 to 2017-18. While the exports of Clothtech products recorded a positive and healthy growth of 17.6% in the year 2013-14, it fell down by (-) 11.9% in the next year, and further by (-) 19.7% in the subsequent year. However, the growth rates have been positive since then. In the period 2017-18, the exports of Clothtech products were valued at US$ 10.2 million, registering a marked y-o-y growth of 16.8% **(Exhibit 4.19)**.

Sri Lanka emerged as the leading export destination of Clothtech products from India with exports estimated at US$ 2 million in 2017-18, as against US$ 1.3 million

Exhibit 4.18: India's Imports of Protech Products



Source: DGCIS; Exim Bank Research

Table 4.17: India's Major Import Sources of Protech Products

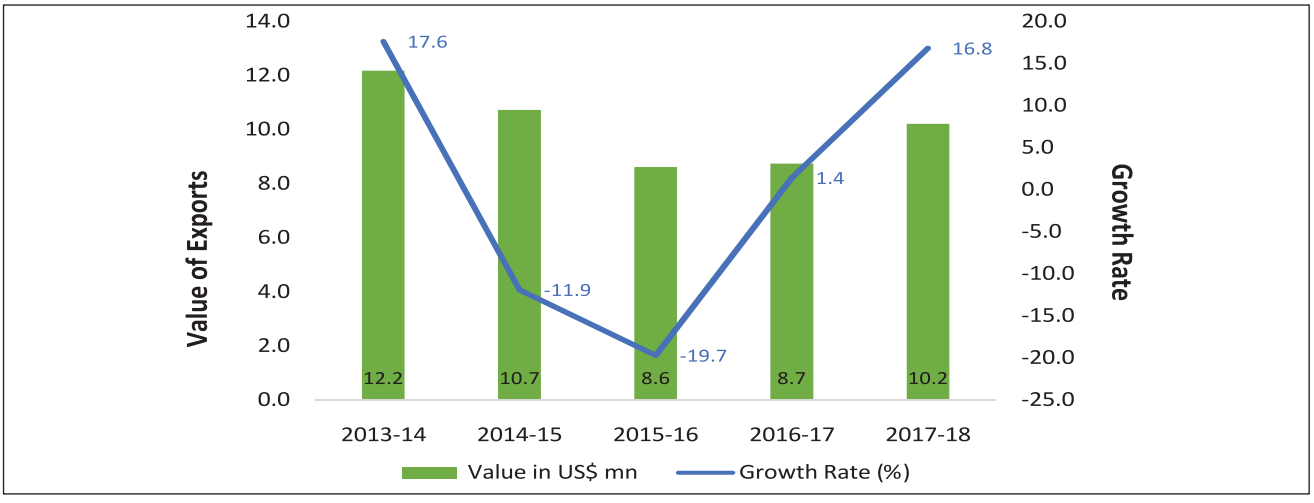
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	China	2.5	36.5	1	China	12.9	58.9
2	Spain	1.2	17.8	2	The US	1.6	7.4
3	Bangladesh	0.7	10.6	3	Spain	1.4	6.4
4	The US	0.6	8.6	4	Sri Lanka	1.1	5.2
5	Pakistan	0.3	3.6	5	Cambodia	1.0	4.6
6	Hong Kong	0.2	3.4	6	Vietnam	1.0	4.5
7	Singapore	0.2	3.3	7	Bangladesh	0.6	2.8
8	Germany	0.2	3.1	8	Pakistan	0.4	1.8
9	Sri Lanka	0.2	2.4	9	Canada	0.3	1.4
10	Italy	0.1	1.7	10	Malaysia	0.2	1.0
	World	**6.9**	**100.0**		**World**	**21.9**	**100.0**

Source: DGCIS; Exim Bank Research

in 2013-14, when it was ranked as the third largest export destination. While Sri Lanka constituted a share of 10.6% in the aggregate exports in 2013-14, its share rose to 19.3% in the year 2017-18. As against this, the share of Bangladesh, the second largest export destination, declined significantly from 24.2% to 9.0%, relegating it to the second position as India's export destination for Clothtech products. Hong Kong was the third largest export destination with value of exports at US$ 0.9 million, and a share of 8.7%. Other leading export destinations of these products included Pakistan, UAE, Egypt, the US, Italy, Jordan and Kenya **(Table 4.18)**.

India remained a net importer of Clothtech products with imports recording a CAGR of 1.3% during the period 2013-14 to 2017-18. During this five year period, steep negative growth rates were observed in the years 2015-16 and 2016-17. However, imports picked up in 2017-18, registering a y-o-y growth of 24.7%, with the value of imports estimated at US$ 26.8 million **(Exhibit 4.20)**.

Exhibit 4.19: India's Exports of Clothtech Products



Source: DGCIS; Exim Bank Research

Table 4.18: India's Major Export Destinations of Clothtech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Bangladesh	2.9	24.2	1	Sri Lanka	2.0	19.3
2	The US	1.5	12.6	2	Bangladesh	0.9	9.0
3	Sri Lanka	1.3	10.6	3	Hong Kong	0.9	8.7
4	UAE	0.7	5.5	4	Pakistan	0.8	8.2
5	Hong Kong	0.6	4.9	5	UAE	0.8	7.8
6	Germany	0.5	4.5	6	Egypt	0.6	5.6
7	Egypt	0.5	4.0	7	The US	0.5	5.1
8	Cambodia	0.5	3.8	8	Italy	0.4	4.1
9	Pakistan	0.4	3.6	9	Jordan	0.3	2.8
10	The UK	0.3	2.8	10	Kenya	0.3	2.8
	World	**12.2**	**100**		**World**	**10.2**	**100**

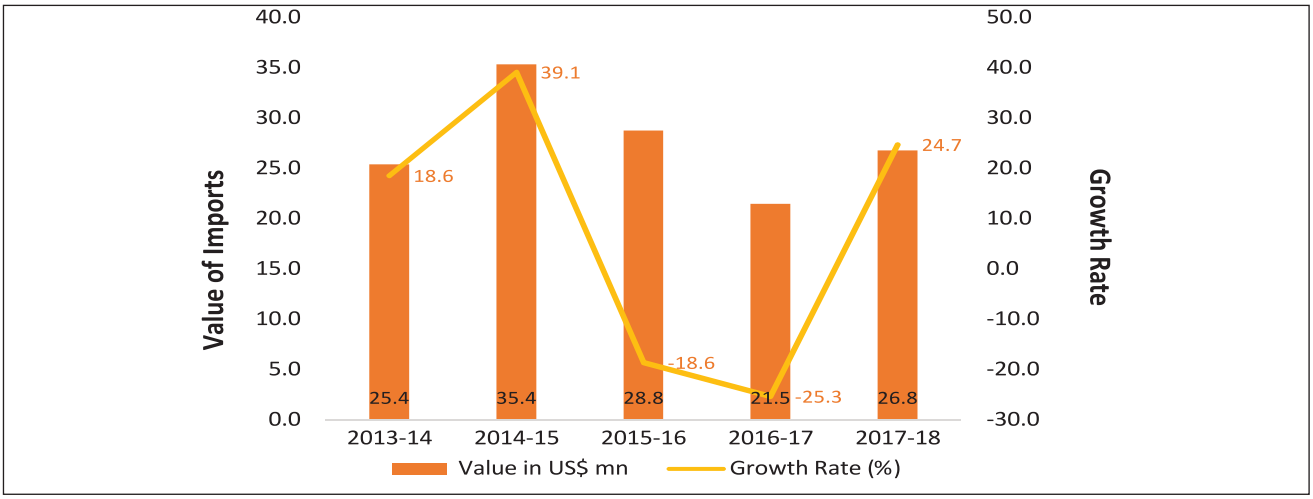
Source: DGCIS; Exim Bank Research

Hong Kong remained the largest import source of Clothtech products for India, although the value of imports from the country declined from US$ 12.9 million in 2013-14 to US$ 10.7 million in 2017-18, thereby reducing its share in aggregate imports from 50.8% to 40.0% during this period. China was the second largest import source, with its share standing at 38.7% in 2017-18. Other major import sources for Clothtech products in that year included Sri Lanka, Taiwan and Germany **(Table 4.19)**.

Geotech Products

The exports of Geotech products were valued at US$ 3.6 million in 2017-18. After recording three continuous years of precipitous decline, export picked up in 2017-18, recording a y-o-y growth of 1.3% **(Exhibit 4.21)**.

Exhibit 4.20: India's Imports of Clothtech Products



Source: DGCIS; Exim Bank Research

Table 4.19: India's Major Import Sources of Clothtech Products

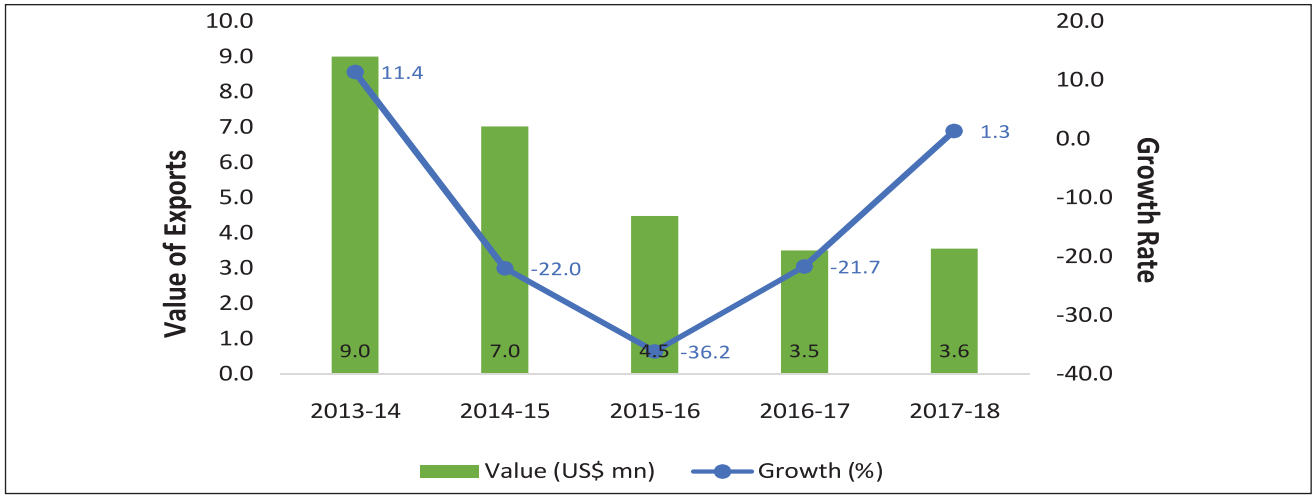
2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ mn	%			US$ mn	%
1	Hong Kong	12.9	50.8	1	Hong Kong	10.7	40.0
2	China	5.2	20.4	2	China	10.4	38.7
3	Sri Lanka	4.1	16	3	Sri Lanka	2.0	7.4
4	France	1	3.8	4	Taiwan	1.2	4.6
5	Taiwan	0.8	3	5	Germany	0.4	1.6
6	Italy	0.3	1.3	6	France	0.3	1.2
7	Germany	0.2	0.9	7	South Korea	0.3	1.1
8	The US	0.1	0.6	8	Bangladesh	0.3	1.1
9	Bangladesh	0.1	0.4	9	Italy	0.2	0.6
10	The UK	0.1	0.4	10	Thailand	0.2	0.6
	World	**25.4**	**100**		**World**	**26.8**	**100**

Source: DGCIS; Exim Bank Research

Australia emerged as the leading export destination of Geotech products, as value of exports to the country more than doubled from US$ 301.8 thousand in 2013-14 to US$ 612.6 thousand in 2017-18. Saudi Arabia, which was the largest export market for Geotech products in 2013-14, did not feature among the top ten exporters in 2017-18. The US continued to remain the second largest export destination in 2017-18, with the value of exports estimated at US$ 607.2 thousand. The UK, Germany, Japan, France, UAE, Bhutan, Spain and Canada were the other major export destinations of Geotech products from India **(Table 4.20)**.

The imports of Geotech products recorded a CAGR of 17.4%, increasing from US$ 1.2 million in 2013-14 to US$ 2.4 million 2017-18 **(Exhibit 4.22)**.

Exhibit 4.21: India's Exports of Geotech Products



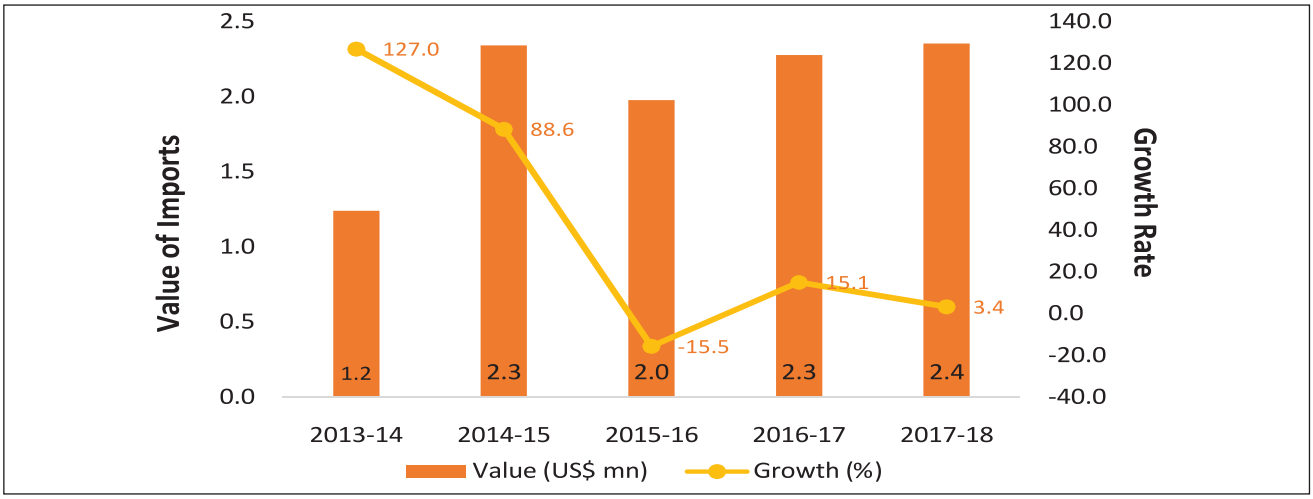
Source: DGCIS; Exim Bank Research

Table 4.20: India's Major Export Destinations of Geotech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ thousand	%			US$ thousand	%
1	Saudi Arabia	3679.0	40.8	1	Australia	612.6	17.2
2	The US	2159.8	24.0	2	The US	607.2	17.1
3	The UK	498.8	5.5	3	The UK	321.5	9.0
4	Canada	324.6	3.6	4	Germany	257.3	7.2
5	Australia	301.8	3.4	5	Japan	249.3	7.0
6	Germany	264.0	2.9	6	France	159.6	4.5
7	South Africa	224.8	2.5	7	UAE	112.9	3.2
8	UAE	177.4	2.0	8	Bhutan	107.0	3.0
9	France	157.8	1.8	9	Spain	102.9	2.9
10	Italy	132.3	1.5	10	Canada	99.3	2.8
	World	**9006.4**	**100.0**		**World**	**3556.9**	**100.0**

Source: DGCIS; Exim Bank Research

Exhibit 4.22: India's Imports of Geotech Products



Source: DGCIS; Exim Bank Research

Thailand was the largest import source of Geotech products in 2017-18, replacing Bangladesh which held the top position in 2013-14. The share of Bangladesh declined from 82.6% to mere 0.5% during this period. Other major import sources of Geotech products were China, Canada, Poland, the US, Denmark and Malaysia **(Table 4.21)**.

Table 4.21: India's Major Import Sources of Geotech Products

2013-14				2017-18			
Rank	**Country**	**Value**	**Share**	**Rank**	**Country**	**Value**	**Share**
		US$ thousand	%			US$ thousand	%
1	Bangladesh	1025.8	82.6	1	Thailand	1771.9	75.2
2	China	99.1	8.0	2	China	166.2	7.1
3	The US	46.9	3.8	3	Canada	144.1	6.1
4	Sri Lanka	17.9	1.4	4	Poland	76.9	3.3
5	Switzerland	11.6	0.9	5	The US	53.5	2.3
6	Canada	8.9	0.7	6	Denmark	41.5	1.8
7	Denmark	8.7	0.7	7	Malaysia	34.4	1.5
8	Netherlands	6.6	0.5	8	Tanzania	20.5	0.9
9	Hong Kong	6.0	0.5	9	Bangladesh	12.8	0.5
10	Indonesia	4.5	0.4	10	Spain	10.9	0.5
	World	**1242.4**	**100.0**		**World**	**2356.1**	**100.0**

Source: DGCIS; Exim Bank Research

5. ENHANCING EXPORTS OF TECHNICAL TEXTILES: SELECT STRATEGIES

The Indian technical textile industry has considerable opportunities both in the domestic as well as export markets. Nevertheless, given that it is a relatively nascent industry, there are certain challenges which the sector experiences. As has been analysed in previous chapters, the demand for technical textile products has been exhibiting a consistent growth, so much so that the domestic manufacturers in India have not been able to keep up with its pace. This essentially leads to significant dependence on imports across product segments in technical textiles. Hence, it becomes important to devise appropriate strategies which would allow Indian manufacturers not only to cater to the domestic market but also, and more importantly so, become competitive enough to enter and expand in the discernible overseas export markets. Some of the challenges and select strategies to overcome them have been briefly elucidated below.

Increase focus on research development and technology

Research and development forms the backbone of the technical textile industry, given these textiles are primarily based on a combination of scientific and engineering design knowledge. Thus, the usage of obsolete and outdated technology in the technical textiles sector is a major hurdle in development of the industry. The technologies used in the production of technical textiles are not in tune with the advanced global technological trends. Moreover, the expenditure undertaken on product development and research in the textile sector is considerably low as compared to other nations. This results in India's low ranking in exports, as countries often prefer importing value added innovative products.

Further, the transfer of technology from the developed countries has not been on the expected lines, in spite of liberalisation of policies related to technology transfer and foreign direct investments. A significant technology gap can be noted in the technical textile products produced by indigenous manufactures and foreign ones. With the escalation in demand of user industries, the technology gap might increase further, leading to the domestic players further losing out market share.

In order to make Indian enterprises globally competitive, it is critical to accord priority to R&D efforts and encourage firms to specialize in the production of value added technical textile products. Technological competencies need to be raised by focusing on innovation. With the objective of increasing productivity, improving product quality and operating efficiency, it is important for the players in the sector to continuously upgrade their technological competencies.

Technical textiles is a technology intensive sector and a wide variety of high-end products are imported by India for the production of technical textile output. For further development, there is an urgent need for indigenous production of inputs, which adds to the importance of R&D in the sector. The Government bodies, industry players and the academic organisations can work in collaboration for the betterment of the technical textile industry. Interactive sessions can be held by the industry players in which experts from the research organisations such as CSIR and IITs can be invited for knowledge sharing. The Government can fund the establishment of research organisations which are particularly entrusted with the responsibility of engaging in research related to the technical textile sectors. This will ensure smooth flow of information and foster the development of innovative technologies. For instance, Chinese technical textile market is one of the largest in the world. Technical textile market in China has hugely

benefited from the technical innovation. In fact, according to the International Textile Manufacturers Federation, during 2000 and 2010 over 55% of spinning machines and over 68% of weaving machines delivered worldwide went to China which have actually benefitted the growth of technical textiles in the country. Moreover, research tie ups can also be attempted with research organisations of foreign countries. By building associations with universities abroad, Indian firms can better track the global trends in the field of product and process technologies, and learn best practices for cost control, augmenting productivity, energy efficiency, eco friendliness, product quality, operating flexibility and efficiency. Eco-friendly technical textiles are expected to be highly demanded by global markets in the future, and thus collaborations with research organisations can enable industry players to gain appropriate understanding of futuristic technologies for production of such environmentally sustainable products.

Box 1: Technical Textiles: Select Innovative Examples

Lighted Up Athletic Apparels

Luna Wear, a Miami- based fashion technology firm, launched an athletic apparel which can be illuminated in the dark. This apparel facilitates runners and cyclists to be visible to the oncoming traffic on the roads. The illuminated apparel is the first ever machine washable and dryable apparel which has been powered by a USB-rechargeable lithium battery. Currently, the firm has introduced limited collections of tops, crop top and tank tops for women and short and long sleeve shirts for men and women both. These tops have been customised depending on the preferences and specifications of the consumers.

Pressure Controlled Cooling Fan Jacket

Japan's Industrial Safety and Health Law was revised in 2015, and since then companies have been giving enhanced emphasis on the working environment of employees. Hurdles posed by global warming and harsh climatic patterns such as La Nina have increased the need for solutions to protect employees working in heated environments. In this regard, Teijin in collaboration with Makita Corporation, a major Japanese manufacturer of electric power tools, has developed a fan cooled jacket. This jacket has a unique cooling mechanism which permits the passage of air through the jacket's outer layer as well as the inner lining in the front as well as the back of the jacket. This design prohibits the fabric from bundling up inside the jacket. Furthermore, air is discharged on a pressure- regulated basis by way of openings majorly in the neck, underarms and chest, as blood circulation in those body parts is active. Zips have been provided around the arms and neck, such that they can be removed and the jacket can be used in the form of a vest.

Microban Technology for Saving Water

The Microban International recently launched "Sentry Revive", a patent-pending technology which is intended for neutralizing odour and reviving freshness of the product for extended periods, circumventing the need for recurrent laundering. Microban International, which is a leader in textile odour control, by way of introducing this technology, has led to the expansion of period of time an apparel can be worn without washing it.

Source: Textile Times; April 2018

Box 2: China's Technical Textile Industry: A Success Story

Technical textiles have been considered the growth engine of the textile industry as the usage of these products is expanding tremendously in more industries. The Chinese technical textile industry has been displaying persistent growth in the past few years. As per the China Nonwovens and Industrial Textiles Association, the business operating revenue of the large scale technical textiles players in China was estimated at RMB 308.19 billion (approx. US$ 44 billion) during the period 2016, registering a year-on-year growth of 5.8%. Furthermore, the growth in production of technical textiles during the period 2017 was 15 million tons, recording a growth rate of 4% for the same period.

China's Industrial Textile Industry Fiber Processing Capacity

Categories	Output in 2017 (10,000 tons)	Growth rate in 2017
Medical and Hygiene Textiles	155.5	7.50%
Filtration and Separation Textiles	130.9	8.20%
Geotextiles	99.6	6.80%
Building and Construction Textiles	75.0	7.00%
Transport Textiles	78.7	3.30%
Protective and Safety Textiles	38.7	5.00%
Structural Reinforcement Textiles	124.8	3.60%
Agricultural Textiles	79.5	2.50%
Packaging Textiles	103.9	4.00%
Sport and Leisure Textiles	40.8	2.00%
Canvas and Tarp Textiles	249.7	3.26%
Synthetic Leather Textiles	113.1	1.50%
Isolation and Insulation Textiles	46.0	2.50%
Cord (Cable) Textiles	76.6	5.00%
Industrial Carpet Textiles	47.7	2.00%
Others	47.8	3.00%
Total	**1508.3**	**4.00%**

Source: China Nonwovens and Industrial Textiles Association

According to the Chinese National Textile and Apparel Council (CNTAC), approximately 13 non-woven and technical textile clusters are engaged in the pilot project intended for industrial clustering launched in the period 2002. The technical textile sectors operating in the clusters include medical and healthcare textiles, construction textiles, ribbon textiles, and textiles manufactured for filtering and separation. A vast majority of the clusters are situated in Zhejiang, Jiangsu, Shandong, Hubei, Fujian and Hebei provinces.

The leading factors contributing to growth in China's technical textile industry include robust infrastructural facilities, advanced equipments, an exhaustive industrial value chain, large scale of production and the sustained growth of industrial clusters. The establishment of high speed railways, highways and the construction of water conservation infrastructure has boosted the growth of industrial textiles. Moreover, the growing importance of environmental protection polices in China and the rising standards of medical and health equipments has also positively impacted development in the protech and meditech segments. China's massive investments in the progress of the 'Belt and Road Initiative' has caused the enlargement of the construction and geotextiles sector in the country. It has been noted that China is considerably competent in the production of quality textile products because of the enlarged foreign investments and through the methods of technology diffusion. China has the ability to retain a competitive advantage in the manufacture of superior quality and capital intensive segments of the technical textile industry. Moreover, substantial diversification is being undertaken continuously by the Chinese textile producers.

Source: Business Opportunities and Challenges in the Textile and Apparel Market in China, EU SME Centre

Setting up an Export Promotion Council for Technical Textiles

The technical textiles industry is still at a relatively fledgling stage in India, and efforts to boost the sector is required. The scenario of inadequate awareness related to technical textiles among the manufacturers and end users has hindered the growth of the industry in India. There exists deficient knowledge in the customer segment about the benefits of using these products and their special characteristics. The entrepreneurs are unaware of the considerable global market size, massive demand for these products by the developed nations and immense potential for further development.

It is in this context that the Government needs to initiate intensive sensitizing efforts in spreading awareness regarding the utility of technical textile products. The display of Indian technical textile products and expertise in overseas markets can be instrumental in boosting exports. In order to facilitate this, there should be an increase in the number of trade fairs, seminars and awareness raising campaigns, such as roadshows organised to display the products and also seek appropriate responses and feedbacks from the consumers abroad.

During the year 2017, various technical textile fairs were organised overseas by the Ministry of Textiles, Government of India. Under the market development support component of the Technology Mission of Technical Textiles, financial assistance was granted by the government on travel expenses by air, in the economy excursion category fare and the expenses of the stall, to the extent of 50% with a cap of approximately Rs. 5 lakh per visit. As of now, nearly 77 claims have been settled for availing the facilities under this scheme. Nevertheless, scope is there to enhance such interactions with the markets. A surge in the financial cap provision according to the market development support scheme by the government might also be advantageous in this scenario.

On similar lines, the Ministry of Textiles in collaboration with the Federation of Indian Chambers of Commerce and Industry (FICCI), has been organising the International Exhibition and Conference on Technical Textiles "Technotex". The aim is to provide a facilitating platform for connection and interaction among the various stakeholders involved in technical textiles industry across different regions.

Given the emerging importance of technical textiles globally, and the possibility of India playing a pivotal role in the industry, the Government of India may like to explore the opportunity to set up an Export Promotion Council for Technical Textiles. This Council would aim at promotion of Indian technical textile products in the world, and apprise the Government of the challenges the industry faces, and suggest possible remedies. The Council may further be entrusted with the responsibility of identifying prospective markets and fostering exports by organising meetings, conferences, exhibitions and workshops. While there is an existing association in the technical textiles space in India, called the Indian Technical Textile Association (ITTA), presence of a dedicated promotion Council under the aegis of Ministry of Textiles will help to enhance exports of a very specialised and upcoming industry from India. Under the Ministry of Textiles, there are already various existing "Promotion Councils" which are working towards creating the requisite facilities for augmenting exports for their respective segments– these includes apparels; cotton; synthetic & rayon; wool & woollens; silk; carpet; handicrafts; power loom; handloom; and jute.

Raise domestic production of speciality fibres

There are various speciality fibres which are used as inputs in the production of certain high-end and advanced technical textile products. Speciality fibre refers to yarn which is produced by applying special chemical coating on the yarn and is employed majorly for industrial uses. There are many such speciality fibres which are not manufactured in sufficient quantities indigenously **(Table 5.1)**. These products are being imported from China, several European countries, and the USA. The import duties levied on

such products increases the cost of production and acts as a critical challenge.

Aramids are aromatic polyamides which are available in various grades, making them suitable for a wide variety of applications. This fibre is used majorly in the production of bullet proof jackets, industrial gloves and inherent fire retardant fabrics and apparels. A major share of the aramids requirement in India is met through imports, which were valued at US$ 20.1 million in 2017-18. The Netherlands was the leading import source of aramids, with a share of nearly 29.6%, followed by Spain, the US, South Korea and China.

Glass fibres are used as sewing threads for many industrial uses such as for furnace linings, door seals, tube seals and producing industrial protective garments. Although India produces glass fibres, a substantial amount is imported from China. The aggregate value of imports in 2017-18, was US$ 10.3 million, with China accounting for a share of 60.8%.

High tenacity fibres is that segment of special fibres which are used in the production of industrial work wear, conveyor belts, tyre cords and high tensile sewing threads. The tensile strength of these special fibres are 6 to 9 gpd (gram per denier)[7] while that of normal fibres is nearly 3 gpd. China was the leading supplier of high tenacity fibres to India and constituted approximately 59.4% of the share. Other major suppliers were Thailand, Taiwan, Japan and the US.

Carbon fibres which finds application in the defence, automobile and aerospace sector is another technical textiles input which is imported substantially. The value of imports in the year 2017-18 stood at US$ 208.7 million with China being the largest source of imports accounting for a share of 66.9%.

The production of speciality fibres should be encouraged in India to diminish the import dependence. This would require certain financial incentives which can be provided to manufacturers to boost production. Furthermore, certain special financial packages could be made available by the Government to enhance private investment in this area. The Government could identify and earmark

Table 5.1: India's Imports of Specialty Fibres (2017)

Products	HS Code	Value (US$ mn)	Key suppliers
Aramids	54021110	20.1	The Netherlands (29.6%), Spain (14.1%), US (13.6%), South Korea (13.2%), China (8.2%)
	55031100		
Glass Fibres	70199010	10.3	China (60.8%), US (8.3%), UK (6.1%), Italy (3.7%), Germany (3.2%)
High Tenacity Fibres	54021910	134.7	China (59.4%), Thailand (9.8%), Taiwan (7.9%), Japan (4.5%), US (4.1%)
	54021990		
	54022090		
	54081000		
Carbon Fibres	68151090	208.7	China (66.9%), US (10.8%), Japan (6.5%), France (4.0%), Germany (3.4%)
	68159990		
PTFE Coated Fibres	32100040	5.2	China (69.0%), US (10.7%), Germany (7.5%), Japan (5.2%), Taiwan (2.1%)

Source: DGCIS

[7]Weight per unit length (linear density) measure of a continuous filament or yarn, used traditionally in textile industry. It expresses weight in grams of nine kilometres (9000 meters) length of the material. Therefore lower the denier number, finer the material; and higher the denier number, coarser the material.

high technology zones in collaboration with state governments where investments can be catalysed exclusively for the technical textile sector. While sector-specific special incentives could be thought of as a catalyst during the first few years, in order to promote investments in a sustainable manner, it is essential to undertake measures that help in creating an enabling ecosystem which engenders investments. The initial incentives could include fiscal measures for establishment of manufacturing facilities, R&D centres, world class logistics and infrastructure facilities and easy to do business facilities. For instance, UP-tex in France is a competitiveness cluster which has brought the innovation in the textile space in a structured way. UP-tex supports its members by capitalizing on research and innovation, collaboration and networks. The cluster focuses on the expansion of market through measures such as emergence and brainstorming workshops, partner search for collaborative projects, labelling of projects for access to finance, support for the marketing of products from projects, amongst others.

The production of these speciality fibres involve the usage of high end technology which is considered confidential and remains undisclosed by the firms manufacturing these products overseas. Even when these firms have opened plants in India, the technology required for the production of these fibres are not shared with the Indian firms. This results in Indian technical textile manufacturing firms to be heavily dependent on imports of these hi tech raw materials. It would be extremely advantageous for the Indian players to enter into a joint venture with overseas producers, such that the production of these speciality fibres, particularly aramid fibres, can be undertaken domestically, helping Indian firms get access to the specialised technology whilst providing the overseas partner a huge domestic Indian market.

Box 3: Major Applications of Agro Textiles

- Sunscreen: Agro textile products such as the warp-knitted nets are utilised in the protection of agricultural fields and greenhouses from excessive solar radiation, to enable robust plant growth. The agro textile nets with meshes are used to regulate quantity of sunshine to which the plant is exposed and simultaneously allows free flow of air to the plants.
- Bird Protection Nets: Knitted monofilament nets are efficient in protecting the crops from damage caused by birds. Birds and bats can cause considerable damage to plantation of fruits and vegetables and can lead to the wastage of commercially valuable production. The usage of these nets are beneficial as they repel birds and permit air circulation.
- Plant Nets: Plant nets are intended to be applied in the case of fruits which grow close to the surface of the ground. In this manner, the fruits can be allowed to grow through vertical nets, ensuring the minimal decay of the fruit by preventing contact of the plant with the damp soil.
- Wind Shields: The use of wind protection nets shelters the crops and safeguards it from the adverse impacts of high velocity winds. The setting up of suitable windbreaks at right angles to the prevailing winds, protects the seedlings and plants from getting destroyed by the winds.
- Weed Control: The utilisation of weed control fabrics restricts the extension in the growth of weed using methods which are environment friendly. The weed control fabric facilitates the flow of water, fertilisers and air supply through the fabric to the roots of the crop and concurrently controls the production of weeds.

Source: The Indian Textile Journal

Development of the Agrotech and Geotech Segments

There is immense scope for development of the agrotech and geotech segments of technical textile industry in India. The Indian agrotech industry is at a nascent stage. India is majorly an agrarian nation, with 58% of the population engaged in agricultural activities. The widespread proliferation of knowledge related to the advantages of using agrotech products and implementing the usage of such products will lead to overall development of the nation. It is crucial to organise knowledge camps and training programs for farmers, fish and animal breeders in the farms and fields. The productivity of Indian agriculture will expand with the consumption of these products. Moreover, it will enable the production of premium quality products in turn generating an increment in farmers' incomes. Furthermore, it will curtail the usage of water and fertilisers, providing opportunity to cultivate crops throughout the year, rather than being restricted to certain seasons. There is a need to educate the farmers and other stakeholders in the agricultural value chain to intensify the application of agrotech products.

The promotion of geotextiles is another measure which can be taken for the development of the Indian technical textile industry. Geotextiles is an integral constituent of civil engineering and agricultural developmental operations globally. The non-woven category of geotextiles is widely used for road and railways construction, soil reinforcement and soil separation. In this regard, it can be noted that the railway system in India is extensive and is developing continuously with the introduction of bullet trains and dedicated freight corridors. The usage of geotextiles by various Ministries can be encouraged to result in an increase in demand. Regulations have been incorporated in various countries including Austria, France, Germany, Hungary, Italy, Switzerland, Japan and the UK for the usage of geotextiles in municipal solid waste landfills also. The Government of India could also consider exploring the feasibility of implementing similar regulations.

Increase Production of Technical Textile Machinery

According to industry sources, a large variety of machinery which is employed in the production of technical textile products is not available in India. Indian technical textile players import machinery largely from either the European countries or the East Asian countries like China, Taiwan and South Korea. In order to reduce the reliance on imports, the Government could encourage manufacturing of such machineries locally in India – either through facilitating technology transfer, or providing incentives for foreigners to collaborate with locals in India/set up independent manufacturing units in the country.

Promotion of FDI into the Technical Textiles sector

Technical expertise is pivotal in the development of the technical textiles industry. An important channel for gaining expertise in attracting FDI in the technical textile sector which can facilitate the transfer of technology from overseas firms to Indian players. The industrial units abroad can use the FDI medium for the transfer of technical expertise to the Indian subsidiaries. However, there exist select factors which are inhibiting the growth of FDI in the technical textiles sector. These include:

- Complex Labour Laws: Labour laws in India are perceived to be stringent as compared to other nations. These should be revised and made comparable to the laws existing in peer group countries. The preference of the investors should be taken into consideration while refurbishing these regulations. The labour laws formulated in the competing countries are more suited to address the requirements commonly occurring in the contemporary global scenario. For instance, in the case of China, the fixed employment contract gives the authority to the investor to suitably adjust the number of employees depending on the variations in market situations. The contract enumerates the detailed procedure for the reduction of the labourers.

- Ease of Doing Business: The formalities involved in establishing business in India entails receiving approvals from various authorities, which in turn consumes a lot of time. In spite of various initiatives, there exists the absence of single window clearance system in several states. Hurdles associated with red tapism continue to act as a hindrance leading to substantial wastage of resources and time. Although, India's ranking in the 2019 ease of Doing Business has improved significantly by 23 places to 77, there still exists an extensive scope for rectification and upgrade.
- Inadequate Infrastructure: The infrastructural facilities in India need to be improved for attracting foreign investments. The inferior condition of roads lead to the escalation of overhead costs. Although, the government has been focusing on the development of various industrial corridors and superior port facilities, supplementary measures need to be undertaken for further growth.
- Power Supply Issues: The availability of unrestrained power supply is a pre-condition for carrying out efficient operations in the technical textile manufacturing units. The challenges arising owing to uncertainty in power supply due to power failure and the problems caused by voltage fluctuations has reduced India's capability in attracting FDI. Furthermore, the cost of power in India is greater as compared with that of other competing nations[8].

The Ministry of Textiles in collaboration with the state governments can initiate the creation of mega technical textile parks in planned industrial corridors. It should be ensured that there is sufficient connectivity of the region with seaports and airports. Cheaper and consistent power supply should be ensured for the area. Individual firms and countries should be identified to attract FDI and fitting action plans need to be formulated. Customised textile parks may be set up with the required facilities for meeting the requirements of investors located overseas[9].

For enhancing FDI in this sector it becomes imperative to highlight India's competitive edge in comparison to other countries across the globe. It is advisable to identify nations possessing technical soundness in the textiles industry such as the US, Japan, Taiwan, South Korea and several European nations. Subsequent to mapping such locations, road shows and trade fairs can be organised in these countries and senior management officials of leading technical textile companies can be invited to elaborate on the opportunities for expansion in India. Besides, the protection of IPR should be guaranteed to the investors. With the intent of technology transfer, special provisions for enhancing joint venture projects in technical textile units can be taken up. Additionally, emphasis should be laid on the emerging and value added segments such as specialised fibres, yarn and composites.

Skill Development

Deficiency in skilled manpower availability in the technical textiles industry remains one of the key challanges. There are various operations in the technical textile units which demand expertise such as coating of fabrics and running advanced machinery efficiently. Post-employment, the workers lack efficiency in performing such crucial operations since they possess only the basic entry level skill set. This ultimately results in impacting efficiency, reducing productivity and has implications on quality.

The institutes which provide courses on technical textiles have been unable to offer specialized training to the students to meet the various job requirements. There is a dearth of hands on experience owing to the absence of manual training programmes.[10] In this scenario, ultimately the industry players upskill their staff and expand their capabilities by organising

[8]Foreign Direct Investment Scenario in Indian Textile Sector
[9]Vision, Strategy and Action Plan for Indian Textile and Apparel Sector
[10]Baseline Survey of the Technical Textile Industry in India; Office of the Textile Commissioner

workshops and seminars. There have been instances when the labourers after acquiring the proficiency and know how required for the job, have shifted to different organisation for better prospects. The occurrence of such events makes it problematic for the firms to instantly find replacements leading to obstacles. Moreover, in such situations, the existing employees demand an escalation in salaries causing a rise in the cost of production.

Some of the possible strategies which would help alleviate the challenges caused due to non-availability of skilled labour in technical textiles could include:

- The commencement of specialised courses offering diploma in operations such as coating, laminations and non-woven processing can be beneficial. Students should be made to engage in projects and case studies in collaboration with Centres of Excellence for greater clarity in concepts, apart from undergoing industrial training for a longer period than usual.
- To motivate skill development at the firm level, the payment made by the companies to professional agents for skill development can be made eligible for tax relief[11].

Extend emphasis on formulation of standards

Technical textile products possess certain functional characteristics and are manufactured for their properties and associated utilities. The development of specifications and standards for technical textile products consequently becomes crucial. Although, standards have been formulated for various products, the standardisation process in India needs to be expedited. A mechanism should be developed to motivate the users to ensure that the products for which tenders are placed have adhered to the standards. The Government should motivate the institutional users to restrict their consumption to only standardised technical textile products.

The Government had launched the Technology Mission on Technical Textiles (TMTT) including two mini missions in 2010-11. Centres of Excellence (COEs) were established as a part of the mission for the provision of infrastructural support to the industry. As per the Ministry of Textiles data, nearly 142 standards have been submitted to the BIS by the COEs under this mission. However, the efforts in this direction need to be strengthened further.

Generally, exports of technical textile products to developed countries mandatorily entail undertaking quality tests of such products in labs which are situated in their country. This exercise of testing the products overseas becomes very expensive for Indian exporters. Although, the testing equipment available in the Indian laboratories are equally capable and efficient, developed countries still insist on the requirements of tests being conducted on their own soil. In order to overcome this avoidable transaction cost, the Government of India could raise this issue at an appropriate platform with key markets while simultaneously setting up more state of art facilities, if required with foreign assistance, to gain more credibility in the discernible overseas markets.

Boosting Exports of High Technology Products

Packtech products occupy a major share in the exports of technical textile products from India. The share of Packtech products was nearly 43.2% of the aggregate exports during the period 2017-18. These products are less technology intensive products and do not involve the usage of relatively significant R&D. For enhancing the share of Indian technical textile products overseas and for improvement of its performance globally, it is critical for the exporters to undertake exports of hi-tech products. The Indian exporters should focus on the exports of technology intensive products such as Protech, Geotech, Meditech and Mobiltech Products. The Government should concomitantly increase export incentives for these categories of technical textile products.

[11]Vision, Strategy and Action Plan for Indian Textile and Apparel Sector

The proposed Technical Textiles Export Promotion Council can sensitise the Government of the various opportunities and challenges that India's technical textiles has in the international arena. Opportunities to collaborate with foreign players could also be sought by the local industries to facilitate market and tech know-how.

Compulsory Standards for Usage

There are various nations which have mandated the use of technical textile products for safety and protection purposes such as the use of fire retardant fabrics, safety office wear in hazardous industries and the application of geosynthetics in infrastructure projects. CE marking has been made compulsory for geotextile products provided for public work in the European region. These measures have been taken to standardise test methods across Europe and mandate the use of particular geotextile applications. Likewise, in a majority of advanced economies of the world, regulations have been implemented which make the usage of personal protective clothing and equipment necessary. In the USA, under the Occupational Health and Safety Act, the federal regulations have made it compulsory for the employers to ensure that the employees use standardised personal protective equipment. Besides, in a large number of developed countries including Australia, South Africa, and nations in the EU, similar regulations and acts have been formulated mandating the application of technical textiles.

Taking this into consideration, it is vital for India to engage rigorously in the constitution and implementation of such rules and standards in industries such as metallurgy, electric installation, firefighting, oil and gas, chemicals and defence, where the safety of workers is a prime concern. It is also crucial to warranty the use of safety clothing and protective equipment which are standardised in case of high risk hazardous industrial sectors. The drafting of regulations, increasing the responsibility of the employer/organisation to ensure the wellbeing and protection of the workers is significantly important[12].

Encouraging use of technical textiles by institutional players

Measures should be taken by the Government in augmenting the usage of technical textiles in the relevant Public Sector Units/Departments falling under various ministries. The formation of committees which are accountable for facilitating the increase in technical textile usage can be advantageous. Knowledge sharing sessions can be organised for the targeted officials of the Central and State Governments to raise their awareness and provide them an overview of the recent developments in the sector. Conferences and workshops for different sectors of technical textiles should be conducted for the institutional buyers; wherein the utilities of product categories can be elaborated. With the objective of increasing consumption of technical textiles, buyer-seller meets can be organised engaging officers representing the ministries, industry associations and industry players.

State Governments play a key role in governing the institutional purchases of technical textiles; consequently, the officials from the State Governments should contribute in the promotion of these products in the State. The Ministry of Textiles has appointed consultants to identify regulatory amendments to generate a push to technical textile usage and undertake research related to international best practices. Nevertheless, these initiatives and programmes need to be expedited and reinforced.

Expand database

One of the major problems associated with the Indian technical textiles sector is the dearth of data. Non-availability of updated statistics related to the production and consumption of technical textiles is a major challenge. It is crucial to have the

[12]Knowledge Paper Technotex 2018

production and consumption data for the twelve major segments of the industry so as to have an overview of the existing growth rates and to quantify the potential for further development. Moreover, data regarding number of technical textiles units are not accessible. The availability of data ascertains valuable insights, regarding the decision making process and formulating strategies for development of the industry. It is essential to analyse the past trends, identify limitations and further avenues for growth. Therefore, it is imperative to strengthen the technical textile sector's database within the country for effective policy overview.

Recommendations for improvements in Government schemes

Technology Upgradation Fund Scheme

In order to augment the productivity, quality, investments and employment in the textiles sector, the Ministry of Textiles has been implementing Technology Upgradation Fund Scheme (TUFS) since 1999. In 2015, the Amended Technology Upgradation Fund Scheme (ATUFS) was introduced which provides one time capital subsidy for eligible benchmarked machinery. Segments with higher employment and export potential such as garments and technical textiles are eligible for capital subsidy at the rate of 15 percent subject to a cap of Rs. 30 Crore.

Since 1999, investments to the tune of Rs. 312176.06 crore has been catalysed under TUFS, and an amount of Rs. 25905.86 crore has been released as interest reimbursement and capital subsidy since its inception in 1999[13].

It may be noted that the revision in TUFS has reduced the quantum of benefit accruing to the textile industry. ATUFS stipulates only a capital subsidy instead of the interest cum capital subsidy prevalent under the earlier version of TUFS. A capital subsidy of 10% - 15% replaced the capital (0-15%) cum interest subsidy (2% - 6%).

Moreover, in the ATUFS, the subsidy amount is capped. Technical Textiles manufacturing inherently has interdependent processes and end-to-end cost optimisation is the key for establishing economic viability. Integrated textile projects can compete better in the international market with other low cost producers due to economies of scale. These integrated projects cannot be created with small investments. Manufacturing technical textile products require abundant investment owing to the need for innovation and inclusion of research and technology. Given this, the Rs. 30 crore limit[14] on capital subsidy can be further increased by the Government taking into account the requirement of high cost investments in the technical textile industry.

MEIS Scheme

The Government of India introduced the Merchandise Exports from India Scheme (MEIS) under its Foreign Trade Policy (FTP) 2015-20 with effect from 1st April 2015. The MEIS seeks to boost the exports of a certain basket of goods produced in India. Prior to this scheme, there existed 5 different schemes for rewarding merchandise exports involving the use of a variety of duty scrips and with different conditions associated with it. In the period 2015, all those schemes were merged into the MEIS Scheme.

It has been noted that the scheme is biased towards the promotion of exports of labour intensive products such as handloom, coir, jute and handicraft products like carpets and shawls; these have been provided the maximum support at the rate of 5%. Technical textile products have not been included in the enhanced support package of the scheme[15]. It is crucial for the Ministry of Textiles to identify the tariff lines of technical textile products which could then be granted higher incentive to boost there exports.

[13]Annual Report 2017-18, Ministry of Textile, Government of India

[14]The ATUFS came into effect in 2016. Since then, the limit has been Rs. 30 crore.

[15]Under MEIS, handloom, coir, jute products, technical textiles, handmade carpets, other textile and readymade garments have been supported for European Union, US, Canada and Japan.

Annexure: HS Codes of various categories of Technical Textiles

Category of Technical Textiles	HS Code
Agrotech	56075010, 56081110, 56081190
Clothtech	58071010, 58071020, 58071090, 58079010, 58079090
Geotech	63051080, 63051090
Hometech	59011020, 59019010, 59041000, 59049010, 59049090, 59051010, 59051090, 59070011, 59070012, 59070019, 53050010, 53050020, 53050030, 53101011, 53101012, 53101013, 53101014, 58110020, 58110090, 94043010, 94043090
Indutech	54021910, 54031010, 54031020, 56021000, 56022100, 56022920, 56029000, 56071010, 56072900, 56074100, 56074900, 56075020, 56075030, 56075040, 56079010, 56079020, 56079090, 56081900, 56089010, 56089020, 56089090, 58063110, 59021010, 59022010, 59029010, 59039010, 59039020, 59069910, 59069920, 59069990, 59090020, 59090090, 59113220, 59113240, 59113250, 59114000, 59019020, 59021090, 59022090, 59029090, 59031010, 59031090, 59032010, 59032090, 59039090, 59069110, 59069190, 59070091, 59070092, 59070093, 59070099, 59080010, 59080020, 59080090, 59090010, 59100010, 59100020, 59100030, 59100040, 59100050, 59100060, 59100090, 59111000, 59112000, 59113110, 59113120, 59113130, 59113140, 59113150, 59113190, 59113210, 59113230, 59113290, 59119010, 59119020, 59119090, 56031100, 56031200, 56031300, 56031400, 56039100, 56039200, 56039300, 56039400, 52112020, 52113120, 54074230, 54074430, 54082215, 54082415, 54083213, 54083415, 55031100, 56022910, 56022990, 56041000, 56049000, 56071090, 56072100, 56073000, 56075090, 58061000, 58062000, 58063120, 58063190, 58063200, 58063910, 58063920, 58063930, 58063990, 58064000, 70191100, 70191200, 70191900, 70193100, 70193200, 70193900, 70194000, 70195100, 70195200, 70195900, 70199010, 70199090, 96121010, 590310, 590699
Meditech	30051010, 30051020, 30059010, 30059030, 30059050, 30059060, 30061010, 30061020, 48184010, 56011000, 56012110, 56012190, 56012200, 56012900, 59061000, 30051090, 30059040
Packtech	63051010, 63051020, 63051030, 63051040, 63051050, 63051060, 63051070, 63053200, 63053300, 63053900, 63059000, 59011010, 59011090, 59019090, 63052000
Protech	62011100, 62011210, 62011310, 62102010, 62102020, 62102030, 62103010, 62104010, 61161000, 62101000, 62102090, 62103020, 62103030, 621040, 62104090,62105000
Sportech	54071011, 54071012, 54071014, 54071021, 54071022, 63061200, 63062200, 63063000, 63064900, 54071024, 54071031, 54071032, 54071034, 54071041, 54071042, 54071044, 54071091, 54071092, 54071094, 62029110, 62029210, 62029310, 62029911, 63061910, 63061920, 63061930, 63061990, 63062910, 63062990, 63063990, 63064000, 63069100, 63069900, 63072010, 63072090, 95069960, 63069090

Source: Monthly Statistics of Foreign Trade of India, DGCI&S, Kolkata; Ministry of Textiles, GoI

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