Industry Report

on

Indian Technical Textile Yarns

September 2025

Prepared for

Ashutosh Fibre Limited

Disclaimer

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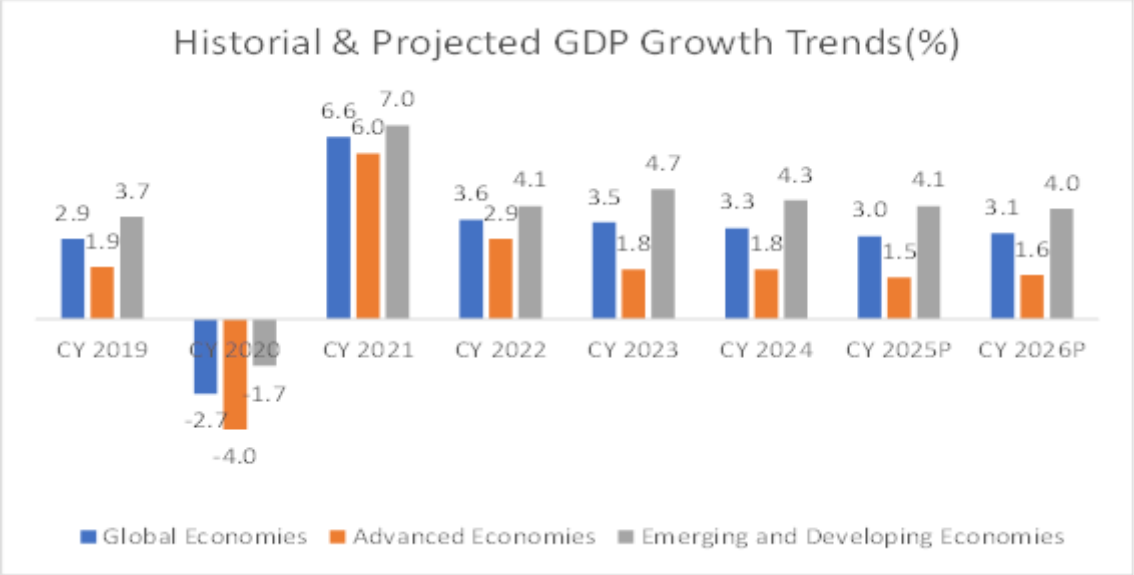
Global Macroeconomic Scenario

Global Economic Overview

The global economy, which recorded GDP growth at 3.3% in CY 2024, is expected to show moderation by growing at 3.0% in CY 2025. This marks the slowest expansion since 2020 and reflects a -0.3%point downgrade from January 2025 forecast. Moreover, the projection for CY 2026 has also reduced to 3.1%. This slowdown is majorly attributed due to numerous factors such as high inflation in many economies despite central bank effort to curb inflation, continuing energy market volatility driven by geopolitical tensions particularly in Ukraine and Middle East, and the re-election of Donald Trump as US President extended uncertainty around the trade policies as well as overall global economic growth. High inflation and rising borrowing costs affected the private consumption on one hand while fiscal consolidation impacted the government consumption on the other hand. As a result, global GDP growth is projected to slow down from 3.3% in CY 2024 to 3.0% in CY 2025.

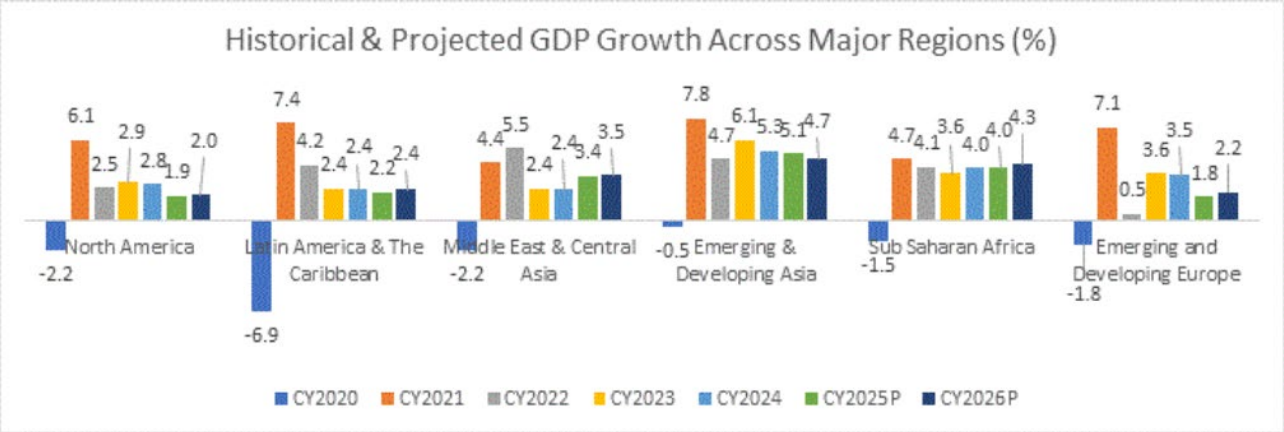


Source – IMF Global GDP Forecast Release July 2025; P- Projected

Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)

Historical and Projected GDP Growth

GDP growth across major regions exhibited a mixed trend between 2022-23, with GDP growth in many regions including North America, Emerging and Developing Asia, and Emerging and Developing Europe slowing further in 2024. In 2025, GDP growth rate in Emerging and Developing Asia (India, China, Indonesia, Malaysia, etc.) is expected to moderate further to 5.1% from 5.3% in the previous year, while in the North America, it is expected to moderate to 1.9% in CY 2025 from 2.8% in CY 2024. Similarly in Emerging and Developing Europe is expected to moderate further to 1.8% from 3.5% in the previous year.



Source-IMF World Economic Outlook July 2025 update; P- Projected

Except Middle East & Central Asia, all other regions like Emerging and Developing Asia, Emerging and Developing Europe, Latin America & The Caribbean, Sub Saharan Africa and North America, are expected to record a moderation in GDP growth rate in CY 2025 as compared to CY 2024. Further, growth in the United States is expected to come down at 1.9% in CY 2025 from 2.8% in CY 2024 due to lagged effects of monetary policy tightening, gradual fiscal tightening, and a softening in labour markets slowing aggregate demand.

Global Economic Outlook

The global macroeconomic environment remains shaped by divergent regional trends and continued geopolitical and policymaking uncertainties. A wave of new U.S. tariffs, mostly effective from August 7,2025 has shaken markets and raised costs for global trade. On August 1, 2025, the U.S. announced higher tariff rates for countries from which it imports goods, with most of the rates effective from August 7, 2025. A 15% rate will act as a baseline floor for countries with which the U.S. has a trade deficit; a 10% rate applies for those with which the U.S. has a trade surplus. However, there are some countries that are subject to higher U.S. tariffs.

In North America, the United States continues to engage in trade negotiations with multiple countries and has announced plans to introduce sector-specific tariffs, targeting industries such as copper and pharmaceuticals. However, talks with Canada have stalled, despite Canada's decision to withdraw its Digital Services Tax to ease tensions. As a result, the U.S. imposed a 35% tariff on Canadian goods that do not meet USMCA (United States-Mexico-Canada Agreement) compliance standards, effective August 1,2025. This move has further strained bilateral relations and added complexity to the regional trade landscape.

By August 7, 2025, the U.S. had announced increased tariffs of 15-50% on Asian economies, with most rates around 20%. Although these tariffs are lower than the levels announced in April, they remain higher than those applied to most Western counterparts, impacting exporters such as Taiwan Region (20%) and India (25%, with the U.S. saying this could rise to 50% at the end of August). Moreover, on July 28, the US imposed a 15% tariff on most EU imports under a new trade agreement, impacting Nordic countries such as Denmark, Finland, and Sweden. Key exemptions include aircraft parts and semiconductor equipment, while steel and aluminum continue to face 50% tariffs.

On August 27, 2025, the US president Donald Trump announced the 50% tariff on most of the Indian Goods imported. India has joined other countries such as Brazil who were already facing higher tariffs. This has been expected to be a temporary imposition, and economists believe the tariffs could further be brought down.

However, the current effect of the tariffs is seen in the engineered goods, automobile sector and textile sector as well. The textile sector which are facing order cancellations has been supported by the Indian Government's extension of duty-free import of cotton until December 31,2025. The textile industry bodies such as Confederation of Indian Textile Industry are facing 20-25% reduction in exports to US in the next six months. This impact would be post re-orienting the export strategy and finding other countries to explore for exports under India's Free Trade agreement.

Tariffs and their unpredictable application have weighed on consumer and business sentiment, sunk global stock markets, raised recession risks, and made a global slowdown more likely. Our latest Global Business Optimism Insights report for indicates a further decline in business optimism as firms continue to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors reported

sharp declines in optimism. Financial risk perceptions remain elevated as businesses contend with high borrowing costs and persistent inflation expectations. More broadly, the uncertainty is reflected in delayed capital expenditure and a pullback in hiring.

Tariffs have begun to exert pressure on central banks by contributing to inflationary pressures and increasing financial market volatility. Central banks are adjusting forward guidance and policy frameworks and may begin to consider the likelihood of softer growth being a bigger priority than high inflation by starting to cut interest rates to support economies. For businesses, this uncertainty translates into unpredictable cost structures, fluctuating credit availability, and the management of operational costs through diversified supply networks.

Our latest Global Business Optimism Insights report reveals a further decline in business optimism, though at a more moderate pace than in the prior quarter, as businesses continued to grapple with trade-related policy uncertainty and its broader economic implications. Export-driven sectors such as automotives, electricals, and metals saw sharp declines in optimism, particularly in the U.S., Mexico, South Korea, and Japan, where rising tariffs and shifting trade policies have fueled cost pressures and demand volatility. Financial risk perceptions remain elevated.

Global Growth Projection

At broader level, the global economy is expected to experience a slowdown in 2025, with GDP growth projected to decline to 3.0%, down from 3.3% in 2024. This deceleration reflects persistent inflationary pressure, geopolitical uncertainties and tightened monetary policies. However, a sightly recovery is anticipated in 2026, with growth projected to improve to 3.1%. Global inflation is expected to decline steadily, to 4.2% in 2025 and to 3.6% in 2026. Inflation is projected to converge back to the target earlier in advanced economies, reaching 2.2% in 2026, whereas in emerging market and developing economies, it is anticipated to decrease to 4.6% during the same period. Trade tariffs function as a supply shock for the countries imposing them, leading to a decrease in productivity and an increase in unit costs. Countries subject to tariffs experience a negative demand shock as export demand declines, placing downward pressure on prices. In each scenario, trade uncertainty introduces an additional layer of demand shock since businesses and households react by delaying investment and spending, and this impact could be intensified by stricter financial conditions and heightened exchange rate volatility. Moreover, Global trade growth is expected to slow down in 2025 to 1.7%. This forecast reflects increased tariff restrictions affecting trade flows and, to a lesser extent, the waning effects of cyclical factors that have underpinned the recent rise in goods trade. Geopolitical tensions as seen in the past such as the wars in Ukraine and the Middle East could exacerbate inflation volatility, particularly in energy and agricultural commodities.

India Macroeconomic Analysis

India emerged as one of the fastest growth economies amongst the leading advanced economies and emerging economies. In CY 2024, even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world and is expected to grow by 6.4% in CY 2025.

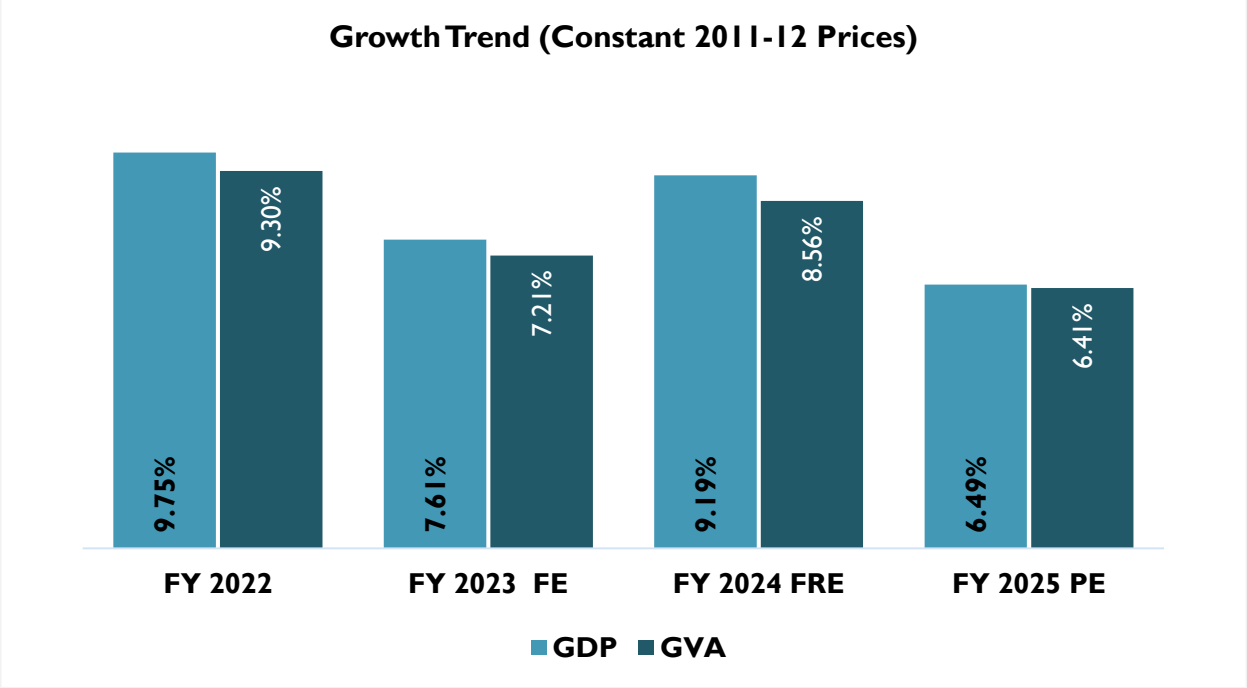
Country	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025 P	CY 2026 P
India	–5.8%	9.7%	7.6%	9.2%	6.5%	6.4%	6.4%
China	2.3%	8.6%	3.1%	5.4%	5.0%	4.8%	4.2%
United States	-2.2%	6.1%	2.5%	2.9%	2.8%	1.9%	2.0%
Japan	-4.2%	2.7%	0.9%	1.4%	0.2%	0.7%	0.5%
United Kingdom	-10.3%	8.6%	4.8%	0.4%	1.1%	1.2%	1.4%
Russia	-2.7%	5.9%	-1.4%	4.1%	4.3%	0.9%	1.0%

Source: World Economic Outlook, April 2025

The Government ramped up spending on infrastructure projects to boost the economic growth which had a positive impact on economic growth. The annual growth in capital expenditure of the central government moderated to 7.27% in FY 2025 against the average of 26.52% in the previous two fiscal which translated in moderation GDP growth in 2024 to 6.5% against 9.2% in the previous calendar year. In the Union Budget 2025-2026, the government announced INR 11.21 billion capex on infrastructure (10.12% higher than previous year revised estimates) coupled with INR 1.5 trillion in interest-free loans to states. This has provided much-needed confidence to the private sector and is expected to attract the private investment and support India's economic growth in the current year.

Historical GDP and GVA Growth trend

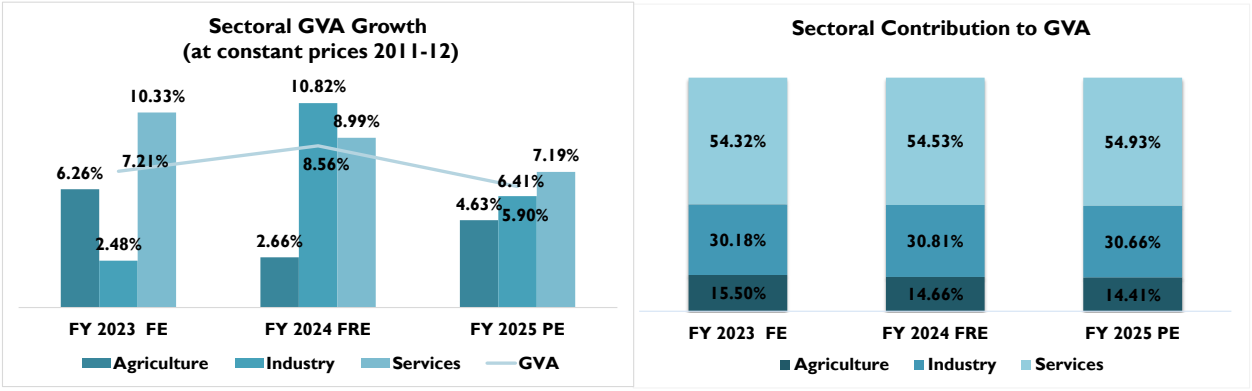
As per the latest estimates, India's GDP at constant prices is estimated to grow to INR 187.96 trillion in FY 2025 (Provisional Estimates) with the real GDP growth rates estimated to be 6.5% for FY 2025. Similarly, real Gross Value Added (GVA) growth stood is estimated to have moderated to 6.4% in FY 2025. Even amidst global economic uncertainties, India's economy exhibited resilience supported by robust consumption and government spending.



Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics: FY2025.

FE is Final Estimates, FRE is First Revised Estimate and PE is Provisional Estimates

Sectoral Contribution to GVA and annual growth trend



Source: Ministry of Statistics & Programme Implementation (MOSPI)

FE is Final Estimates, FRE is First Revised Estimate and PE is Provisional Estimates

Sectoral analysis of GVA reveals that the industrial sector experienced a moderation in FY 2025, recording a 5.90% y-o-y growth against 10.82% year-on-year growth in FY 2024. Within the industrial sector, growth moderated across sub sector with mining, manufacturing, and construction activities growing by 2.69%, 4.52%,

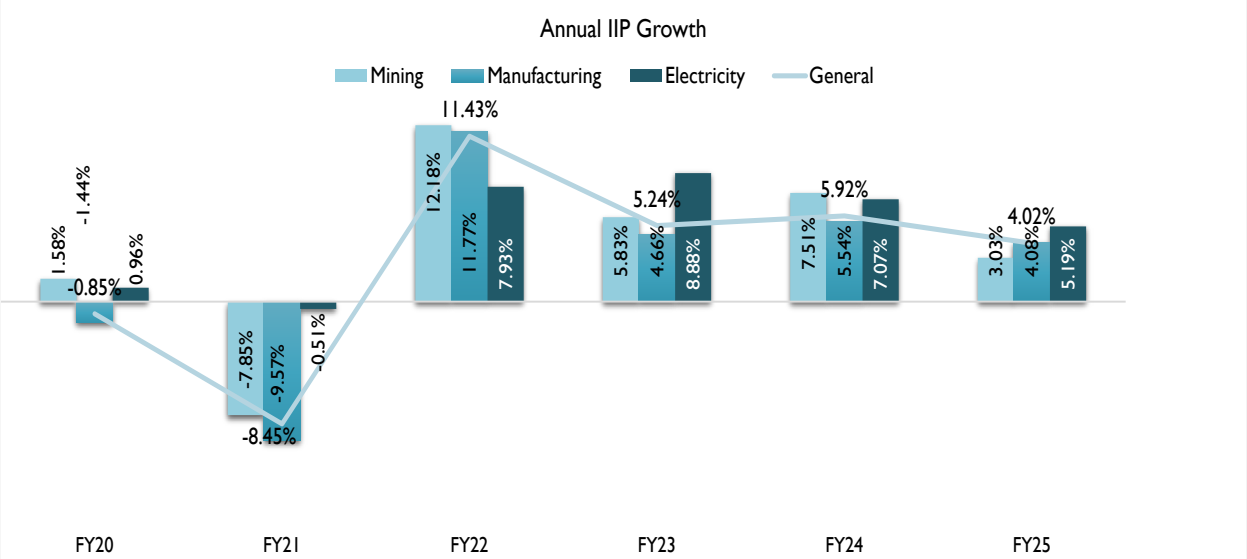
and 9.35% respectively in FY 2025, compared to 3.21%, 12.30%, and 10.41% in FY 2024. Growth in the utilities sector too moderated to 6.03% in FY 2025 from 8.64% in the previous year. The industrial sector's contribution to GVA moderated marginally from 30.81% in FY 2024 to 30.66% in FY 2025.

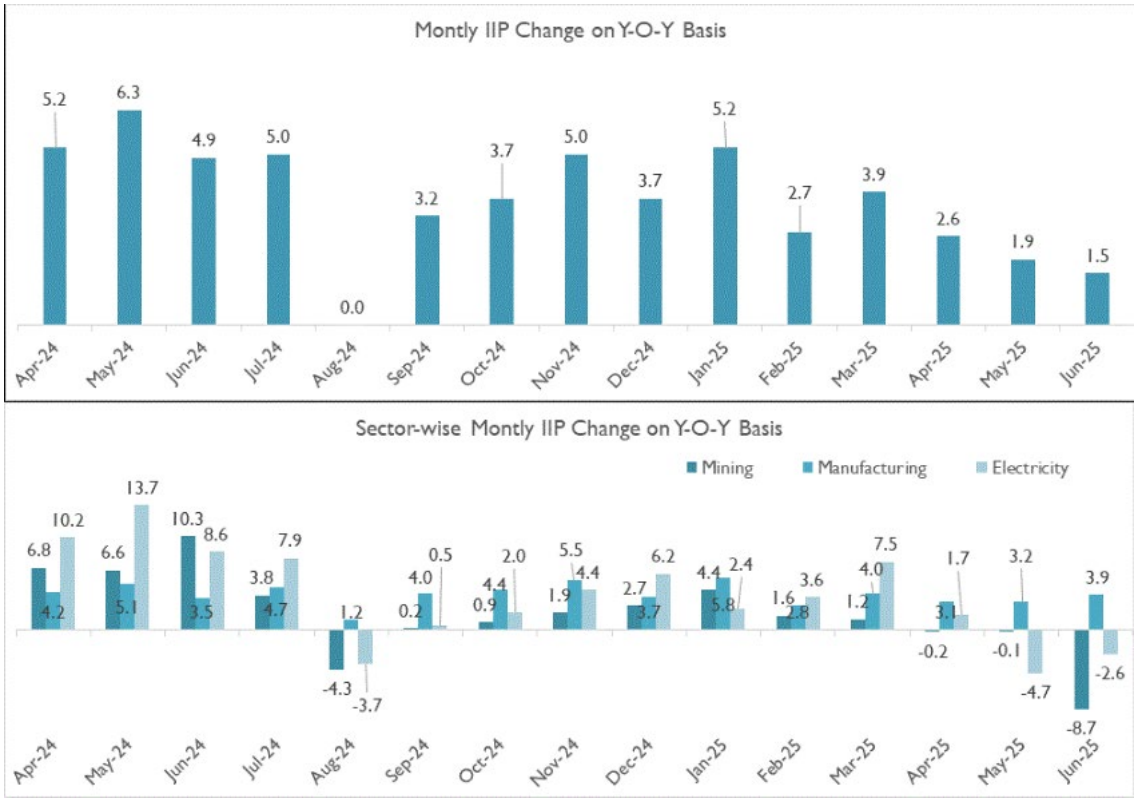
The services sector continued to be the main driver of economic growth, although its pace moderated. It expanded by 7.19% in FY 2025 from 8.99% in FY 2024. The services sector retained its position as the largest contributor to GVA, rising from 54.32% in FY 2023 to 54.53% in FY 2024, with a further increase to 54.93% in FY 2025.

The agriculture sector saw an acceleration, with growth increasing from 2.66% in FY 2024 to 4.63% in FY 2025. However, its contribution to GVA declined marginally from 14.66% in FY 2024 to 14.41% in FY 2025. Overall, Gross Value Added (GVA) growth moderated to 6.41% in FY 2025 from 8.56% in FY 2024

Annual & Monthly IIP Growth

Industrial sector performance as measured by IIP index exhibited moderation in FY 2025, recording a 4.02% y-o-y growth against 5.92% increase in the previous year. The manufacturing index showed moderation and grew by 4.08% in FY 2025 against 5.54% in FY 2024. Mining sector index too moderated and exhibited a growth of 3.03% in FY 2025 against 7.51% in the previous years while the Electricity sector Index, also witnessed moderation of 5.19% in FY 2024 against 7.07% in the previous year.



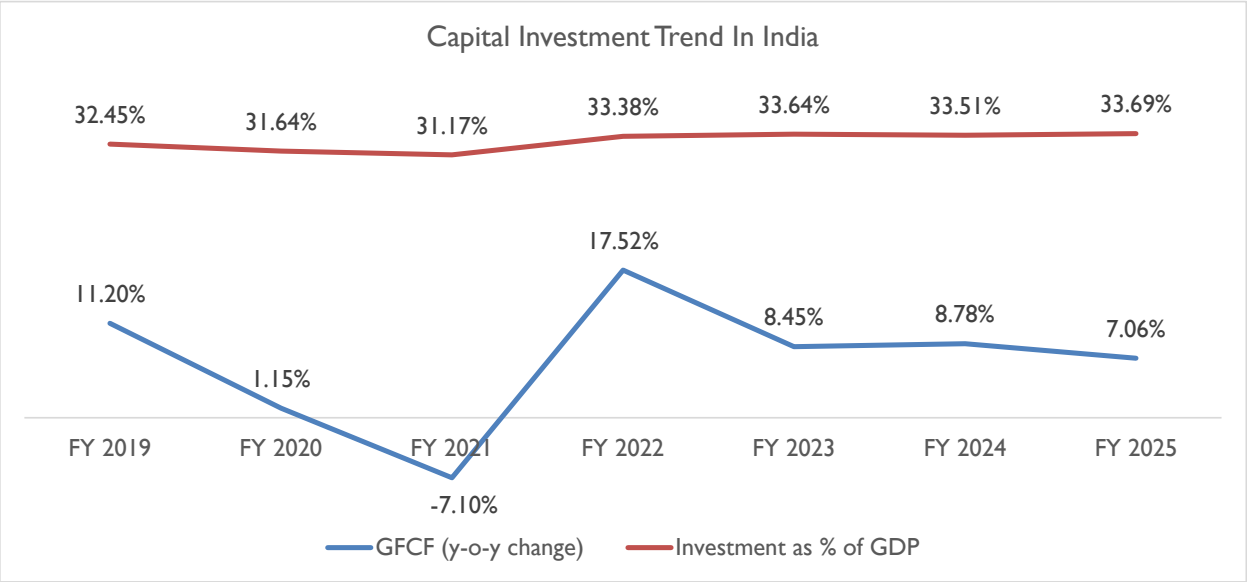


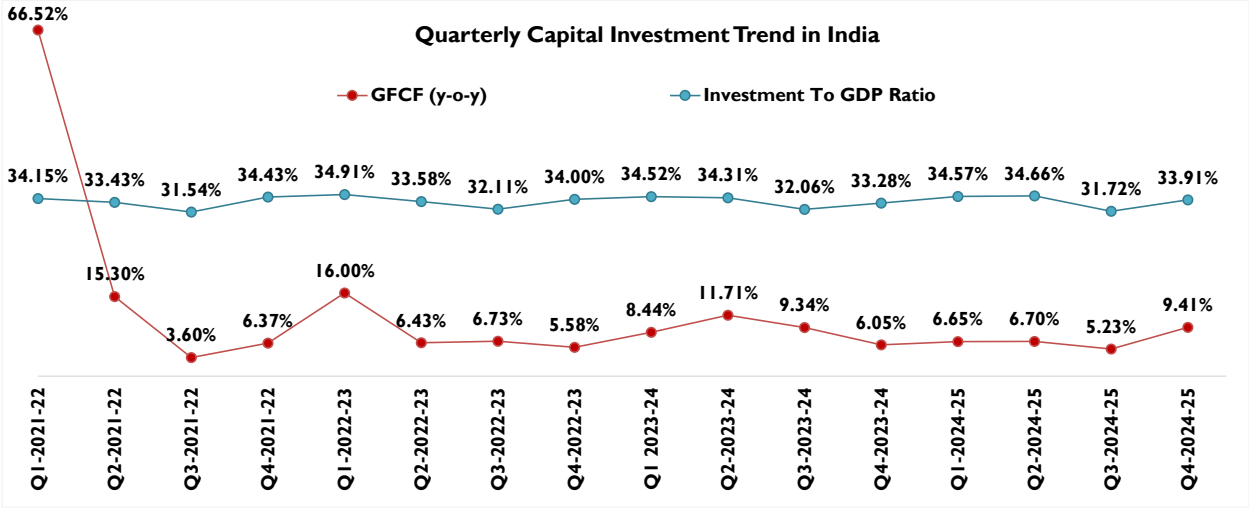
Source: Ministry of Statistics & Programme Implementation (MOSPI)

The IIP growth rate for the month of June 2025 is 1.5% which was 1.9% in the month of May 2025. The growth rates of the three sectors, Mining, Manufacturing and Electricity for the month of May 2025 are (-)8.7%, 3.9% and (-)2.6% respectively.

Annual and Quarterly: Investment & Consumption Scenario

Other major indicators such as Gross fixed capital formation (GFCF), a measure of investments, has shown fluctuation during FY 2025 as it registered 7.06% year-on-year growth against 8.78% yearly growth in FY 2024, taking the GFCF to GDP ratio measured to 33.69%.



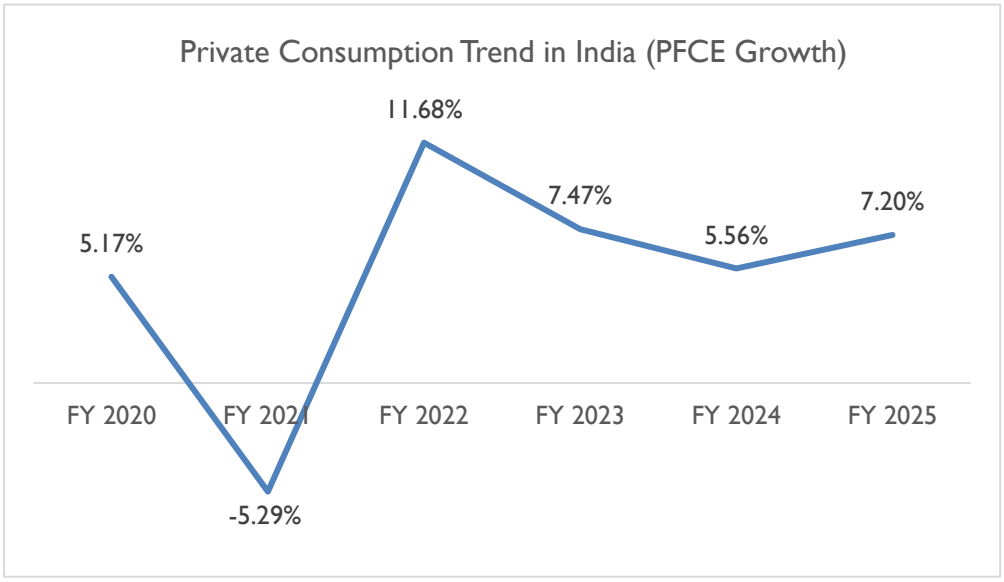


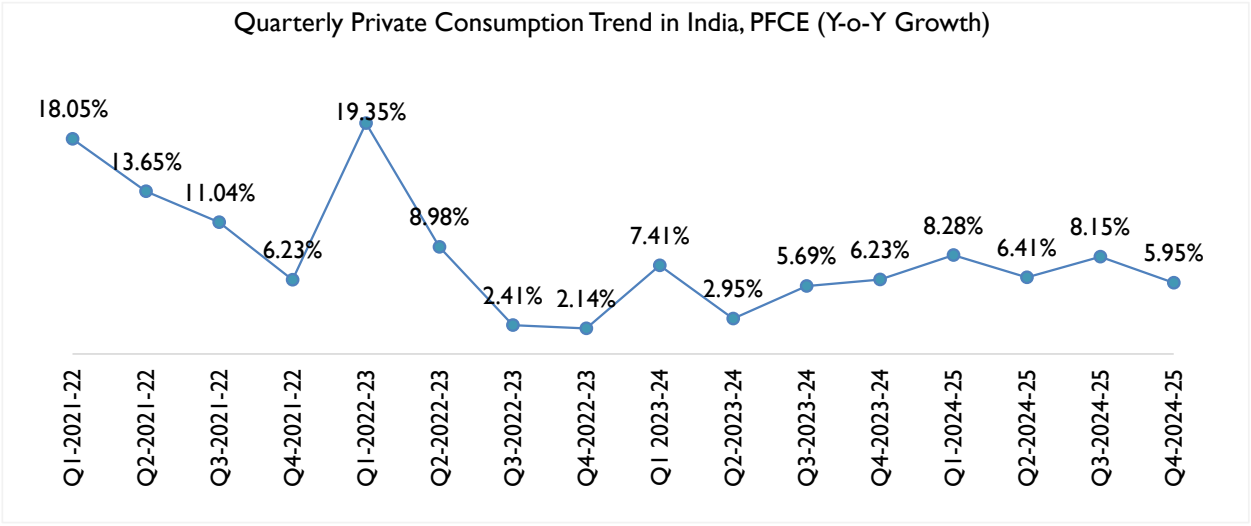
Source: Ministry of Statistics & Programme Implementation (MOSPI)

On quarterly basis, GFCF exhibited a fluctuating trend in quarterly growth over the previous year same quarter. In FY 2024, the growth rate moderated to 6.05% in March quarter against the previous two quarter as government went slow on capital spending amidst the 2024 general election while it observed an

improvement in Q1 FY 2025 by growing at 6.65% against 6.05% in the previous quarter and moderated in the subsequent two quarter. On yearly basis, the growth rate remained lower compared to the same quarter in the previous year during FY 2025. The GFCF to GDP ratio measured 33.91% in Q4 FY 2025.

Private Consumption Scenario





Sources: MOSPI

Private Final Consumption Expenditure (PFCE) a realistic proxy to gauge household spending, observed growth in FY 2025 as compared to FY 2024. However, quarterly data indicated some improvement in the current fiscal as the growth rate improved over the corresponding period in the last fiscal.

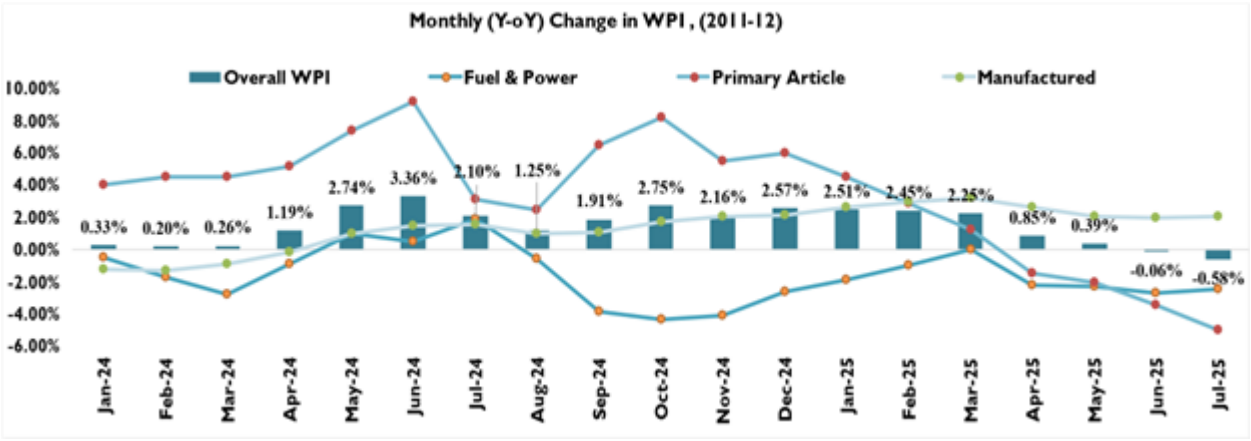
Inflation Scenario

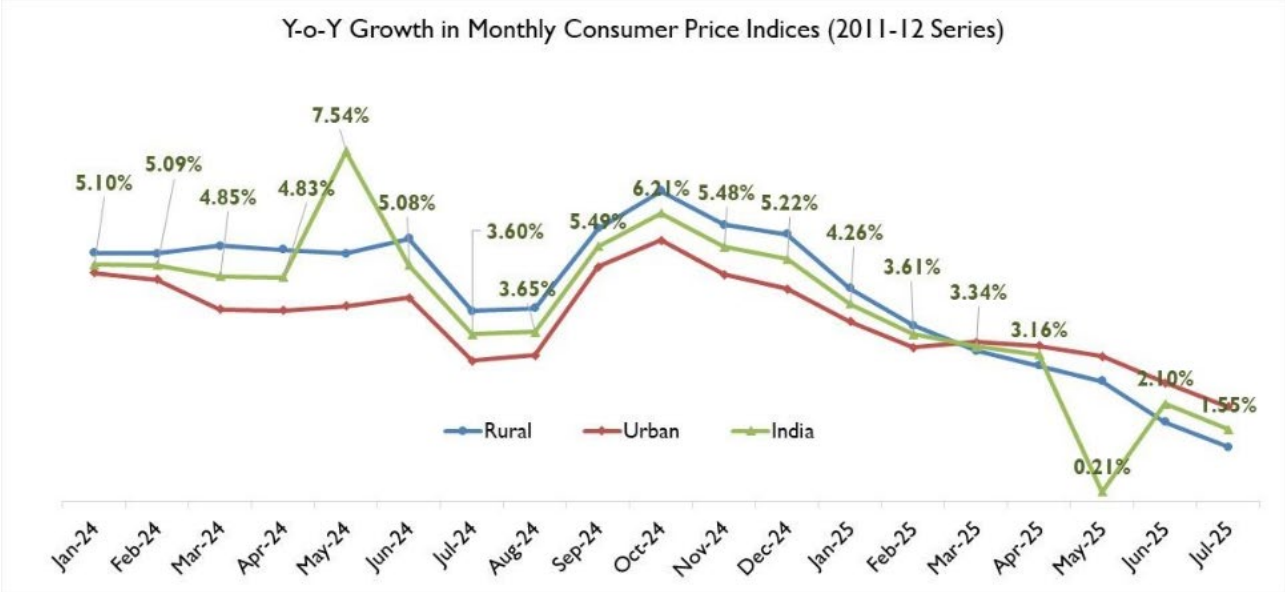
The inflation rate based on India's Wholesale Price Index (WPI) exhibited significant fluctuations across different sectors from January 2024 to July 2025. The annual rate of inflation based on All India Wholesale Price Index (WPI) number is (-) 0.58% (provisional) for the month of July 2025 (over July 2024). Negative rate of inflation in July 2025 is primarily due to increase in prices of manufacture of food products, electricity, other manufacturing, chemicals and chemical products, manufacture of other transport equipment and non-food articles etc.

By July 2025, Primary Articles (Weight 22.62%), - The index for this major group increased by 1.18 % from 185.8 (provisional) for the month of June 2025 to 188.0 (provisional) in July 2025. Price of Crude Petroleum & Natural Gas (2.56%), non-food articles (2.11%) and food articles (0.96%) increased in July 2025 as compared to June 2025. The price of minerals (-1.08%) decreased in July 2025 as compared to June 2025.

Moreover, power & fuel, the index for this major group increased by 1.12% from 143.0 (provisional) for the month of June 2025 to 144.6 (provisional) in July 2025. The price of mineral oils (1.98%) increased in July 2025 as compared to June 2025. Price of coal (-0.44%) and electricity (-0.36%) decreased in July 2025 as compared to June 2025.

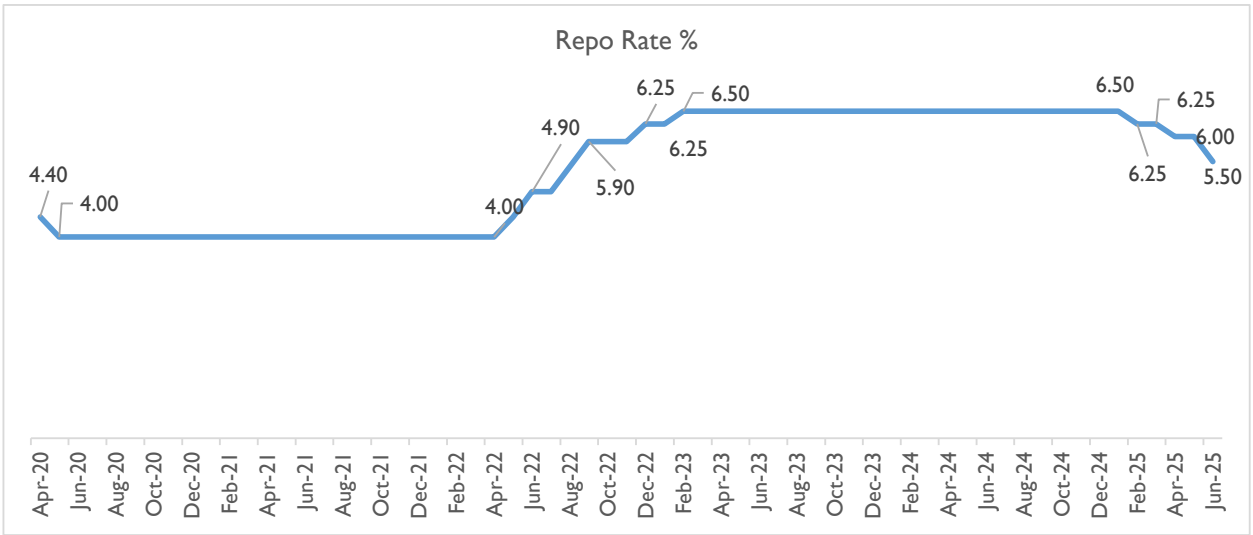
Furthermore, Manufactured Products (Weight 64.23%), The index for this major group declined by 0.14% from 144.8 (provisional) for the month of June, 2025to 144.6 (provisional) in July 2025. Out of the 22 NIC two-digit groups for manufactured products, 9 groups witnessed an increase in prices, 9 groups witnessed a decrease in prices and 4 groups witnessed no change in prices. Some of the important groups that showed month-over-month increase in prices were other manufacturing; other transport equipment; motor vehicles, trailers and semi-trailers; other non-metallic mineral products and furniture etc. Some of the groups that witnessed a decrease in prices were manufacture of basic metals; fabricated metal products, except machinery and equipment; food products; chemicals and chemical products and paper and paper products etc. in July 2025 as compared to June 2025.





Source: MOSPI, Office of Economic Advisor

Retail inflation rate (as measured by the Consumer Price Index) in India showed notable fluctuations between January 2024 and July 2025. Overall, the national CPI inflation rate moderated to 1.55% by July 2025, indicating a gradual easing of inflationary pressures across both rural and urban areas. Rural CPI inflation peaked at 6.68% in October 2024, declining to 1.18% in July 2025. Urban CPI inflation followed a similar trend, rising to 5.62% in October 2024 and then dropping to 2.05% in July 2025. CPI measured above 6.00% tolerance limit of the central bank since July 2023. As a part of an anti-inflationary measure, the RBI has hiked the repo rate by 250 bps since May 2022 and 8 Feb 2023 while it held the rate steady at 6.50 % till January 2025. On 6th June 2025, RBI reduced the repo rate by 50 basis points which currently stands at 5.50%. The repo rate was maintained at 5.5 % and as per the Monetary Policy Committee which met in August 2025. The inflation for FY 2026 has been projected at 3.1 % and CPI is expected to be 4.9% in FY 2027 as per RBI.



Sources: CMIE Economic Outlook

Growth Outlook

The Union Budget 2025-26 has laid the foundation for sustained growth by balancing demand stimulation, investment promotion and inclusive development. Inflation level is reaching within the central bank's target; the RBI may pursue further monetary easing that will support growth. The medium-term outlook is bright, fuelled by the emphasis on physical and digital infrastructure spending. With a focus on stimulating demand, driving investment and ensuring inclusive development, the budget introduces measures such as tax relief, increased infrastructure spending and incentives for manufacturing and clean energy. These initiatives aim to accelerate growth while maintaining fiscal discipline, reinforcing India's long-term economic resilience. The expansion of tax relief i.e. zero tax liability for individuals earning up to INR 12 lacs annually under the new tax regime is expected to strengthen household finances and, consequently, boost consumption.

The external sector remains resilient, and key external vulnerability indicators continue to improve. However, tariff-related uncertainty is likely to weigh on exports and investment, prompting us to cut our FY26 GDP growth forecast to 6.4%.

Technical Textile Industry in India

Overview

Technical textiles refer to textile materials and products manufactured primarily for their **functional performance and technical properties** rather than for aesthetics or decorative characteristics. These products are specially designed to meet specific performance requirements across various industrial sectors such as agriculture, healthcare, construction, transportation, defence, Industrial, packaging, and environmental protection. Depending on their end use, technical textiles offer benefits such as high tensile strength, thermal resistance, flame retardancy, chemical stability, durability, and lightweight characteristics making them indispensable in both industrial and consumer applications. As industrial activity continues to grow, the demand for high-performance technical textiles particularly in **transport, industrial and defence use cases** has steadily increased.

In India, the technical textile sector has emerged as a **key growth driver within the broader textile industry**, backed by a confluence of factors such as rising domestic demand, increased awareness, and government push. The **National Technical Textiles Mission (NTTM)**, launched in 2020 with an outlay of ₹1,48,000 lakhs till date, has significantly boosted this segment through targeted interventions in R&D, education, standardization, and market development. Additionally, the Production Linked Incentive (PLI) scheme, import substitution policies, and mandatory usage mandates for products like geotextiles and agrotextiles in public infrastructure projects are catalysing industrial adoption.

According to a 2022, **baseline survey conducted under the NTTM**, technical textiles currently contribute about **15% to India's overall textiles and apparel output**, signalling a strong shift toward value-added manufacturing. The establishment of **Centres of Excellence (CoEs)**, development of indigenous standards through the Bureau of Indian Standards (BIS), and promotion of private sector innovation are improving quality, compliance, and global competitiveness. With its vast raw material base, skilled labour, and supportive policy framework, India is not only meeting its domestic requirements but is also expanding its export footprint in high-performance technical textile applications. This positions the country to become a **global hub for technical textile production**, catering to both industrial and advanced applications worldwide.

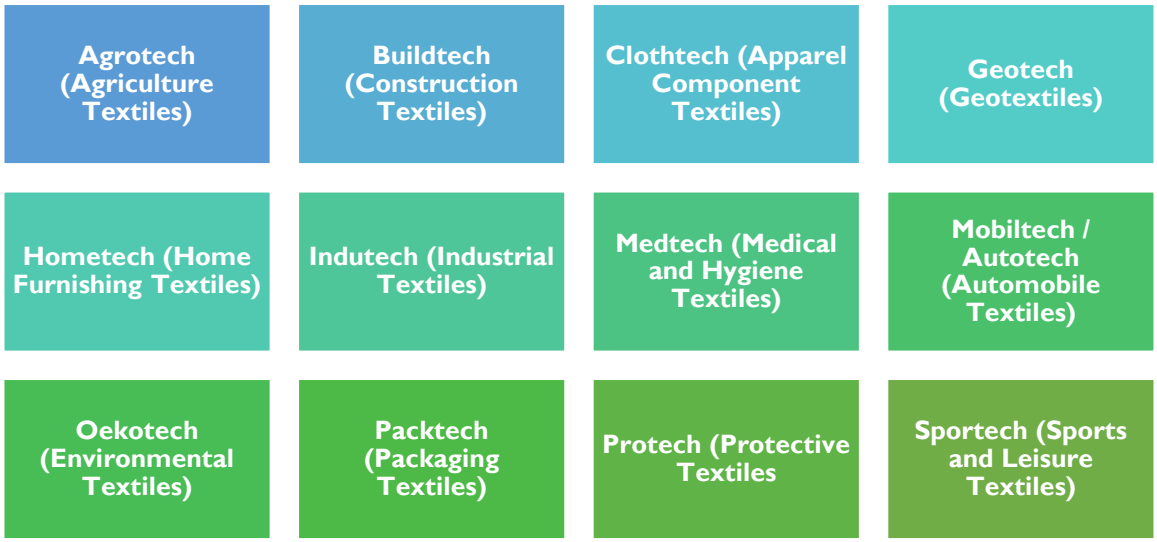
Classification Parameters:

Parameter	Details / Sub-Categories	Key Features / Functions	Examples / Applications
End-Use Segments	Agrotech, Buildtech, Clothtech, Geotech, Hometech, Indutech, Medtech, Mobiltech, Oekotech, Packtech, Protech, Sportech	Classified based on final application domain in industry or consumer usage	- Geotech: Geogrids for road stabilization- Medtech: Surgical gowns- Protech: Fire-resistant suits
Functionality	Fire/flame retardancy, Tensile/tear strength, UV resistance, Water/air permeability, Chemical resistance, Acoustic/thermal insulation, Biocompatibility	Designed to deliver specific mechanical, chemical, or biological performance depending on the application	- Flame resistance in firefighter gear- UV protection in agro shade nets- Biocompatibility in surgical implants
Material Type	- **Natural fibers**: Cotton, Jute, Coir, Wool- **Synthetic fibers**: Polyester, Nylon, Polypropylene (PP), Polyethylene (PE)- **High-performance fibers**: Aramids (Kevlar), Carbon fibers, Glass fibers, UHMWPE	Material selection depends on desired strength, durability, chemical resistance, and cost-effectiveness	- Coir used in erosion control (Geotech)- PP in disposable masks (Medtech)- Kevlar in ballistic vests (Protech)
Manufacturing Process	- **Woven**: Interlaced yarns for strength- **Knitted**: Looping yarns for elasticity- **Nonwoven**: Bonded fibers via heat/chemicals- **Coated/Laminated**: Surface functionalization- **Composites**: Layered structures with polymers or resins	Process impacts durability, flexibility, porosity, and cost. Selection based on performance and application environment	- Woven airbags (Mobiltech)- Nonwoven PPE kits (Medtech)- Laminated tarpaulins (Buildtech)
Standards Compliance	- **ASTM (USA)- ISO (International)- BIS (India)- MoRTH** for road applications- **EN / CE** for European markets- **FDA / CDSCO** for medical uses	Ensures technical textiles meet minimum safety, quality, and performance norms—crucial for regulated sectors	- BIS-certified geotextiles for highways- ASTM F2100-compliant surgical masks- CE-marked flameproof garments
Smart/Eco Attributes	- **Smart textiles**: Integrated sensors, conductive yarns, responsive materials- **Eco-textiles**: Recycled content, biodegradable fibers, low-impact dyes	Reflect innovation and sustainability trends—support monitoring, automation, and green production	- Wearable sensors for athlete vitals (Sportech)- Recycled PET yarns in fashion- Biodegradable agro mats (Agrotech)

Application / usage of different product segments

Key Product Segments of Technical Textiles in India

India's technical textile sector is classified into **12 core application-based segments**, each catering to a specific set of industrial needs and performance expectations. These categories are aligned with international norms and facilitate policy support, market development, and investment direction. Here's a comprehensive overview:



1) **Agrotech (Agriculture Textiles)**

   Agrotech products are used to improve **agricultural productivity, crop protection, and resource efficiency**. These include **shade nets**, **mulch mats**, **crop covers**, **frost protection fabrics**, **insect nets**, and **anti-hail nets**. They help in regulating temperature, moisture, and light exposure, reducing dependency on chemical inputs, and increasing crop yield. Agrotech finds growing adoption in greenhouse farming, horticulture, and precision agriculture.

2) **Buildtech (Construction Textiles)**

   Buildtech comprises textiles used in **building and construction applications** for reinforcement, safety, and aesthetic enhancement. Products include **concrete reinforcement meshes**, **scaffolding nets**, **tarpaulins**, **roof linings**, **sound insulation membranes**, and **architectural membranes**. These materials improve structural integrity, thermal regulation, and environmental resistance in buildings and infrastructure projects.

3) **Clothtech (Apparel Component Textiles)**

Clothtech focuses on **functional components used in garment manufacturing**, rather than outer fabric. Examples include **interlinings**, **sewing threads**, **zippers**, **labels**, **waistbands**, and **elastic tapes**. These materials play a vital role in providing **structure, comfort, elasticity, and durability** to fashion and workwear garments. Clothtech is essential in both fashion apparel and technical workwear.

4) **Geotech (Geotextiles)**

Geotech involves textiles used in **civil engineering, road construction, and geotechnical applications**. These include **geogrids**, **geomembranes**, **geonets**, **geocells**, and **nonwoven geotextiles**. These products are employed for **soil stabilization, filtration, separation, drainage, and erosion control** in infrastructure projects such as highways, embankments, railways, and dams. Geotextiles are now mandated in many public works projects by Indian authorities.

5) **Hometech (Home Furnishing Textiles)**

Hometech covers technical textiles used in **home and interior applications**, providing **aesthetic, functional, and safety features**. Products include **mattress covers**, **upholstery fabrics**, **sofa linings**, **carpets**, **curtains**, and **fiberfill**. These materials often possess flame retardancy, stain resistance, or thermal insulation properties. These materials are designed to improve the ease, enhance the visual appeal and make maintenance easier. Recently developed materials are smart textiles with embedded technology, breathable texture and anti-microbial textiles which help use and make maintaining the furniture using these textiles convenient. Sustainable materials such as Bamboo and organic cotton are being preferred by consumers with eco-friendly lifestyle preferences.3D weaving methods are creating distinctive patterns and photovoltaic textiles are designed to generate energy on use in furnishing homes. Newer technical textile developments such as green textiles and Smart are attractive opportunities for investments as even the Government is pushing for greener textile Hometech contributes significantly to the export of value-added home textiles.

6) **Indutech (Industrial Textiles)**

Indutech consists of textiles used in **industrial settings for filtration, conveying, and mechanical performance**. The other benefits offered by the Indutech textiles are insulation, Protection and reinforcement. Common products are **filter fabrics**, **abrasion-resistant linings**, **conveyor belts**, **v-belts**, **coated and laminated fabrics**, industrial hoses, thermal and acoustic Insulation fabrics and **machine components**. These are engineered for extreme conditions such as high pressure, temperature, or chemical exposure. Indutech supports sectors such as Automotive, Mining & Quarrying, chemical processing, food and beverage, cement, and energy and power. Innovations in the segment includes use of nano fibre filtration media, eco-friendly coatings, and advanced aramid blends. Along with developmental changes, the segment is chasing the sustainability

wave by recycling industrial filter fabrics, making use of biobased polymers etc. However, with IIoT (Industrial Internet of Things applied in Indian scenario, there could be more innovations in the segment driving its growth.

7) Medtech (Medical and Hygiene Textiles)

Medtech includes textiles for **healthcare, hygiene, and surgical applications**, ensuring sterility and biocompatibility. Products include **surgical gowns**, **face masks**, **sanitary napkins**, **diapers**, **wound dressings**, **implants**, and **medical drapes**. The COVID-19 pandemic accelerated the demand for Medtech items such as **PPE kits** and **N95 masks**, spurring domestic capacity building in India.

8) Mobiltech / Autotech (Automobile Textiles)

Mobiltech or Autotech refers to **textile components used in automobiles and transport systems**. This includes **airbags**, **seat belts**, **seat fabrics**, **roof liners**, **insulation**, **acoustic dampeners**, **sun visors**, and **hood liners**. Technical yarns used in these applications are majorly Nylon, Polyester, Aramid, Carbon Fiber and Glass Fiber. These materials enhance **passenger safety, comfort, and aesthetics**, while also contributing to weight reduction and fuel efficiency. The other benefits of these yarns used in Mobiltech application are high tensile strength, tear, impact resistance, and insulating properties. The growing automotive industry in India is a major consumer of Mobiltech.The other industries utilizing the technical yarns extensively are aerospace and railways for airbags, seat covers, inflatable protective devices.

9) Oekotech (Environmental Textiles)

Oekotech, or Eco-textiles, are used for **environmental protection and sustainability**. These include **geo-composites**, **waste containment liners**, **erosion control fabrics**, **oil-absorbing mats**, and **sewage filtration materials**. They help manage **solid waste, water purification, air filtration**, and **pollution control**. Oekotech is crucial in environmental engineering and industrial sustainability efforts.

10) Packtech (Packaging Textiles)

Packtech covers **textile-based packaging solutions** for consumer and industrial goods. Key products are **woven sacks**, **flexible intermediate bulk containers (FIBCs)**, **leno bags**, **wrapping fabrics**, and **wrinkle-resistant wrapping cloths**. These textiles offer **durability, water resistance, light weight**, and **cost-effectiveness**. Packtech is extensively used in food grains, fertilizers, cement, and retail packaging.

11) Protech (Protective Textiles)

Protech comprises textiles designed to provide **protection against physical, chemical, thermal, or biological hazards**. Examples include **flame-retardant garments**, **bulletproof vests**, **cut-resistant gloves**, **chemical suits**, and **firefighter uniforms**. These are critical in **defence, fire services, metallurgy, and hazardous industries**, where safety compliance is non-negotiable. Protective suits made of these materials increase worker safety in factories and industrial settings, offers vital protection against fire, chemical leaks and other hazardous environments. These garments are used by Police and defence personnel, firefighters and emergency service workers. Protech textiles are also finding use in adventure sports such as Mountaineering and deep-water diving. The demand for it is usually high around war prone zones. It also includes development of protective clothing for famous personalities such as Bullet proof vests. India has been boosting local production of Protech under defence-indigenization programs.

12) Sportech (Sports and Leisure Textiles)

Sportech includes textiles for **sportswear, outdoor gear, and recreational equipment**. Products cover **jerseys**, **performance wear**, **shoes**, **sports nets**, **swimwear**, **tents**, and **backpacks**. These textiles are engineered for **moisture management, breathability, flexibility, UV resistance**, and **comfort**. The fitness boom and increasing outdoor sports culture in India are driving this segment forward.

Together, these 12 segments represent a diverse and high-potential landscape within India's technical textiles industry. Each caters to specialized needs, supported by innovations in materials science, government mandates, and industrial demand—positioning India as a rising global hub for multifunctional textile solutions.

Global Scenario: Technical Textile Yarn Industry

Brief overview on global technical textile industry

The global technical textile industry has evolved into a dynamic, innovation-driven sector that emphasizes **functionality over aesthetics**. These specialized textiles are used in a wide range of industries such as **automotive, medical, construction, agriculture, Industrial and defence**. Their ability to deliver properties like strength, thermal resistance, flame retardancy, and filtration has made them essential in both industrial and consumer applications. As industrial activity continues to grow globally, the demand for high-performance textiles—particularly in **transport and industrial use cases**—has steadily increased.

- **Technological Innovation in Materials**

  Recent years have seen rapid advances in smart and multifunctional textiles. In 2024, researchers created textile-based sensors capable of **monitoring maternal health**, including ECG and muscle activity, with the added ability to function underwater. Simultaneously, developments like **self-folding fabrics using machine-embroidered patterns** have introduced new possibilities for 3D structures in fashion, robotics, and packaging. These innovations reflect a broader trend of integrating electronics, responsiveness, and shape adaptation into fabrics, positioning textiles at the intersection of material science and digital technology.

- **Focus on Sustainability and Recycling**

  Sustainability is becoming a major priority within the industry. Governments and brands alike are investing in **closed-loop systems** and **recycling technologies** to address the growing textile waste problem. For instance, new methods of chemically recycling polyester are being tested to convert used textiles into **high-grade raw materials**. In the UK, new pilot programs are turning donated clothing into fresh yarns, reflecting a shift toward **circular production models**. These initiatives are being reinforced by stricter environmental policies in Europe and rising consumer awareness about the lifecycle of clothing.

- **Regional Growth and Policy Support**

  Across the globe, governments and industry players are investing heavily in strengthening their technical textiles ecosystems. In the **European Union**, the push for a circular economy has led to major public-private partnerships focused on **fibre-to-fibre recycling**, material traceability, and stricter sustainability standards. One notable initiative in the UK, **Project Re: Claim**, launched in 2024, is recycling post-consumer polyester garments into high-quality yarns, targeting scalable textile-to-textile recycling to meet EU sustainability targets by 2025.

  Meanwhile, in **North America**, U.S. federal initiatives continue to promote the domestic production of advanced textiles for defence, medical, and infrastructure applications. The **Department of Defence's Advanced Functional Fabrics of America (AFFOA)** consortium remains a major hub, supporting

research in smart wearables, adaptive camouflage, and impact-resistant fabrics. The group expanded its partnerships in 2024 with multiple universities to accelerate development in AI-integrated textile systems.

In **Germany**, home to a mature technical textile base, manufacturers are focusing on **automated weaving and knitting technologies** that integrate conductive fibers for mobility and industrial use. State-led innovation programs are promoting **energy-efficient textile processing**, while several automotive and aerospace OEMs are investing in lightweight composite fabrics to meet emission-reduction goals.

These regional initiatives demonstrate how the global technical textile sector is evolving in response to **climate policy, digitalization, and industrial modernization**, positioning advanced textiles as a key material class of the future.

- **Experimental and Natural Alternatives**

Innovative materials sourced from nature are also gaining traction. Companies are now experimenting with **bio-based yarns** made from protein, seaweed, or recycled ocean plastic. In northern India, for example, fibre derived from **milkweed** is being trialled as a warmer, lighter, and biodegradable alternative to wool. These developments highlight a dual shift in the industry: one toward **eco-friendly materials**, and another toward tapping into **locally sourced fibers** with minimal environmental impact.

- **Key Trends and Future Outlook**

Several ongoing trends are shaping the future of the technical textile industry. These include the rise of **digital manufacturing**, automation in textile processing, and the emergence of **smart fabrics** for healthcare and defence. Environmental concerns are pushing companies to adopt **recyclable and biodegradable materials**, while supply chain digitization is helping improve traceability and efficiency. As performance demands grow and sustainability becomes a norm rather than a niche, technical textiles are expected to be at the forefront of material innovation globally.

India Scenario: Technical Textile Yarn Industry

Brief overview on India technical textile industry

India's technical textile sector has gained strategic importance in recent years, transitioning from a niche category to a key focus area for industrial modernization and import substitution. These textiles designed for functional and performance based use are increasingly integrated into essential industries such as transportation, Industrial, healthcare, environmental protection, packaging, defence and civil engineering.

Driven by advancements in material science and changing market needs, technical textiles are enabling product innovation and efficiency across a wide range of applications. The industry is witnessing accelerated adoption, supported by policy interventions, rising awareness among end-users, and growing emphasis on safety, hygiene, and sustainability.

Indian Textile Industry has been using technical yarns in the early 2000s. The yarns primarily used in India were of jute silk, cotton, but with advent of technical yarns variety of man-made (synthetic) fibers such as polyester, nylon, aramid, glass, carbon, and PTFE(Polytetrafluoroethylene). The technical yarn usage is driven by growing demand by highly efficient industrial textile, inclination of consumers towards athleisure apparels and acceptance of eco-friendly materials such as recycled or regenerated fibres. Apparently, India has turned out to be one of the top producers of technical yarn materials like para-aramid yarn, meta-aramid yarn, modacrylic-blended yarns, peroxidised PAN yarn, antistatic polypropylene yarn, DREF-spun yarns, polyester and FR viscose blends.

Textile Industry majorly uses natural synthetic yarns as mentioned above. The features and the benefits of these yarns decide its end use.:

Types of Yarn used in the Indian textile Industry

The yarns used in the textile industry are divided into natural and man-made. Predominantly, technical textiles have evolved with use of natural fibres such as Cotton, silk, jute, wool.

Cotton:

India has turned out to be one of the largest producers, consumers and exporters of the material. It provides livelihood to 6 million cultivators and many others who are employed in the related activities. The government has extended support by allotting Minimum support Price for two variants of cotton crops.

Jute:

Providing directly and indirectly employment to approximately 4 million farm families majorly in the eastern region of the country. It is one of the largest producers of raw jute. Similar to cotton crop , Jute sector also has support prices from the government. In addition to this, direct purchase of jute sacks, e-platform for supply management and requisition is also implemented. Jute is majorly used in making of sacks used by agro processing industry and used in combination with other yarns such as cotton and silk to make raw materials for garments.

Silk:

One of the major contributions from India to the world was silk, which reigned the textiles in the ancient civilizations. India is the second largest producer of silk and the largest consumer as well. Four varieties of silk are produced for commercial purposes namely Mulberry, Tropical & Oak Tasar, Muga & Eri. Major uses are in textile industries to make sarees, shawls and other key textile pieces.

Wool:

Wool is majorly used for winter clothing, carpets and used in Industries. Extracted from the third largest sheep population, India has made its place as one of the top ten wool producer in the world. The wool extracted is classified into 3 categories based in its major uses I, e Carpet making (majorly), Textile industry and Coarse grade (second largest sector).

The man-made fibers are Polyester, Viscose and Nylon.

Polyester – Made from petroleum-based materials such as ethylene glycol, it is considered as one of the durable, synthetic material fibre made. Its major uses are in clothing, home décor materials such as curtains, pillowcases etc. Its properties such as anti-wrinkling and quicker drying make it suitable to use even in technical textiles industry.

Viscose –

It is made from chemically treated wood pulp making it a regenerated cellulose fibre. It has similar properties to cotton and silk i.e., softness, light weight and quick absorbing. Due to these benefits, it is widely used in manufacturing of medical products, home décor furnishings and in making clothing.

Nylon:

This yarn variety is made from raw materials derived from Petrochemicals such as adipic acid & hexamethylene diamine which are processed and spun into fibres. The major use of nylon is in active wear, sportswear, industrial products, and technical textiles.

There are many more synthetic fibres which are developed for specific application across industries.

1. Para-aramid yarn (high strength and heat resistance) – It is a synthetic fibre made with polymers in a two-step process where the resulting para-aramid polymer is followed by spinning. Generally used in protective clothing for defence sector, aerospace composite material and some automotive parts.
2. Meta-aramid yarn – This specific yarn is made through polymerizing diamines and chlorides into a heavier polymer. This is transformed to viscous liquid called dope by mixing the heavy polymer into a solvent. Thus, the dope is spun into filaments which are later packed as a yarn. The meta-aramid yarn is used in applications with use of high temperature. The fibre yarn has good heat and flame resistance thus used in clothing for firefighters and armed forces and industrial processes dealing with high voltage of electricity and temperatures such as furnaces.
3. Modacrylic-blended yarns – as the name suggest the yarn is made by blending modacrylic fibres and other fibres such as cotton, wool or aramid. Blending other fibres results in improving features such as flame retardancy.

The end uses of these yarns are in Airline blankets, home textile products such as blankets, carpets, and Innerwear garments.

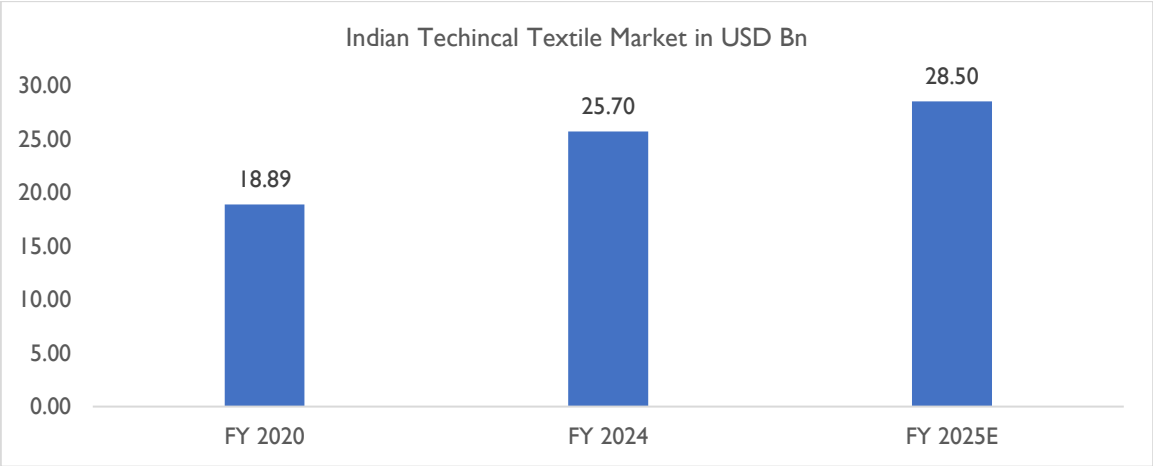
4. Peroxidised PAN yarn -Peroxidised Polyacrylonitrile yarn is also known as Preox-yarn or Oxi-pan finds it use in Industries where welding blankets, protective clothing such as firefighting suits, gloves, welding apparel are used. Automotive components and aerospace sector furnishings such as seats and cushion.
5. Antistatic Polypropylene Yarn – Conductive materials added to polypropylene (PP) while expulsing to dissipate static electricity resulting in the antistatic PP yarn. The resultant yarn brings features such as lightweight structure, resistance to moisture, chemicals. It is majorly used in industrial filtration application, carpets and packaging material for electronics.
6. FR Viscose blends – The yarn consists of fibres made from viscose (regenerated cellulose fibres chemically treated and blended with other fibres such as cotton or wool and before the process of blending, the viscose fibre is mixed with flame retardant. Other than the functional feature of fire resistance by manufacturing, it helps retain moisture, a soft and luxurious feel. It is thus used in industrial applicants to tolerate high heat and flames, and in clothing ranging from protective to activewear.
7. DREF-spun yarns also known as Dr Ernst Fehrer spun yarn based on the inventor of the fraction spinning method. This method results in coarse yarns which have features like better dust holding capacity for effective filtration. It offers other benefits such as high bulk and low strength, better air permeability.

The Ministry of Textiles has reiterated its strategic focus on the development of India's technical textile sector. Union Minister of Textiles Shri Giriraj Singh and Minister of State Shri Pabitra Margherita outlined the progress and future roadmap for this high-potential industry while speaking at the "Viksit Bharat – Technical Textiles for Sustainable Growth & Development" event.

The government has launched the **National Technical Textile Mission (NTTM)** with a **budget outlay of ₹1,40,000 lakhs**, aiming to strengthen research & development, expand domestic manufacturing capabilities, and support education and market expansion. As of 2024, **156 R&D projects** have been sanctioned under the mission, focusing on applications across sectors such as automotive, medical, Industrial, infrastructure, and defence.

Additionally, the government is encouraging increased **Foreign Direct Investment (FDI)** in the sector. States are being advised to introduce supportive policies, and investors both domestic and international have been invited to explore opportunities in India's evolving technical textile market.

Below is the Indian Technical Textile Market:



Source: Federation of Indian Chambers of Commerce & Industry (FICCI), National Technical Textiles Mission (NTTM), D&B Desk Research, E- estimated

Between FY 2020 and FY 2025, India's technical textile market is estimated to grow from **USD 18.89 billion to USD 28.50 billion**, achieving a **CAGR of 8.57%**. This strong growth reflects a shift toward performance driven and application specific textiles, supported by increased awareness among industries about their benefits. Key contributing factors include rising adoption in infrastructure projects (such as road construction using geotextiles), healthcare demand post-COVID-19 (especially for Meditech and PPE), and greater emphasis on sustainability and safety regulations across sectors. Additionally, government support through initiatives like **mandatory quality control orders**, **PLI schemes**, and **public procurement preferences** has accelerated domestic production and investment, while global supply chain realignments have opened new export opportunities for Indian manufacturers.

Demand Scenario

Analysis of key factors driving the demand for technical textiles in India

The demand for technical textiles in India has seen significant growth across industrial sectors, driven by their functional advantages and adaptability in diverse applications. Among these, the use of technical textiles as filtration media has emerged as a critical segment offering solutions for air and liquid filtration in industries, automotive systems, construction, oil & gas operations, and medical environments. This surge is supported by regulatory frameworks, environmental compliance norms, increased infrastructure development, and heightened focus on hygiene and safety. As India pushes for greater self-reliance in technical textiles under initiatives like the National Technical Textiles Mission (NTTM) and PLI Scheme, the demand for specialized filtration textiles is expanding steadily, positioning the country as a fast-growing market in this domain.

This rising demand is evident across multiple key sectors, including industrial, automotive, construction, defence and oil & gas, as well as healthcare. Each of these sectors presents distinct drivers and application areas for technical textile yarns, as elaborated below:

Filtration Media in the Industrial Sector: Technical textile yarns are critical for air and liquid filtration in sectors like cement, steel, chemicals, pharmaceuticals, and energy. Technical textiles are usually used as a filtration media to separate a solid-gas mixture or a solid-liquid mixture used in a process. These media are majorly made from fibreglass, polyester and nylon. These filters are used in harsher situations thus they are designed specifically to withstand strong, chemical or various conditions.

Filtration processes in industries are mechanical filtration (filtering larger physical particles), Interception (Filtering particles from a liquid flow) Inertial Deposition (particles which have higher inertia while moving through stream are filtered), Diffusion, and Electrostatic Deposition (charged particles are filtered).

The fibres specific to the chemical (solid or gaseous), water or any liquid filtration processes are woven fabrics and meshes (filtering from liquid streams), Nonwoven fabrics (gaseous filtration) polymer membranes and nanofiber composites.

Like the purposes and the processes mentioned above the technical textile made fibres are used in defence sector. They help in filtering hazardous gaseous chemicals, biological agents which in turn protect the defence personnel against environmental and warfare threats. The fibres created for the filtration purpose are majorly customized as per the operating or working environment to be highly efficient, versatile, and durable.

According to the Ministry of Textiles, specialty fibres (e.g., glass, carbon, ceramic) are increasingly tailored for gas and chemical filtration applications. The National Technical Textiles Mission (NTTM) has underscored that India's technical textile market is growing at 8–10% annually, driven by industrial demand for non-woven filter fabrics (needle-punched, melt-blown) to meet CPCB and NCAP pollution norms. These nonwovens offer superior properties such as high porosity, fine particle retention, thermal resistance, and chemical inertness making them essential for demanding industrial environments. Industries are also shifting from conventional filtration materials to engineered technical textile-based solutions that offer greater efficiency, lower maintenance, and compliance with stricter environmental standards. Furthermore, government initiatives to indigenize manufacturing under schemes like Atmanirbhar Bharat and the mandatory use of certified pollution control equipment have boosted the adoption of advanced filter fabrics. This has resulted in a significant rise in orders for specialized filtration yarns, underpinning a multi-billion-dollar segment with continued CAGR growth and rising domestic production capabilities.

Automotive Components / Automotive Sector: Technical textiles play a crucial role in India's automotive industry, used in airbags, tyre cords, seat upholstery, carpets, insulation, acoustic lining, and filtration media. The global Mobiltech sector was valued at USD 46.2 billion in 2022 and is estimated to grow to USD 57.9 billion by 2027, as reported in the Ministry of Textiles' India Vision 2047 roadmap. Under the National Technical Textiles Mission (NTTM), over 600 BIS standards and 68 Quality Control Orders have been introduced to ensure quality in automotive-grade fibres and fabrics, strengthening domestic supply

chains. These standards are critical in improving safety, durability, and thermal performance of vehicles, especially as automakers adopt lighter and more sustainable materials.

Supported further by the Textile Ministry's India Vision 2047, which forecasts sustained high-single-digit annual growth in Mobiltech products, the convergence of rising vehicle output, formal regulatory frameworks, and Make-in-India policies is fuelling robust demand for high-performance technical textile yarns across automotive applications. With increasing electrification and premiumisation of vehicles, the use of advanced technical textiles is expected to expand further into battery insulation, EMI shielding, and thermal management solutions.

Construction and Oil & Gas Sectors: India's construction sector, currently contributing around **8% of GDP** and valued at **approximately USD 126 billion**, is witnessing rapid expansion propelled by major infrastructure investments, urbanization efforts, and government-led initiatives such as the **National Infrastructure Pipeline (NIP)** and **Smart Cities Mission**. Experts project this sector to reach up to **15% of GDP by 2030**, employing over **70 million people**, with valuations exceeding **USD 2 trillion** by that year. As construction activities, particularly road development, rail, urban infrastructure, and renewable energy projects, scale up, they generate substantial demand for **technical textiles** like geotextiles, buildtech membranes, insulation fabrics, and architectural textiles.

Construction textiles are essential for applications involving **soil stabilization, erosion control, waterproofing, sound and thermal insulation**, and **structural reinforcement**. These specialized materials include **geogrids, drainage composites, concrete reinforcement fabrics**, and **architectural membranes**, which enhance durability, safety, and performance in buildings, roads, tunnels, and water-management systems. The expanding public and private construction market thus represents a key domestic driver, creating predictable institutional demand for Indian technical textile producers by integrating these materials into infrastructure projects at scale.

India's oil and gas sector stands as one of the largest investment domains in the country, featuring around **275 investment opportunities worth over USD 100.71 billion**, including major projects in **refining (~USD 43.27 bn), pipelines (~USD 33.22 bn), and exploration & production (~USD 24.22 bn)**. As India seeks to expand its refining capacity by up to 75% by 2027 and construct a comprehensive gas grid spanning more than 22,300 km of natural gas pipelines and 8,228 km of petroleum pipelines, demand is accelerating for associated infrastructure materials.

This rapid development fuels demand for technical textiles used in **filtration media, insulation fabrics, protective covering, geotextiles**, and **coating materials** required for pipeline installation, refinery linings, and petrochemical processing. These specialized textiles improve durability, corrosion resistance, thermal insulation, and contamination control in oil and gas applications, making them critical inputs for midstream and downstream infrastructure.

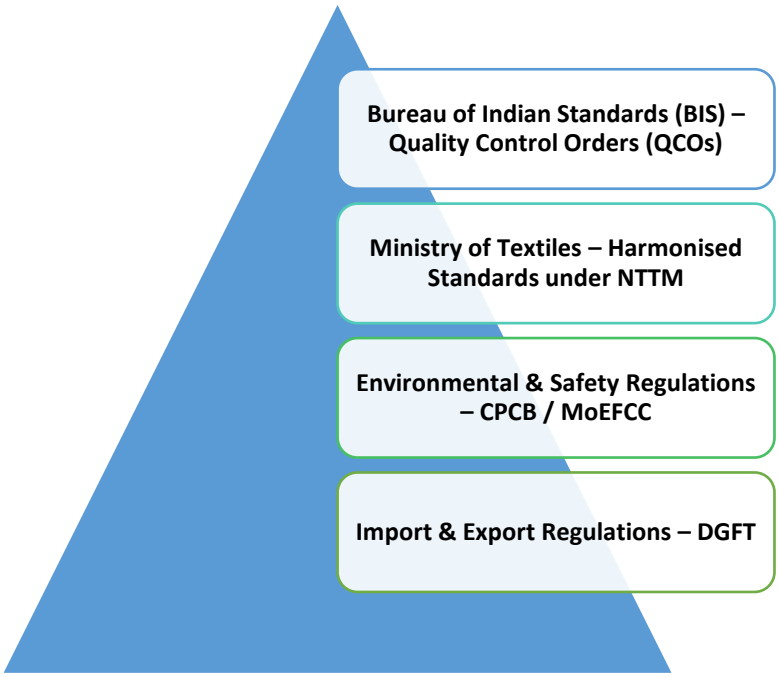
Moreover, India is forecasted to lead global oil demand growth through 2030, supported by expanding refining and pipeline networks and increased domestic fuel consumption. As energy infrastructure scales and new petrochemical complexes emerge in regions like Gujarat and Rajasthan, technical textile producers are well-positioned to capture this growing institutional demand, reinforcing the oil and gas sector as a significant downstream market enabler for India's technical textile ecosystem.

Healthcare / Medical Sector: Technical textile yarn demand in the Indian healthcare segment surged during the COVID-19 pandemic with essential products PPE kits, surgical masks and gowns, wound dressings, and surgical drapes becoming critical to medical infrastructure. According to the Ministry of Textiles' India Vision 2047 roadmap, the Mobiltech and Meditech combined market was valued at approximately USD 21.95 billion in FY 2022, with Meditech (medical textiles) forming a key growth pillar highlighted in the National Technical Textiles Mission memos. The government's technical-textiles e-booklet also identifies medical dressings, absorbent cotton, surgical gowns, drapes, and masks as priority segments under Meditech. Under NTTM's procurement guidelines, over 90 categories of technical textile products, including medical textiles, are now mandated for government health-sector use, supporting scalable domestic production. Increased healthcare investment and Make-in-India initiatives aim to further reduce import dependence India was the 6th-largest exporter of textiles and apparel in FY 2023, with medical textile output poised to form a larger share moving forward. These concerted efforts, backed by volume mandates and formalized procurement, are driving substantial demand for high-performance technical textile yarns in India's rapidly growing medical textiles sector.

Regulatory Landscape

The technical textile yarns industry in India functions within a comprehensive regulatory framework designed to uphold product quality, drive innovation, and enhance the sector's global competitiveness. As technical textiles play a critical role in diverse strategic sectors such as defence, automotive, healthcare, infrastructure, agriculture, and environmental protection, the Government of India has implemented targeted regulatory measures and policy interventions to support the sector's growth. These include standardization mandates, fiscal incentives, and environmental compliance norms aimed at fostering domestic manufacturing, encouraging R&D, and facilitating export readiness. The regulatory ecosystem not only ensures adherence to quality and safety benchmarks but also aligns the industry with national priorities like sustainability, pollution control, and import substitution positioning India as a key player in the global technical textiles market.

Regulatory / policy framework governing the industry

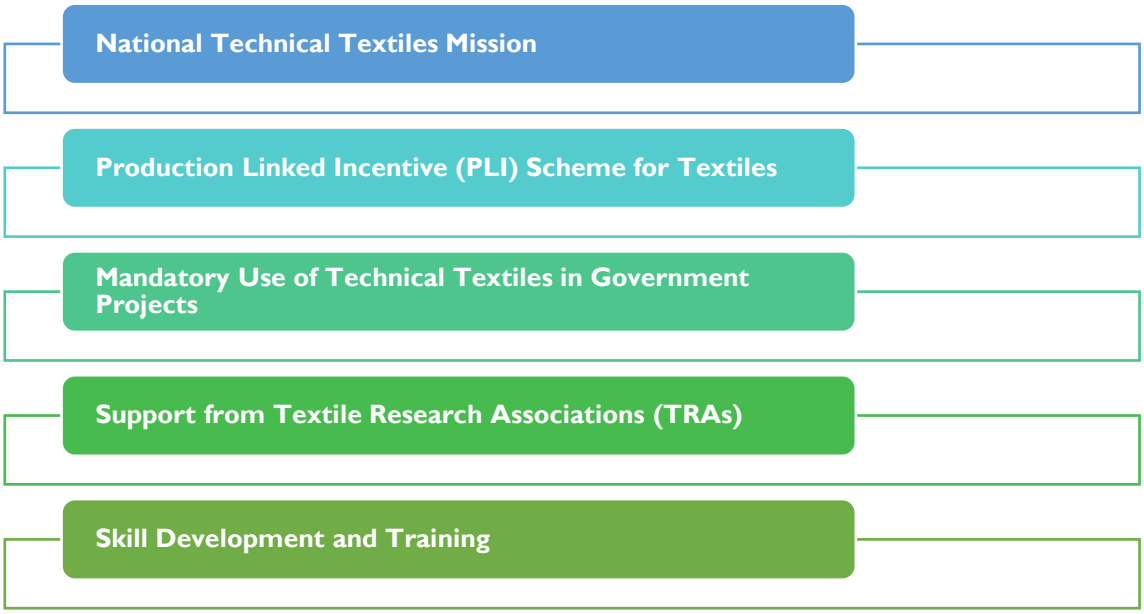


1. **Bureau of Indian Standards (BIS) – Quality Control Orders (QCOs)**

- BIS is the apex body for setting and enforcing technical standards in India under the BIS Act, 2016.
- **Mandatory QCOs** issued in **April 2023** for **31 technical textile items** (19 geotextiles & 12 protective textiles).
- Products like HDPE/PVC geomembranes, geobags, bulletproof jackets, and firefighter gear now require **BIS certification** and **standard mark** within **180 days** of notification.
- **Phase II** (from April 2024) will cover **28 more items** (22 agro-textiles, 6 medical textiles).
- **Phase III** will extend to **30+ items** in industrial textiles, building textiles, ropes, and cordages.

2. **Ministry of Textiles – Harmonised Standards under NTTM**
    - Under the **National Technical Textiles Mission (NTTM)**, over **500 Indian Standards (IS codes)** have been developed.
    - These standards span **12 technical textile segments**, ensuring product quality and consistency.
    - During the **6th National Conclave on Standards (July 2023)**, the ministry released new standards for medical respirators, geosynthetics, etc.
    - As of now, **BIS has published ~600 standards** for technical textiles and their testing protocols.
3. **Environmental & Safety Regulations – CPCB / MoEFCC**
    - Governed by the **Environment (Protection) Rules, 1986** under **CPCB** (Ministry of Environment).
    - Units involved in dyeing, coating, or finishing (e.g., flame-retardant yarns) must:
        - Install **Effluent Treatment Plants (ETPs)**.
        - Control pollutant levels (BOD, COD, TDS, pH).
        - Use **Continuous Emission Monitoring Systems (CEMS)** for real-time tracking.
    - Ensures sustainable manufacturing and environmental compliance.
4. **Import & Export Regulations – DGFT**
    - Managed by the **Directorate General of Foreign Trade (DGFT)** under the **Foreign Trade Policy**:
        - **Advance Authorization Scheme**: Duty-free import of raw materials for export production.
        - **EPCG Scheme**: Zero-duty capital goods imports against export obligation.
        - **RoDTEP Scheme**: Refund of embedded taxes for exports via transferable e-scrips (since Jan 2021).
    - Technical textile yarns are classified under specific **HS codes**, impacting **customs duties**, **eligibility**, and **export incentives**.
    - These policies aim to enhance **cost-efficiency** and **global competitiveness**.

Policy initiatives /Government incentives:



- **National Technical Textiles Mission (NTTM):** Launched in February 2020 by the Cabinet Committee on Economic Affairs and implemented by the Ministry of Textiles, the National Technical Textiles Mission (NTTM) is a strategic initiative aimed at transforming India into a global powerhouse in technical textiles. This initiative by Government of India was planned to span between FY 2020-21 to 2025-26 aimed at providing financial assistance worth ₹1,48,000 lakhs. t NTTM comprises four key components Research & Innovation, Promotion & Market Development, Export Promotion, and Education & Skill Development designed to foster advancements in fibres and yarns for applications across agriculture, infrastructure, healthcare, defence, and more. As of March 2025, 168 research projects valued at ₹50,900 lakhs have been sanctioned, and nearly 50,000 individuals are being trained under its aegis. Through grants such as GIST 2.0 and the GREAT Scheme, along with efforts to standardise and enhance market outreach, NTTM is accelerating prototype development, industry–academy collaboration, and export readiness driving India's ambition to lead the USD 10 billion global technical textiles market.
- **Production Linked Incentive (PLI) Scheme for Textiles:** The Government of India, through a Production Linked Incentive (PLI) Scheme for Textiles, approved in September 2021 with an outlay of ₹10,683 crore, aims to bolster domestic manufacturing in Man-Made Fibre (MMF) fabrics, MMF apparel, and technical textile segments, including value-added yarns. The scheme incentivizes eligible manufacturers with cash payouts of 4–11% (depending on the product category) on incremental annual turnover over a five-year period, covering fiscal years 2024–25 to 2028–29 subject to investment and performance thresholds. As confirmed by an official Press Information Bureau release, 64 of 67 applications have been selected so far, representing ₹19,798 crore in proposed investments, a projected turnover of ₹1.94 lakh crore, and forecasted employment for over 2.45 lakh individuals. By promoting

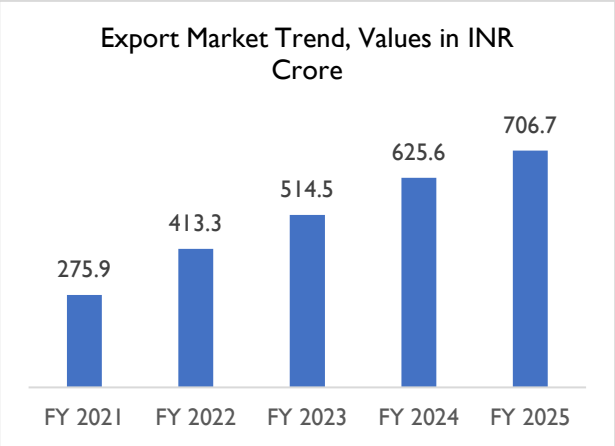
large-scale capital infusion and scaling up production capacity, the PLI scheme is reinforcing India's competitiveness in the global technical textile market.

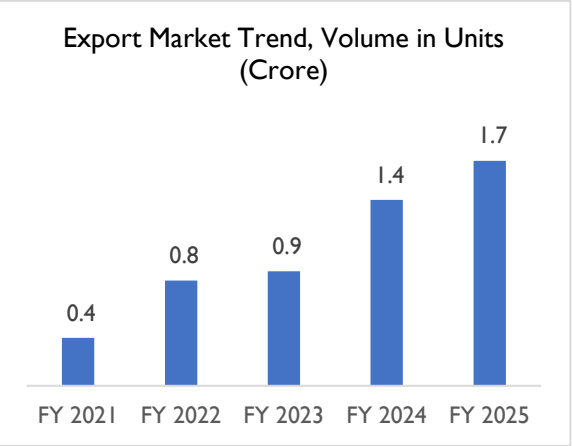
- **Mandatory Use of Technical Textiles in Government Projects:** The Ministry of Textiles, under a Public Procurement (Preference to Make in India) Order dated October 23, 2019, has mandated the use of technical textiles across 92 application areas in government-funded infrastructure projects managed by 10 central ministries including agriculture, horticulture, highways, railways, water resources, and healthcare. As of the latest update, notifications for 68 specific applications have been issued, ensuring that geotextiles, agro-textiles, and other high-performance textile products are systematically integrated into official schemes. This policy guarantees steady demand for specialized yarns, supporting domestic manufacturers and advancing the government's goals of sustainable infrastructure development and self-reliance.
- **Support from Textile Research Associations (TRAs):** Under the aegis of the Ministry of Textiles, leading Textile Research Associations including SASMIRA (Synthetic & Art Silk Mills' Research Association, Mumbai), NITRA (Northern India Textile Research Association, Ghaziabad), ATIRA (Ahmedabad Textile Industry's Research Association), and BTRA (Bombay Textile Research Association, Mumbai) serve as key pillars of India's technical textiles ecosystem. Recognized on the ministry's official portal, these autonomous institutes are empanelled under the National Technical Textiles Mission (NTTM) to provide vital services like testing, certification, R&D, prototype development, technical consultancy, and skill training for yarns and fibres. For instance, NITRA has been designated a Centre of Excellence for protective and automotive textiles, while SASMIRA acts as a nodal centre for geotextiles, agro-textiles, and medical textiles. These TRAs foster industry–academia linkages and capacity-building initiatives, accelerating innovations in high-performance yarns and enabling domestic manufacturers to meet evolving technical standards.
- **Skill Development and Training:** The Ministry of Textiles, through its flagship Samarth – Scheme for Capacity Building in the Textile Sector, is actively training manpower to meet the growing demands of the technical textiles industry, particularly in high-performance fibres and yarns. The scheme targets critical segments of the textile value chain that require specialized skills, including yarn production, finishing techniques, and quality control operations for functional and technical textile applications. Training programs are conducted in collaboration with industry partners, textile research associations, and sector-specific institutions, ensuring that the curriculum is aligned with current industrial requirements and includes hands-on practical training along with placement support. According to official data, more than 1.5 lakh candidates were trained under the Samarth scheme by 2023, and efforts are ongoing to expand its scope to cover emerging fields such as technical textiles and sustainable manufacturing practices.

Trade Scenario

Export Scenario: Annual export value & historical growth trend in export value

India's export performance for technical textile products and related articles used in industrial applications has shown a steady upward trend in recent years. These products, which are designed for specialized functional uses across sectors such as filtration, insulation, and mechanical reinforcement, are witnessing growing global demand driven by industrial expansion, infrastructure development, and environmental regulations. Indian exporters are leveraging advancements in textile engineering and favourable government initiatives to tap into key international markets. The forthcoming data visualization will highlight export volumes and destination-wise trends, providing deeper insight into India's evolving position in this niche yet vital segment of the global textile trade.





Source[1]: Directorate General of Foreign Trade (DGFT)

India's exports of textile products and articles for technical uses have experienced consistent growth over the past five years, both in value and volume. The total export value rose from INR 27,590 lakhs in FY 2021 to INR 70,670 lakhs in FY 2025, reflecting a robust compound annual growth rate (CAGR) of approximately 26%. Similarly, export volumes increased from 0.4 crore units to 1.7 crore units during the same period, indicating rising global demand for India's technical textile offerings.

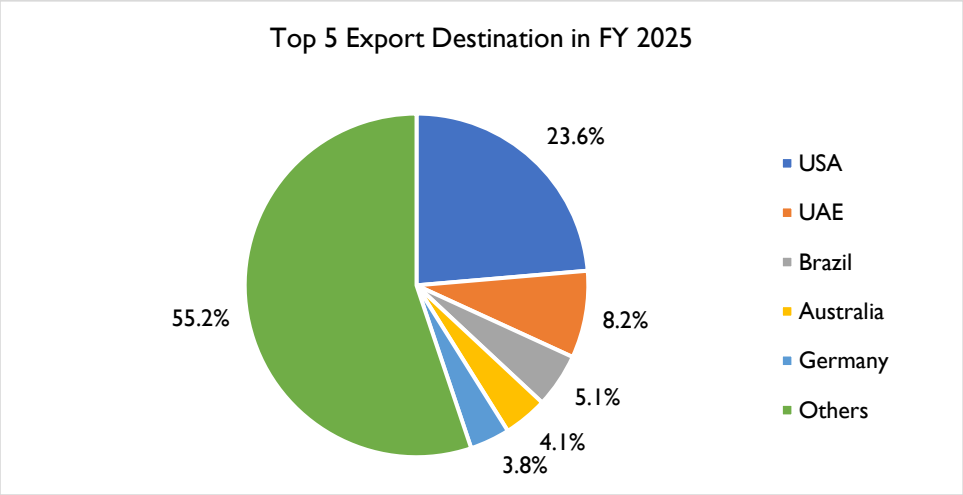
This upward trend can be attributed to several key factors. First, there has been a growing global emphasis on industrial and environmental applications that rely heavily on technical textiles—such as filtration, insulation, automotive components, defence, Industrial and geotextiles. Indian manufacturers have increasingly aligned their capabilities to meet stringent international standards, making the country a competitive sourcing destination. Second, government initiatives under schemes like the Production Linked Incentive (PLI) for technical textiles and the National Technical Textiles Mission have strengthened the domestic manufacturing base and export readiness. Third, India's ability to offer cost-effective yet quality-compliant solutions have allowed it to penetrate both emerging and mature markets, enhancing export

[1] HS code to be considered 5911 - Textile Products and Articles, For Technical Uses, Specified in Note 8 To This Chapter

potential. As the data ahead will illustrate, these favourable conditions have driven a steady and sustainable growth trajectory for India's technical textile exports.

Top 5 export markets (countries) & historical trend in exports to those three markets

India's export of textile products and articles for technical uses is well-diversified across major global markets, with the United States leading as the largest destination, followed by the UAE, Brazil, Australia, and Germany. These top five countries collectively accounted for nearly 45% of India's total exports in this category in FY 2025, amounting to INR 31,700 lakhs out of the total INR 70,670 lakhs. The remaining INR 38980, lakhs (55.2%) was spread across other nations, indicating a broad global footprint. The strong demand from these regions reflects India's ability to serve highly industrialized as well as rapidly developing economies, offering cost-effective, functional, and quality-compliant technical textile solutions.



Source: Directorate General of Foreign Trade (DGFT)

- **United States :**

The U.S. emerged as the dominant export destination, accounting for nearly a quarter of India's total technical textile exports. In the FY 2025, technical textile goods worth INR 16,710 Lakhs were exported to the United States. This strong demand stems from the United States' well-established industries such as automotive, construction, and filtration, all of which heavily utilize technical textiles. Indian exporters have benefitted from the U.S. market's preference for competitively priced, high-performance materials, coupled with India's ability to meet stringent quality standards and delivery timelines. Additionally, U.S. companies increasingly source from India as part of their diversification strategy away from traditional suppliers like China.

US Tariffs on India

The recent political inspired 50% tariff imposition on India has been an unfortunate move made by the U.S President Donald Trump to revamp the U.S Economy. The series of announcements regarding and the imposition of tariffs are as follows:

- On August 1,2025 the U.S. announced higher tariff rates for countries from which it imports goods, with most of the rates effective from August 7. A 15% rate was used as a reference for countries with which the U.S. has a trade deficit; and for those with which the U.S. has a trade surplus had a comparatively lesser rate of 10%. However, there were some countries that are subject to higher U.S. tariffs.
- By August 7, 2025, the U.S. had announced increased tariffs of 15-50% on Asian economies, with most rates around 20%. Although these tariffs were lower than the levels announced in April, the rates were much greater than those applied to most Western counterparts, impacting exporters such as Taiwan Region (20%) and India (25%). It was believed to reach a maximum of 50% at the end of August by the U.S Government.
- Moreover, on July 28,2025 the US imposed a 15% tariff on most EU imports under a new trade agreement, impacting Nordic countries such as Denmark, Finland, and Sweden. Key exemptions include aircraft parts and semiconductor equipment, while steel and aluminum continue to face 50% tariffs.
- On August 27,2025 the US president Donald Trump announced the 50% tariff on most of the Indian Goods imported. India has joined other countries such as Brazil who were already facing higher tariffs. This has been expected to be a temporary imposition, and economists believe the tariffs could further be brought down. However, the current effect of the tariffs is seen in the engineered goods, automobile sector and textile sector as well. The textile sector which are facing order cancellations has been supported by the Indian Government's extension of duty-free import of cotton until December 31, 2025.The textile industry bodies such as Confederation of Indian Textile Industry are facing 20-25% reduction in exports to US in the next six months. This impact would be post re-orienting the export strategy and finding other countries to explore for exports under India's Free Trade agreement.

➢ **United Arab Emirates**

The UAE stands as a strategic export hub due to its robust infrastructure and trade connectivity with the Middle East, Africa, and Europe. Indian technical textile exports to the UAE have been driven by the country's rapid infrastructural growth, especially in construction, oil & gas, and urban development. Around 8.2 % of Indian exports were sent to UAE which was valued at INR 5800 Lakhs thus becoming the second major export destination in FY 2025. Furthermore, Indian exporters leverage the UAE's re-export potential, wherein goods are routed to other regions, boosting trade volumes. Favourable trade relations and lower logistics costs due to proximity also contribute to the UAE's significant share.

➢ **Brazil**

Brazil which was the third major export destination imported technical textile goods worth INR 36,100 Lakhs. The country represents a growing export market for India's technical textiles supported by the

country's expanding industrial base, particularly in agriculture, mining, and automotive sectors. These industries require durable and specialized textile materials, such as protective gear, insulation fabrics, and filter media areas where Indian products are gaining traction. Brazil's focus on infrastructure development and modernization of its manufacturing sector aligns well with India's capacity to deliver customized, cost-effective textile solutions.

Acceptance of Rs in BRICS Countries:

In the recent BRICS convention held between August 4-8 ,2025 in Jakarta, Indian entity at the meet has issued an official statement and communication stating that it would allow the BRICS countries to conduct their trade completely in Indian currency i.e. Indian Rupees.

This is a strategic move made by India as observed by political analysts to diminish the power of US Dollar in the global trade market. With regards to the statement, the Reserve bank of India has issued notification to banks to create more Vostro accounts which enable foreign entities to conduct trade without having a physical presence in a particular country where it wants to participate in trade. As per the notification, the RBI has ensured that any bank would not need any prior approval to open a Vostro account henceforth in this regard.

With the use of these accounts, now trade activities such as imports and exports with INR currency through the Vostro accounts setup for the same. This action by the Indian Government is also expected to strengthen value of Indian Rupee though the tariffs imposed by the U.S is set to have a negative impact on the Indian Rupee. This enables better trade relationships with other nations for India and thus retaining a strong economic front in the global trade. Thus, implying better trade i.e. exports and imports for the technical textile industry as well as other sectors.

Australia

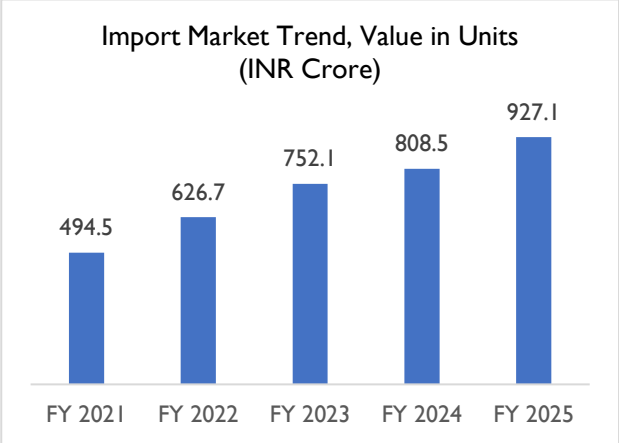
Australia's demand for Indian technical textiles is largely driven by sectors like mining, construction, and environmental protection, where performance fabrics are critical. The country values high-quality and sustainable materials, areas where Indian manufacturers have made notable improvements. As per export value of technical textile goods in FY 2025 from India was INR 2,920 Lakhs and was around 4.1 % of the total global exports. In recent years, bilateral trade initiatives and an increase in Indian suppliers' certifications to meet Australian standards have strengthened trade ties, contributing to steady export growth.

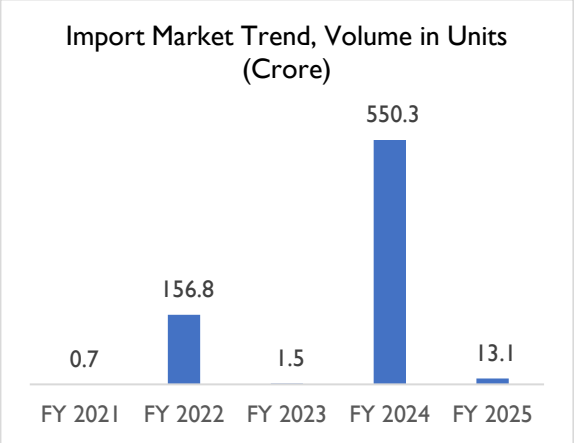
- **Germany :**

Germany, as a leading industrial economy in Europe, offers consistent demand for advanced technical textile products, especially in the automotive, machinery, and environmental sectors. Thus, the exports worth INR 2660 lakhs were exported from India as it held a 3.8% share in the global export market. While the market is highly competitive and quality-driven, Indian exporters have managed to carve out a niche by offering reliable and cost-efficient alternatives. Germany's emphasis on eco-friendly and functional materials has also favoured Indian suppliers who are shifting towards sustainable manufacturing practices.

Import Scenario: Annual import value & historical growth trend in import value

India's import of specialized machinery and equipment including plastic welding machines, ultrasonic tools, industrial robots, and other advanced machine tools has shown remarkable growth between FY 2023 and FY 2025. The total import value surged from USD 1,346.8 million in FY 2023 to USD 2,057.8 million in FY 2025, registering a strong compound annual growth rate (CAGR) of over 23%. Even more striking is the exponential rise in import volume, which grew tenfold from 25.9 million units in FY 2023 to 259.5 million units in FY 2025.





Source: Directorate General of Foreign Trade (DGFT)[2]

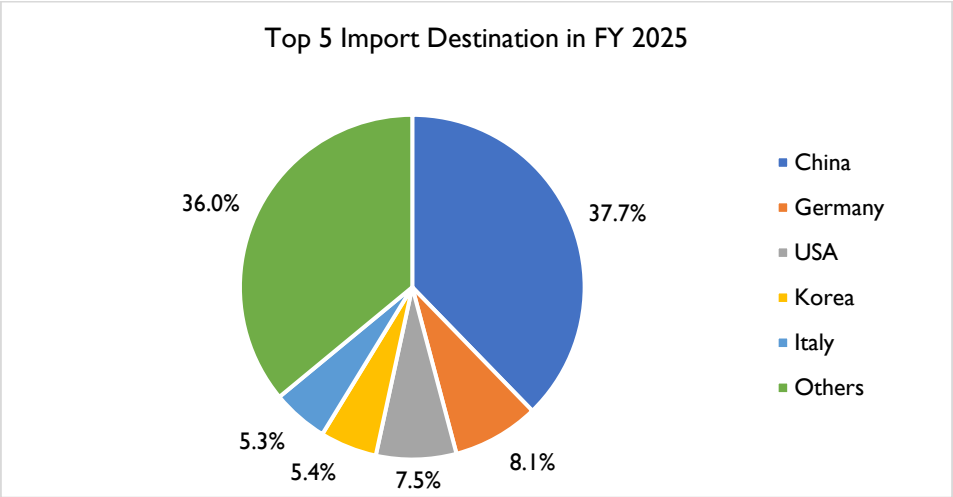
India's import of products under the specified technical textile category has witnessed a significant upward trajectory in recent years, both in value and volume. The total import value rose from INR 49,450 lakhs in FY 2021 to INR 92,710 lakhs in FY 2025, marking a robust CAGR of approximately 17.1%. This consistent growth underscores the increasing domestic reliance on high-performance textile materials for specialized applications across sectors such as automotive manufacturing, industrial filtration, medical and hygiene products, and protective clothing.

While the volume data presents fluctuations with notable peaks in FY 2022 and FY 2024 the import value has shown a more stable rise, indicating a shift toward importing higher-grade, technologically advanced textile products. The steep rise in volume during FY 2022 and FY 2024 may be attributed to bulk procurement for infrastructure development, post-pandemic medical demand, or stockpiling to counter global supply chain disruptions. These products are typically not produced at scale domestically due to limitations in technical capabilities, consistency in quality standards, or lack of cost competitiveness driving the need for imports from technologically mature economies. The data clearly reflects a growing strategic dependency on imports to meet the demands of India's expanding industrial and healthcare sectors.

[2] [2] HS code to be considered 5911 - Textile Products and Articles, For Technical Uses, Specified in Note 8 To This Chapter

Top 5 import markets (countries) & historical trend in exports to those three markets

India's import landscape for technical textile products under the specified category is led by a concentrated group of countries, with the top five accounting for nearly two-thirds of the total import value in FY 2025. These imports, totalling INR 92,710 lakhscrore, reflect India's strategic sourcing from technologically advanced nations to meet the rising demand in sectors such as automotive, filtration, construction, medical, and protective applications. China holds a dominant share, followed by Germany, the USA, South Korea, and Italy, each contributing with their own technological strengths and manufacturing specializations. The following analysis breaks down the role and relevance of each key import partner.



Source: Directorate General of Foreign Trade (DGFT)

- **China –**

China is the largest contributor to India's imports of technical textile products, accounting for over one-third of the total value. Its dominance is driven by large-scale production capabilities, competitive pricing, and an extensive product range catering to various industrial uses. It exported technical textile products worth INR 34980 lakhs to India thus being the largest import market in FY 2025 with market share of around 38%. Chinese manufacturers offer both standard and customized solutions, making them a preferred source for Indian buyers seeking cost-effective yet functionally efficient materials. Additionally, China's integrated supply chains and quick lead times further solidify its position in the Indian market.

- **Germany –**

Germany holds the second position with a market share of 8.1% whose imports valued at INR 7550 lakhs was shipped to India in FY 2025. It wasprimarily due to its reputation for high-quality, precision-engineered technical textiles. German products are often favoured for critical applications requiring superior durability, chemical resistance, and compliance with stringent safety and environmental standards especially in sectors like automotive components, filtration systems, and heavy industrial use. Though costlier than Chinese

alternatives, the reliability and advanced R&D behind German imports justify their value in India's quality-sensitive segments.

- **USA**

The United States ranks third, supplying technical textile products that are largely geared toward specialized applications such as healthcare, aerospace, and Defence-related requirements. American exports to India in this category are often characterized by innovation-driven materials including nonwovens, high-strength composites, and barrier fabrics. These exports from the U.S were valued at INR 6980 lakhs in FY 2025 which had 7.5% market share in the Import market in India. U.S. firms also maintain strong regulatory compliance (e.g., FDA, ASTM standards), making them an ideal partner for India's growing demand in sectors like medical textiles and personal protective equipment (PPE).

- **South Korea**

South Korea contributes a significant share through its strength in advanced textile technology, especially in the areas of smart textiles, synthetic fibers, and filtration fabrics. It totalled exports to India were priced at INR 4950 lakhs and thus it retained the fourth position at the global import destinations of India. Korean suppliers offer a balance of quality and affordability, making them an attractive option for Indian industries looking for reliable mid-range technical solutions. The country's expertise in high-performance materials and strong trade ties with India help maintain its relevance in this niche import segment.

- **Italy –**

Italy rounds out at fifth amongst the top five, leveraging its specialization in engineered textiles and innovative production techniques. Italian imports are particularly valued in high-end industrial design, luxury automotive interiors, and niche construction materials and costed around INR 4890 lakhs in FY 2025. Italian manufacturers emphasize sustainability and aesthetic value along with functionality, which aligns with evolving Indian preferences for eco-friendly and high-performance products. Their role is especially prominent in sectors that merge performance with design sophistication.

Analysis of regulatory / other factors that has an impact on trade:

- **Mandatory Quality Control Orders (QCOs) and BIS Certification:**

The Indian government has introduced Quality Control Orders (QCOs) for several categories of technical textiles to ensure product safety, reliability, and compliance with performance standards. Imported products falling under these QCOs must obtain BIS certification, which may pose a challenge for foreign suppliers unfamiliar with Indian regulatory processes. This step, while ensuring quality, can increase import lead times and add compliance costs.

- **Customs Duties and Tariff Structure:**

Import of technical textile products is subject to Basic Customs Duty (BCD), Integrated GST (IGST), and other charges depending on the product classification. While some inputs may attract lower duties, others face moderate to high tariffs impacting the landed cost. The tariff structure plays a crucial role in determining sourcing decisions, especially when balancing cost versus quality across different supplier countries.

- **Free Trade Agreements (FTAs) and Preferential Access:**

India's FTAs with ASEAN countries, South Korea (CEPA), and Japan provide tariff concessions that facilitate easier and more cost-effective imports of technical textiles. These agreements allow Indian industries to access high-quality raw materials and finished technical textile products at reduced duties, particularly from technologically advanced countries, supporting sectors like automotive, filtration, and protective textiles.

- **Incentives for Import Substitution (PLI & Make in India):**

Government initiatives like the **Production-Linked Incentive (PLI) Scheme for Technical Textiles** aim to boost domestic manufacturing capacity. While the long-term goal is to reduce reliance on imports, these programs may gradually shift demand toward locally produced alternatives. In the short to medium term, however, gaps in local capability continue to drive imports for specific high-performance textile products.

- **Digital Customs Reforms and Trade Facilitation:**

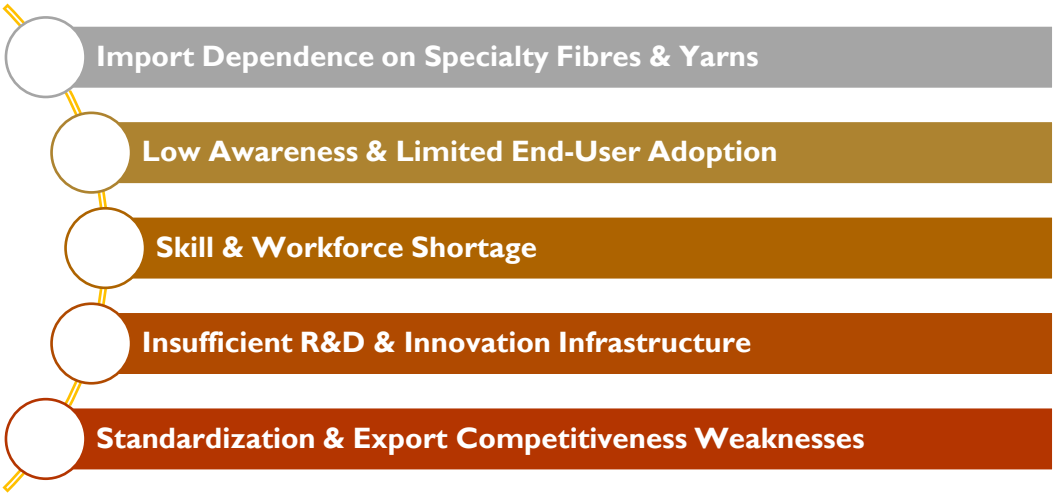
Recent improvements in customs infrastructure such as the introduction of faceless assessment, the ICEGATE portal, and single-window clearance have made the import process more efficient and transparent. These digital reforms have helped reduce dwell times and administrative bottlenecks, facilitating smoother and faster entry of critical technical textile materials into India.

The political developments of latest times have been a concern as a country's imposition of tariff policies

Threats & Challenges

Key Threats & Challenges Facing the Industry

Key Threats:



- **Import Dependence on Specialty Fibres & Yarns:** India's technical textile industry remains heavily dependent on imports for high-performance specialty fibres such as carbon fibre, aramid (e.g., meta- and para-aramid, Nylon-66), and ultra-high molecular weight polyethylene (UHMWPE), which are critical for advanced applications in protective, industrial, and automotive textiles. According to the Ministry of Textiles and Invest India, specialty fibres account for approximately 30% of the technical textile segment; however, domestic manufacturing capabilities in this category remain limited. This dependence increases the industry's exposure to foreign exchange volatility, elevated landed costs, and supply chain disruptions, especially during periods of global uncertainty. Recognizing this structural gap, the National Technical Textiles Mission (NTTM) is actively promoting indigenous production and investment in specialty fibre manufacturing under the Atmanirbhar Bharat initiative.
- **Low Awareness & Limited End-User Adoption:** Despite formal promotion via the National Technical Textiles Mission (NTTM), the penetration of technical textiles in India remains low at just 5-10% compared to 30-70% in advanced economies, as reported in the Ministry of Textiles' India Vision 2047 roadmap. The NTTM's "Promotion & Market Development" initiative underscores that awareness among MSMEs, government agencies, and institutional buyers about the superior lifecycle performance, cost-efficiency, and sector-specific benefits of technical textile yarns remains limited. Consequently, adoption rates in critical sectors such as infrastructure, healthcare, agriculture, and defence remain suboptimal. To address this gap, NTTM has mandated technical textile usage across 92 application areas and issued 68 notifications under central ministries to boost institutional uptake. However, without broader awareness-building campaigns, training, and end-user engagement, technical textile yarn producers continue to face significant demand-side constraints limiting their ability to scale and capitalize on India's growing technical textiles ambition.

- **Skill & Workforce Shortage:** India's technical textiles sector faces a critical **shortage of specialized talent**, particularly in niche areas such as **nonwoven technology, high-performance fibers, and functional finishing techniques**. Most existing textile training programs in the country are geared towards conventional fabric and apparel production, creating a **skill mismatch** as the industry shifts toward high-performance and application-based textile manufacturing. While over **3.48 lakh individuals were trained under the Samarth Scheme** by 2023, the majority of these were trained for traditional roles rather than in technical textile domains.

  To address this gap, the **National Technical Textiles Mission (NTTM)** has partnered with institutions such as **NITRA, SASMIRA, and IITs** to develop domain-specific curricula and promote industry-oriented skill development (Source: PIB). However, **implementation has been slow**, and many training institutions remain **unaware or under-equipped** to deliver such specialized programs. As a result, the **availability of skilled manpower remains a bottleneck**, limiting the sector's ability to scale and meet growing domestic and export demands for high-value technical textile products.
- **Insufficient R&D & Innovation Infrastructure:** India's technical textiles sector still faces a significant hurdle in R&D and innovation infrastructure particularly in high-value verticals like Mobiltech, Meditech, and Geotech due to limited private-sector investment and underdeveloped research ecosystems. To address this, the Ministry of Textiles approved 20 mission-mode R&D projects worth ₹61090 lakhs in June 2023, covering key areas such as Geotech, Protech, Indutech, Sportech, Build tech, and specialty fibres like carbon fibre and UHMWPE, under the 6th Mission Steering Group (MSG) meeting of NTTM. This was followed by the approval of **18 additional projects worth ₹46740 lakhs** in September 2023, spanning domains such as Smart & E-Textiles, Meditech, Sustainable Textiles, and Geotextiles, under the 7th MSG meeting. Despite these significant government funding efforts, the industry–academia interface remains weak, and overall funding levels are still insufficient to consistently develop cutting-edge yarn technologies highlighting the need for deeper private-sector engagement and enhanced collaboration to drive the next wave of technical textile innovation.
- **Standardization & Export Competitiveness Weaknesses:** One of the key hurdles for India's technical textile sector is the **lack of comprehensive product standardization**, which directly impacts its **export competitiveness**. Many technical textile categories—particularly newer and high-performance applications such as **smart textiles, bio-composites, and specialty geotextiles**—still **lack clearly defined BIS specifications or globally harmonized standards**. This creates confusion for both manufacturers and buyers and makes it difficult for Indian products to meet the strict **technical, safety, and compliance requirements** of international markets.

  Additionally, **fragmented certification infrastructure**, limited accredited testing labs, and **slow adaptation to global quality benchmarks** further weaken India's position in global value chains. Countries like **Germany, China, and South Korea** have established strong regulatory and branding frameworks that support consistent quality and high-value exports. In contrast, many Indian exporters

face barriers related to **product certification, labelling, technical documentation**, and **non-tariff barriers** in developed markets. Unless India strengthens its standardization, regime and builds robust export facilitation mechanisms, the industry will struggle to scale in global markets dominated by quality-sensitive buyers.

Key Challenges:

- **Limited Access to Specialized Machinery & Technology:** India's technical textile yarn industry faces a major bottleneck in the form of limited access to advanced and specialized machinery necessary for producing high-performance yarns, such as conductive, flame-retardant, antimicrobial, and bio-based variants. A large portion of domestic manufacturers continue to rely on conventional spinning and processing equipment, which are not suitable for the complex requirements of technical textile applications. This technological gap restricts domestic innovation, compromises product quality, and inhibits the ability to meet international performance standards. The lack of modern infrastructure, coupled with high capital investment requirements and limited local manufacturing of such machinery, has led to low technology penetration in this segment. This constraint not only hampers productivity and scalability but also reduces the industry's ability to transition toward value-added and export-ready technical yarns affecting India's long-term competitiveness in global markets.
- **Inadequate Integration with Global Value Chains (GVCs):** India's technical textile sector faces significant limitations in its **integration with global value chains**, which restricts its ability to scale exports, attract FDI, and access advanced technologies. While the country has a growing domestic market and policy support through initiatives like the **National Technical Textiles Mission (NTTM)** and **PLI schemes**, its global footprint remains modest. Indian firms often **lack visibility in international sourcing networks**, and many MSMEs struggle to meet the stringent **quality, compliance, and traceability requirements** expected by global buyers.

  Moreover, the absence of **large anchor firms**, limited participation in **international trade fairs**, and underdeveloped **branding and marketing strategies** further isolate Indian players from global

demand hubs. In contrast, competing nations like China, South Korea, and Germany are deeply embedded in global technical textile ecosystems through **OEM partnerships, contract manufacturing, and collaborative innovation platforms**. Without stronger linkages to these value chains, Indian manufacturers remain confined to low-value or import-substitution markets, missing out on the full economic and technological potential of global integration.

- **Underdeveloped Infrastructure & Testing Facilities:** India's technical textile sector is constrained by inadequate physical and institutional infrastructure, which hampers product innovation, validation, and commercialization. While Centres of Excellence (CoEs) have been established under the National Technical Textiles Mission (NTTM), the availability of NABL-accredited laboratories for specialized testing such as for fire resistance, tensile strength, antimicrobial efficacy, and UV protection remains limited and unevenly distributed across regions. Furthermore, the lack of fully equipped technical textile parks with plug-and-play manufacturing setups, effluent treatment systems, and incubation facilities restricts the growth of SMEs and start-ups in the sector. In addition, poor multimodal logistics connectivity and high freight costs delay delivery timelines, especially for time-sensitive export orders. These infrastructural shortcomings collectively impede faster product development cycles, lower investor confidence, and limit India's ability to compete with countries that offer integrated, well-supported manufacturing ecosystems for technical textiles.
- **Weak Industry Academia Collaboration:** The growth of India's technical textiles sector is significantly constrained by the **lack of strong, structured collaboration between industry and academia**. While numerous institutions such as **IITs, NITRA, SASMIRA, and CoEs under the National Technical Textiles Mission (NTTM)** are involved in research and training, their engagement with industry players remains **fragmented and project-specific rather than continuous and strategic**. As a result, innovations developed in academic labs often fail to translate into scalable commercial products, especially in fast-evolving segments like **Smart Textiles, Protech, and Indutech**.

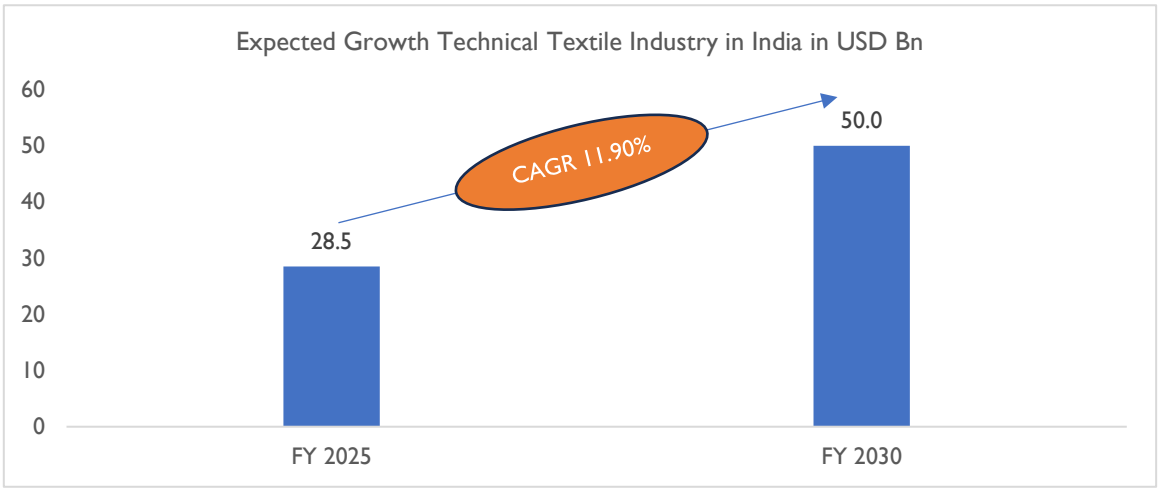
  This disconnect also limits the development of **industry-relevant curricula, joint R&D projects, incubation programs**, and **talent pipelines** that can meet the sector's technical needs. Most MSMEs lack the technical bandwidth to engage meaningfully with academic institutions, while universities often operate with limited exposure to real-world manufacturing constraints and market requirements. Without a robust, policy-driven framework to **incentivize collaborative innovation**, India risks falling behind in global technical textile advancements, missing opportunities for import substitution, IP creation, and export leadership.

Growth Forecast

Expected growth in the technical textile market in India

India's technical textile industry is expected to witness sustained growth in the coming years, not just due to industrial applications but also because of broader structural and policy-level shifts. One of the key drivers will be the **integration of technical textiles into public infrastructure mandates**, such as mandatory use of geotextiles in road construction, landfills, and water conservation projects. Several state governments are incorporating technical textile components into urban development and irrigation schemes, which is expected to generate stable, institutional demand. Additionally, the use of **technical textiles in large-scale government programs** like Jal Jeevan Mission, PM Gati Shakti, and Smart Cities will open new markets and ensure consistent utilization.

Another factor contributing to future growth is the **expansion of indigenous defence manufacturing** and the increased requirement for **high-performance textiles** such as ballistic fabrics, flame-retardant gear, and camouflage textiles. As India pushes for self-reliance under initiatives like "Make in India" and "Aatmanirbhar Bharat," demand for specialized textiles in defence, aerospace, and space applications is set to increase. Moreover, the development of **smart textiles and wearable technologies**—in fields like health monitoring, sports, and industrial safety—is emerging as a high-growth segment, supported by innovations in electronics-textile integration, which is expected to gain commercial traction by the end of the decade.



Source: Federation of Indian Chambers of Commerce & Industry (FICCI), D&B Desk Research

India's technical textile industry is expected to grow from **USD 28.5 billion in FY 2025 to USD 50 billion by FY 2030**, registering a strong **CAGR of 11.9%**. This growth reflects a transition from limited adoption to widespread industrial use, driven by rising demand for high-value segments like smart textiles, bio-based materials, and defence-grade fabrics. Regulatory measures such as **Quality Control Orders (QCOs)**, increasing investment in domestic manufacturing, and state-level policy support are further strengthening the ecosystem. Additionally, India's cost advantage and improving compliance with global standards position it as

a preferred sourcing destination in the post-COVID global supply chain realignment. As a result, export-oriented categories like **Indutech, Meditech, and Packtech** are expected to play a larger role in driving the sector's expansion.

Competitive Landscape

The technical textile yarn market in India is witnessing steady growth, characterized by a mix of large integrated manufacturers, mid-sized specialized firms, and a broad base of SMEs. Key players such as Reliance chemotex, Garvare Technical fibre, Cedaar Textile Limited , and RSWM Limited have established a strong presence in the production of high-tenacity polyester, nylon, polypropylene, and other performance-oriented yarns. These companies are increasingly focusing on niche applications including geotextiles, automotive fabrics, medical textiles, and filtration media. While large firms often operate across the entire value chain—from polymers to finished fabrics—many smaller players operate in focused verticals, supplying yarns tailored to specific technical applications.

Competition in this segment is largely based on the ability to produce yarns with functional attributes such as flame resistance, UV stability, chemical resistance, and tensile strength. As demand rises for advanced products like conductive yarns, aramids, and carbon-based fibers, Indian manufacturers are exploring both domestic R&D and technology collaborations to stay competitive. However, some high-performance yarns—such as aramids and UHMWPE—continue to be imported due to the absence of local manufacturing capacity. Companies that can develop indigenous substitutes or enhance yarn properties through blending and finishing are likely to secure a competitive advantage in specialized markets.

Innovation and R&D remain essential but underdeveloped areas for many Indian firms in this segment. Although large players maintain in-house research capabilities, industry-wide innovation is still catching up with global standards. The National Technical Textiles Mission (NTTM) has encouraged yarn-focused research, particularly in verticals like Meditech, Protech, and Indutech, through government funding and collaboration with research institutions such as SASMIRA, NITRA, and various IITs. Yet, challenges persist in scaling these innovations commercially due to limited private-sector investment, lack of pilot-scale testing facilities, and insufficient industry-academia collaboration in some regions.

In terms of global competitiveness, India exports technical yarns to regions such as the Middle East, Southeast Asia, and parts of Europe, but faces challenges related to product quality consistency, cost of high-grade inputs, and regulatory compliance. Environmental regulations and the global push for sustainable materials are also reshaping market expectations. To remain competitive, Indian manufacturers must enhance production efficiency, adopt global quality standards (such as REACH and ISO certifications), and invest in eco-friendly yarn technologies. With the right mix of innovation, policy support, and investment, India's technical textile yarn segment has strong potential to grow both domestically and in global markets.

a) **Product Differentiation and Performance Standards**: A critical determinant of competitiveness is the ability to offer **high-performance, application-specific yarns**. Factors such as tensile strength, UV resistance, flame retardancy, antimicrobial properties, and chemical resistance are essential in end-use categories like Protech, Meditech, and Indutech. Manufacturers that can tailor yarns to meet stringent performance criteria and international standards (like ISO, BIS, and ASTM) gain a competitive edge, especially in exports and government procurement.

b) **Technological Capabilities and R&D Investment**: The market is increasingly driven by innovation in **fibre engineering, functional finishes, and hybrid yarns**. Players with strong R&D capabilities, in-house testing infrastructure, and collaborations with academic or research institutions are better equipped to adapt to evolving customer requirements. Advanced production technologies—such as melt spinning for high-tenacity yarns or conductive yarn integration for smart textiles—also act as major differentiators.

c) **Raw Material Access and Cost Efficiency**: Many specialized fibers like **aramids, carbon fibre, and PTFE** are still imported, creating a dependency on global suppliers and vulnerability to price and supply chain fluctuations. Players with better backward integration or reliable sourcing networks for high-quality synthetic polymers (e.g., PET, PP, Nylon) can manage input costs more effectively and maintain margin competitiveness.

d) **Compliance, Certifications, and Sustainability**: Adherence to quality, safety, and environmental norms is becoming a key differentiator, especially for firms targeting export markets. Compliance with international certifications such as **REACH, OEKO-TEX®, GRS (Global Recycled Standard)** and industry-specific standards is crucial. As sustainability gains prominence, companies offering **bio-based, recycled, or low-impact yarns** are likely to gain traction with both domestic buyers and global brands.

e) **Capacity, Scale, and Supply Chain Reach**: Production scale and logistical capabilities significantly impact competitiveness. Larger players benefit from economies of scale and more efficient supply chains, enabling them to serve high-volume orders at competitive prices. In contrast, smaller firms often operate

in niche markets or face challenges in scaling up due to limited capital, outdated machinery, or fragmented distribution networks.

f) **Government Policies and Incentives**: The Indian government's initiatives—such as the **National Technical Textiles Mission (NTTM)**, **PLI Scheme**, and **Quality Control Orders (QCOs)**—play a crucial role in shaping the competitive environment. Firms that align early with policy requirements, leverage incentives, or participate in public procurement schemes gain strategic advantages in a still-evolving regulatory landscape.

Analysis of entry barriers / other factors

1. High Capital and Technology Intensity

Establishing a production facility for technical textile yarns—especially high-performance variants like aramid, UHMWPE, or conductive yarns—requires significant investment in specialized **machinery, precision spinning systems, testing equipment**, and infrastructure. Additionally, many production technologies (such as melt spinning, microfilament production, or hybrid yarn processing) involve **intellectual property rights or licensing costs**, making it difficult for newcomers without access to advanced technology.

2. Raw Material Dependency

India lacks domestic production of several **critical high-performance fibers**, such as carbon fibre, meta-aramids, and PTFE. New entrants may struggle to secure stable, cost-effective sources of these raw materials from global suppliers, especially without long-standing relationships or bulk procurement capacity. This dependence on imports also exposes firms to currency risks and supply chain disruptions.

3. Technical Know-how and Skill Gaps

Unlike conventional textile yarns, technical yarns require **domain-specific expertise in polymer chemistry, process engineering, and performance testing**. There is a limited pool of skilled technicians and R&D professionals trained in advanced material science or functional finishing in India. For new entrants, building a competent workforce or developing internal R&D capabilities is a major challenge.

4. Stringent Quality and Certification Requirements

To serve regulated sectors like healthcare, defence, and infrastructure, technical yarn producers must comply with **rigorous national and international standards** (BIS, ASTM, ISO, OEKO-TEX, etc.). Achieving and maintaining these certifications requires time, testing infrastructure, and recurring costs—raising the entry threshold for new players. Additionally, buyers often prefer vendors with a proven compliance track record.

5. Long Customer Validation Cycles

Technical textile buyers, especially in B2B and institutional markets (e.g., automotive, geotextiles, or PPE), require **extended product testing, trials, and validation** before switching to new suppliers. This makes it difficult for new entrants to break into established supply chains or secure high-value contracts without prior experience or references.

6. Limited Market Awareness and Distribution Networks

Penetrating niche segments like Mobiltech, Meditech, or Indutech requires deep market understanding and **access to specialized buyer networks**, which new entrants often lack. Additionally, the fragmented structure of India's technical textile ecosystem makes it harder to establish distribution, especially for complex products that need technical support.

Peer Profiling:

Name of the Peer	Overview
RSWM Limited	Established in 1962, RSWM limited is part of the LNJ Bhilwara Group. The company manufactures and exports synthetic, cotton and blended spun yarns in India. With respect to the export business, it exports numerous types of fabric and yarns to over 70 countries across the world. Its domestic manufacturing capabilities include its 12 manufacturing plants across the country which it has partially acquired and partially established over the years. Its major business units are classified as Yarns, Denims and Knits. It has received various awards and recognitions linking to its export activities, quality of its produce etc. It is headed by Mr Riju Jhunjhunwala.
Reliance Chemotex	This firm was incorporated in 1977 and in the following few years it constructed and commissioned its first produce of polyester yarn. It was founded by Mr Shanker Lal Shroff and is headed by the future generation of the family Sanjiv Shroff as of 2024. Its three major business divisions are Apparel Yarns, Home Furnishing Yarns and Industrial Yarns. It has a manufacturing facility in Udaipur, Rajasthan.
Garware Technical Fibres Limited	The company was established in 1976 and majorly manufactures industrial technical textile products. It also exports its products to over 70 countries and has presence in 6 overseas locations. Its

	products are majorly catered to industries such as agriculture, fisheries, safety, sports, industrial technical textile, shipping, Defence & Govt sector. The company has two manufacturing facilities in Maharashtra. It is currently headed by Vayu Garware.
Ceedar Textile Limited	The company was incorporated in the year 2020 and was transformed into a public listed company by 2024.Its product range includes variety of yarns such as Melange Yarns, Solid dyed yarns etc in fibres such as Cotton, polyester, Acrylic, Viscose and others. The manufacturing focus is sustainability oriented and offer completely organic, recycled fibres. The company exports its products to South Asian, African and Latin America Countries. Its manufacturing facility is in Punjab and caters to home furnishing, woven goods and hosiery segments of textiles industry. It is currently headed by Rajesh Mittal.

Ashutosh Fibre Limited

Company Overview:

Ashutosh Fibre Limited is engaged in the manufacturing of technical textile yarns. It was established in the year 1985 and has been manufacturing synthetic yarns operating from its facility in Petlad, Gujarat, and has their registered office in Ahmedabad. The company operates in three categories of technical textiles (i) Indutech, (ii) Protech, and (iii) Hometech and (iv) Mobiltech.

In the Indutech segment, company products cater to industrial applications such as filtration, geotextiles, and process industry textiles. One of the key products manufactured by the Company in this segment is polypropylene spun yarn, manufactured from polypropylene fibres that are lightweight, chemically resistant, have low moisture absorption, and provide good abrasion resistance. These properties make it suitable for use in filter cartridges, filter cloths, ropes, webbings, and other industrial applications where chemical stability and dimensional integrity are required. These materials cater to industries such as metallurgy, chemicals, cement, and mining.

In the Protech segment, the Company manufacture yarns and fabrics with inherent properties such as strength, flame retardancy, and heat resistance, used in personal protective equipment, safety apparel, and industrial thermal barriers. These applications are critical for defence, fire services, metallurgy, and hazardous industries, and are aligned with the increasing focus on defence indigenization in India.

In the Hometech segment, the Company's products are used in home furnishing textiles, carpets, and home filtration media, mattress covers, upholstery, sofa linings, carpets, curtains offering properties such as flame retardancy, stain resistance, and thermal insulation.

In Mobiltech segment, the company manufactures friction resistant yarns that are primarily used in the production of automotive friction materials such as brake pads, clutch facings, and transmission components. These yarns provide thermal stability, durability, and resistance to abrasion, making them suitable for use in applications that require consistent performance under high mechanical stress and elevated temperatures.The Company operates on a business to business (B2B) business model. Its product range includes specialised yarns such as para-aramid yarn (high strength and heat resistance), meta-aramid yarn (flame retardancy), modacrylic-blended yarns (thermal stability and flame resistance), peroxidised PAN yarn (heat insulation), antistatic polypropylene yarn (to reduce static build-up in sensitive environments), FR Viscose blends (protective fabrics) and DREF-spun yarns with glass filament cores or aramid sheaths (industrial and protective uses). These products are manufactured either as part of our own product range or on a job work basis, depending on client requirements.

Ashutosh Fibre Limited facility is equipped with advanced spinning technologies—Ring Spun, Dref Friction Spun, and Open-End Spinning that allow us to manufacture yarns with precise specifications such as tensile strength, thickness, and filtration efficiency.

Manufacturing Capacity:

- **Ring Frame Spinning:** Yarn counts from 2 Ne to 80 Ne with up to 4 different fibre components per yarn.
- **DREF II Friction Spinning:** Yarn counts from 0.3 Ne to 3.8 Ne using Glass, Filament, or Metal Core
- **Twisting Infrastructure:** Veejay Lakshmi Two-for-One Twisters with Mesdan Splicers; twisted packages up to 4 kg.
- **Processing Lines:** 5 independent fibre processing lines to avoid cross-contamination and ensure purity
- **Clearing & Quality Systems:** Yarn clearing via Loepfe Zenit and Uster Polymatic systems

Current Installed production capacity of the Manufacturing Utility:

Sr. No.	Manufacturing Unit location	Area covered by the facility (in square meters)	Products	No. of Days of Operations in a year	Installed Production Capacity per annum (in MT)
1	Building No 27, 28, and 29, City Survey No.156, Station Road, Village Petlad, Ahmedabad 388450, Gujarat	20,570.89	Synthetic yarn Like Para Aramid Based Spun Yarn, High Tenacity Polyester Yarn, Meta Aramid and FR Viscose Yarn, Polypropylene Yarn, Modacrylic Based Yarn, Poly Poly Core spun Yarn and Stainless-Steel Yarn (up to 50 NE)	310	3,750
2			100% Polypropylene Yarn (Up To 2 NE)	310	1,025

Sr. No.	Manufacturing Unit location	Area covered by the facility (in square meters)	Products	No. of Days of Operations in a year	Installed Production Capacity per annum (in MT)
1	Building No 27, 28, and 29, City Survey No.156, Station Road, Village Petlad,	3,886.20	Synthetic yarn Like Para Aramid Based Spun Yarn, High Tenacity Polyester	310	1250

	Ahmedabad 388450, Gujarat		Yarn, Meta Aramid and FR Viscose Yarn, Polypropylene Yarn, Modacrylic Based Yarn, Poly Poly Core spun Yarn and Stainless-Steel Yarn (From 22 To 50 NE)		

Certifications:

- **ISO 9001:2015** – Quality Management System (Issued by Alcumus ISOQAR)
- **GRS (Global Recycle Standard)** – Certification for use of recycled materials and sustainable practices
- **5S Certification** – Implementation of workplace management system at the Anand manufacturing facility

Product & Service Offerings:

Company offers a portfolio of high-performance technical yarns, designed to serve demanding industrial applications:

- **Liquid Filtration Yarns** - Polypropylene spun and DREF yarns tailored for filter bags and cartridges in pharmaceutical, chemical, and process industries. Some variants are antibacterial and FDA-grade.
- **Gas Filtration Yarns -** Yarns resistant to acids, alkalis, and industrial gases made from PPS, acrylic, meta-aramid, and other fibres.
- **Heat & Flame-Retardant Yarns -** Made from para-aramid or meta-aramid fibres, these yarns deliver superior fire protection for protective clothing and fabrics.
- **Abrasion-Resistance Yarns -** Built for enduring friction and wear, ideal for heavy-duty applications.
- **Cut-Resistance Yarns -** High-performance fibres including core-spun variants using stainless steel, nylon, PE, or glass for enhanced tear resistance.
- **Antistatic Yarns / Conductive Yarns -** Incorporating stainless steel or carbon fibres, suitable for static-dissipating textiles in sensitive environments.
- **Antibacterial Yarns** - Made using Smartcel Sensitive technology, these yarns retain antibacterial properties for up to 100 washes ideal for hygiene-critical textiles.
- **Recycled Yarns** - Made from GRS-certified recycled fibers, manufactured using state-of-the-art recycling processes to support sustainable textile solutions.
- **High Tenacity polyester yarn –** The manufacturing process of HT polyester yarn are made by melt-spinning polymer chips into filaments, which are then drawn at high temperatures. Used for applications where high tensile strength is needed along with high heat resistance
- **Dyed Meta Aramid Yarn –** Yarn is made from wet spinning process and is an high performance one which is coloured during the fibre making process which gives an natural colour.

Key Customer Segments Served:

- **Filtration Manufacturers:** Ashutosh Fibre supplies liquid filtration yarns FDA-grade polypropylene spun and DREF yarns widely used by manufacturers producing filter bags for the pharmaceutical, chemical, and industrial sectors. They also offer gas filtration yarns, designed for resistance to strong acids, alkalis, and industrial gas conditions (e.g., PPS, acrylic, meta-aramid fibers), targeting fabricators of industrial gas filters.
- **Static-Control & Safety Textile Manufacturers**: The company offers antistatic yarns built with stainless steel fibre blends to address issues of static buildup, serving customers in industries where electrostatic discharge can be hazardous (such as petrochemical, electronics, flammable environments).
- **Hygiene & Healthcare Textile Producers:** Their antibacterial yarns incorporate hygienic and regenerative elements, offering prolonged antibacterial properties and skin-safe performance ideal for manufacturers of healthcare textiles, hygiene-sensitive fabric applications, and related technical textiles.

Key Strengths

- **Unmatched Diversity in Technical Yarns:** Ashutosh Fibre proudly declares itself as India's most diverse technical yarn manufacturer, offering an expansive product range that includes aramids, modacrylic, FR viscose, stainless steel, wool, polypropylene, PLA, high-tenacity polyester and more positioning it as an industry leader in yarn variety and innovation.
- **Proven Experience & Market Leadership:** With over 40 years of textile experience, including more than 15 years in technical textiles, the company has evolved into India's largest manufacturer of polypropylene spun yarns and a pioneer in filtering and technical textile solutions.
- **Modern Manufacturing & Technical Capability:** Operating out of Petlad, Gujarat, their facilities utilize advanced spinning technologies (including DREF II friction spinning lines) and state-of-the-art machinery to process challenging fibers into high-performance yarns. This enables precision-engineered products and reliable quality.
- **Commitment to Sustainability & Certified Recycling:** Ashutosh Fibre embraces environmental responsibility through its state-of-the-art recycling technology. They offer GRS-certified recycled yarns, reflecting their dedication to ecological stewardship and sustainable manufacturing practices
- **Strategic Use of Cutting-Edge Fibers from Renowned Suppliers:** The company emphasizes that it sources high-quality technical fibers from reliable global suppliers, ensuring consistency in performance combined with state-of-the-art spinning equipment (DREF systems and ring spinning), this enables the production of multiperformance yarns that deliver reliability and precision.

Sales Performance

The company exports to overseas countries such as China, Germany, Brazil, Italy Russia. It also caters to various industries across India located in various states. The below mentioned data represents the countries and the states to which they supply their products along with their revenue:

	FY 2025	FY 2024	FY 2023
Total Revenue (in Lakhs)	11310.98	10887.72	9705.321
Domestic	61.14%	55.50%	62.96%
Export	38.05%	43.59%	36.15%

	FY 2025	FY 2024	FY 2023
Domestic Revenue	**6971.83**	6098.22	6165.77
Gujarat	3383.55	3411.12	3438.56
Punjab	1053.05	47.91	11.79
Maharashtra	789.54	790.91	763.28
West Bengal	491.22	640.56	634.57
Uttar Pradesh	341.83	512.56	505.14
Tamil Nadu	195.02	23.19	10.09
Telangana	134.90	192.31	194.43
Delhi	131.56	226.75	256.42
Haryana	106.08	2.94	36.93
Dadra and Nagar Haveli	103.66	0.00	113.65
Rajasthan	92.11	94.07	105.98
Madhya Pradesh	80.03	70.64	74.06
Andhra Pradesh	38.72	74.07	20.86
Karnataka	27.75	7.52	0.00
Uttarakhand	2.79	3.69	0.02
Export Revenue	4,339.15	4789.49	3539.55
Russia	299.97	377.87	190.54
Italy	117.94	69.07	217.85
Brazil	322.44	224.96	164.75
China	2,252.65	2,804.77	1,446.82
Germany	774.63	938.71	1,250.02
Hungary	571.52	322.13	138.81
Mexico	-	12.09	82.99
Poland	-	39.89	34.00
Taiwan	-	-	13.77

Operational KPIs:

Product	FY 2024-25			FY 2023-24			FY 2022-23		
	Installed Capacity (In MT)	**Actual Production (in MT)**	**Capacity Utilization (%)**	**Installed Capacity (In MT)**	**Actual Production (in MT)**	**Capacity Utilization (%)**	**Installed Capacity (In MT)**	**Actual Production (in MT)**	**Capacity Utilization (%)**
Synthetic yarn Like Para Aramid Based Spun Yarn, High Tenacity Polyester Yarn, Meta Aramid and FR Viscose Yarn, Polypropylene Yarn, Modacrylic Based Yarn, Poly Poly Core spun Yarn and Stainless-Steel Yarn (up to 50 NE)	3,750[(1)]	3,247	86.58%	3500	2809	80.24%	3500	2704	77.25%
100% Polypropylene Yarn (Up to 2 NE)	1,025	653	63.75%	1025	680	66.38%	1025	772	75.34%
Total	**4,775**	**3,900**	**81.68%**	**4,525**	**3,489**	**77.10%**	**4,525**	**3,476**	**76.82%**

Financial KPIs:

Particular	Unit	Ashutosh Fibre Limited			RSWM Limited		
		As at end for Fiscal			As at end for Fiscal		
		Fiscal 2025	Fiscal 2024	Fiscal 2023	Fiscal 2025	Fiscal 2024	Fiscal 2023
Total Income	₹ in lakhs	11,497.41	10,988.92	9,797.43	4,85,463.75	4,09,272.06	3,88,033.63
Revenue from Operations	₹ in lakhs	11,403.40	10,987.18	9,792.54	4,82,528.78	4,05,719.71	3,78,889.62
EBITDA	₹ in lakhs	1,783.58	1,614.38	1,049.53	20,344.63	23,388.67	24,808.53
EBITDA Margin	in %	15.64%	14.69%	10.72%	4.22%	5.76%	6.55%
Profit After Tax (PAT)	₹ in lakhs	850.91	704.95	329.80	-4,127.87	3,491.96	10,960.80
PAT Margin (%)	in %	7.46%	6.42%	3.37%	-0.86%	0.86%	2.89%
Debt - equity Ratio	In Times	1.60	1.27	1.47	1.24	1.36	0.91
Net worth	₹ in lakhs	3,585.33	2,755.41	2,071.47	1,30,783.21	1,30,928.71	1,26,842.09
Return on Equity (ROE)	in %	23.73%	25.58%	15.92%	-3.16%	2.67%	8.64%
Return on Capital Employed (ROCE)	in %	16.3%	21.0%	14.9%	2.58%	3.88%	8.77%
PE	In Times	-	-	-	18.15	21.46	5.65
EPS (Per Share)	Per Share	-	-	-	8.76	7.41	28.13
Interest Coverage Ratio	In Times	3.49	3.94	2.47	0.34	0.91	1.63

Particular	Unit	Reliance Chemotex			Garware Technical Textiles Limited		
		As at end for Fiscal			As at end for Fiscal		
		Fiscal 2025	Fiscal 2024	Fiscal 2023	Fiscal 2025	Fiscal 2024	Fiscal 2023
Total Income	₹ in lakhs	36,876.71	37,145.45	37,103.70	1,52,545.90	1,32,262.33	1,28,146.90
Revenue from Operations	₹ in lakhs	35,859.78	36,718.80	36,487.78	1,48,868.01	1,27,992.34	1,25,361.68
EBITDA	₹ in lakhs	3,226.52	3,105.25	3,423.70	29,589.44	25,748.87	21,297.62
EBITDA Margin	in %	9.00%	8.46%	9.38%	19.88%	20.12%	16.99%
Profit After Tax (PAT)	₹ in lakhs	404.52	320.99	1,241.92	21,407.49	19,894.11	15,907.01
PAT Margin (%)	in %	1.13%	0.87%	3.40%	14.38%	15.54%	12.69%
Debt - equity Ratio	In Times	1.90	2.09	1.49	0.05	0.10	0.13
Net worth	₹ in lakhs	13,728.31	13,364.93	13,200.71	1,22,021.38	1,23,156.03	1,02,621.31
Return on Equity (ROE)	in %	2.95%	2.40%	9.41%	17.54%	16.15%	15.50%
Return on Capital Employed (ROCE)	in %	6.97%	6.11%	9.33%	23.52%	21.16%	18.86%
PE	In Times	29.85	37.56	9.72	37.63	40.69	10.49
EPS (Per Share)	Per Share	5.36	4.26	16.46	21.56	19.94	77.38
Interest Coverage Ratio	In Times	0.73	1.07	1.76	14.19	13.84	16.06

Particular	Unit	Ceedar Textile Limited		
		As at end for Fiscal		
		Fiscal 2024	Fiscal 2023	Fiscal 2022
Total Income	₹ in lakhs	19,117.34	16,118.82	22,005.00
Revenue from Operations	₹ in lakhs	18,968.38	16,059.93	21,958.99
EBITDA	₹ in lakhs	2,901.76	1,639.79	1,860.88
EBITDA Margin	in %	15.30%	10.21%	8.47%
Profit After Tax (PAT)	₹ in lakhs	1,209.62	460.10	692.87
PAT Margin (%)	in %	6.38%	2.86%	3.16%
Debt - equity Ratio	In Times	0.17	0.21	0.23
Net worth	₹ in lakhs	2,523.52	1,313.90	853.80
Return on Equity (ROE)	in %	47.93%	35.02%	81.15%
Return on Capital Employed (ROCE)	in %	90.77%	86.25%	153.38%
PE	In Times	6.45	16.95	-
EPS (Per Share)	Per Share	16.13	6.13	-
Interest Coverage Ratio	In Times	2.21	1.77	2.18

Formulas

Parameter	Formula
Total Income	Total Income includes Revenue from Operations and Other Income
Revenue From Operations	Revenue from operations means the revenue from operations as appearing in the restated statement of profit & loss for the relevant year/period.
EBITDA	PBT + Finance Cost + Depreciation
EBITDA Margin	EBITDA / Revenue from Operations
PAT	Profit After Tax
PAT (Net Comprehensive Income) Margin	PAT / Revenue from Operations
Net worth	Shareholder Equity
Debt Equity Ratios	(Short-term Borrowing + Long-term Borrowing) / Shareholder Equity
Return on Equity	PAT / Avg. Net Worth
Return On Asset	PAT / Avg. Total Asset
Interest Coverage Ratio	(EBITDA - Depreciation) / Finance Cost
Rate on Capital Employed (ROCE)	EBIT + Other Income / Avg. Capital Employed

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Annexure for Abbreviation

GDP	Gross Domestic Product
GVA	Gross Value Added
IIP	Index of Industrial Production
PFCE	Private Final Consumption Expenditure
GFCF	Gross fixed capital formation
WPI	Wholesale Price Index
CPI	Consumer Price Index
y-o-y	Year on Year
m-o-m	Month on Month
IMF	International Monetary Fund
RBI	Reserve Bank of India
MOSPI	The Ministry of Statistics and Programme Implementation
Est., Adv. Est	Estimated, Advance Estimates
P, F	Projected, Forecast
USD	US Dollar

INR	Indian Rupee
Mn, Bn, Tn, Cr	Million, Billion, Trillion, Crore
RBI	Reserve Bank of India
CAGR	Compound Annual Growth Rate
USMCA	United States-Mexico-Canada Agreement
NTTM	National Technical Textiles Mission
CoE	Centre of Excellence
BIS	Bureau of Indian Standards
UV	Ultraviolet
PE	Polyethylene
PPE	Personal Protection Equipment
PET	Polyethylene terephthalate
ASTM	American Society for Testing and Materials
ISO	International Standards Organization
FDA	Food and Drug Administration
CDSCO	Central Drugs Standard Control Organisation

FIBC	Flexible Intermediate Bulk Container
ECG	Electrocardiogram
AFFOA	Advanced Functional Fabrics of America
OEM	Original Equipment Manufacturer
PAN Yarn	Polyacrylonitrile Yarn
DREF -spun	Dr. Ernst Fehrer spun
FDI	Foreign Direct Investment
CPCB	Central Pollution Control Board
NCAP	National Clean Air Programme
NIP	National Infrastructure Pipeline
MoEFCC	Ministry of Environment, Forest and Climate Change
DGFT	Directorate General of Foreign Trade
QCO	Quality Control Orders
ETP	Effluent Treatment Plant
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand

TDS	Total Dissolved Solids
EPCG Scheme	Export Promotion Capital Goods Scheme
RoDTEP	Remission of Duties and Taxes on Exported Products scheme,
TRA	Textile Research Associations
SASMIRA	Synthetic & Art Silk Mills' Research Association
NITRA	Northern India Textile Research Association
ATIRA	Ahmedabad Textile Industry Research Association
BTRA	Bombay Textile Research Association
BRICS Nations	Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, and the United Arab Emirates
BCD	Basic Customs Duty
IGST	Integrated Goods & Service Tax
FTA	Free Trade Agreement
ASEAN	Association of Southeast Nations
CEPA	Comprehensive Economic Partnership Agreement
ICEGATE	Indian Customs Electronic Data Interchange Gateway
UHMWPE	Ultra-High Molecular Weight Polyethylene

PP	Polypropylene
IIT	Indian Institute of Technology
PIB	Press Information Bureau
GVC	Global Value Chain
PLA	Polylactic Acid
GRS	Global Recycled Standard