



**Centre for  
WTO Studies**

## INDUSTRIAL SUPPLY CHAIN SERIES



### **Viscose Staple Fibre In Global Value Chains**

Trade Dynamics, Production Landscape, and India's Strategic Role

**BRIEF No.7 | July 2026**

Dr. Jaijit Bhattacharya

Manmeet Singh Gulati

Dr. Kashika Arora

Dr. Qayoom Khachoo

## Table of Contents

|                                                       |    |
|-------------------------------------------------------|----|
| 1. Introduction and context.....                      | 3  |
| 2. Global trade patterns in viscose staple fibre..... | 6  |
| 3. India's position in global VSF value chain.....    | 10 |
| 4. Estimation of supply chain resilience risk.....    | 13 |
| 5. Industry value chain challenges.....               | 16 |
| 6. Policy implications and way forward.....           | 20 |

# 1. Introduction and context<sup>1</sup>

Viscose Staple Fibre (VSF) is a regenerated cellulose man-made fibre made from wood-based dissolving pulp. Unlike synthetic fibres, VSF is derived from plant cellulose and processed through a chemical regeneration process. The fibres are cut into staple lengths for spinning into yarn, offering the comfort and moisture-absorption of natural fibres with industrial consistency. VSF belongs to the broader category of man-made cellulosic fibres (MMCFs), which are produced by natural cellulose and regenerating it into fibre form through industrial processes. Over the time, MMCF technology has evolved from conventional viscose rayon to advanced regenerated cellulose fibres such as Modal and Lyocell<sup>2</sup>. While all three fibres share the same cellulose base, they differ in manufacturing technology, fibre characteristics, resource efficiency, and environmental performance.

In 2025, Global fibre production is estimated at 120 million tonnes, of which India contributes approximately 13.7 million tonnes. Fibre production is broadly divided into two categories, natural fibres and man-made fibres (MMF).

*Figure 1: Viscose Value chain*



Natural fibres account for around 26 million tonnes in 2025, representing 22% of the global fibre production. In India, natural fibre production is estimated at 5.4 million tonnes, representing a higher share of 39 per cent. This reflects India's long-standing strength in cotton and other natural fibre-based textile value chains.

Man-made fibres dominate the fibre basket with 94 million tonnes, accounting for 78% of total fibre production. In India, MMF production is estimated at 8.3 million tonnes, representing 61% of domestic fibre production.

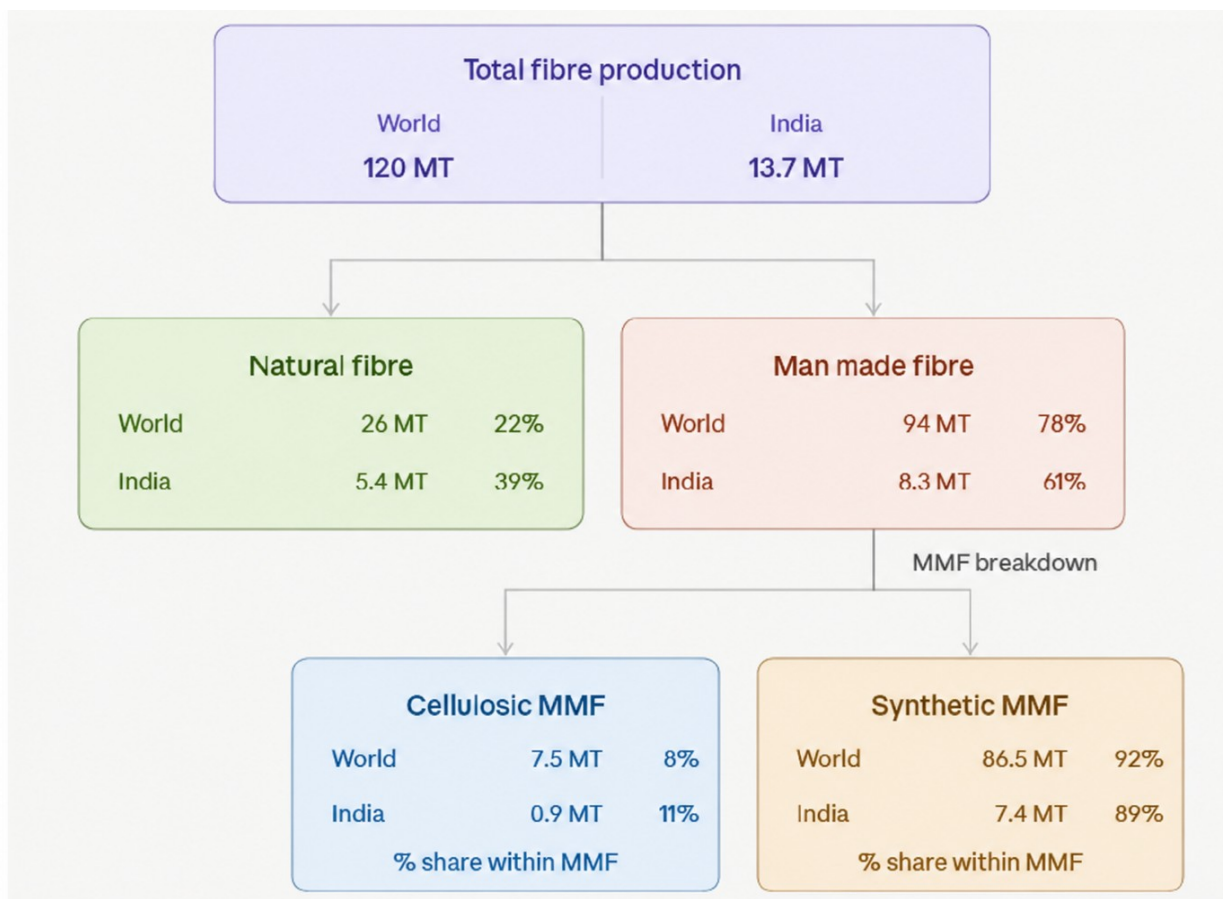
---

<sup>1</sup>The authors sincerely acknowledge Dr. Pritam Banerjee, Head of the Centre for WTO Studies, for his guidance, encouragement, and continuous support throughout this research initiative.

<sup>2</sup>Viscose, Modal and Lyocell are all regenerated cellulose fibres under the broader MMCF category. Viscose is generally treated as the first-generation fibre, Modal as a second-generation modified viscose fibre with improved wet strength, and Lyocell as a third-generation solvent-spun fibre produced through the NMMO process.

Within MMF, the category is further divided into cellulosic man-made fibres and synthetic man-made fibres. Synthetic fibres, including polyester, nylon, and acrylic, form the largest segment. They account for approximately 86.5 million tonnes globally, or 92% of total MMF production. In India, synthetic MMF production stands at around 7.4 million tonnes, representing 89% of India's MMF basket.

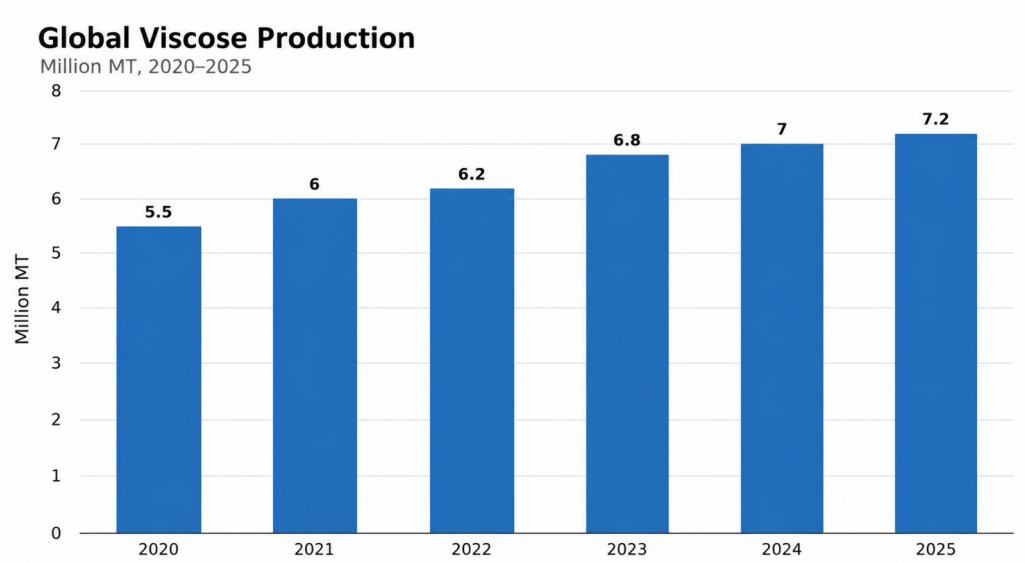
Figure 2: Fibre production tree: World vs India breakdown (2025)



Source: Industry estimates

India's fibre profile continues to remain more cotton-centric than the global average, with cotton accounting for 38% of domestic natural fibre production against the global average of 20%. While cotton remains an important strength for India's textile sector, its supply is influenced by natural constraints such as water availability, climate variability, and agricultural output. Both cotton and viscose staple fibre (VSF) are cellulosic in nature. In this context, the development of domestic VSF production would diversify India's raw-material base, reduce excessive dependence on cotton and align the textile sector with the growing global use of man-made cellulosic fibres.

Figure 3: Rising VSF production globally



Source: Based on industry estimates

Global VSF production increased by **31% between 2020 and 2025**, from **5.5 million MT to 7.2 million MT**.<sup>3</sup> Given the capital-intensive nature of VSF manufacturing, global production is concentrated among a limited number of large and globally integrated producers.

Major global VSF manufacturers include Aditya Birla Group, Lenzing AG, Shandong Helon, Siyang Yibin Group, Tangshan Sanyou, Acelon Chemicals & Fiber Corporation and Jiangsu Hengli Chemical Fiber.

The most noteworthy competitor is Royal Golden Eagle, a Chinese-owned group and one of the world's largest VSF producers. It operates through Sateri in China and Asia Pacific Rayon in Indonesia, giving the group a significant presence across major Asian manufacturing hubs and making it one of the largest competitors to India's domestic VSF industry.

VSF combines a balance of natural fibre qualities, including moisture absorption and comfort, with the consistency and production efficiency of industrial-scale production. As demand for man-made fibres continues to grow, VSF is well placed to play a significant role in the future of textile manufacturing.

---

<sup>3</sup>Industry figures

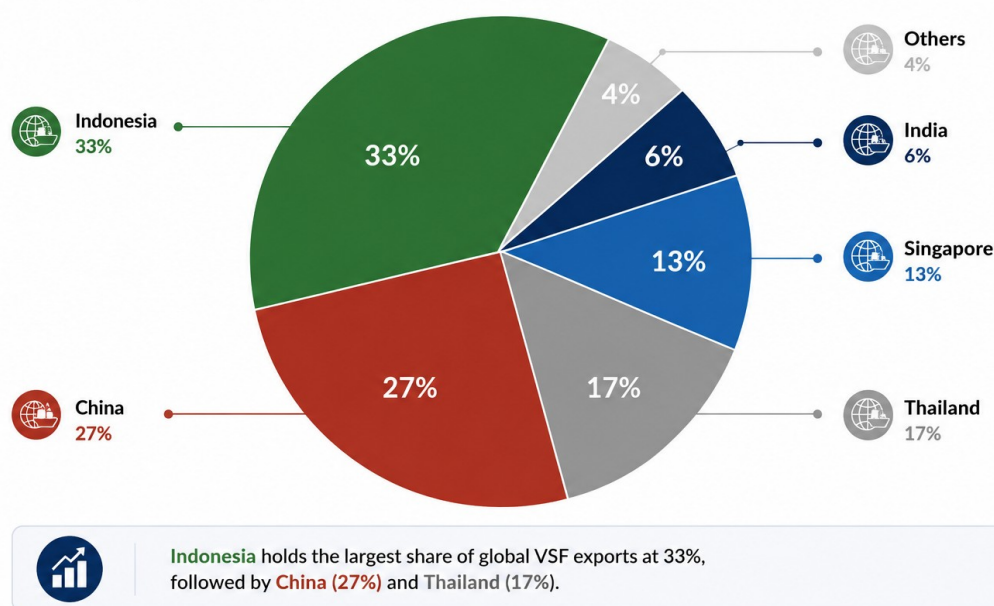
## 2. Global trade patterns in viscose staple fibre

The global VSF export market is highly concentrated, with Indonesia<sup>4</sup>, China and Thailand accounting for nearly 90% of global exports in 2025–26. Indonesia is the largest exporter, with a 33% share, followed by China at 27% and Thailand at 17%. India accounts for a smaller export share because, like China, it has a large domestic textile market. A substantial portion of India's domestic VSF production is therefore absorbed within the country to meet domestic demand.

Figure 4: Indonesia is the biggest exporter of VSF in the world

### Global Export Share (VSF) – 2025-26

Indonesia leads global VSF exports with one-third market share



Source: Industry Data

Source: UN Comtrade; ITC Trademap

Indonesia's position in global VSF trade has strengthened significantly over the last decade. Its VSF exports increased by 176.5% between 2016 and 2025, nearly tripling over nine years. This growth has been driven by an export-oriented manufacturing model, with Indonesia's leading VSF producer Asia Pacific Rayon (APR) stating that it targets exports for at least 50% of its production while supplying the remaining output to the domestic market<sup>5</sup>.

The extent of Indonesia's dominance can be gauged by the fact that Singapore's exports in the above figure, i.e. 13%, are primarily Indonesian exports re-routed from Singapore. Singapore by itself does not have established VSF manufacturing capacity.

Indonesia's export competitiveness is partly supported by cheaper pulp sourcing that does not meet the same sustainability standards followed by major global buyers. VSF production depends on

<sup>4</sup> Indonesia's share includes Singapore, as Singapore does not have domestic VSF manufacturing capacity and imports VSF from Indonesia for re-export to global markets.

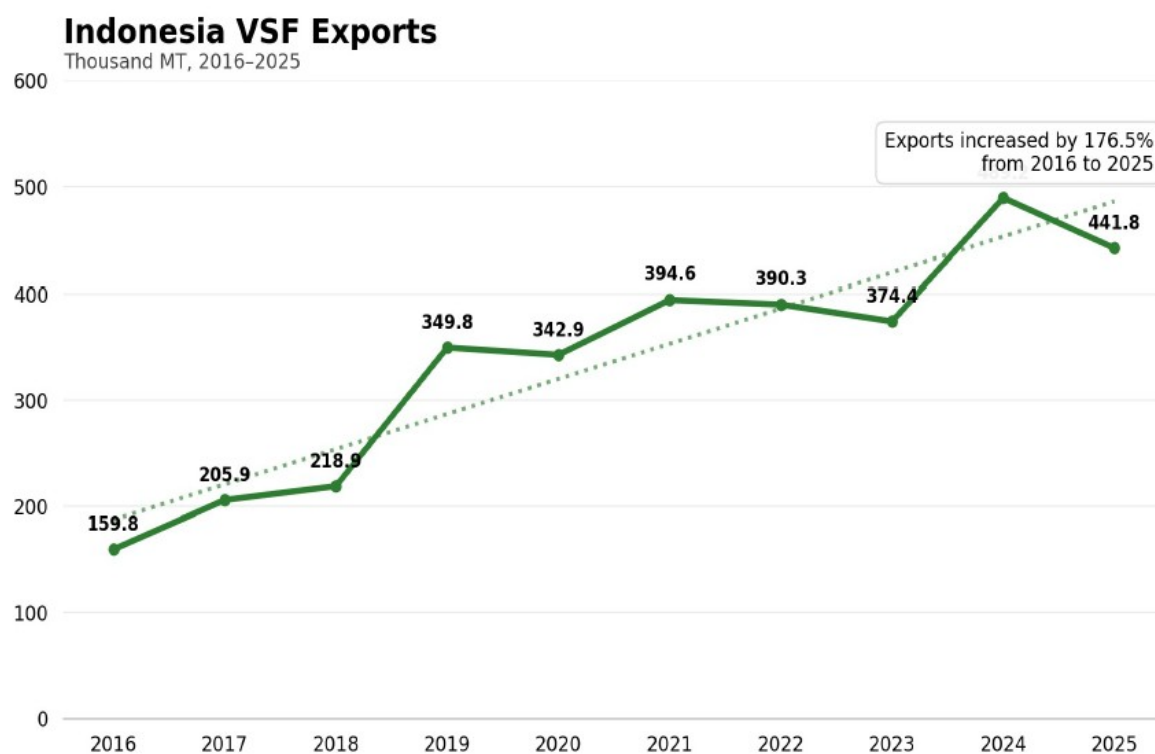
<sup>5</sup> <https://www.aprayon.com/en/media-english/news-releases/viscose-rayon-tailored-for-making-indonesia-4-0/>

Rayon Grade Wood Pulp (RGWP), a forest-based input where responsible sourcing is important. Global buyers increasingly rely on certification systems to verify sustainable forest management and traceability, with the Forest Stewardship Council (FSC) being the most widely recognised of these frameworks.

Indonesia's VSF value chain does not meet this benchmark. APR's main pulp supplier, APRIL Group, has remained outside the FSC framework since 2013, after concerns were raised by Greenpeace, WWF-Indonesia and Rainforest Action Network over deforestation risks linked to its wood supply chain<sup>67</sup>.

This gives Indonesian VSF producers a cost advantage that comes from cheaper upstream pulp. Indian producers, by contrast, source pulp under stricter sustainability expectations and bear higher procurement and compliance costs. The result is an uneven competitive position, where Indonesia's export-oriented VSF model benefits from lower-cost pulp that may not meet the same globally accepted sustainability standards. A detailed on sustainability issues linked to Indonesian VSF is provided in subsequent chapters.

Figure 5: Exponential VSF export growth from Indonesia

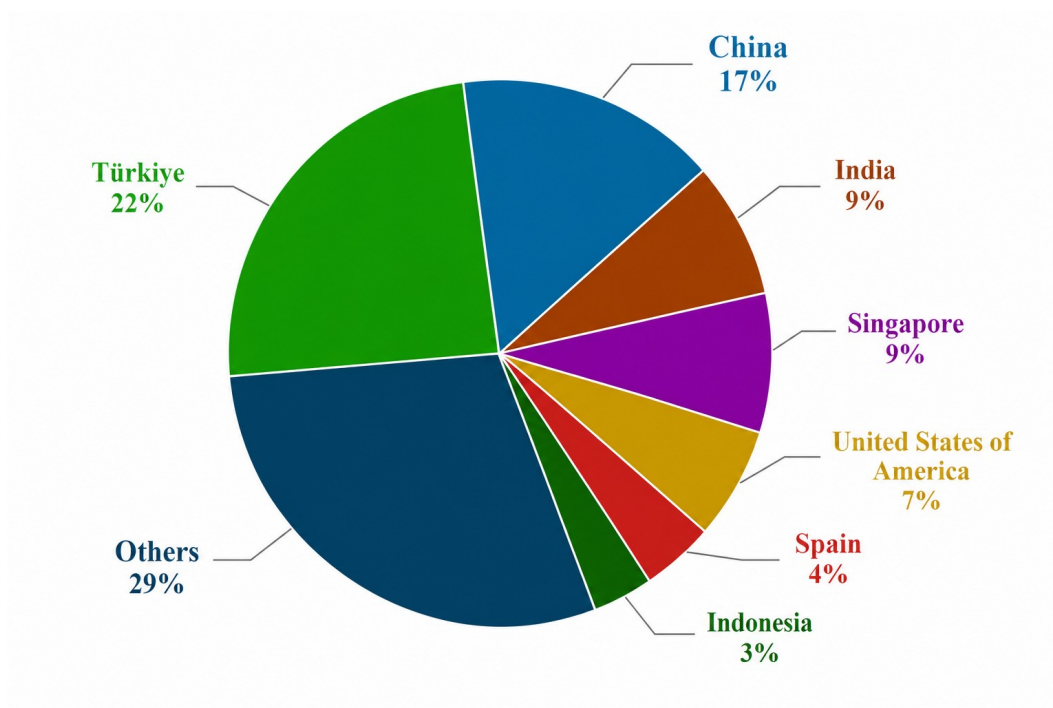


Source: UN Comtrade; ITC Trademap

<sup>6</sup>[https://wwf.panda.org/discover/our\\_focus/forests\\_practice/forestry/pulp\\_and\\_paper/monitoring\\_the\\_industry\\_/monitoring\\_the\\_industry\\_\\_rge\\_april\\_/](https://wwf.panda.org/discover/our_focus/forests_practice/forestry/pulp_and_paper/monitoring_the_industry_/monitoring_the_industry__rge_april_/)

<sup>7</sup><https://www.earthsight.org.uk/news/april-buying-deforestation>

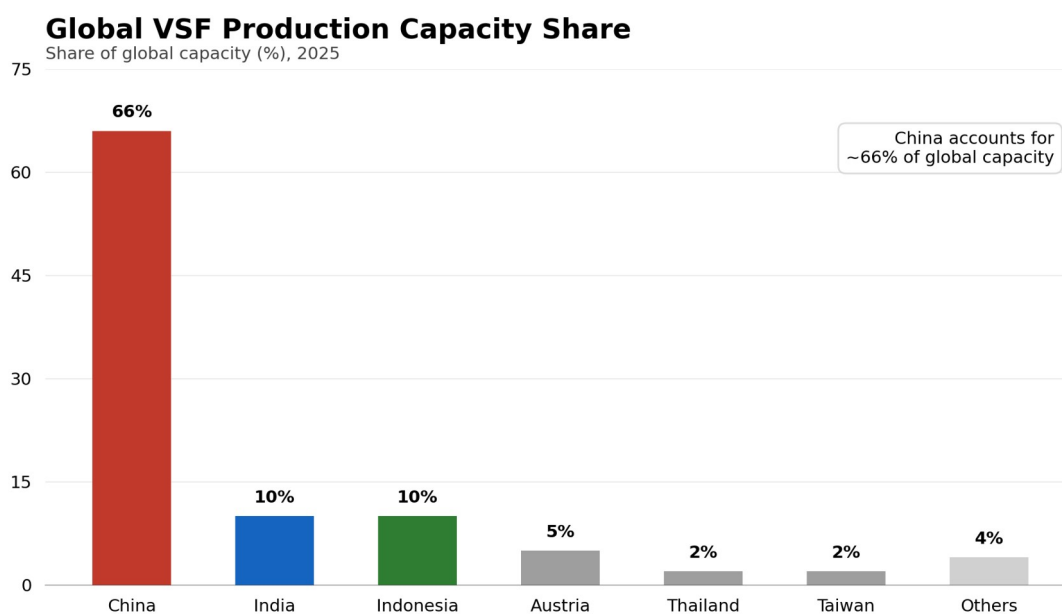
Figure 6: Global VSF import share by country (in %)



Source: UN Comtrade; ITC Trademap

In contrast to VSF production capacity, which is concentrated in a few Asian manufacturing hubs, VSF demand is geographically wider and continues to grow across major textile-producing economies. The import market reflects this spread. Türkiye is the largest importer, followed by China, India, Singapore and the USA.

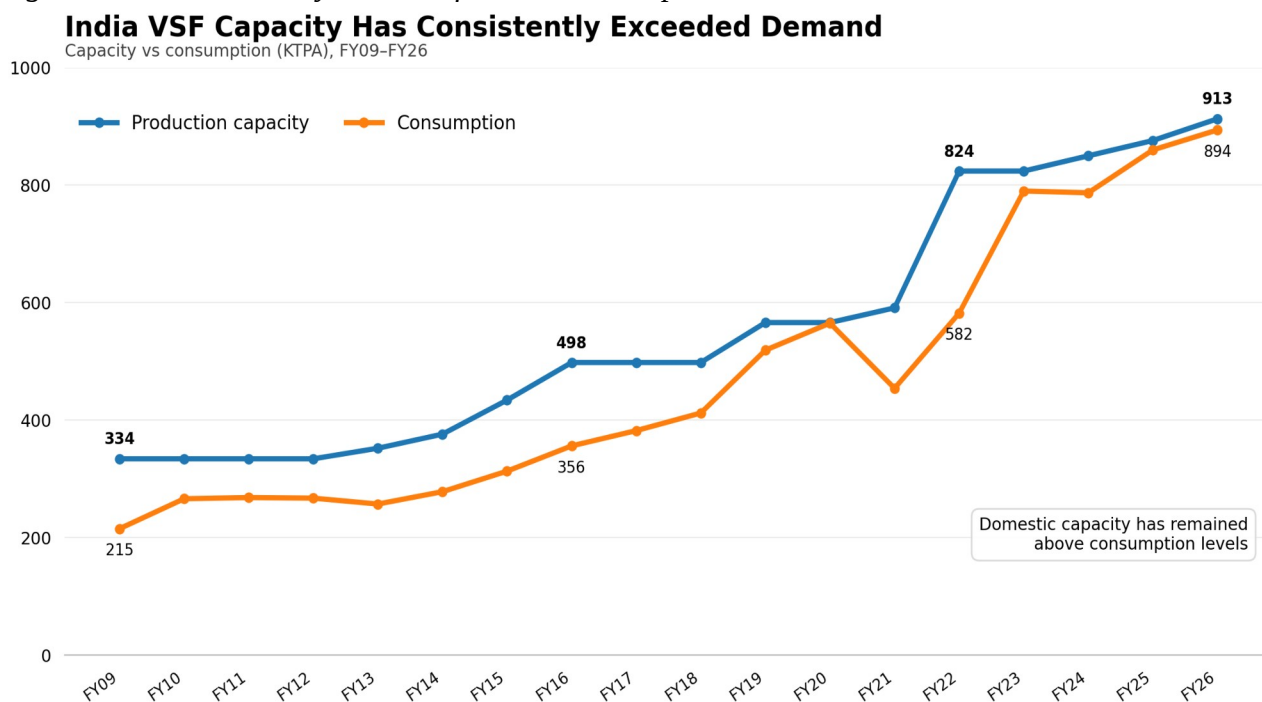
Figure 7: China is the largest VSF producer in the world



### 3. India's position in global VSF value chain

India is among the few countries globally with an established VSF manufacturing ecosystem. Over the years, domestic capacity creation has remained ahead of domestic consumption requirements, enabling India to achieve self-reliance in VSF production. However, future demand is expected to rise as India targets a USD 350 billion textile industry and USD 100 billion textile exports by 2030. Meeting this demand will require continued investment in VSF capacity, easier access to upstream raw materials and a level playing field for domestic industry to compete against imports.

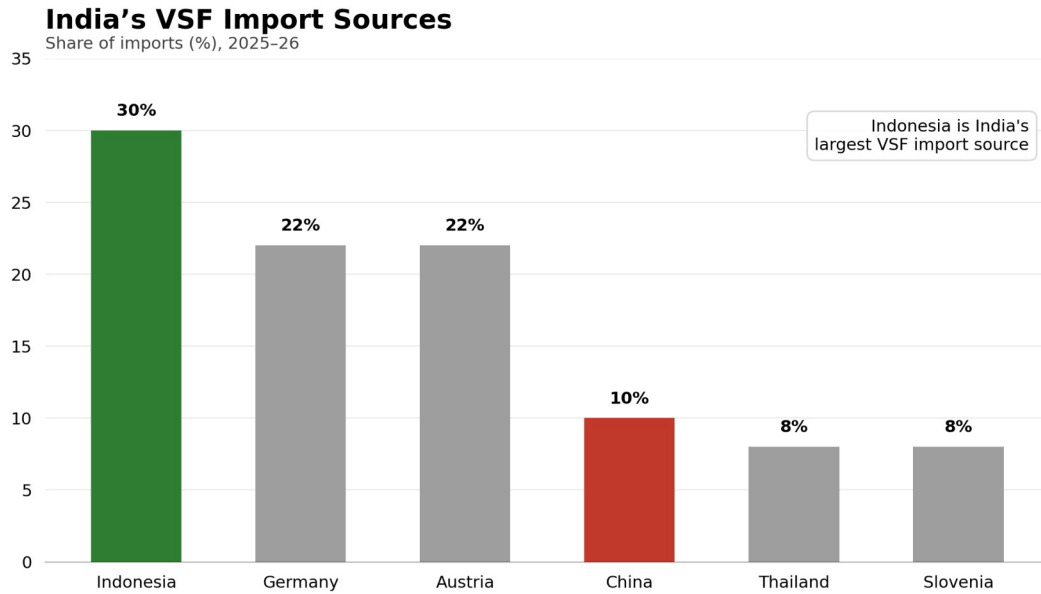
Figure 8: India has always been self-reliant in VSF production



Source: Industry figures

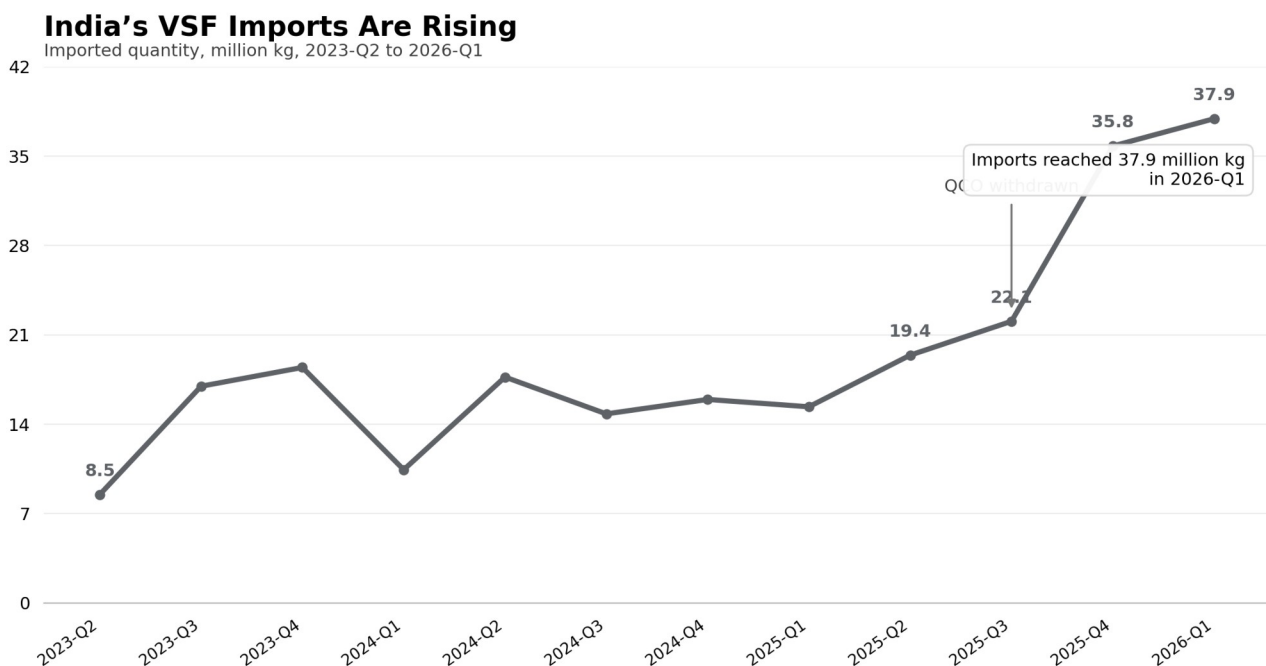
Despite sufficient domestic capacity, VSF imports continue to enter India. This is driven by cost advantages to competitors through preferential trade agreements and differing sourcing strategies. Indonesia is India's largest VSF import source, accounting for 30% of imports in 2025–26. Indonesian producers benefit from Zero duty access to the Indian market under the ASEAN–India FTA, and also due to lower-cost and unsustainable RGWP sourcing.

Figure 9: Imports from Indonesia are increasing



Germany and Austria each account for 22% of India's imports, largely reflecting European-origin speciality and higher-grade cellulosic fibres. China, Thailand and Slovenia account for 10%, 8% and 8% respectively. However, Slovenia does not have noteworthy VSF manufacturing capacity. Its exports to India appear to be re-routed from Germany and Austria, rather than independent production. Similarly, Singapore is also a routing point for Indonesian-origin VSF entering India under preferential duty treatment.

Figure 10: Despite having sufficient capacity, imports are capturing domestic market share



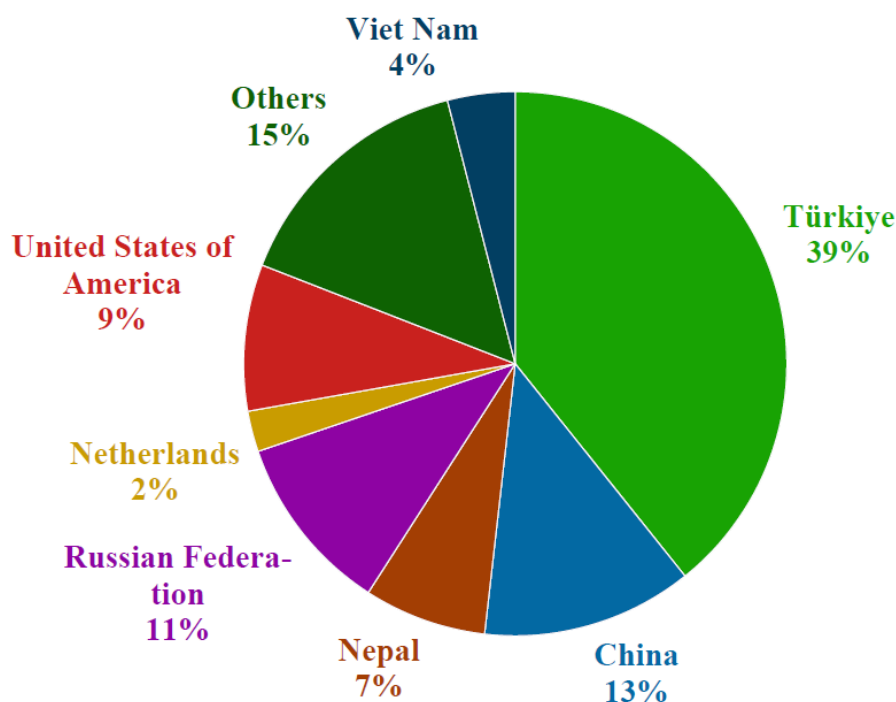
Quality Control Order (QCO) in November 2025, imports increased sharply, with India importing nearly 38 million kg of VSF in the latest quarter. China and Indonesia together accounted for nearly 22 million kg of these imports, indicating that the increase has been driven primarily by large Asian

producers with export-oriented capacities. The removal of mandatory quality requirements has also reopened the Indian market to VSF produced under different quality standards, including suppliers relying on lower-cost and less sustainable upstream sourcing practices.

On the export side, Türkiye is India's largest VSF export market, accounting for 39 percent of India's exports in 2025-26. Türkiye's large textile and apparel industry creates sustained demand for imported fibre inputs used in yarns, fabrics, and blended textile products.<sup>8</sup> China accounts for 13 percent of India's exports. The Russian Federation accounts for 11 percent, while the United States of America accounts for 9 percent, indicating demand from established textile and fibre-consuming markets.

Neighbouring and regional markets also remain important. Nepal accounts for 7 percent of India's VSF exports, supported by proximity, lower logistics costs, and regular textile trade links with India. Viet Nam accounts for 4 percent, reflecting its position as a major garment manufacturing economy. The Netherlands accounts for 2 percent and may serve as a European distribution channel. The remaining 15 percent is spread across other export destinations.

Figure 11: VSF exports from India to the world



Source: UN Comtrade; ITC Trademap

Exports of VSF from India have been rising in recent quarters. However, this is due to rising imports capturing domestic market share in India.

<sup>8</sup><https://indianexpress.com/article/trending/top-10-listing/top-10-largest-textile-exporting-countries-india-china-bangladesh-10179517/>

## 4. Estimation of supply chain resilience risk

### 4.1 Methodology

Supply chain resilience risk is assessed across three stages of the viscose staple fibre (VSF) value chain:

- Stage 1 Rayon grade wood pulp
- Stage 2 Viscose staple fibre
- Stage 3, Viscose Spun Yarn.

For each stage, three years of data are examined – 2023-24, 2024-25 and 2025-26. The key indicators used are

- Domestic production,
- Imports,
- Exports,
- Domestic consumption,
- Imports as a proportion of domestic demand, and
- Import concentration measured by the share of imports sourced from the top four countries.

The data for domestic production has been sourced from the Annual Report 2023–24 of the Aditya Birla Grasim<sup>9</sup>, and the export-import data has been sourced from ITC Trade Map<sup>10</sup>

**Table 1: Import concentration from top 4 countries across Viscose value chain**

| Value chain stage     | Top-4 import concentration* | Main source countries                                       |
|-----------------------|-----------------------------|-------------------------------------------------------------|
| Rayon Grade Wood Pulp | <b>87.9%</b>                | South Africa 62.3%, Canada 10.4%, Sweden 7.9%, Chile 7.1%   |
| Viscose Staple Fibre  | <b>89.8%</b>                | Indonesia 36.0%, China 21.1%, Thailand 18.5%, Austria 13.8% |
| Viscose Spun Yarn     | <b>98.4%</b>                | China 72.8%, Indonesia 14.9%, Nepal 7.6%, Vietnam 3.0%      |

\* Please note that these figures are based on FY 2025-26. Last quarter data would reveal increased import dependence on countries such as Indonesia for VSF due to rising imports.

Source: UN Comtrade; ITC Trade Map

Across all three stages of the VSF value chain, imports are concentrated among four countries. The concentration is highest in viscose spun yarn, where the top four suppliers account for 98.4% of imports, led by China alone at 72.8%.

<sup>9</sup><https://www.grasim.com/fy24-integrated-annual-report/>

<sup>10</sup><https://www.trademap.org/> [HS codes have been provided in tables]

## 4.2 Analysis

### The Input Dependency at Stage 1

Rayon Grade Wood Pulp (RGWP) is by far the biggest and the most important raw material for VSF manufacturing. RGWP contributes to about 60% of the manufacturing cost of VSF. However, there is negligible domestic production of RGWP in India. India's tropical climate does not support the cultivation of temperate softwood species required for dissolving wood pulp. Domestic production of rayon grade wood pulp stood at 69 KTPA in 2023-24 and 65 KTPA in 2024-25, covering less than 8% of total consumption in either year. This represents a structural constraint, and implies that India will remain dependent on imported RGWP for the foreseeable future.

Given these geographical limitations, import substitution at Stage 1 is not feasible. However, targeted policy support that can lower the cost of procurement of key raw materials such as Rayon Grade Wood Pulp can boost domestic production. Measures such as lowering the Basic Customs Duty (BCD) and reducing the GST on Rayon Grade Pulp could improve competitiveness and incentivise domestic manufacturing. Further analysis on BCD and GST on Rayon Grade Wood Pulp is discussed in subsequent chapters.

**Table 2: Supply chain analysis of key stages in India's Viscose industry**

| Value Chain                                    | Stage 1               |         |         | Stage 2              |         |         | Stage 3           |         |         |
|------------------------------------------------|-----------------------|---------|---------|----------------------|---------|---------|-------------------|---------|---------|
| PUC                                            | Rayon grade wood pulp |         |         | Viscose staple fibre |         |         | Viscose spun yarn |         |         |
| HS Codes                                       | 47020010              |         |         | 5504                 |         |         | 5510              |         |         |
| Year                                           | 2023-24               | 2024-25 | 2025-26 | 2023-24              | 2024-25 | 2025-26 | 2023-24           | 2024-25 | 2025-26 |
| Domestic Production (KTPA)                     | 69                    | 65      | 72      | 812                  | 844     | 863     | 764               | 827     | 865     |
| Imports (KTPA) <sup>11</sup>                   | 807                   | 884     | 764     | 54                   | 63      | 115     | 67                | 18      | 51      |
| Exports (KTPA)                                 | 00                    | 00      | 00      | 70                   | 45      | 76      | 30                | 31      | 26      |
| Domestic Consumption (KTPA)                    | 876                   | 949     | 836     | 795                  | 861     | 901     | 801               | 814     | 890     |
| Imports as a proportion of Domestic Demand (%) | 92%                   | 93%     | 91%     | 6%                   | 7%      | 13%     | 8%                | 2%      | 6%      |

Source: Industry estimate and ITC Trademap

<sup>11</sup>Please note that 5% of RGWP imports are used by industries other than Viscose manufacturing. However 95% of the imports is consumed by the Viscose industry.

Any excess cost at Stage 1 directly flows into Stage 2, where the primary value addition takes place, thereby amplifying its effect on the overall cost structure.

### **VSF is the core manufacturing stage in the Viscose value chain**

The viscose value chain consists of multiple stages of industrial processing. However, the level of manufacturing complexity varies significantly across stages. The conversion of Rayon Grade Wood Pulp (RGWP) into Viscose Staple Fibre represents the most capital-intensive and technology-driven stage of the value chain. It requires specialised chemical processing capabilities, large-scale manufacturing facilities, environmental management systems, and significant capital investment.

In comparison, the conversion of VSF into viscose spun yarn is relatively less complex and relies primarily on established spinning infrastructure. While spinning remains essential for the textile value chain, VSF manufacturing represents the stage where the core industrial capability is developed.

India's domestic VSF production capacity of more than 900 KTPA reflects decades of investment in building this manufacturing capability. This capacity enables India's downstream textile sector to access domestically produced fibre instead of depending entirely on imported VSF. Countries such as Bangladesh and Vietnam have successfully expanded textile exports largely through downstream processing capacities, but building integrated fibre manufacturing capabilities requires substantially higher investment, technology access, and longer development timelines.

This capability becomes increasingly important as global fibre consumption shifts towards man-made fibres and India targets expansion of its textile sector. This base is also crucial for achieving India's export ambitions in the textiles sector.

### **Import Concentration and Circumvention Risk**

Rising imports are not driven by a structural shortage in domestic capacities. Following the withdrawal of the VSF QCO in November 2025, imports have been increasing sharply, reaching nearly 38 million kg in the latest quarter as mentioned in the previous chapter.

The concentration of imports also requires attention. Indonesia, China, Thailand and Austria account for nearly 90% of India's VSF imports. Not to mention countries such as Singapore functioning as a routing point for Indonesian-origin VSF. From a supply-chain perspective, India is currently self-reliant in VSF, but sustained import growth can alter this position over time. If domestic production is displaced by cheaper imported fibre, future capacity additions may become less commercially viable. This could increase India's exposure to external supply disruptions despite having an existing domestic manufacturing base.

While imports play an import role in sourcing decisions for downstream users, a level playing field is needed for upstream VSF manufacturers. A detailed account of VSF manufacturing challenges in India is given in the following chapter.

## 5. Industry value chain challenges

The growth of the viscose staple fibre (VSF) industry is closely tied to the structure of its upstream supply chain and the policy environment governing the fibre value chain. VSF production is feedstock-intensive, relying heavily on imported raw materials, particularly rayon grade wood pulp. At the same time, the fibre serves as an important intermediate input for spinning mills producing viscose yarn and blended fabrics. As a result, disruptions or distortions at the fibre stage can have cascading effects across downstream textile manufacturing.

India's VSF industry operates in a policy environment shaped by taxation structures, preferential trade agreements, trade remedy enforcement, and emerging sustainability requirements. These factors directly influence the cost structure of domestic fibre production and downstream sourcing decision.

Four structural issues are particularly relevant in the context of the VSF value chain:

- Inverted GST structures that lead to significant working capital blockages for industry
- VSF imports entering India at zero duty due to preferential tariff rates under the ASEAN-India FTA while input raw materials such as Rayon Grade Wood Pulp being imported at 2.5% BCD. This phenomenon is also called inverted duty structure.
- Rampant dumping pressures in India's fibre markets from China and Indonesia.
- Increasing imports of non-sustainable VSF linked to de-forestation-based raw materials.

### 5.1 Inverted GST Structure

One of the key structural challenges in the VSF value chain is the inverted Goods and Services Tax (GST) structure between upstream raw materials and finished fibre output. Under the current GST framework, rayon grade wood pulp, the primary raw material used in VSF production, attracts 18 percent GST, while viscose staple fibre and downstream textile products are taxed at 5 percent<sup>12</sup>.

This creates a 13-percentage-point tax differential across stages of the value chain. Since fibre manufacturers procure inputs at a higher tax rate than their output tax liability, a large amount of input tax credit (ITC) accumulates within the production cycle.

Given that rayon grade wood pulp constitutes roughly 60% of total VSF production costs, the higher tax incidence on raw materials has a material effect on overall production economics, affecting cost competitiveness and cash flow for fibre manufacturers.

Although the GST framework allows credit utilisation and refunds, the rate differential results in persistent accumulation of unutilised ITC which domestic industry must finance until refunds are processed. In large-scale, continuous-production industries such as viscose fibre manufacturing, this accumulation locks significant working capital, potentially increasing financing costs and raising the effective cost of domestic fibre production. Industry estimates suggest that close to INR 1,200 crores of working capital is blocked due to the inverted GST structure.

Furthermore, GST paid on capital expenditure and services is not refundable, representing a permanent cost burden that further erodes production economics. Collectively, these factors place

---

<sup>12</sup><https://indiantradeportal.in/>

upstream fibre manufacturers at a structural disadvantage relative to downstream processors, who do not face a comparable input-stage tax burden, undermining competitiveness and investment incentives in domestic VSF production.

## **5.2 Impact of Preferential Trade Agreements: ASEAN – India FTA**

Trade policy frameworks influence the competitiveness of the VSF industry. Under the India-ASEAN Free Trade Agreement (AIFTA)

Rayon Grade Wood Pulp imports attract a basic customs duty of 2.5 percent, while finished viscose staple fibre imported from ASEAN countries enters India at zero duty under the FTA<sup>13</sup>.

This creates an inverted duty structure within the VSF value chain. Domestic manufacturers pay duties on their primary raw material inputs, while competing finished fibres from ASEAN markets benefit from preferential tariff access.

Furthermore, as seen in section 4, India meets 92% of its domestic demand for rayon-grade wood pulp through imports, due to its negligible domestic production. This pulp imported by domestic industry is sustainably grown in foreign countries, and incurred at a higher cost to comply to global sustainability standards. Therefore, domestic industry cannot import RGWP at NIL duty from ASEAN, as majority of the pulp in these countries originate from deforestation.

Such tariff asymmetries influence sourcing decisions across the textile value chain. Spinning mills and downstream textile manufacturers typically evaluate procurement based on landed cost and supply reliability. When finished fibre imports face lower tariff incidence than upstream raw materials used in domestic production, imports can become commercially attractive. This disincentivizes domestic production and Atmanirbharta in the sector.

This dynamic is reinforced by capacity expansion in ASEAN economies, particularly Indonesia. Since the ASEAN-India FTA (AIFTA) was signed, Indonesia has significantly expanded its dissolving grade wood pulp and viscose fibre production capacity, majority of it aimed at export markets such as India. Overcapacities in Indonesia have increased by 6x since 2015.

Preferential tariff access under AIFTA strengthens the competitiveness of such exports in the Indian market. Industry sources suggest that domestic VSF manufacturers face 7-8% of cost disadvantages due to additional tariffs and taxes paid for manufacturing in India, that global competitors in Indonesia and China do not have to pay.

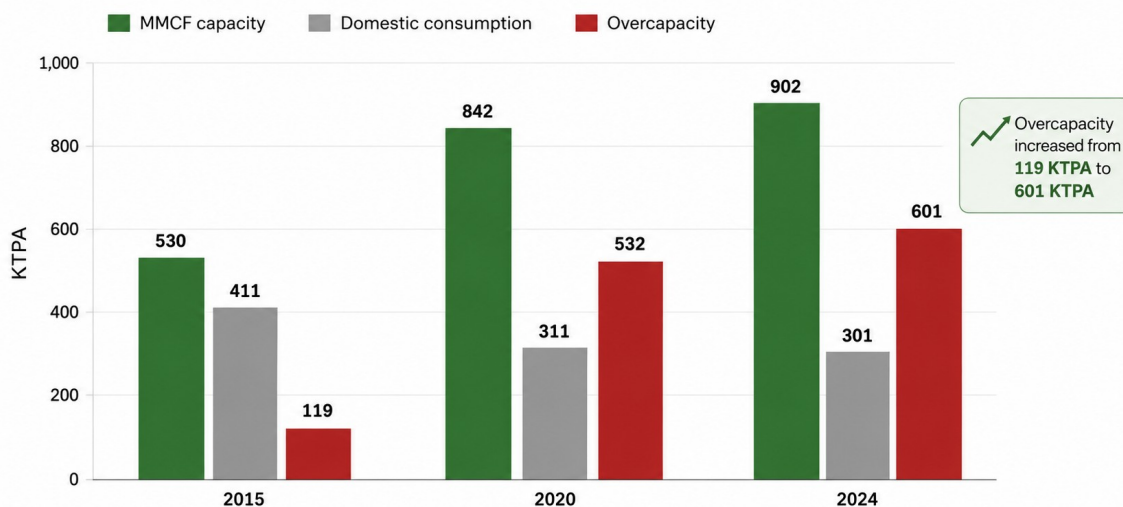
---

<sup>13</sup><https://indiantradeportal.in/>

Figure 12: Domestic demand vs capacity in Indonesia

### Indonesia Has Significant Export-Oriented MMCF Overcapacity

MMCF capacity, domestic consumption and overcapacity (KTPA), 2015–2024



Source: Industry estimates

### 5.3 Dumping in the VSF Market

A key challenge affecting the VSF supply chain is the presence of dumped imports in fibre markets. Dumping typically occurs when exporters sell products in foreign markets at prices lower than their normal value or below production cost, often as a result of surplus capacity or strategic market expansion.

The global MMCF industry has experienced significant capacity expansion over the past two decades, particularly in Asia. Large integrated manufacturing ecosystems have emerged in countries such as China and Indonesia. During periods of weak domestic demand, surplus production from these markets is often redirected toward export destinations.

India, one of the world's largest and fastest-growing textile consumption markets, is a major destination for VSF exports. When imported fibre is sold below its normal value, it displaces domestic production and weakens the competitiveness of Indian producers, affecting capacity utilisation, investment, and downstream MSME-linked textile clusters.

India's trade remedy framework provides mechanisms to address such situations. Investigations conducted by the Directorate General of Trade Remedies (DGTR) assess evidence of dumping and injury to domestic industry and recommending anti-dumping duties where material injury is established. In the VSF segment, data reveals that the lapse of anti-dumping duties in 2021 was followed by a sharp increase in imports, particularly from Indonesia. The increase in dumped imports affected capacity utilisation within the domestic industry.

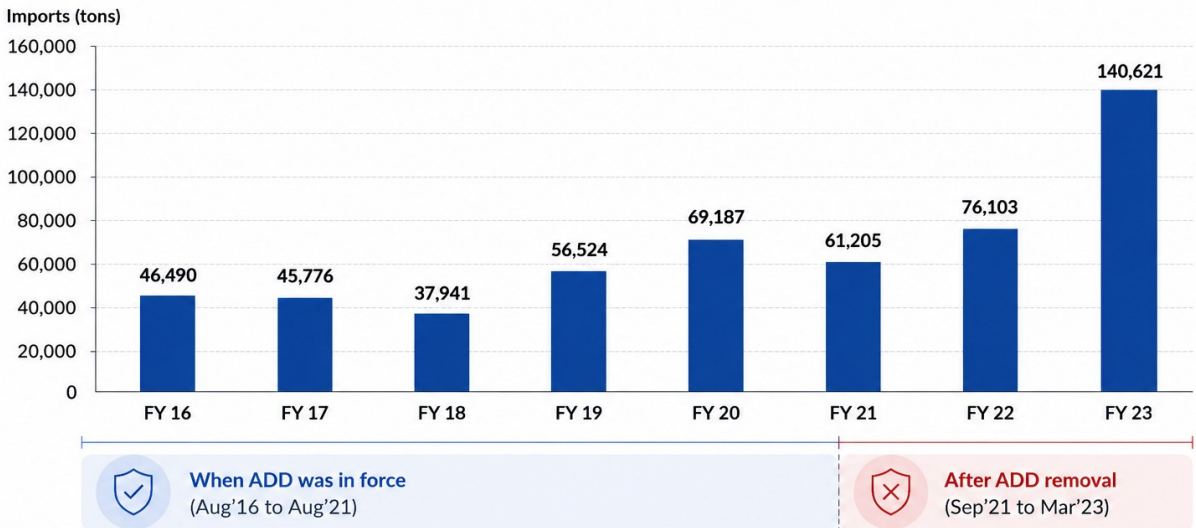
For capital-intensive sectors such as fibre manufacturing, sustained price suppression affects long-term investment incentives as production facilities require significant capital expenditure and need to operate most efficiently at high-capacity utilisation levels. Persistent dumping pressures therefore distort the unit economics and constrain future investment in fibre production capacity.

Trade remedy measures under the WTO framework are designed to restore fair competition in such circumstances. Therefore, implementation of recommended measures helps maintain predictable market conditions and supports balanced development of the value chain.

Figure 13: Sharp increase in VSF imports after ADD was withdrawn

### VSF Imports to India (in tons)

Sharp increase in imports following the withdrawal of ADD in Sep'21



Imports remained range bound while ADD was in force, but increased sharply after its withdrawal in Sep'21.

Source: Industry Data

## 5.4 Sustainability and Traceability in Global textile value chains

*Figure 14: Deforestation linked wood pulp causing environmental degradation to the tropical rainforests in Indonesia*



Source: Nusantara Atlas

Sustainability has become a key factor in the global textile value chains. Since VSF is produced from wood-based cellulose, the environmental profile of the fibre depends significantly on the source and traceability of the wood pulp. International textile brands are increasingly requiring wood-based fibres to originate from responsibly managed forests, with certification systems such as the Forest Stewardship Council (FSC) providing third-party verification, chain-of-custody traceability, and assurance on responsible forest management<sup>14</sup>.

Global regulatory environment is also moving in this direction. The European Union's Deforestation-Free Products Regulation (EUDR) requires stronger supply-chain due diligence for forest-based products entering the EU market. FSC certification is aligned with several EUDR requirements by supporting traceability, legality verification, and deforestation-risk assessment<sup>15</sup>. For India's textile sector, which aims to increase exports to developed markets, sustainable sourcing is becoming an important factor for market access.

Indian VSF manufacturers have responded to these developments by sourcing FSC-certified wood pulp and investing in traceability and sustainability compliance. These requirements involve additional sourcing, certification and monitoring costs. India's broader forestry ecosystem is also

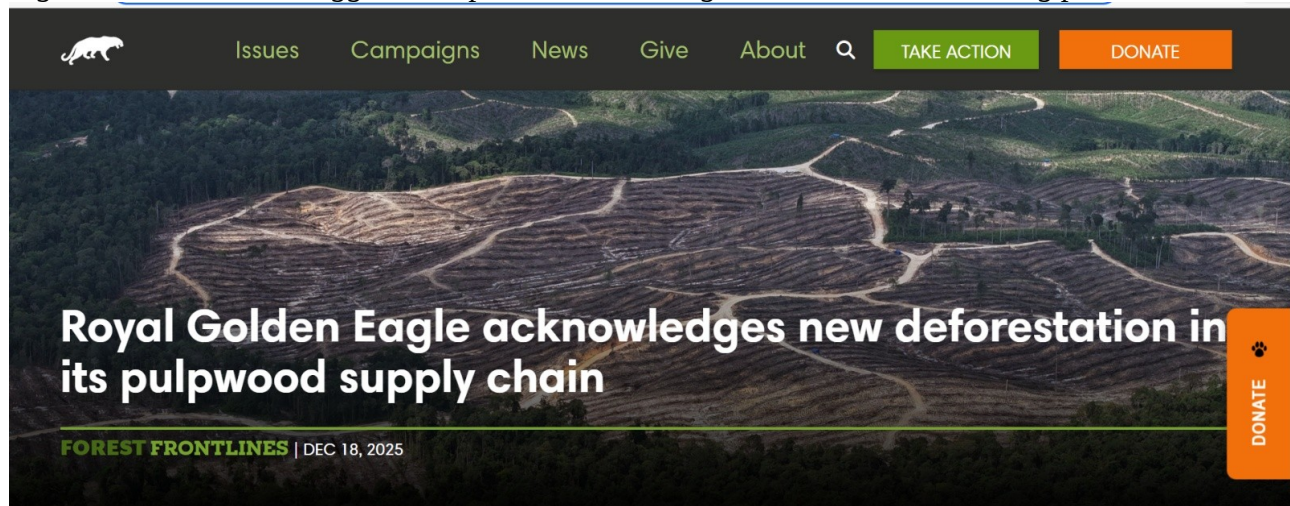
<sup>14</sup><https://fsc.org/en/chain-of-custody>

<sup>15</sup><https://fsc.org/sites/default/files/2024-01/EUDR%20Factsheet%20-%20Aligned.pdf>

moving in this direction. Public-sector entities such as the Telangana Forest Development Corporation and the Forest Development Corporation of Maharashtra have adopted FSC certification, reflecting the growing domestic emphasis on traceable forest-based value chains.

However, imported VSF does not currently face equivalent sustainability or traceability requirements in the Indian market. This creates a competitive imbalance for domestic manufacturers that incur additional costs to meet internationally recognised sourcing standards.

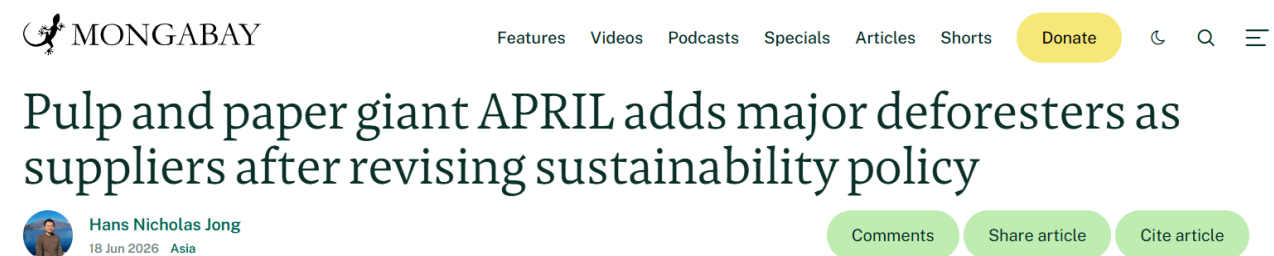
Figure 15: Indonesia's biggest VSF producer admitting to unsustainable sourcing practices



Source: Forest Frontlines<sup>16</sup>

Royal Golden Eagle is among the world's largest producers of Viscose Staple Fibre (VSF), with Sateri operating in China and Asia Pacific Rayon (APR) in Indonesia. As traceability and sustainability standards tighten across brands, VSF linked to inadequately verified or unsustainable wood-pulp sourcing faces reduced market access in markets such as Europe and Americas. Therefore, India has become the dumping ground for VSF produced from wood pulp sourced unsustainably from Indonesian tropical forests.

The resulting competition from imports is not based solely on manufacturing efficiency. Indian producers bear the cost of certified and traceable sourcing, while competing imports benefit from lower raw-material and compliance costs arising from different sustainability practices.



Source: Mongabay, an independent environmental science and conservation organization<sup>17</sup>

<sup>16</sup><https://www.ran.org/forest-frontlines/royal-golden-eagle-acknowledges-new-deforestation-in-its-pulpwood-supply-chain/>

<sup>17</sup><https://news.mongabay.com/2026/06/pulp-and-paper-giant-april-adds-major-deforesters-as-suppliers-after-revising-sustainability-policy/>

This imbalance constrains the development of India's man-made cellulosic fibre industry at a time when global demand is moving towards sustainably sourced and traceable materials.

While India's domestic industry is building capacities to cater to moving trends in global demand towards sustainability, low-quality imports from countries such as Indonesia are capturing domestic market share. This is jeopardizing the potential of Indian MMCF industry from becoming a global manufacturing hub, which could create millions of more jobs in India.

## 6. Policy implications and way forward

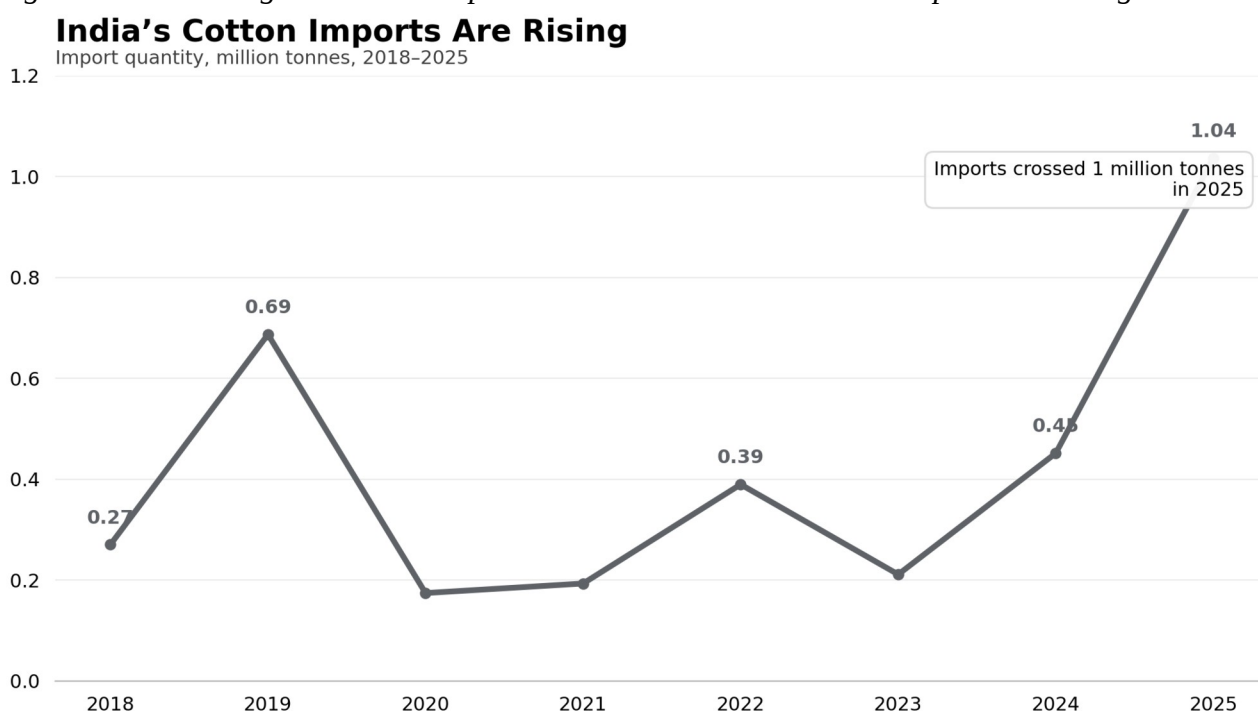
### Current Domestic VSF Capacity and Emerging Demand Gap

India currently has domestic VSF production capacity which broadly aligns with current demand, however imports of non-FSC certified VSF persist. Without fresh investment in upstream capacity, easier access to Rayon grade wood pulp by lower duties and taxes, India is likely to face growing demand-supply gap by 2030. This is driven by the textile sector's ambition to reach USD 350 billion<sup>18</sup> in output with USD 100 billion in exports<sup>19</sup>, which will require a reliable and scaled man-made fibre supply chain to support domestic production and global competitiveness.

### Textile Sector Growth and VSF's Role

India is already facing a cotton shortfall of nearly **2,000 tonnes per day**, based on latest import figures given below. This structural gap in cotton availability will increase the importance of VSF and other man-made fibres in meeting India's future textile raw material demand.

Figure 16: Promoting domestic VSF production will be crucial as cotton production stagnates



Source: UN Comtrade; ITC Trademap

As a cellulosic fibre, viscose shares cotton's natural breathability, moisture absorption, and tactile qualities, making it a complementary input for spinners, brands, and consumers. If this transition is effectively managed, VSF is positioned to become a central fibre anchoring India's textile sector expansion, supporting both domestic value addition and export growth.

<sup>18</sup><https://www.ibef.org/industry/textiles>

<sup>19</sup><https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1883571&reg=3&lang=2>

## Strategic Risks from Global VSF Supply Concentration

Investment in VSF capacity and its upstream feedstock chain requires predictable returns. In the absence of a supporting policy environment, capital is likely to move towards trading and importing VSF rather than producing it domestically. Indonesia and China, which together account for over 55 percent of global VSF exports, are well positioned to fill this gap. China alone holds 66 percent of global MMCF installed capacity, giving it a structural hold over VSF supply chains. A structural import dependency on Chinese VSF would create a strategic supply risk for India's downstream textile industry, which supports hundreds of thousands of jobs and contributes significantly to the country's export earnings.

## Feedstock Vulnerabilities and Comparative Advantage

The feedstock for VSF, dissolving grade wood pulp, is sourced from countries such as South Africa, Canada, Sweden. India has no domestic producer. This structural gap means that even when Indian manufacturers invest in fibre capacity, they remain exposed to external supply and price conditions for their primary input.

At the same time, VSF feedstock is forest biomass-based rather than petroleum-derived, providing insulation from crude oil price volatility and geopolitical disruptions affecting petrochemical supply chains. This represents a strategic comparative advantage over synthetic fibres such as polyester, which policy frameworks can leverage to support domestic VSF production and industrial competitiveness.

## Sustainability Compliance and Domestic Market Challenges

Sustainability requirements in major export markets, particularly the EU's deforestation regulations<sup>20</sup> and FSC certification requirements for wood-based raw materials, are adding an additional compliance layer to VSF trade. Indian manufacturers sourcing from certified forests already incur the cost of compliance. VSF imports that enter India from sources not meeting these standards create an uneven playing field domestically and risk turning India into a destination for lower-compliance fibres that face barriers in regulated markets.

## Potential Policy Measures

To address the above, the following policy measures in the current operating environment would provide a level playing field to domestic VSF manufacturers without the need for large public expenditure programmes:

1. **Rectify inverted duty structure in domestic VSF value chain.** Finished VSF from ASEAN countries currently enters India at zero duty under the FTA. At the same time, rayon grade wood pulp attracts a 2.5 percent basic customs duty. This creates an inverted duty structure that places domestic VSF manufacturers at a disadvantage relative to ASEAN exporters. The asymmetry is compounded by a sourcing constraint unique to the domestic industry.  
India's VSF manufacturers source rayon grade wood pulp exclusively from FSC-certified suppliers, in compliance with the sustainability requirements of global textile brands and major export markets. Wood pulp from ASEAN does not meet these standards and therefore cannot be used by domestic producers. As a result, the domestic industry has no option but

---

<sup>20</sup>[https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products\\_en](https://environment.ec.europa.eu/topics/forests/deforestation/regulation-deforestation-free-products_en)

to import pulp at 2.5 percent BCD, while competing finished VSF, produced from non-certified pulp, enters India at nil duty.

Two targeted measures would correct this:

- (a) Reduce the basic customs duty on rayon grade wood pulp to nil, recognising that it is a structurally imported raw material for which no viable domestic or ASEAN substitute exists.
- (b) Include viscose staple fibre in the negative list of the ASEAN – India FTA, so that VSF imports attract the standard MFN duty rate. VSF is currently the only major fibre not covered by the negative list under the agreement.

2. **Rationalize the inverted GST structure to unlock working capital constraints for India VSF ecosystem**

Rayon grade wood pulp is taxed at 18 percent GST while VSF and downstream textile products attract 5 percent. This 13-percentage-point differential locks working capital within the tax system and raises the effective production cost for domestic fibre manufacturers. Harmonising rates across the chain or putting in place a clear, time-bound ITC refund mechanism would correct this.

3. **Notification of DGTR-recommended anti-dumping measures.** DGTR recommendations are issued after a detailed investigation involving data examination, stakeholder submissions and injury analysis. The VSF case shows that the lapse of anti-dumping duties can be followed by a significant rise in low-priced imports, particularly from export-oriented suppliers such as Indonesia. A level playing field through evidence-backed measures such as anti-dumping duties, and where appropriate, other price-stabilising instruments such as Minimum Import Prices (MIP) play a crucial role in promoting Atmanirbharta in textiles manufacturing in India.

4. **Promote and adopt sustainable standards for imports through policy alignment.** Global textile markets are increasingly moving towards certified and traceable supply chains, with frameworks such as the EU Strategy for Sustainable and Circular Textiles and the EUDR raising sustainability expectations for exporters. This aligns with the Ministry of Commerce's focus on improving the quality and global competitiveness of Indian exports through stronger standards and compliance frameworks.

India could consider adopting sustainability standards for MMCF imports, aligned with EUDR principles on traceability, responsible sourcing and deforestation-free supply chains. This would help position India as a benchmark supplier of high-quality and sustainable cellulosic fibres. Indian states such as Telangana and Maharashtra have already begun adopting FSC certification in forest-based value chains, reflecting a domestic shift towards responsible sourcing. A similar standards-led approach for all of India, including imports, would support India's ambition to become a sustainable textile manufacturing hub.

## About the Authors



**Dr Jaijit Bhattacharya** is Founder and President of C-DEP Research, an independent think tank recognised with the Pt. Deen Dayal Upadhyaya Award for its contribution to Atmanirbharta. He is a noted expert in technology-led governance, technological sovereignty and trade policy.

Dr Bhattacharya has advised government agencies in India and South Asia on issues relating to digital governance, industrial resilience, strategic technologies and domestic manufacturing competitiveness. His work also engages with trade policy questions linked to supply-chain security, import dependence, trade remedies and India's integration into global value chains.

He coined the terms "Digital Colonisation" and "Technological Sovereignty" in 2005 and has been recognised by the MIT Sloan School of Management as one of the top 50 experts who have shaped India's digital policies. He has authored six books on technology policy, including India's first book on e-governance, released by former President Dr A.P.J. Abdul Kalam. His book *eGov 2.0: Technology, Processes and Policies* was released by Shri Narendra Modi. Dr Bhattacharya has worked extensively with the military on technology solutions and institutional restructuring, including work linked to the Shekatkar Committee recommendations. He has authored over 50 peer-reviewed research papers and holds patents in India and the United States. He has previously held leadership roles at Accenture, IBM, HP and KPMG. He holds a B.Tech from IIT Kanpur, an MBA from IIM Calcutta and a PhD in Computer Science from IIT Delhi.

Contact: [president@c-dep.org](mailto:president@c-dep.org)



**Manmeet Singh Gulati** is a Policy Analyst at C-DEP Research, where he works on international trade, global value chains (GVCs), free trade agreements (FTAs), trade remedies, and industrial policy. He has worked in trade policy research and consulting, having previously worked with the Confederation of Indian Industry (CII) and undertaken research assignments with the Ministry of Commerce and Industry and the Association for Environment and Development Research (AEDR). His work focuses on anti-dumping and safeguard measures, global supply chains, and India's trade competitiveness.

Manmeet has contributed to policy reports and industry publications on trade and manufacturing, and has supported research for the Ministry of Commerce on India's FTA negotiations. He holds a Master's degree in Economics from the Indian Institute of Foreign Trade (IIFT), and a Bachelor's degree in Economics from the University of Delhi.

Email ID: [manmeet.singh@c-dep.org](mailto:manmeet.singh@c-dep.org)



Dr. Kashika Arora is a Senior Research Fellow at the Centre for WTO Studies (CWS). She holds a Ph.D. in Economics from the Indian Institute of Foreign Trade (IIFT), New Delhi, and has over 10+ years of experience in trade policy research and analysis. Her work focuses on India's export competitiveness, technology-intensive manufacturing, global value chains (GVCs), and free trade agreements (FTAs). Dr. Arora's research has been published in Scopus- and ABDC-listed journals and several book chapters examining trade-technology linkages and supply chain dynamics. She was part of India's G20 Working Group on Trade and GVCs and has presented her research at international conferences such as GLOBELICS. In addition, she has served as guest faculty at IIFT, teaching Ph.D. scholars and defence personnel through Management Development Programs.

Email ID: [kashika\\_cws@iift.edu](mailto:kashika_cws@iift.edu)



Dr. Qayoom Khachoo is a Senior Research Fellow at the Centre for WTO Studies (CWS). He holds a Ph.D. in Economics from IIT Indore and brings 10+ years of experience in teaching and applied economic research. His work focuses on Foreign Direct Investment (FDI), Intellectual Property Rights (IPRs), innovation, and international trade, with publications in leading ABDC-listed journals. Dr. Khachoo also serves as a reviewer for several leading academic journals, reflecting his commitment to rigorous, policy-relevant scholarship. His research bridges theory and practice, providing evidence-based insights into the dynamics of global trade and innovation. Email ID: [qayoom\\_cws@iift.edu](mailto:qayoom_cws@iift.edu)

## ABOUT THE CENTRE

### About CRIT

India's Foreign Trade Policy (FTP) Statement 2015-20 suggested a need to create an institution at the global level that can provide a counter-narrative on key trade and investment issues from the perspective of developing countries like India. To fill this vacuum, a new institute, namely the Centre for Research on International Trade (CRIT), was set up in 2016. The vision and the objective of the CRIT were to significantly deepen existing research capabilities and widen them to encompass new and specialized areas amidst the growing complexity of the process of globalization and its spill-over effects in domestic policymaking. Secondly, enhancing the capacity of government officers and other stakeholders in India and other developing countries to deepen their understanding of trade and investment agreements.

### About CWS

The Centre for WTO Studies, which is a constituent Centre of CRIT, pre-dates the CRIT since it was created in 1999 to be a permanent repository of WTO negotiations-related knowledge and documentation. Over the years, the Centre has conducted a robust research program with a series of papers in all spheres of interest at the WTO. It has been regularly called upon by the Government of India to undertake research and provide independent analytical inputs to help it develop positions in its various trade negotiations, both at the WTO and other forums such as Free and Preferential Trade Agreements and Comprehensive Economic Cooperation Agreements. Additionally, the Centre has been actively interfacing with industry and Government units as well as other stakeholders through its Outreach and capacity-building programs by organizing seminars, workshops, subject-specific meetings, etc. The Centre thus also acts as a platform for consensus building between stakeholders and policymakers. Furthermore, the inputs of the Centre have been sought after by various international institutions to conduct training and studies.

#### CENTRE FOR WTO STUDIES

5<sup>th</sup> to 8<sup>th</sup> Floor, NAFED House, Siddhartha Enclave, Ashram Chowk,  
Ring Road, New Delhi 110014

<https://wtocentre.iift.ac.in/>