



Wool and the Australia-India trade relationship

WoolProducers Australia
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Glossary

Acronym	Full name
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABEI	Agri-Business Expansion Initiative
AI-CECA	Australia-India Comprehensive Economic Cooperation Agreement
AI-ECTA	Australia-India Economic Cooperation and Trade Agreement
DAFF	Department for Agriculture, Fisheries and Forestry, Australia
DFAT	Department for Foreign Affairs and Trade, Australia
FTA	Free Trade Agreement
FMD	Foot-and-mouth disease
GDP	Gross Domestic Product
IPDS	Integrated Processing Development Scheme
IWTO	International Wool Textile Organisation
HS	Harmonized System
WOAH	World Organisation for Animal Health

Executive summary

Deloitte Access Economics was commissioned by WoolProducers Australia to understand opportunities for trade diversification in Australia's wool exports. The following roadmap and set of recommendations aim to facilitate and promote increased trade of raw and early-stage processed wool between Australia and India.

Overview of the wool trade potential

In 2021-22, Australia's wool sector earned around AU\$3.6 billion in export income. An increasing share of Australia's wool exports is in unprocessed (greasy) form and is initially shipped to China for early-stage processing (84% in 2021-22). Findings from Deloitte Access Economics' *Ensuring a sustainable future for Australia's wool supply chain* (2022) show that such a concentrated supply chain represents a material economic risk. One of the most significant risks is the potential for an animal disease event in Australia, such as an outbreak of foot-and-mouth disease (FMD), to impact trade.

India has an established wool supply chain which runs from fibre to fabric

The textile industry has a rich history in driving the Indian economy and is a key source of both exports and employment. Today, the sector accounts for 10% of India's total merchandise trade and employs about 45 million people. India is the largest exporter of natural fibre yarns in the world and the third-largest exporter of textiles and apparel. The textile industry is targeting US\$100 billion in exports by 2030, which could see exports of woollen products grow to around US\$4 billion a year, based on their current share of exports. This would require India's woollen exports growing at 12.1% per year from their current level of \$1.6 billion in 2021-22.¹

India's wool processing and manufacturing supply chain includes early-stage processors, spinners, weavers, knitters, and garment manufacturers. Most businesses are vertically integrated, allowing them to process greasy wool into yarn or garments. Some firms also have a retail presence and sell their own garments through branded and multi-brand retail stores.

India is Australia's second-largest wool export market with strong growth potential

Over the last two decades, India has typically sourced between 60-80% of its greasy wool imports from Australia. Between 2021-22 and 2022-23, total Australian greasy wool exports to India grew 24% year-on-year from US\$105 million to US\$130 million. These exports provide quality raw inputs for India's textiles and apparel sector and help underpin India's position as the world's third largest textiles and apparel exporter.

The introduction of the Australia-India Economic Cooperation and Trade Agreement (AI-ECTA) in 2022, removed tariffs on greasy and clean wool on Australian wool imports. This has already generated a positive industry response, with stakeholders indicating that the removal of import tariffs has influenced their purchasing decisions to preference Australian wool.

India is well placed to integrate further into global textile and apparel supply chains

Given the scale of the existing wool supply chain and existing skills and infrastructure, India has the potential to benefit from shifting wool processing supply chains globally and growing as a global source of processed wool products.

¹ Compound annual growth rate, 2022 to 2030.

Over the past 20 years, India has demonstrated a strengthening competitiveness in yarn exports with increased capacity and production growing steadily over this period. Cost to customer estimates of yarn exported from India using Australian wool indicate a more cost-competitive product, relative to existing supply chains. This was in line with the stakeholder consultations where it was often noted that cost is no longer the single determining purchase factor for brands. Notably, supply chain security is an emerging factor in manufacturers' procurement decisions.

The growth of India's wool spinning and apparel industries would support the expansion of Australian greasy wool exports to India and the Australian wool sector's market diversification strategy.

Greasy wool remains the foundation of Australia's wool exports to India

India's established early-stage processing industry is almost entirely integrated with downstream manufacturing (e.g., spinning and weaving). This means firms prefer to purchase greasy wool and undertake their own processing using their existing capital, skilled workers and quality assurance processes, rather than to purchase early-stage processed wool at arm's length.

Consultation revealed limited interest in purchasing semi-processed products such as scoured wool, particularly at finer microns. As a result, growing the share of Australia's greasy wool exports to India represents the most likely diversification pathway in the short- to medium-term. Trade facilitation initiatives supported by the Australian Government can play an important role in further growing the amount of greasy wool that gets exported to India.

Incumbent Indian firms are generally pursuing optimisation rather than growth strategies, given there is currently excess processing capacity. Existing firms and capacity are available to expand early-stage production throughput in response to a sustained increase in demand for downstream wool products.

Regulation, infrastructure and technical skills are not constraining factors to the growth of Indian wool processing in the near term.

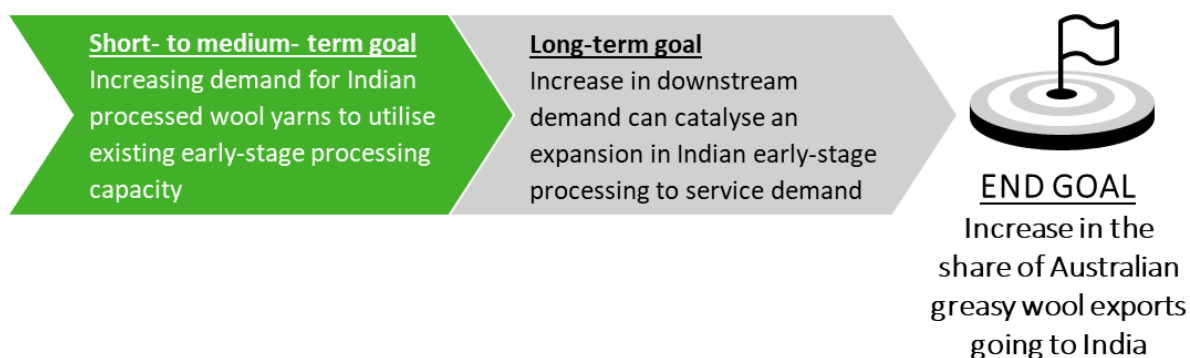
Further down the supply chain, India is still importing relatively small volumes of wool tops, mostly from China. In the long term, there may be an opportunity for an expanded Australian early-stage processing industry to fulfil some of this demand.

Downstream demand is key to expanding Australia's wool exports to India

Increasing exports of Australian wool for processing in India will require growth in demand for wool yarns and other wool based products produced in India. This would subsequently require increased final demand for textiles, garments and other products using wool. Many of these products are manufactured in neighbouring Asian countries such as Vietnam and Bangladesh.

Achieving meaningful change within India's established wool textile industry is complex. It will require a holistic supply chain approach. This means boosting the international profile of Indian yarns and other products made with Australian wool in global export markets. Maintaining quality standards will be essential to holding and growing market share in key markets like Japan, the United Kingdom and Italy. Accordingly, market promotion and education, among yarn buyers and end consumer markets, are critical to the growth of India's wool textile industry and demand for Australian wool in India. This will capitalise on early successes coming from the adoption of the AI-ECTA.

Roadmap actions and recommendations



In the **short- to medium-term**, the primary goal should be to increase the utilisation of existing early-stage processing capacity in India. Until this capacity is filled, firms are unlikely to make any additional investment as there is insufficient market demand. Most of this capacity is integrated with spinning activities, and so increasing demand for India's wool yarns will send the necessary market signals. To achieve this, India would benefit from strategies and actions that grow its reputation and attractiveness as a global supplier of wool yarns.

1: Conduct further market research of the market dynamics of the downstream Indian textile and apparel industry, including in areas such as understanding drivers of demand for Indian processed wool yarns sold in export markets.

2: Grow India's profile as a sourcing destination for semi-processed wool products primarily focussing on yarns but also final products such as garments.

3: Enhance industry-industry and industry-government relations between Australia and India to foster technical knowledge transfer and ensure customer needs can be met, which could be achieved by enhancing Australia's on-the-ground presence in India.

Achieving the short-medium-term recommendations will help to ensure downstream demand is adequate to warrant an expansion in early-stage processing capacity and therefore boost India's need for greasy wool. In the **long term**, achieving market diversification for Australian wool will require growing India's share of Australian wool exports.

4: Support conditions for existing early-stage processors to expand capacity. Where demand for wool-based products increases, potentially encourage new entrants to establish new capacity.

5: Investors considering entering the India market should identify priority states for further research and consider strategic partnerships with on-the-ground partners to navigate the complex business and regulatory environment.

6: If Australia establishes cost-competitive early-stage processing capacity, identify opportunities to sell into Indian yarn spinning markets.

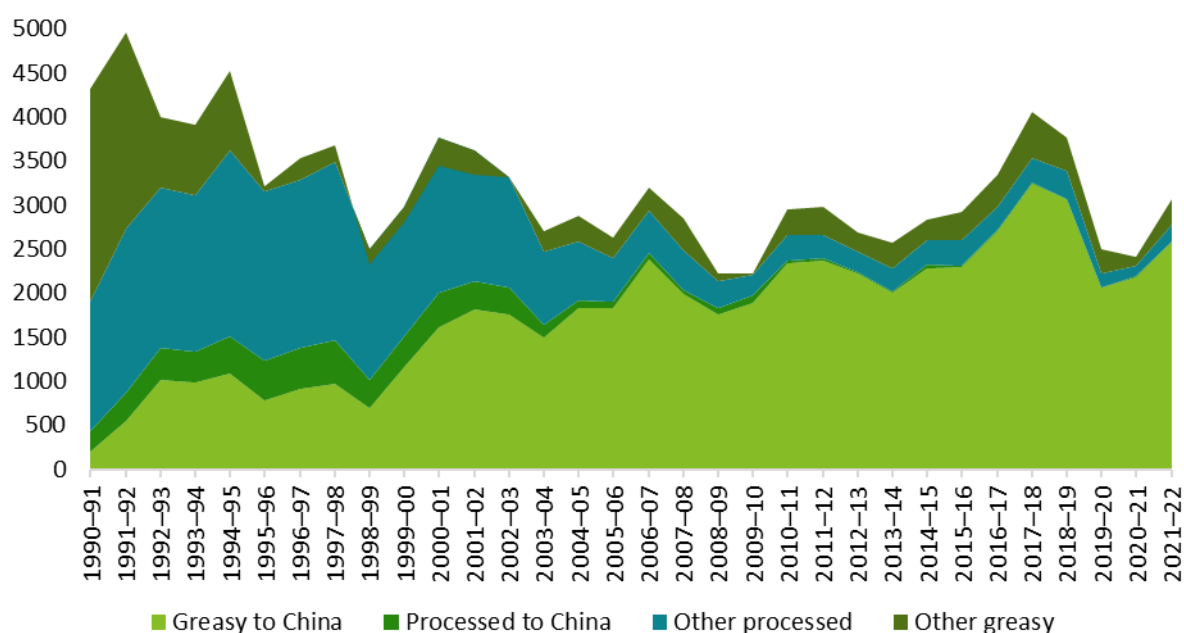
1 The case for change

1.1 The structure of Australian wool exports

Wool is an important product in Australia's agricultural industry. More than 31,500 businesses across Australia held sheep in 2021-22,¹ with the value of wool production generating an income of AU\$2.7 billion. More broadly, the contribution of the Australian wool industry extends to approximately 200,000 jobs across production, farm services, research and marketing.²

Wool is one of Australia's most export-oriented agricultural products. In 2021-22, export income reached AU\$3.6 billion. The composition of Australian exports has changed over time, with an increasing share of all wool exports consisting of unprocessed (greasy) wool shipped to China (84% in 2021-22) (Chart 1.1). By contrast, the share of processed wool exported has fallen over time and now comprise just 6% of total exports in 2021-22.

Chart 1.1: Australia greasy and processed wool exports to China and all other destinations (AU\$ millions)



Notes: The value of Australian wool exports reported are in 2021-22 prices.

Source: ABARES (2023).³

The increase of Australia's greasy wool exports to China has helped the wool industry overcome the turbulence of the 1990s and the early 2000s. Nonetheless, findings from Deloitte Access Economics Phase 1 *Ensuring a sustainable future for Australia's wool supply chain* report (2022) show that such a concentrated supply chain represents a material economic risk.⁴ One of the biggest risks is the potential for an animal disease event such as an **outbreak of foot-and-mouth disease (FMD) in Australia**. Modelling conducted by Deloitte Access Economics shows that such an outbreak, assuming Australia's major trading partners severely restrict the import of greasy wool, could result in a halving of wool exports in the first year of the outbreak and effectively cease all exports in the second year, before recovering in the third year. The costs of such an outbreak, which include the domestic costs of treatment and recovery activities, would reduce industry output by AU\$2.1 billion in peak affected years, resulting in job losses throughout the supply chain. The scale of the reduction would depend on the severity of trade restrictions adopted by Australia's trading partners,

particularly China. A similar impact would be felt in the event of the imposition of large tariff or non-tariff barriers by trading partners.

1.2 Why India

In this context, the Australian wool industry is looking to develop a management strategy to mitigate the risks of supply chain disruption. A key component of such a strategy is to onshore some early-stage processing capabilities and grow new international markets to diversify Australian wool exports.

Deloitte Access Economics used a two-stage methodology to identify a shortlist of priority markets that may provide diversification opportunities for the Australian wool supply chain. India is one such location due to:

- An **established early stage processing market**, representing Australia's second largest destination for greasy wool exports.
- **Strong historical and projected growth** in India's textile market of between 2.4% to 3.6% per year.⁵
- A **favourable trading environment**, with the elimination of tariffs on greasy and clean wool imports under the India-Australia Economic Cooperation and Trade Agreement (ECTA).
- A **desire to further integrate into the global economy** via expanded exports and share of global trade – particularly in textiles.

WoolProducers engaged Deloitte Access Economics to conduct a detailed assessment of India's wool manufacturing industry to develop a roadmap for the development of early-stage processing in India and possible integration opportunities for Australia. Such a roadmap, and its accompanying recommendations to action, could be beneficial for Australia seeking to increase and diversify its wool exports whilst helping India develop its manufacturing capabilities. This roadmap builds on earlier analysis, *Ensuring a sustainable future for Australia's wool supply chain*, by Deloitte Access Economics.

The report is structured as follows:

- Chapter 2 provides an overview of India's textile industry and the current state of Australian and Indian wool trade.
- Chapter 3 provides an assessment of factors that can influence the development of early-stage processing facilities in India.
- Chapter 3.7 introduces the short-, medium and long-term goals and the steps that need to be taken for India to expand its early-stage processing capabilities and sourcing of Australian wool.

Box A: The global market and outlook for wool and wool processing

In 2022, there was 1,051 mkg of wool produced globally. While production has remained stable over the past decade, wool's share of the global fibre market has been declining and now stands at just over 1%. This share reflects the specific uses of wool (e.g., relatively high-end apparel and carpets) and is relatively higher cost.

The long-term demand and outlook for wool processing

Over the long-term, demand for early-stage processing is intrinsically linked to the demand for final wool products.

In the short term, demand for wool globally is expected to fall slightly in 2023-24 as continued high inflation and rising interest rates reduce disposable income, and therefore expenditure on luxury woollen garments, in advanced economies. Therefore, wool processors currently face a lower utilisation rate in 2023 compared to 2022. With lower revenue and facing increased costs of production, processors are likely to face reduced profits. Consequently, there could be increased pressure for processors to consolidate.

Early-stage processing has witnessed multiple long-running cycles of shifting production capacity to ensure supply chain efficiencies. This has resulted in a significant concentration of capacity in China, with nearly half (47%) of greasy, scoured and carbonised wool imported there. Looking ahead, faced with rising manufacturing costs and the need to de-risk their supply chain, **processors may look for relocation opportunities**. Analysis of trade data shows that Southeast Asia is an increasingly attractive destination for manufacturers, with an increasing amount of materials and intermediate products shipped to Southeast Asia for final assembly.

2 Overview of the Indian textiles industry

Despite wool processing comprising a small segment of the greater textile industry, India has well-established early-stage and downstream processing operations. India is heavily reliant on Australian fine greasy wool for tops, yarn and ready-made garment production.

2.1 Growth of India's textile industry

The textiles industry is one of the oldest and largest industries in India, second only to agriculture in terms of economic contribution. It employs approximately 45 million people⁶, and in 2021-22 accounted for 10.5% of India's total merchandise exports.⁷ India is the 3rd largest exporter of textiles and apparel in the world⁸, and has the largest share of natural fibre spun yarn exports at 29%.⁹

Within India's dynamic textile market, wool continues to demonstrate long term growth. The textiles sector (including wool) has a strategic role in India's growth plan. The textiles sector has set an export target of US\$100 billion by 2030.¹⁰ Based on its current share of exports, this could see exports of woollen products of around US\$4 billion.¹¹ This would require woollen exports growing at 12.1% per year from their current level of \$1.6 billion in 2021-22.ⁱⁱ

2.2 Structure of India's wool supply chain

India has the second largest sheep population in the world and produces around 40 million kg of greasy wool per year.¹² Of its domestic wool production, about 85% is carpet grade wool, 10% coarser grade wool for blankets, and 5% apparel grade. As a result, India relies on imports of fine wool to produce apparel-grade tops and yarn.¹³

India possesses the entire wool manufacturing value chain from fibre processing to apparel. The initial stages of the wool supply chain are wet processing (scouring), which cleans impurities from the wool, and dry processing, which arranges the wool fibres for spinning and fabric formation. As well as hosting substantial early-stage wool processing capacity, India has a range of downstream industries, including worsted and non-worsted spinners, weavers, knitters and garment makers. Spinners produce yarn from carded and combed wool, while weavers create woven fabric from yarn.

India's wool processing and manufacturing industry is a relatively small component of India's broader textile industry. India's woollen textile manufacturing is concentrated in the cooler, northern areas of the country where there is a seasonally-based domestic demand for wool products. These include the states of Punjab, Haryana, Rajasthan, Uttar Pradesh, Maharashtra and Gujarat. Around 40% of woollen manufacturers are in Punjab, 27% in Haryana, 10% in Rajasthan, while the remaining states account for 23% of manufacturers.

India also has a significant informal, decentralised wool sector. This is comprised of a myriad of smaller scale firms that value add to tops or yarn produced by the larger ones. They will, for example, commission the larger firms to comb wool that they have purchased and then use the tops

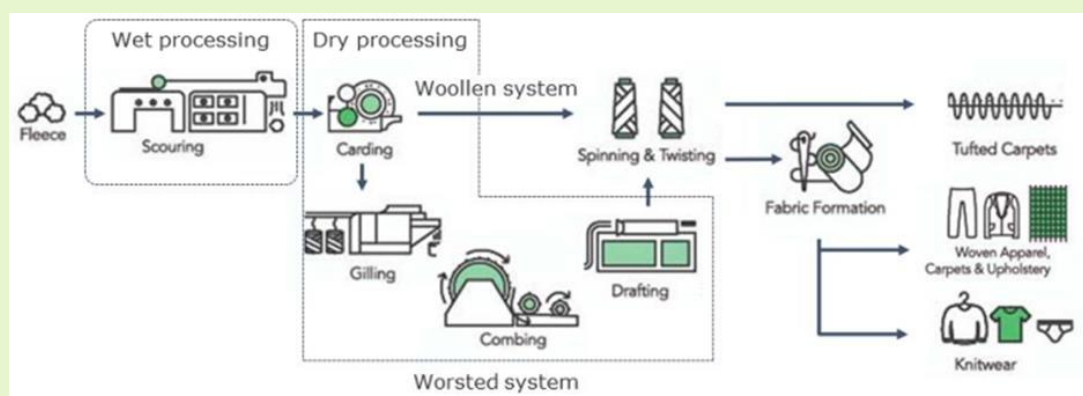
ⁱⁱ Compound annual growth rate, 2022 to 2030.

in further value adding activities. In addition, many people are engaged in textile handicrafts which include hand-processing of wool, handloom and handknitting, natural dyeing and hand knotted carpets.

Box B: The wool manufacturing process and definition of ‘early stage’

Wool manufacturing requires a particular set of intermediate processes to produce final goods. A stylised wool supply chain from farm to textile markets provided in Figure 1.1. The supply chain outlined below focuses on the processing of fine merino wool. Fine wool typically enters the worsted processing system and supports apparel markets that are centrally supplied by Australian wool. Woven worsted fabrics are used by tailors globally for clothes such as business suits, trousers and skirts. Worsted-spun knitted fabrics are soft and versatile knits used for baby clothes, underwear, t-shirts, sportswear, leggings, dresses and other light-weight garments.

Figure 1.1: Stylised description of worsted and woollen processing systems



Source: Adapted from IWTOⁱ

2.2.1.1 Wool processors in India

A structural feature of early-stage processing in the worsted garment sector is that production is vertically integrated from the processing of raw materials to the yarn production stage (Table 2.1). Of the early-stage processing companies, there was only one engaged in the garment making stage and into retailing, although several processors have their own brands and engage garment manufacturers to procure their garments on their behalf. A half dozen integrated firms undertake the stages of production up to yarn.

Excess early-stage processing capacity among these firms can be flexibly utilised to fill short-term orders on a commission basis for the rest of the spinning and downstream textile industry, which includes many smaller industry players. As a result, these firms would account for a large majority of the total sales of tops for example, but they account for virtually all the combing capacity. As these firms focus on products for the apparel sector, they use large amounts of Australian wool which can represent 70% to 95% of their total production.¹⁴

The high level of integration at the early stages of wool processing is understandable from the perspective of transaction cost minimisation. Integrating scouring and combing while sourcing large volumes of wool through a small number of agents produces a system that minimises search, enforcement and contractual costs. This ensures that the complex, dynamic and specific demands for fine wool and fine wool garments can be met in the most economically efficient manner.

Table 2.1: Role of major Indian wool firms in the fine wool supply chain

Company Name	Scour	Top maker	Spinner	Weaver	Knitter
Jaya Shree Textiles	✓	✓	✓		
Oswal Woollen Mills	✓	✓	✓		
Bansal Spinning Mills Ltd	✓	✓	✓		
Modern Woollens	✓	✓	✓		
Tirupati Balaji Exim Private Ltd	✓	✓	✓		
OCM Pvt. Ltd.	✓	✓	✓	✓	
Raymond Ltd.	✓	✓	✓	✓	
Ganga Acrowool Ltd		✓	✓		
Banswara Syntex Ltd				✓	
Shingora Textile Co				✓	
Pashtush India Private Ltd				✓	
S.M. Textile Mills				✓	
Space Knitwear					✓
Knitters (total)					10
Total	7	8	8	6	11

Source: Australian Wool Innovation (2022).

2.2.1.2 Sales - domestic and exports

Around half of all wool processed in India is consumed domestically.¹⁵ Industry consultations revealed domestic consumption is driven by demand for worsted fabrics used in formal wear and suiting and, in some regions, by winter clothing. This purchasing is expected to grow at rates similar to or slower than the overall economy. Lower demand for suiting due to shorter wedding seasons and increased use of ethnic formalwear instead of suits, as well as increasing competition from cotton and synthetic fibre products is slowing growth in domestic demand. This has led some industry players to strategically pursue downstream markets by retailing their own products to improve margins.

Meanwhile, other firms are targeting exports to realise their growth plans. India is already the largest exporter of natural fibre yarns and industry expects growth in knitwear and greater incorporation of wool into yarn blends to offer opportunities for Indian yarns in the future. Realising this growth will require better integration of India's industry yarn outputs into the sourcing of supplies for large knitting and garment manufacturing countries such as Bangladesh and Vietnam.

Australia has been an advocate of wool in the Indian market. For example, Woolmark has previously conducted its ‘Grown in Australia, made in India’ campaign which brought Indian fashion designers, retailers, manufacturers and the Indian government together with Australian wool representatives. The goal of this initiative was to grow awareness of wool in the local market, promote its use in garments and fashion items and highlight the links between Australian wool growers and Indian fabric makers.¹⁶

2.3 Current state of India’s wool trade

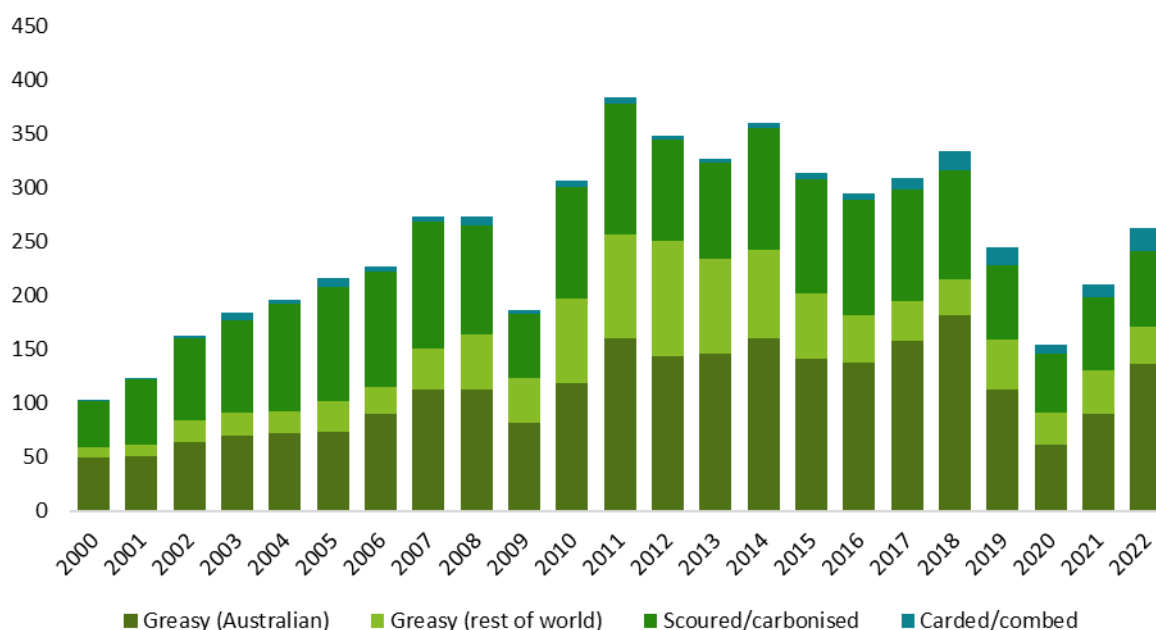
Locally grown wool is mostly of broader microns used for hand-made carpets, which is supplemented by imports from other countries such as Syria and New Zealand. India is more reliant on imports of greasy wool to produce intermediate apparel wool products such as tops and yarns. Sections 2.3.1 and 2.3.2 below detail India’s import and export markets for wool.

2.3.1 Early-stage wool imports

In 2022, Indian wool imports totalled US\$262 million. Historically, greasy wool has typically accounted for around 60% of aggregate wool import value, followed by scoured/carbonised wool at 37%, though this has declined slightly over time.

Over the past two decades, Australian wool has accounted for a significant share of India’s greasy wool imports (Chart 2.1), averaging 72% in value terms. In 2022, 80% (or US\$136 million) of India’s greasy wool imports originated from Australia. Further, from FY22 to FY23, total Australian greasy wool exports to India grew 24% in value terms year on year, from US\$105 million to US\$130 million. Australian wool growers have consistently provided quality raw inputs for India’s textiles and apparel sector, which has underpinned India’s position as the world’s third largest textiles and apparel exporter.

Chart 2.1: Indian wool imports by product type, 2000-2022, US\$ millions



Notes: Imports of HS codes 510111, 510119, 510121, 510129, 510130, 510510, 510521, 510529 where India is the reporter.

Source: UN COMTRADE (2023).

Furthermore, Australian wool has historically comprised a meaningful share of India's scoured/carbonised wool imports, averaging 23% since 2000. However, this share has steadily declined since 2015, and in 2022 accounted for only 4% of Indian scoured/carbonised wool imports. India's clean wool imports tend to be for coarser wool products, which compete more directly with domestically grown wool.

Dry processed wool has typically comprised a minor share of India's wool imports in the last two decades, illustrated by the blue segments in Chart 2.1. In the several decades prior to 2000, Australian tops accounted for around 50% of the value of India's dry processed wool imports. However, Australian tops exports to India ceased in the early 2000s with the gradual closing of dry processing capacity. Nonetheless, India's demand for greasy wool has cemented Australia among the top three exporters of wool to India in the last two decades.

Box C: The impact of ECTA

The Australia-India Economic Cooperation and Trade Agreement (ECTA) is an interim trade agreement between Australia and India which entered into force in December 2022. The agreement removed existing 2.5% tariffs on greasy and clean wool.

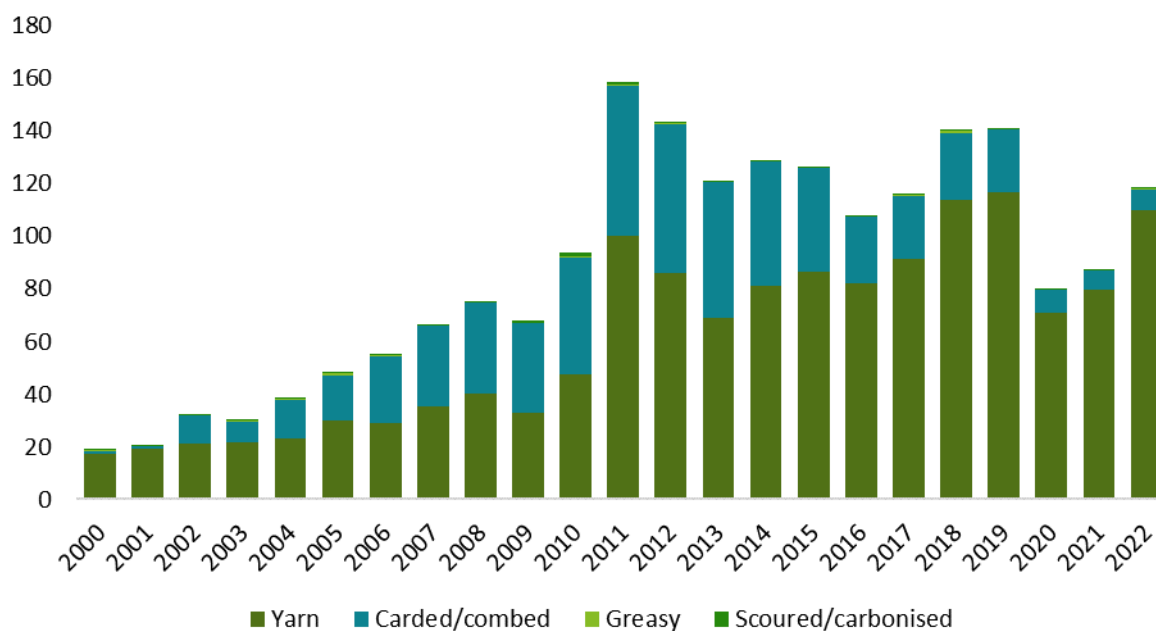
Early trade data provided by the Ministry of Textiles for this report indicates that ECTA has had a positive impact on trade. India imported 12,044 tonnes of greasy wool from Australia in FY23, a 15% increase from the previous year.¹⁷ In value terms, wool exports to India grown 24% from US\$105m to US\$130m. This is consistent with findings from industry discussions where some stakeholders reported that they have begun preferencing Australian wool over competitors since the introduction of ECTA.

2.3.2 Wool exports

In 2022, India exported approximately US\$1.3 billion in wool products, 80% of which (US\$1.04 billion) was woollen carpets.¹⁸ Export goods made using fine apparel wool of the kind Australia supplies mainly comprise intermediate products such as yarn and wool tops.

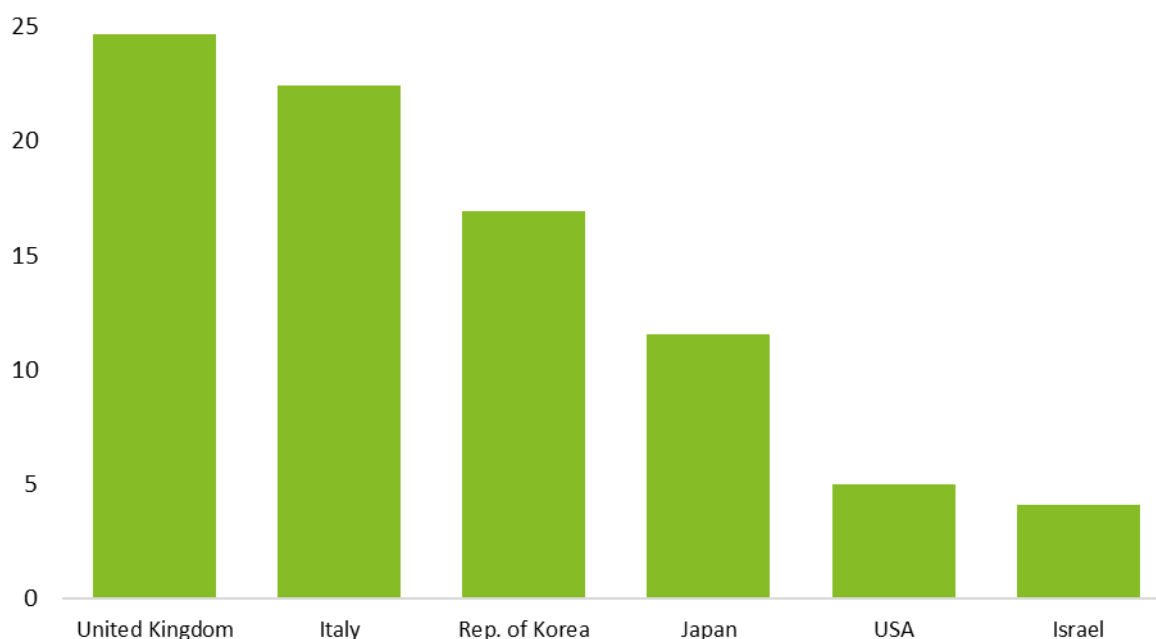
Yarn has consistently been the highest value intermediate wool export over the past two decades (Chart 2.2). In 2022, India exported approximately US\$110 million worth of yarn, the fourth-highest value in the world. Yarn exports have grown rapidly since about 2009, reflecting a cost competitive industry which has largely recovered from a sharp fall in 2020. India exports yarn to 88 different countries for further manufacture into high-value woollen garments. The six largest buyers of Indian yarn by value are shown in Chart 2.3.

Chart 2.2: Indian wool exports by product type, 2000-2022, US\$ millions



Notes: Imports of HS codes 510111, 510119, 510121, 510129, 510130, 510510, 510521, 510529, 510610, 510620, 510710, 510720, 510910, 510920 where India is the reporter
 Source: UN Comtrade (2023).

Chart 2.3: Top export destinations for Indian yarn, 2022, US\$ millions



Source: UN Comtrade (2023).

In 2022, India exported US\$8 million of carded and combed wool. India’s wool supply chain consumes most of the tops it produces as part of vertically integrated manufacturing processes and exports surplus tops. Carded and combed wool exports have been steadily declining, partly due to the expansion of yarn exports (consuming Indian-produced tops), top-making plant closures and a slow recovery following COVID-related trade disruptions in 2020 and 2021.

3 Factors influencing the development of India's early-stage processing

Early-stage wool processing and downstream sectors in India have distinct features that will influence the future development of the industry along with other factors including regulation, infrastructure and skills. While there is scope for improvements, these do not currently pose serious constraints to growth.

This section discusses the factors influencing wet, dry or integrated (wet and dry) processing in India and integration opportunities with Australia. This includes:

1. **Commercial industry structure and technical considerations:** including product requirements, expanding capacity and distribution.
2. **Regulation:** including industry sentiment on regulation surrounding wastewater management of wet processing.
3. **Infrastructure and logistics:** including an assessment of port, road and energy infrastructure in India.
4. **Skills** requirement and the labour market in India.
5. **Trade and market access:** including an assessment of the tariff and non-tariff measure and market access in the event of an animal disease event.
6. **Current government strategies:** in India to encourage textile industry development and Australian Government initiatives to encourage supply chain diversification.

It is important to note that this section considers India as a whole. However, the specifics of how each of these factors operates can differ considerably between Indian states.¹⁹ For example, land, labour and tax regulations apply mostly at a state level and can vary widely.²⁰

The key influencing factors identified in this report have been informed through consultations with a total of 13 organisations. These discussions included stakeholders currently operating in India's wool and textile industries, including early-stage processors, spinners and textile and apparel manufacturers. This roadmap has also benefitted from input from Australian wool industry bodies as well as Indian and Australian Government representatives in India. A full list of stakeholders is included in the Acknowledgements section at the beginning of this report.

3.1 Commercial industry structure and technical considerations

As outlined in Chapter 2, India has a well-established early-stage processing industry which is highly vertically integrated. Most firms purchase greasy wool and undertake all processing stages to produce either yarns or in some cases, garments.

This integrated structure reflects the unique competitive pressures of the wool processing industry and will influence the decisions of industry participants and their product requirements. Accordingly,

this has implications for the strategy of the Australian wool industry as it works to integrate with the Indian value chain.

3.1.1 Supply chain interdependencies and integration opportunities

Depending on the technical and commercial case, Table 3.5 highlights opportunities for Australian wool exports to further integrate with customers in India through three main product categories. While this can serve as a guide, it is ultimately up to individual businesses to determine which option could benefit their business the most.

The integration pathway with the most potential for short term growth is pursuing increased greasy wool exports. Achieving this is contingent upon growing wool consumption and demand in downstream parts of the supply chain. Most significantly this is linked to growth in wool yarn spinning for export and domestic wool garment consumption.

Table 3.1: Integration pathways for Australian exports

Australian exports of wool products (2021-22 volumes)	Industries in India (2022 imports)	Integration pathway
Greasy: 308 kt greasy equivalent	Scouring: 40.5 kt of greasy wool	<ul style="list-style-type: none"> • Increase utilisation of wet and dry processing capacity in India. • Ensure that cost-to-customer is economical in India and Australia.
Scoured: 25 kt of greasy equivalent	Combing: all combing sources domestically scoured wool	<ul style="list-style-type: none"> • No short-term opportunity identified. • Potential in long-term to integrate with expanded wet processing throughput in Australia, contingent on collaboration with Indian industry.
Combed: 0 kt greasy equivalent	Tops: 1.5 kt carded/combed wool	<ul style="list-style-type: none"> • No short-term opportunity identified. • Long-term opportunity contingent on establishing dry processing in Australia. • Ensure that cost-to-customer is economical.

Source: ABARES (2023), UN Comtrade.²¹

Australian greasy wool exports

Industry participants were generally very satisfied with the quality, availability and ease of transactions associated with Australian greasy wool. This reflects their long-term market experience as well as Australia's mature sales systems.

One point raised in consultations was that some processors are happy to purchase lower grades of wool for certain market segments that are not currently offered by Australian producers and exporters. Specifically, conventional ordering by Indian processors and supply from Australian

brokers has typically focused on full fleeces used in worsted yarns, which are preferred for their long wool fibre length. However, with knitwear seen as a large potential growth area, the yarns for this category have less strict requirements in terms of tops hauteur (fibre length). Correspondingly, this means higher cost full fleeces are not strictly necessary for these items and similar outcomes could be achieved with alternative, lower cost products. Understanding these product requirements of the Indian industry could help support sales of greasy wool.

Scoured wool

While India imports a considerable amount of scoured wool, it is sourced from countries where most production is coarse micron wool.ⁱⁱⁱ This is mostly used in the manufacture of carpets and other products not requiring fine wool.

Meanwhile, the micron profile of Australian wool is much finer and targets a very different market. This is an important feature as Indian processors noted they have different product preferences based on the wool's micron. Scoured Australian wool has been purchased by some members in industry, but in small amounts for niche products and at higher micron widths. Consultations with Indian industry suggest limited interest in buying fine, scoured wool from Australia for several reasons:

- Firms have already invested in capital to do their own scouring so they would have to leave this machinery idle.
- Processors cannot recover the grease from scouring, the income of which roughly offsets the cost of scouring.
- Coarse wools are technically simpler to integrate into further processing stages than finer microns as they are less subject to felting.^{iv}
- Processors prefer to have complete control over their blends which is most critical at the scouring stage.
- Conducting their own scouring lessens the risk of issues with quality assurance. If there is an issue with scouring onsite, processors can identify this early and fix the problem. This is not possible if only receiving a shipment of scoured wool. Processors also noted there could be liability issues and that there is currently no avenue to lodge disputes.
- Verifying the origin of wool is more difficult if it is delivered scoured. Conversely, there is an established architecture of specifications that can track and guarantee trade in greasy wool.
- Scoured wool is not currently able to be packed as densely as greasy wool for export meaning less weight can be packed into containers, which can create inefficient freighting.

Tops

The comments on scoured wool demonstrate that the presence of an established Indian fine wool industry mean all processing stages have already been developed. This will likely place constraints on Australia's ability to sell semi-processed forms of wool to India.

This finding is likely to apply to the purchase of tops as well. India's top making capacity is largely matched to the amount of greasy wool being processed. Adding additional top making capacity is unlikely as industry participants indicated that commission combing generates only breakeven returns and does not pay back capital costs by itself. Therefore, investment in combing output is unlikely to be economic. As a result, the Australian wool industry should work collaboratively with the

ⁱⁱⁱ India's largest suppliers of scoured wool since 2012 are New Zealand, China and Syria. The majority of New Zealand's wool production is over 30 microns. Australia is India's 9th largest supplier.

^{iv} Felting is the shrinkage, consolidation and uneven alignment of wool fibres caused during treatment in water with detergent. The process is irreversible and results in a matted mass of fibres which is regarded as a fault of processing.

Indian industry to grow overall demand for its products while focusing on the supply of raw materials (greasy wool).

3.1.2 Expanding capacity

In recent years, the only investments made in Indian early-stage processing capacity have been replacing equipment rather than expanding capacity. Overall, this reflects the slow growth of the wool industry in recent years and prioritisation of consolidation.

Industry commented that capital investment in additional processing capacity would be contingent on receiving adequate demand signals. However, if these signals were created there would not be significant barriers to expanding production. This expansion would most likely come from an existing processor. This is based on the high barriers to entry in the industry, which include high capital costs, the necessity for economies of scale in production and cumulative industry knowledge and relationships.

Growing orders for the Indian wool processing industry from international customers will also depend on the industry being able to satisfy their quality requirements. There may be scope for improvement in this area, as several international supply chain participants noted that Indian yarn quality can be variable. Establishing appropriate production quality control processes will be essential to expanding India's presence in international markets.

Expanding India's product basket to meet customer demand could be an additional pathway to growing orders. For example, there is strong consumer demand for easy-care, machine washable knitwear. Textile and garment makers in other countries are increasingly seeking treated tops and yarns to satisfy this demand. Superwash is one such treatment, where wool is first treated with chlorine and then a plastic polymer resin. Consultations found this treatment is only offered by a few processors in India, meaning garment makers source from elsewhere. It is important to note that the most typical Superwash process involves chemical treatments and so can be associated with negative environmental impacts. This should be considered by industry and government if production of these products were to be expanded. Other proprietary treatments by other global processors exist which seek to avoid contamination issues and could be an area of research and development for the Indian industry, potentially through partnerships.

3.1.3 Downstream supply chain

As one moves further down the wool industry value chain into distribution, there are a multitude of players in the Indian and global market for textiles and clothing. However, there are several key participants at the distribution and marketing end that are of particular importance in terms of their ability to influence demand for wool and hence production along the chain.

The most important of these are owners of Indian and global brands that are major users of fine wool, such as H&M, Uniqlo and Hugo Boss. A key reason for their influence, apart from the volume of wool that they use, is that they are closest to the consumers in the chain. This gives them access to real-time, long-term information on changing consumer preferences and is especially critical in an industry like fashion where there is fast-moving demand for products.

Some of these brands may undertake vertically integrated manufacturing and even wool processing, or they may sub-contract various parts of the chain to others. The biggest brands have operations in multiple countries, and tend to do more subcontracting. They therefore tend to be more remote from having a direct role in, or understanding of, the procurement of wool. Yet they ultimately have a substantial impact on the amount of wool demanded and hence processed. These are the primary sources of origin for the demand signals noted by processors in Section 3.1.2. It is therefore important to collaborate with these brands to understand their needs and identify opportunities to expand the inclusion of wool in final products.

3.2 Regulation

The Phase 1 report identified and analysed India's performance against a range of regulatory indicators influencing ease of doing business and other relevant commercial and cultural barriers. This report found that India's regulatory barriers that apply to business development and construction are similar to those of China and Australia.

3.2.1 Wastewater management of wet processing

Since 2015, the Indian Government has introduced additional regulations for water pollution in the textile industry. These include more stringent environmental standards for wastewater discharge and the promotion of a zero-liquid discharge strategy.²²

Despite increased regulation, the sentiment amongst industry is that current wastewater regulations do not significantly limit capacity expansion of incumbent operators. Most processors have already invested in their effluent treatment plants and upgraded them to reverse osmosis facilities, meaning that they have zero discharge to mains. Furthermore, once a processor has received a treatment license, there are clear processes in place to expand capacity or obtain another license, giving an advantage to incumbent businesses.

In addition, the Ministry of Textiles has established an Integrated Processing Development Scheme (IPDS) that has three focus areas – adequate and timely supply of water, wastewater management and safe treatment of effluents before disposal.²³ The IPDS will help develop industrial parks with common facilities such as effluent treatment plants and water supply systems that can be used by clusters of processing units. In addition, the IPDS will help processors innovate and adopt eco-friendly technology in textile processing.

As in other jurisdictions, the ease of accessing new wastewater licences for new entrants can be challenging and represents a barrier to expanded capacity. Consultations with industry outside of India have noted the challenges of receiving these permits in India.

3.3 Infrastructure and logistics

The quantity and quality of infrastructure and logistics links from the facility to seaports is essential to the establishment of a new segment of the wool supply chain in India that has both import and export linkages.

3.3.1 Port infrastructure

In the last 10 years, India's strong economic growth contributed to the increase in cargo traffic from 546 million tonnes in 2013 to 784 million tonnes in 2023. With a coastline of over 7,000 kilometres,²⁴ India has 13 major ports and 205 notified minor and intermediate ports located in the 9 coastal states of India, with most ports located in Western India.^v

One of the major ports where greasy wool shipments arrive is the Nhava Sheva port in Mumbai, Maharashtra. It is the largest container port in India, accounting for around 50% of the total containerised cargo volume in India.²⁵ It also has connections to over 200 ports globally.²⁶

Stakeholders based in Eastern India indicated that they use the Syama Prasad Mookerjee Port and the Haldia Dock Complex ports in the Kolkata region. Both ports serve as a useful connectivity facility for Northeast India.^{vi} For processors that require bulk shipments, the Haldia Dock Complex could be more useful as it is a deep-water port capable of accommodating large container ships.

^v The 9 Indian states are Kerala, Karnataka, Maharashtra, Goa, Gujarat, West Bengal, Odisha, Andhra Pradesh and Tamil Nadu. The majority of ports in India are located in Maharashtra and Gujarat.

^{vi} The port is used by manufacturers located in West Bengal, Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Assam, North East Hill States, Nepal and Bhutan.

The Indian Government is continuing to invest in building new Indian port infrastructure, with port capacity doubling between 2014 and 2023.²⁷ There has also been a measurable improvement in India's ranking on the World Economic Forum's (WEF) Competitive Index for efficiency of seaport services from 83rd in 2010 (score of 3.9 in 2010) to 49th globally in 2019 (score of 4.5 in 2019).²⁸

3.3.2 Road and rail infrastructure

With the second largest network in the world spanning over 6.3 million kilometres in 2022, roads are an important mode of transport in India.^{29,30} While the quality of Indian roads has improved on the WEF Competitive Index in recent years from 3.8 in 2014 to 4.5 in 2019,³¹ a survey conducted by the World Bank found that one in 10 Indian firms surveyed mentioned inadequate transportation infrastructure as a major obstacle to their growth.³²

Alternatively, some stakeholders located inland indicated that they use the Indian rail network to transport goods between their processing facility and the ports. The Indian Government has also continued to make investments to improve the connectivity and quality of the rail network. India is on track to electrify 100% of the rail network by the end of 2023,³³ which can bring about positive benefits such as greater reliability and the ability to support heavier freight trains.³⁴

3.3.3 Energy infrastructure

Globally, wool processing facilities draw upon a mixture of grid-connected electricity and stationery (on-site) energy generation, particularly for heat production during wet processing. For instance, gas is the primary source of energy in Australia given its abundance and low cost. There are some more site-specific options that could encourage the co-location of wet and dry processing facilities. For instance, some early-stage processors in China are located next to coal-fired power station to exploit the excess heat to dry the wool once it has been washed.

While India's energy mix is dominated by fossil fuels (particularly coal), the share of renewable has been slowly growing from 16% in 2010 to 23% in 2020, with a target to reach 50% renewables by 2030. Some processors have indicated that they already have or are seeking to expand the amount of power generated on-site using renewables, primarily through solar energy. Energy infrastructure was not highlighted in consultations as a material barrier to early-stage wool processing expansion in India.

3.4 Labour market and skills requirement

Driven by population increases and robust economic growth in recent years, India's labour force has grown from 476.6 million in 2013 to 523.8 million in 2022. In 2022, data from the World Bank showed that India's unemployment rate was 7.3%.³⁵

The textile and apparel sector constitute a notable proportion of the labour force, employing over 45 million people.³⁶ Based on data from the Employees Provident Funds Organisation,^{vii} most workers in the textile and apparel sector are in Tamil Nadu, Karnataka and Gujarat. Ludhiana, a manufacturing city located in Punjab, is a hub for the Indian wool industry, having a relatively higher share of workers employed in the textile industry.

A survey of 887 textile manufacturing units across the textile value chain shows that the segments that saw the greatest number of jobs created between 2014 and 2018 were in technical textiles (9.7% per year growth), spinning (5.6% per year growth) and processing (4.1% per year growth).³⁷

The Phase 1 report estimated that around 100 to 150 workers will be employed at an integrated wet- and dry-processing facility to produce 7.8 million kg of clean wool, with the number of workers

^{vii} The geographic breakdown of the number of employees is based on the sample of businesses that are registered with the Employee Provident Fund Organisation. This may not be reflective of the true population.

required being dependent on the nature of the operations (i.e., is it a top making or scouring only or dry processing only facility) and the level of automation at the facility.^{viii} Broadly, workers will be required across five broad areas – production, maintenance, quality assurance, logistics and administration. It is expected that more workers for production roles, such as scour and press operators, will be needed should the facility have wet processing capabilities.

All the existing major Indian wool processors have operated in the sector for a considerable time and have established teams and employees with extensive experience and specialised skills in wool. As a result, skills and labour were not viewed by industry as limitations to expansion.

Important regulatory barriers for diversification of the wool supply chain through changes to early-stage processing include labour regulation (as one of the major inputs). Indian labour regulations are designed at state level. Hence, depending on the technical and commercial case, different states could be attractive to different processors trying to establish an early-stage processor.

3.5 Trade and market access

Historically, India's size and appeal of self-sufficiency had encouraged a degree of insularity. However, in recent decades, that has begun to change. In 2022, the ratio of trade to GDP was 49.4%, comparable to that of Australia and other significant trading economies including China and the USA. Moving forward, India is keen to further integrate into the global economy and be seen as a reliable business partner and participant in international rulemaking on the world stage. To achieve this, the Government is keenly engaged in trade issues and has several strategies and policies to increase India's share of exports and portion of global trade.

3.5.1 Trade agreement and tariff access

India has entered into agreements with regional neighbours, including the Association of Southeast Asian Nations. It does not, however, have trade agreements with large wool processors such as China, or large textile markets of the United States or European Union. Stakeholder sentiment was that Free Trade Agreements (FTAs) provide a level of certainty for both importing and exporting firms, amidst an environment where tariffs are often changed on an ad hoc basis according to industry policy and revenue concerns.

In India, import duties are levied on the Cost Insurance and Freight (CIF) value of goods being imported (i.e., the 'Free-on-Board' value, plus freight and insurance). Imports of early-stage processed wool are subject to three types of import duties, which can be seen in Table 3.2:

1. **Basics Customs Duty (BCD):** a duty levied on value of imported goods at the standard rate.
2. **Social Welfare Surcharge:** a duty levied at 10% of the BCD on the imported goods. This duty is imposed to fulfil the Government's commitment to provide and finance education, health and social security.
3. **Integrated Goods and Services Tax (IGST):** any article imported into India is liable to be charged IGST "at a rate as is leviable on an article on its supply in India". Nonetheless, IGST is recoverable as an input tax credit for entities that import into India.

An interim trade agreement between Australia and India entered into force in December 2022. The Australia-India Economic Cooperation and Trade Agreement (ECTA) removed existing 2.5% tariff on greasy and clean wool. Meanwhile, carded and combed wool are expected to see a large but gradual reduction in tariffs over a seven-year period (Table 3.2). It should be noted that to qualify for the reduced tariff rate, an AI-ECTA Certificate of Origin must be filled in, and it must be completed by a

^{viii} Given the substitutability between labour and capital in wool processing, a higher level of automation at the facility will reduce the number of workers needed while a lower level of automation at the facility will increase the number of workers needed.

third party such as the Australian Chamber of Commerce and Industry. Third party certification systems typically incur a cost to certify.

Following AI-EFTA, early-stage processed products exported from Australia to India have become relatively more competitive compared to equivalent products exported from China to India.

Table 3.2: Indirect taxes applicable to wool that is imported into India

Product	All countries		Australia	China
	Basics Customs Duty (2023)	IGST	Tariff rate (under AI-EFTA)	Tariff rate
Greasy wool	2.5%	0%	0%	2.5%
Scoured wool	2.5%	0%	0%	2.5%
Carbonised wool	2.5%	0%	0%	2.5%
Carded wool	10%	5%	7.1%	10%
Combed wool	2.5% - 10%	5%	1.8% - 7.1%	10%

Notes: Combed wool will attract different Basic Customs Duty (BCD), and the magnitude of the reduction seen in the AI-EFTA will be dependent on the 8-digit HS code.

Source: DFAT and WTO.

The UK, European Union, South Korea, Japan and the US are some of the top markets for Indian yarn. India's free trade agreements with Japan and South Korea has enabled tariff-free trade for its woollen products (Table 3.3), while firms will have to pay a tariff of up to 5% and 6% to export woollen yarns to the European Union and USA respectively. The United Kingdom's Developing Country Trading Scheme, which cuts tariffs to 65 countries classified as low income and lower-middle income countries,^{ix} enables India to enjoy tariff-free access to the UK market.

Chinese and Indian exporters face the same tariff rates to the EU for tops and yarns.

^{ix} Uses World Bank classifications of "low-income countries" and "lower-middle income countries"

Table 3.3: India export trade for tops and yarns to a selection of destinations

Product	Tops	Yarn
United Kingdom	0%	0%
European Union	2%	3.8% - 5%
Korea, Republic of	0%	0%
Japan	0%	0%
USA	3.4% ¹	0% - 6%

Notes: ¹Tariffs reported for wool tops into the United States are an ad valorem estimation (estimation in the form of a percentage of non-ad valorem tariff); The HS codes for wool tops are 510521 and 510529 where India is the reporter; The HS codes for wool yarn are 5106, 5107 and 5109 where India is the reporter.

Source: ITC.³⁸

Industry has indicated that ECTA has had a positive impact, with several stakeholders indicating that they are preferencing Australian wool over competitors where this previously may not have been the case. The uptake of ECTA amongst Indian firms is quite good compared to other FTAs.

Nonetheless, ECTA is only an interim agreement, and negotiations are currently taking place over a more ambitious Comprehensive Economic Cooperation Agreement (AI-CECA).

3.5.2 Non-tariff measures (NTMs)

India imposes multiple NTMs across agricultural and manufactured goods, although they are used more comprehensively in agriculture. According to the United Nations, India applies NTMs to all agricultural products. In contrast, India applies NTMs to just over half of manufacturing products.

Most NTMs used in India are anti-dumping measures (141 initiated and 236 enforced in 2021). The usage of Technical Barriers to Trade and Sanitary and Phytosanitary Measures (SPS) have also proliferated in recent years, with 43 technical barriers and 15 SPS measures in force. This is in line with a global increase in NTMs imposed by countries.³⁹ No person or firms can import goods without a valid Importer-Exporter Code and GST registration in India.

3.5.2.1 Non-tariff measures applied to early-stage processed wool

Adhering with these NTMs might result in time delays (from needing to meet the requirements of different biosecurity and import clearance) imposing additional costs on firms. Examples of relevant non-tariff measures that India applies to early-stage processed wool are outlined in Table 3.4.

Table 3.4: Examples of relevant non-tariff measures applicable to the import of early-stage processed wool into India

Non-tariff measure	Description
Sanitary and phytosanitary measures	<ul style="list-style-type: none"> • Upon import, firms need to present the Certificate of Analysis for Textiles (Ministry of Textiles), Veterinary Health Certificate for Animal Products (Ministry of Fisheries, Animal Husbandry and Dairying) and Sanitary Import Permit (Animal Quarantine and Certification Services). • Potential risk that goods will be destroyed if the phytosanitary requirements are not satisfied as the agencies involved in the enforcement of biosecurity clearance processes have the power to destroy the goods.
Technical barriers to trade	<ul style="list-style-type: none"> • A Certificate of Agmark Grading (consumer law from the Directorate of Marketing and Inspection, Ministry of Agriculture and Farmers Welfare).

Notes: Non-tariff measures are grouped according to UNCTAD International Classification of Non-Tariff Measures.

Source: Deloitte Global Trade Advisory analysis.

The impacts of the non-tariff measures could be mitigated somewhat under India's Authorised Economic Operator program. The program recognises importers who are compliant with supply chain security standards including being a legal entity (and not a group company), have had business activity for three Indian financial years and have made 25 import declarations in the last Indian financial year. Eligible companies enjoy a range of benefits associated with customs clearance procedures such as limitations on the number of on-site post-clearance audits, deferred duty payment following clearance and self-certification of certificates. In addition, the impact of NTMs could be addressed via wool preparation, packaging and quality assurance systems undertaken before the wool gets shipped to India.

3.5.2.2 Non-tariff measures applied to Indian wool exports

Table 3.5 shows that woollen yarn exports to North America will have to adhere to more NTMs compared to exports to the European Union and Japan. Coupled with the longer geographic distance between India and the US, it is likely to be more expensive for Indian spinners to export woollen yarns to the US than the European Union and Japan.

Table 3.5: Examples of relevant non-tariff measures applicable to exports of woollen yarn from Vietnam

Country	Number of NTMs faced	Examples of possible NTMs faced by Indian woollen yarns
European Union	4	<ul style="list-style-type: none"> • Restrictions on the use of certain chemical products in textile and leather products. • Labelling requirements.
Japan	4	<ul style="list-style-type: none"> • Labelling requirements. • Restrictions on the use of certain chemical products in textile and leather products.
Korea, Republic of	2	<ul style="list-style-type: none"> • Labelling requirements.
United Kingdom	4	<ul style="list-style-type: none"> • Restrictions on the use of certain chemical products in textile and leather products. • Labelling requirements.
USA	13	<ul style="list-style-type: none"> • Adhere to traceability requirements that make it possible to track a product through stages of production, processing and distribution. • Labelling requirements.

Notes: Analysis of NTMs from the UK, EU, South Korea, Japan and the US of HS codes 5106, 5107 and 5109 affecting India in the UN TRAINS database; The number of NTMs faced by firms seeking to export into these markets do not cover NTMs that these markets impose on the trade of endangered species. Destinations listed in alphabetical order.

Source: UN TRAINS, ITC.⁴⁰

Analysis of import NTMs at these key markets suggest that Indian wool yarns are likely to face similar NTMs compared to wool yarns from other competitor countries, suggesting that NTMs would not be a factor that could influence the relative competitiveness of Indian wool yarns.

3.5.3 Market access and animal disease event

The risk of an animal disease event, such as the onset of FMD in Australia, limiting market access for Australian greasy wool exports into India is assessed to be low. This reflects the prevalence of animal disease events in India, including FMD which is found in many parts of the country. In response, the Indian Government has been carrying out an FMD control program, intending to vaccinate India's globally significant livestock population. The program aims to free the country from FMD by 2030 and follows the protocols outlined by the World Organisation of Animal Health (WOAH) and the United Nations Food and Agricultural Organisation (FAO).

3.6 Current government strategies relating to industrial and textile development

There is strategic alignment between the goals and plans of Australian and Indian Governments in areas of trade, particularly in agriculture and manufactured products.

3.6.1 Current Indian Government strategies

There are specific wool strategies in place with the Indian Government, most significantly the Integrated Wool Development Program.⁴¹ This encompasses the Wool Marketing Scheme, Wool Processing Scheme, Human Resources Development and Promotional Activities and the Pashmina Wool Development Scheme.⁴² However, these initiatives are mainly focused on India's decentralised wool sector and indigenous wools, with less relevance to Australian imports and the established large-scale Indian processors described in Section 2.2.

More broadly, the Indian Government has a range of other strategies that intend to build India's general manufacturing capabilities and grow the broader textile and apparel sector. This could have an indirect impact on the development of the wool and wool processing sector in India. A summary of strategies and incentives that could benefit firms in the textile and apparel sector can be found in Appendix A.

3.6.2 Current Australian Government strategies

Aside from the FTAs outlined in Chapter 3.5, Table 3.6 highlights several opportunities for wool firms in Australia to utilise existing government strategies and packages to further diversify its supply chain into India.

Table 3.6: Initiatives by the Australian Government to encourage trade diversification

Strategy	Description
<i>India Economic Strategy to 2035</i>	<ul style="list-style-type: none"> • <i>An Indian Economic Strategy to 2035: Navigating from Potential to Delivery</i> (IES) aims to position Australia as India's primary agribusiness partner, a key supplier of agricultural commodities and partner in technical knowledge.⁴³ • Wool remains one of Australia's priorities under this strategy, and is seeking to increase opportunities for Australian agricultural commodities which contribute to Indian's textile producers. To that end, the Government is seeking to refresh the Australia-India Wool MoU to further these efforts.
Agri-Business Expansion Initiative (ABEI)	<ul style="list-style-type: none"> • AU\$85.9 million investment by the Australian Government to help Australian agribusiness expand and diversify their market. This initiative is part of a long-term strategy and commitment to help achieve sustainable growth and resilience.⁴⁴ • ABEI has increased DAFF capacity to give exporters the information they need to grow their exports. • ABEI has also enabled the deployment of short-term agricultural counsellors who can build targeted relationships, and accelerate the negotiation of technical agreements.

Sources: DFAT, DAFF.

3.6.3 The role of trade facilitation services in market development

Trade facilitation services help firms as they seek to move goods across borders by assisting them in areas such as customs and border regulations, licensing and transit formalities, administrative processes and documentation services.⁴⁵ Amidst a backdrop of risks relating to supply chain

disruptions, these services give small and medium sized businesses better and more timely access to production inputs and downstream buyers from abroad and support a firm's participation in global value chains. Consequently, this can result in a reduction in trade costs and increases in economic welfare.⁴⁶

Based on the OECD trade facilitation index, while India has made progress in reducing barriers to trade, compared to other lower middle-income countries, India has relatively more trade-related documents that takes time to prepare.⁴⁷ It is amidst this context that there is a role for trade facilitation services to play an important role in growing trade between Australia and India. For example, the Australian Trade and Investment Commission (Austrade) will run an Australian-India Business Exchange (AIBX) programme in 2023-24 to boost trade and investment between India and Australia. Participants in AIBX can gain insights, introduction to potential partnerships and access to Austrade advisors in major Indian cities.⁴⁸ There are other organisations in India such as the Australia India Chamber of Commerce and Australia-India Business Council who can also provide some trade facilitation services. However, these organisations reflect the interests of their members, many of whom are not currently to wool supply chains and span a wide range of textile and apparel industry sectors.

3.7 Cost-to-customers of Australian wool integrating with early-stage processing in India

Firms producing early-stage wool processing products compete primarily on cost. Over time, the geographic location of early-stage wool processing has shifted in response to changes in relative costs.

The cost-to-customer analysis aims to provide an understanding of the relative competitiveness of locating early-stage processing in India compared to existing supply chains. It contains two parts:

1. **Establishment costs:** A summary of factors influencing establishment costs.
2. **Operational and cost-to-customer:** Estimates of yarn production, transport and tariff costs under **policy scenarios**^x relative to **business-as-usual** supply chains.
 - a) At point of export (e.g., from India).
 - b) In a selection of third countries.

To interpret these estimates, note that these supply-chain-level average estimates may not reflect the circumstances faced by every firm operating in the wool processing supply chain as it will vary depending on a range of firm-level factors including product type and the exact location of the facility. A range of sensitive data inputs and broad-based assumptions mean that the results demonstrate the broad competitiveness of cost of delivery. Therefore, while this analysis could indicate the relative competitiveness and suitability of each country for hosting part of the wool supply chain, wool processors need to undertake their own analysis in developing specific business cases for projects.

In addition, it should be acknowledged that the relative cost of delivering woollen products to downstream customers is just one dimension that could influence a firm's decision of where to locate part, if not all, of their supply chain. Examples of other factors include the quality of inputs and the reliability of suppliers, alongside other factors explored in this chapter.

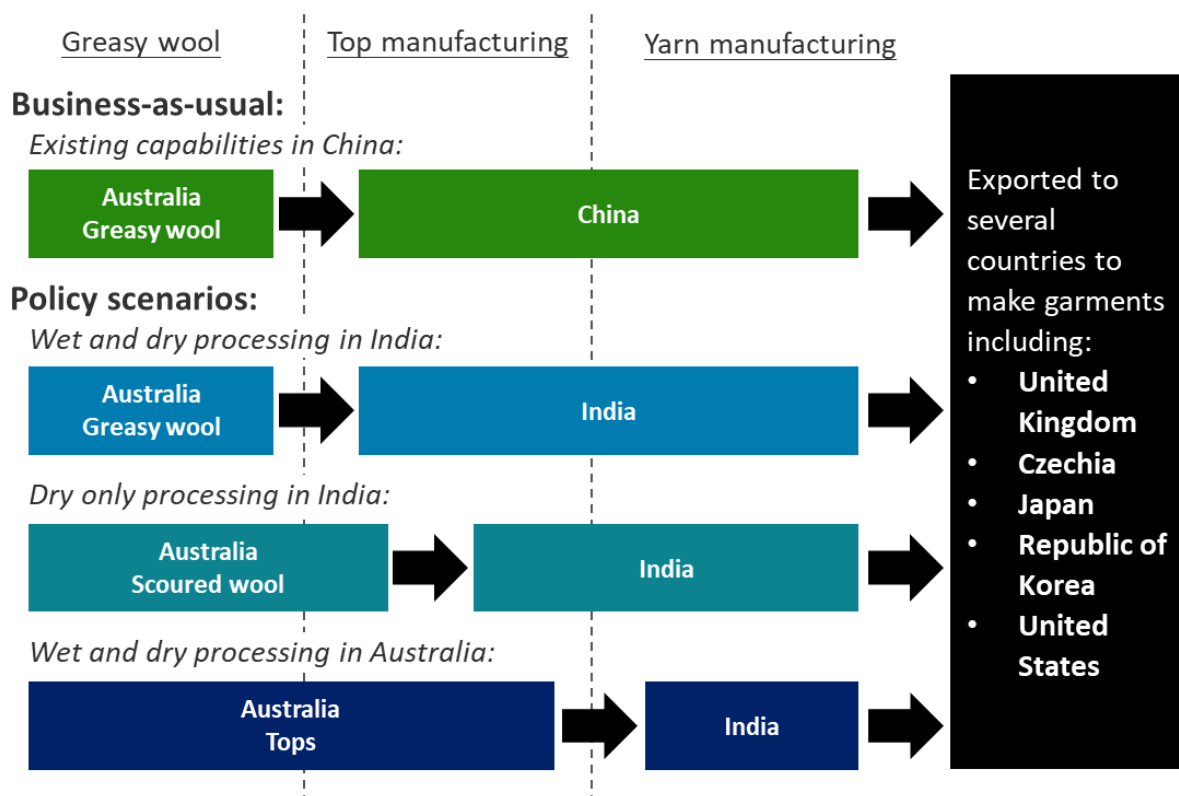
The selection of third country destinations reflects the current markets for Indian yarn exports. Bangladesh and India are included to benchmark across other roadmaps in this series.

^x 'Policy' in this case referring to a difference from business-as-usual, not in reference to any particular government or business policy.

There are several potential configurations of wool supply chains for the manufacturing and trade of wool products between Australia, India and third countries. The supply chains leading to yarn exports are shown in Figure 3.1. Currently, the business-as-usual scenario sees the majority of Australian greasy wool exported to China where it is processed into tops which then feeds through to local spinning facilities (Existing capabilities in China).

The policy scenarios seek to benchmark the relative costs of delivering yarn to customers after utilising early-stage processing capacity in India (wet and dry or dry only processing in India) and Australia (wet and dry processing in Australia) against the status quo. It is assumed that in both the business-as-usual and policy scenarios that the yarn produced in China or India is subsequently shipped to other countries for garment making.

Figure 3.1: Stylised depiction of modelled supply chain for exporting yarn, utilising and building early-stage processing capabilities in India or Australia



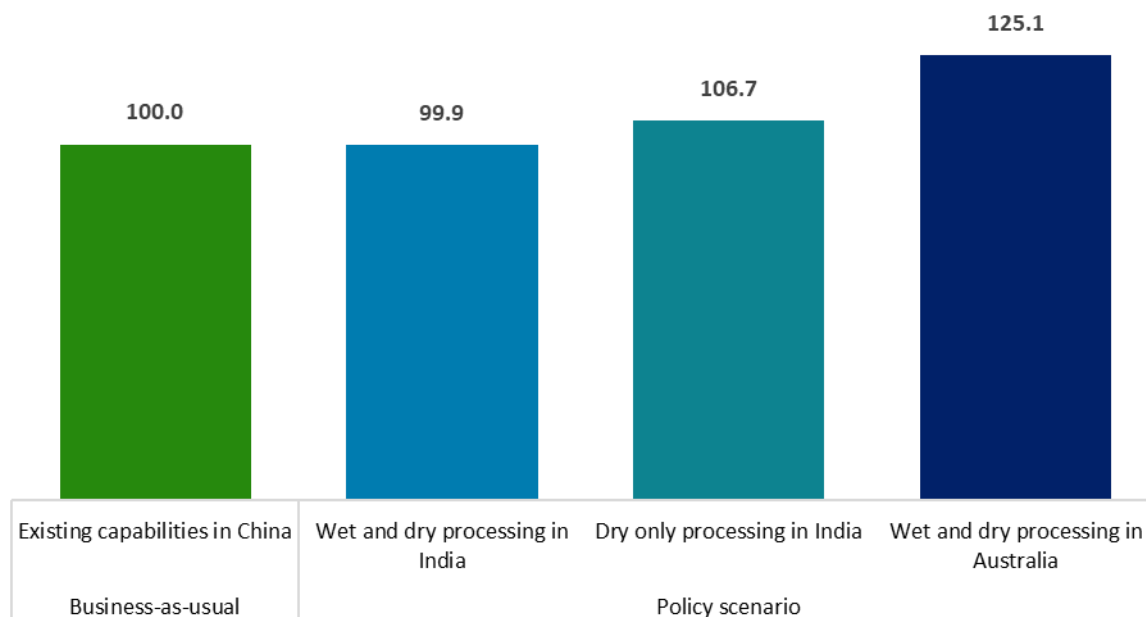
Sources: Deloitte Access Economics.

3.7.2 Production cost at point of yarn exports

The cost-to-customers calculation shows that processing costs will be a main determinant of a country's yarn competitiveness. With similar processing costs in China and India, utilising early-stage wool processing in India is unlikely to increase the cost-to-customer of yarn exports relative to existing supply chains (Chart 3.1). Therefore, the established supply chain whereby Australia exports greasy wool to India for early-stage processing and yarn manufacturing remains the most cost-competitive integration pathway for Australia.

The relatively high cost of top-making in Australia suggests that sending tops to India could be the least cost-competitive integration pathway, and will require the biggest capital investment compared to other pathways.

Chart 3.1: Cost of producing yarn in different supply chain models, relative to producing tops and yarns in China



Sources: Deloitte Access Economics.

3.7.3 Cost-to-customer of yarn export in third countries

Depending on the location of downstream customers, companies that seek to utilise existing early-stage processing capacity in India could find it relatively cheaper to deliver yarn to several garment making locations compared to the business-as-usual scenario (Table 3.7). Due to the presence of Free Trade Agreements, processors that have downstream customers in South Korea, Japan and Vietnam could see the biggest reduction in costs compared to other possible locations. Building out the number of downstream customers in these markets could stimulate further demand for early-stage processing in India.

It is more expensive for companies to deliver yarn into Bangladesh compared to other garment making countries in all three policy scenarios. This could be attributed to the relatively higher import tariffs the country imposes to protect domestic industry. Nonetheless, Bangladesh is implementing policy changes that could make it more cost competitive in the long run. The maiden *National Tariff Policy 2023* suggest that tariff rates could be reduced in the future, to align with Bangladesh's commitment with the World Trade Organisation.⁴⁹

Table 3.7: Costs to deliver yarn in selected third countries in various supply chain configurations, relative to producing early-stage processed wool in China and delivered to customer in Japan

Policy scenario	Garment destination country	Total cost index
Wet and dry processing in India	Bangladesh	103.3
	Czechia	104.1
	Japan	98.0
	South Korea	98.1
	Vietnam	98.0
Dry only processing in India	Bangladesh	110.3
	Czechia	111.1
	Japan	104.7
	South Korea	104.9
	Vietnam	104.7
Wet and dry processing in Australia	Bangladesh	129.2
	Czechia	129.8
	Japan	122.7
	South Korea	122.9
	Vietnam	122.7

Notes: A full list of the relative cost of delivering yarn to customers in selected countries can be found in Appendix B.
Sources: Deloitte Access Economics.

4 Recommendations and actions

This roadmap seeks to present a pathway for facilitating increased trade in Australian wool with India through the increased consumption and early-stage processing of wool.

4.1 Setting the scene

Wool processing in India is integral to meeting domestic demand for wool-based products. In addition, it is part of the international textile and apparel chain, where its exports of yarn have grown, and it has a potential to serve as an alternative source to China for these and other wool based products. The Indian wool supply chain interacts in many ways with the global textile and apparel chain – it imports raw wool, processes it and exports to many countries where, for example, yarn is made into cloth and further into clothing. Any goal to expand the presence of Australian wool in India must consider the nature and attributes of the interrelated markets that constitute this chain.

Based on the analysis and consultation undertaken for this roadmap, **the best means of accessing this chain is to encourage the ‘pull-through’ of demand for Australian greasy wool along the value chain.**

Investment in early-stage wool processing in Australia is unlikely to be the best means of meeting this demand in the short term. The Indian wool supply chain is highly integrated between scouring, top-making and spinning and prefers to purchase greasy wool. In addition, excess capacity currently exists within early-stage wool processing in India, at least in the short term. Once the pull-through of demand for wool has progressed and the excess capacity has been eliminated, there may be an opportunity for enhanced early-stage processing in Australia or India (wherever is most competitive) to supply the Indian processing industry.

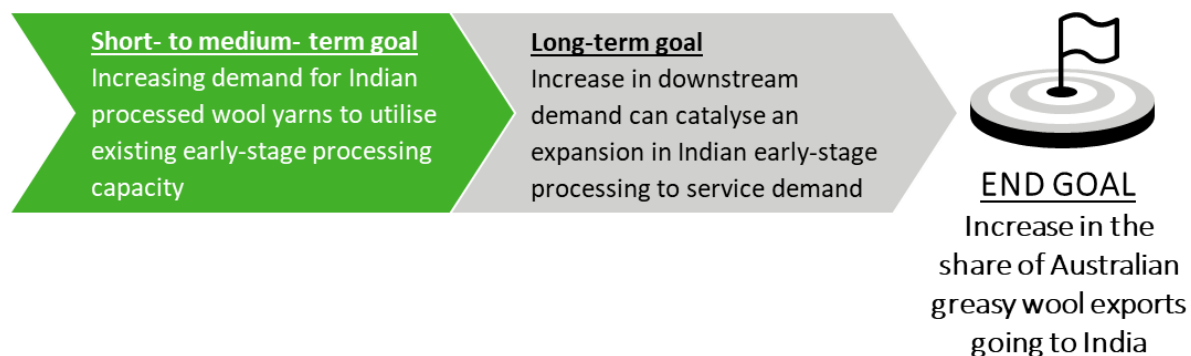
4.2 Roadmap recommendations

The roadmap outlined in Figure 4.1 presents a pathway to grow India’s wool and textile industries, as well as possible integration opportunities with Australia.

It includes short-, medium- and long-term goals that can support India to realise its ambitions to become a global textiles powerhouse, with wool playing a key supporting role. To achieve these goals, it is important that the manufacturing ecosystem, and the supporting institutions in India and Australia, work together to implement a series of actions in line with these goals. Key to this is **growing the share of Australian greasy wool exports going to India.**

The roadmap and its recommendations considers the current state of wool trade between Australia and India, and the current strengths, challenges, opportunities and threats facing the Indian wool industry. It has benefitted from insights and feedback from a range of industry and government stakeholders (see Figure 4.1).

Figure 4.1: Roadmap recommendations framework



Source: Deloitte Access Economics.

4.2.2 Short to medium-term recommendations

In the short- to medium-term, the primary goal should be to increase the utilisation of existing early-stage processing capacity in India. Until this capacity is filled, firms are unlikely to make any additional investment as there is insufficient market demand.

Most of this capacity is integrated with spinning activities, and so **increasing demand for India's wool yarns** would send the necessary market signals. Achieving this will require India to undertake strategies and actions that grow its reputation and attractiveness as a global supplier of wool yarns.

Recommendation 1: Conduct further market research of the market dynamics of the downstream Indian textile and apparel industry, including in areas such as understanding drivers of demand for Indian processed wool yarns sold in export markets.

This research should engage deeply with the Indian wool industry and with the global customers of Indian products. This applies especially to the downstream distribution and marketing stages of the chain that are closest to the consumers. These stages can reflect and influence consumer purchasing behaviour but are also the most remote from wool production itself, and hence have the most to learn about wool. Key questions to address include:

- The drivers of demand for Indian produced wool yarns sold in export markets.
- Identifying sources of quality control issues in Indian processed wool products (particularly yarns) and implementing solutions to address them.
- Working with apparel brands to understand the drivers of their sourcing decisions as well as promoting the use of Indian produced yarns in their products.
- How Australian industry can work collaboratively with Indian industry to improve the domestic marketing of wool in India.

Recommendation 2: Grow India's profile as a sourcing destination for wool products including yarns and final products such as garments.

Australian greasy wool potentially has a significant role in meeting increased demand from India as it expands its presence in the global textiles market. Increased market awareness of the benefits of Australian wool can help to drive alternative sourcing decisions.

This role should be focused on joining with the Indian wool industry and its customers based on selling Indian wool products made from Australian wool. Woolmark has previously conducted similar campaigns and this work should be expanded to further develop the Indian market.

Recommendation 3: Enhance industry-industry and industry-government relations between Australia and India to foster technical knowledge transfer and ensure customer needs can be met, which could be achieved by enhancing Australia's on-the-ground presence in India.

This initiative will capitalise on recent activity following the ratification of AI-EFTA as well as the establishment of the Joint India Australia Wool Working Group. It should include regular and ever-deepening contact between the Australian and Indian industries. A refreshed Memorandum of Understanding may be required as a binding architecture to convene meetings. Australian Government support would also be a key means of ensuring that the EFTA results in significant trade and cooperation gains. Activities should include:

- Joint trade promotions and study tours.
- Conferences based in India and Australia including key downstream stakeholders to exchange information on the advantages of wool, projections of demand and supply, capacity and investment.
- Understanding the extent to which Australian wool brokers and exporters face any specific market access barriers that are restricting wool trade between Australia and India.
- Joint development of educational and other resources to support wool use.

Whilst the engagement process needs to include stakeholders from across the value chain, it should be led and coordinated by wool producers in Australia. This will ensure that the focus of the initiative remains on generating increased sales and profits for wool growers. Nonetheless, Australia should increase its on-the-ground trade facilitation and government-level presence in India.

4.2.3 Long-term recommendations

In the long run, achieving market diversification of Australian wool will require growing India's share of Australian wool exports. Achieving the short- to medium-term recommendations set out in Section 4.2.2 will help to ensure downstream demand is adequate to warrant an expansion of early-stage processing capacity and therefore boost India's demand for greasy wool. Increased downstream demand (e.g., via yarn exports) may also create markets for Australian-processed wool products in India. However, this outcome would be contingent on a suitable industry being developed in Australia.

Achieving greater industry scale can help to address issues currently associated with the Indian industry. For example, larger scale can allow for greater amounts of stock to be kept on hand, meaning manufacturers can reduce lead times for incorporating wool into customer orders. This is a key competitive aspect for fashion suppliers who operate on tight timeframes.

Recommendation 4: Support conditions for existing early-stage processors to expand capacity and, where demand for wool-based products increases, potentially encourage new entrants to establish new capacity.

To ensure that early-stage processing capacity can successfully scale, it is important that any barriers to expansion are considered and addressed. These considerations may include:

- Reviewing wastewater regulations and management approaches.
- Reducing barriers to trade, particularly non-tariff measures.
- Ensuring that the local workforce has the appropriate skillset to service the increase in demand and can adapt to changing global wool trends.
- Incorporating technology and embarking on product and process innovation to increase efficiencies, which can make India's products more price competitive.

Recommendation 5: Investors considering entering the India market should identify priority states for further research and consider strategic partnerships with on-the-ground partners to navigate the complex business and regulatory environment.

India is a complex market where business conditions and regulatory requirements can vary considerably between states. If demand for Indian wool products grows in the future such that investors are considering establishing new early stage processing capacity or relocating machinery from elsewhere, they should consider doing this as a joint venture with a local partner who can bring local expertise on India's operating environment, particularly its regulatory structure. This may be easier to achieve in states where processers are already located, including Maharashtra, Punjab and West Bengal.

Recommendation 6: If Australia establishes cost-competitive early-stage processing capacity, identify opportunities to sell into Indian yarn spinning markets.

Australia has historically represented 50% of India's top imports. If Australia successfully establishes and expands early-stage processing of its own, India should be viewed as a potential customer for carded and combed wool tops. This could integrate rapidly with India's existing spinning capability and sold on for export to other markets.

4.3 Summary

A summary of the roadmap's recommendations, along with the primary entities who should be responsible for their implementation is outlined below.

Table 4.1: Recommendations for further integration of Australian wool into the Indian supply chain.

Recommendation	Implemented by industry and industry bodies	Implemented by Indian Government	Implemented by Australian Government
Short to medium term			
Conduct further market research to improve understanding of downstream Indian textile and apparel industry market dynamics.	X		X
Grow India's profile as a sourcing destination for wool products including yarns and final products such as garments.	X	X	
Establish tighter industry and government relations between Australia and India to foster technical knowledge transfer and ensure customer needs can be met.	X	X	X
Long term			
Support conditions for existing early-stage processors to expand capacity and, where demand for wool-based products increases, potentially encourage new entrants to establish new capacity.		X	
Investors considering entering the India market should consider strategic partnerships with on-the-ground partners.	X		
If Australia establishes cost-competitive early-stage processing capacity, identify opportunities to sell into Indian yarn spinning markets.	X		

Appendix A Indian Manufacturing and Textile Strategies

The Indian Government has several strategies that are designed to build India's manufacturing capabilities (Table A.1). The centrepiece of this strategy is the **Make in India Campaign** launched in 2014, which has an objective to make India an integral part of the global supply chain and promote India as the preferred global manufacturing destination.⁵⁰

Table A.1: Relevant strategies by the Indian Government to build Indian manufacturing strategies

Strategy	Description
Zero Defect and Zero Effect Certification	<ul style="list-style-type: none"> Initiative by the Indian Government to promote quality and sustainable manufacturing practices among industries, particularly small and medium-sized enterprises. The ZED Certification program focuses on enhancing the quality and competitiveness of products and services while also emphasising environmental sustainability.⁵¹

Textiles are a priority sector for the Indian Federal Government, demonstrated by the inclusion in the Make In India Campaign launched in 2014 (Table A.2). The textile and garment sector is also a priority sector at the state-level, with a number of Governments (e.g, Bihar, Maharashtra, Uttar Pradesh, Telangana) outlining textiles policies and incentives to promote textile industrial development. That fact that there are several strategies designed to help develop the textiles sector (particularly technical textiles) indicates its priority to the Indian Government.

Table A.2: Relevant strategies by the Indian Government to grow the textile and garment sector

Strategy	Description
Production Linked Incentive Scheme	<ul style="list-style-type: none"> Production Linked Incentive (PLI) scheme seeks to improve its manufacturing capabilities of its man-made fibre apparel and fabrics and technical textile products.⁵² Objective of the scheme is to incentivise foreign manufacturers to start production in India and incentivise domestic manufacturers to expand their production and exports.
Amended Technology Upgradation Fund Scheme	<ul style="list-style-type: none"> Credit-linked subsidy scheme for capital investment in textile manufacturing as part of wider government efforts under the Make In India and Zero Defect Zero Effect initiatives. The scheme aims to increase employment and exports in the textile and apparel sector, and increase the quality of the textile processing so as to reduce the need to import fabrics by the garment sector.⁵³

Strategy	Description
Integrated Skill Development Scheme	<ul style="list-style-type: none"> • Address the trained manpower needs of the textile and apparel sector. • Develop a cohesive and integrated framework of training based on industrial needs. • Programmes to increase the number of training centres based on industry requirements. • Partnerships with the private sector (i.e., industry, NGOs and institutions) and state government agencies to increase the number of workers that have completed advanced training programmes. • Establish the Resource Support Agency (RSA) which can address issues related to textile training and accreditation process, including the quality of assessments and training institutions.⁵⁴
Integrated Processing Development Scheme and Integrated Wool Development Programme	<ul style="list-style-type: none"> • Primary objective of the Integrated Processing Development Scheme (IPDS) is to increase the global competitiveness of the textile industry using environmentally friendly processing standards and technology. • IPDS aims to create new processing parks, support the upgradation of existing processing clusters particularly in water and wastewater management, as well as promote research and development for clean technologies.⁵⁵
Scheme for Rebate of State and Central Taxes and Levies on Export of Garments and Made-ups	<ul style="list-style-type: none"> • Rebate on a number of State and Central Taxes and Levies including VAT used in transportation and stamp duty on export documents. • Scheme has been extended to 2024.⁵⁶

Sources: Various including India Filings, Central Wool Development Board.

Appendix B Cost to customer calculations

A detailed breakdown of cost indices estimated for India exporting yarn to customers located in a selection of markets in baseline and policy scenarios is provided (Table B.1).

Table B.1: Relative costs of exporting yarn to customers located in various garment making countries in baseline and policy scenarios

Scenario	Garment making trade route	Total cost index
Business-as-usual (Existing capabilities in China)	China to Japan (Baseline)	100.0
	China to Bangladesh	104.4
	China to Czechia	104.6
	China to South Korea	103.8
	China to Vietnam	98.6
Policy (Wet and dry processing in India)	India to Bangladesh	103.3
	India to Czechia	104.1
	India to Japan	98.0
	India to South Korea	98.1
	India to Vietnam	98.0
Policy (Dry only processing in India)	India to Bangladesh	110.3
	India to Czechia	111.1
	India to Japan	104.7
	India to South Korea	104.9
	India to Vietnam	104.7
Policy (Wet and dry processing in Australia)	India to Bangladesh	129.2
	India to Czechia	129.8

Scenario	Garment making trade route	Total cost index
	India to Japan	122.7
	India to South Korea	122.9
	India to Vietnam	122.7

Source: Deloitte Access Economics.

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⁵⁵ Ministry of Textiles, Government of India, *Guidelines for Centrally Sponsored Scheme for Integrated Processing Development Scheme (IPDS) (2020)*

<https://texmin.nic.in/sites/default/files/IWDPguidelinesissued_1.pdf>.

⁵⁶ Ministry of Textiles, Government of India, *Scheme for Rebate of State and Central Taxes and Levies on Export of Garments and Made-Ups* (7 March 2019)

<https://cip.icegate.gov.in/CIP/static/images/doc/RoDTEP/Rosctl_Scheme.pdf>.

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