



Wool and the Australia-Bangladesh trade relationship

WoolProducers Australia
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Bangladesh Knitwear Manufacturers and Exporters Association

Bangladesh Textile Manufacturers Association

Big W HK Procurement Pty Ltd

Korean EPZ (KEPZ) Corporation (BD) Ltd.

Square Textiles PLC.

YoungOne CEPZ Ltd.

Glossary

Acronym	Full name
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABEI	Agri-Business Expansion Initiative
APTA	Asia-Pacific Trade Agreement
BGMEA	Bangladesh Garment Manufacturers and Exporters Association
BOD	Biological oxygen demand
BTMA	Bangladesh Textile Mills Association
CIF	Cost, Insurance and Freight
DAFF	Department for Agriculture, Fisheries and Forestry, Australia
DCTS	Developing Countries Trading Scheme
DFAT	Department for Foreign Affairs and Trade, Australia
ERC	Export Registration Certificate
ETP	Effluent Treatment Plant
FMD	Foot-and-mouth Disease
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GW	gigawatt
HS	Harmonised System
IRC	Import Registration Certificate
IWTO	International Wool Textile Organisation
LDC	Least Developed Country
MFN	Most Favoured Nation
NTM	Non-tariff measure
PTA	Preferential Trade Agreement
RMG	Ready-made garments
SEZ	Special Economic Zone
TEU	Twenty-foot equivalent unit
TIFA	Trade and Investment Framework Agreement
TIN	Tax Identification Number
VAT	Value Added Tax

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 Bangladesh.

Overview of the wool trade potential

Australia is considering options to diversify its wool exports, which are currently concentrated in one product type (greasy wool) and a small number of markets.

- 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.

Bangladesh offers diversification opportunities through:

- Significant potential to expand potential downstream wool processing, underpinned by strong growth in the textile industry.
- Limited risk exposure to tariffs, non-tariff measures or animal disease controls
- Global leader in the manufacturing of Ready-Made Garments
- Existing downstream wool processing, including knitting, weaving and garment making.

Bangladesh is the world's second largest textile and apparel exporter

The value of apparel exports (almost all cotton and man-made fibres) has grown strongly and consistently from around US\$5 billion in 2002-03 to more than US\$45 billion in 2022-23. The apparel industry has set a target to reach US\$100 billion in exports by 2030. The textile and garment sector are priorities for the Government of Bangladesh and a focus of its *Vision 2041* development strategy.

Bangladesh imports growing volumes of wool as yarn and fabric

In 2022, yarn and fabric imports to Bangladesh exceeded a record US\$80 million, a 20% increase on the previous high. Bangladesh has become one of the world's top 10 importers of woolen yarn. For its import volumes, it has one of the most concentrated supply chains for yarns and fabrics of all importers. Bangladesh is the third largest export destination of wool yarn from China.

Although Bangladesh is yet to establish early-stage wool processing capacity, the growth of the downstream wool supply chain will create a commercial incentive to locate such capacity, including wool spinning and eventually dry processing, closer to knitters and garment makers. This would provide Bangladesh's established yarn-purchasing knitters and garment makers greater choice between domestic and imported yarns and reduce product waiting times for manufacturers.

Wool could support Bangladesh's own diversification and increased value add

Human, physical, and institutional capital in the garment industry in Bangladesh could be adapted to wool. This redeployment is more easily achieved when the assets and capabilities needed to

produce goods are similar, which is the case for wool processing and garment manufacturing. Improving logistics and energy infrastructure would boost competitiveness further.

Although Bangladesh is increasingly exporting wool-based garments, there is potential to integrate its existing wool knitters and garment makers with global brands and buyers, which currently source their products in other markets.

Increasing wool trade between Australia and Bangladesh is possible over the long term

With existing downstream components of the supply chain in Bangladesh (e.g., fabric and garment making), there are opportunities for other countries to supply woollen yarn (to weave and knit into fabric) and fabrics to be made into garments.

Countries like India and Vietnam who already produce processed wool are likely to represent integration opportunities in the short-term. Australia could indirectly benefit by supplying more greasy and scoured wool through India and Vietnam's facilities to meet the increased demand for processed wool products, such as yarn, from Bangladesh.

The integration opportunities will depend on Bangladesh's ability to equip firms currently focused on cottons and synthetic fibres with the necessary skills, knowledge, and technology for wool garment production. While some machinery in Bangladesh may be suitable for wool processing, additional wool-specific technical investments are likely needed.

Bilateral wool trade between Australia and Bangladesh requires top-making facilities in either location

Cooperation between multiple supply chain partners could support increased Australian wool entering Bangladesh's value chain via an intermediate early-stage processor. Consultation with stakeholders indicated there is industry interest among incumbent Bangladesh-based manufacturers in purchasing scoured wool to integrate into their textile and garmenting operations.

In the long term, further development of Bangladesh's upstream textile manufacturing components alongside the establishment of early-stage processing in Australia could lead to potential bilateral trading opportunities.

Roadmap actions and recommendations



In the short- to medium-term, the primary goal should be to implement measures to increase the adoption of wool throughout the apparel and textile supply chain in Bangladesh, primarily by increasing downstream demand. In part, this can be achieved through increasing their knowledge of and exposure to woollen products.

-
1. Demonstrate to Bangladesh's garment industry the case for change on the market opportunity for wool.

 2. Encourage uptake and integration of wool into existing cotton and synthetic spinning operations.

 3. Increase demand for Bangladesh wool-based garments and products among procurement buyers and brands.

 4. Encourage supply diversification among incumbent wool knitters and garment makers based in Bangladesh.

Increasing wool's market share of Bangladesh's textile and apparel supply chains will rely on the willingness and ability of the downstream components of the supply chain to purchase from these new sources. The next step for Bangladesh is to implement measures that can supply the wool inputs needed to meet the increased demand. Given the presence of existing downstream components of the supply chain, increasing the amount (and share) of wool in fibre can feed through to the larger RMG industry and help Bangladesh reach its end goal of becoming an internationally recognised source of woollen garments.

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5. Develop the case for wool spinning capacity to be established in Bangladesh.

 6. Foster a conducive business environment to encourage the establishment of more firms willing to process wool, including reviewing regulations, negotiating free trade agreements and building skills.

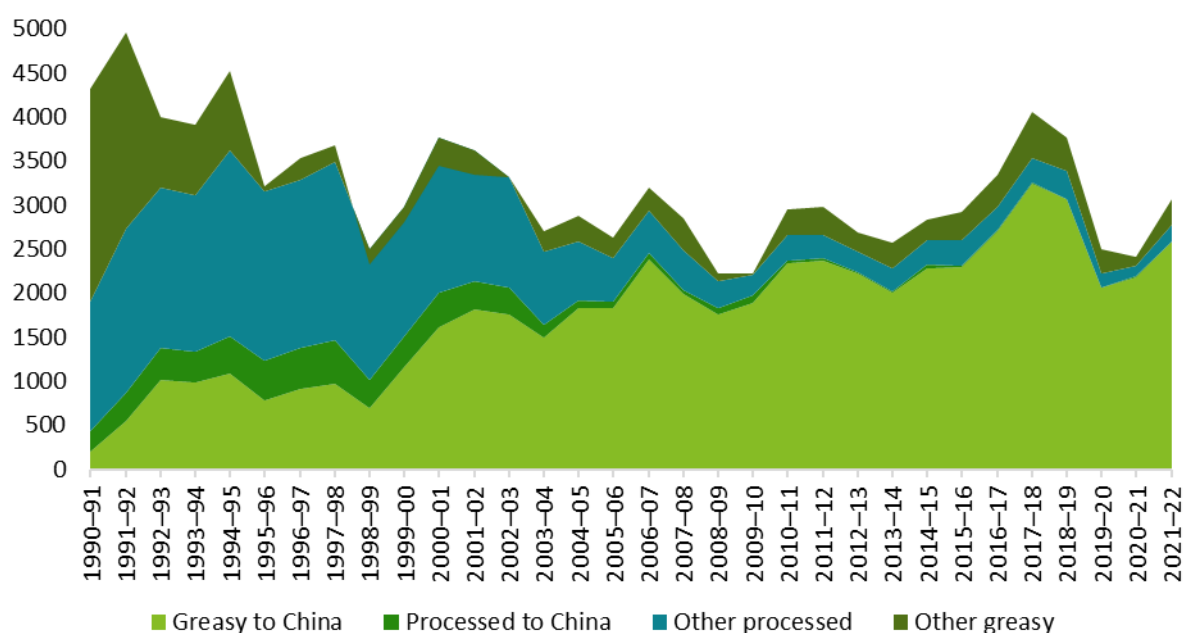
1 The case for change

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

In particular, 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 Bangladesh

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. Bangladesh is one such location due to:

- Significant potential to expand potential downstream wool processing, underpinned by strong growth in the textile industry.
- Limited risk exposure to tariffs, non-tariff measures or animal disease controls
- Global leader in the manufacturing of Ready-Made Garments
- Some existing downstream wool processing, including knitting, weaving and garment making.

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.

The report is structured as follows:

- Chapter 2 provides an overview of Bangladesh's textile industry and the current state of Australian and Bangladeshi wool trade.
- Chapter 3 provides an assessment of factors that can influence the establishment of early-stage processing facilities in Bangladesh.
- Chapter 4 outlines the short-, medium- and long-term goals and the steps that need to be taken for Bangladesh to establish itself as a recognised source for wool garments, which could present possible integration opportunities with Australia in the long-term.

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 Bangladesh’s textile industry

The textile and garment industries have driven Bangladesh’s growth for the past two decades. Wool has the potential to play a larger role in this textile value chain.

2.1 Growth of Bangladesh’s textile industry

Bangladesh is the second largest apparel manufacturer and exporter in the world, behind China. The textiles and garments industry accounts for over 80% of the country’s exports and about 13% of GDP.⁵ Despite the industry’s size, wool is not currently a significant part of the industry. Currently, 70% of Ready-Made Garments (RMG) are manufactured from cotton, and man-made fibre is increasing in popularity.

Traditionally, Bangladesh’s textile and apparel sector has been dominated by low-value cotton yarn. Investment in modern machinery and government policies to encourage textile and workforce development has enabled Bangladesh to produce high value-added textile and apparel manufacturing. Bangladesh’s exports of apparel has grown from around US\$5 billion in 2002-03 to over US\$45 billion in 2022-23 (Chart 2.1), and is seen as one of the leading supplier of value-added textiles to the global market. With an ambitious export target of US\$100 billion by 2030,⁶ Bangladesh needs to continue to grow both its low and high value-added textile products.

Chart 2.1: Bangladesh global apparel exports, US\$ millions



Source: BGMEA.

2.1.1 Structure of Bangladesh's textile industry

The Bangladesh textile industry specialises in ready-made garment manufacturing. Ready-made garments are divided into two-categories: woven and knit products. Shirts, jackets and trousers are the main woven products, while underwear, socks, t-shirts, stockings, sweaters and other casual and soft garments are the primary knit products. Woven garment products once dominated Bangladesh's garment export earnings; however, the share of knitted products has been increasing since the early 2000s due to increasing demand. Since 2020-21, the value of knit exports has exceeded woven goods (Chart 2.1).

Bangladesh also has well-developed cotton and synthetics spinning and textile industries, which supply a large proportion of inputs for domestic garment manufacturing. Manufacturers can be broadly separated into three types:

- **Fully integrated:** Factories import raw fibre (cotton) and complete the rest of the garment manufacturing processes, including yarn and fabric manufacturing.
- **Yarn importers:** Factories complete subsequent production stages, including fabric manufacturing.
- **Cut-make-trim:** Factories import fabric and assemble into garments.⁷

According to the Bangladesh Textile Mills Association (BTMA), around 85-90% of yarn demand from the knitted RMG sector is supplied from domestic product, and 35-40% of demand from woven RMGs. The cotton and synthetics textile industry has developed to a point where it is now less reliant on imports of yarn and fabric for ready-made garment production. Further, a meaningful share of cotton and synthetics manufacturers are vertically integrated, from spinning, knitting or weaving to RMG manufacturing.

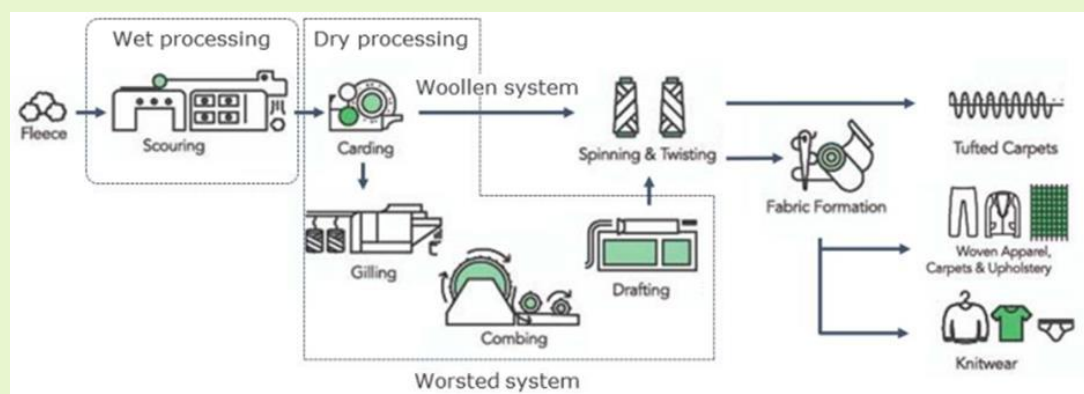
There are at least eight wool knitters and garment-makers currently operating in Bangladesh.⁸ Two are global-scale suppliers, Haesong Korea Ltd and SQ Celsius Ltd, which have operated in Bangladesh for the past two decades. Currently these manufacturers import all wool yarns for their processing and all output is for export. Consultations with industry identified an interest in expanding into upstream spinning and potentially dry processing.

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 is provided in Figure 1.1. The supply chain outlined 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.

The current wool manufacturing in Bangladesh starts at fabric formation. 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 IWTO.

2.2 Current state of Bangladesh's wool trade

The knitters and garment makers in Bangladesh currently rely on imported yarns and fabrics. While Bangladesh produced around 2,500 tonnes of greasy wool in 2021, its garment supply chains are serviced by imported raw materials. It is yet to establish domestic spinning or early-stage processing.

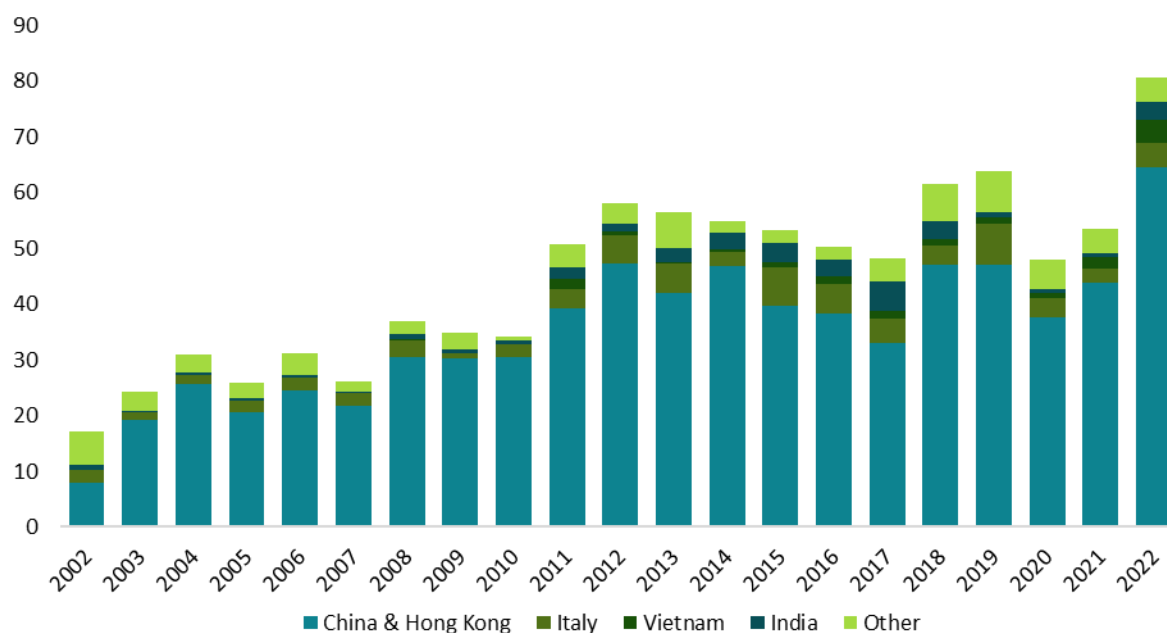
2.2.1 Trade in wool yarns and fabric

Wool yarn and fabric imports to Bangladesh exceeded a record US\$80 million in 2022. This was around a 20% increase on the previous high and continues a long-term increase in imports of these products (Chart 2.2). China and Hong Kong have consistently been the largest supplier of both wool yarn and fabric to Bangladesh since the early 2000s. In 2022, China and Hong Kong exported US\$64.6 million of wool yarn and fabric to Bangladesh which made up over 80% of Bangladesh's wool yarn and fabric imports for that year. Vietnam and Italy follow with approximately 5% market share each in 2022, with Vietnam's wool yarn and fabric exports to Bangladesh seeing strong overall growth from 2008 onwards.

For China, Bangladesh and Vietnam have both emerged as its largest consumer of wool yarn exports, reflecting growth in knitting and garment making capacity in both countries.

Despite India's proximity and growth in yarn exports, it represents a relatively small share of wool yarn imports to Bangladesh.

Chart 2.2: Bangladesh wool yarn and fabric imports by selected supplier, 2002 – 2022, \$US Millions



Note: Imports of HS codes 5106; 5107; 5109; 5111; 5112; 600310; 600610, where Bangladesh is the partner.

Source: UN Comtrade (2022).

Both wool yarn and fabric imports have followed a similar pattern of growth since 2002 with wool yarn imports representing a larger share of total imports. In 2022, total wool yarn imports to Bangladesh amounted to around US\$56.5 million whilst wool fabric imports totalled around US\$24.1 million.

2.2.2 Trade in early-stage processed wool products

Without spinning or early-stage processing capacity, Bangladesh does not currently import meaningful quantities of early-stage processed wool. Over the last six years, aggregate imports have been US\$1 million on average.

3 Factors influencing the establishment of early-stage processing in Bangladesh

The development of early-stage processing capabilities in Bangladesh will be influenced by a wide range of factors – primarily, the scale of the downstream wool supply chain needs to expand.

This section discusses the factors influencing the establishment of wet, dry, or integrated (wet and dry) processing in Bangladesh and integration opportunities with Australia.

This includes:

1. **Commercial industry structure and technical considerations** – proximity to spinning demand may be required.
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 Bangladesh.
5. **Trade and market access**, including an assessment of the tariff and non-tariff measures and market access in the event of an animal disease event.
6. **Current government strategies** in Bangladesh to encourage the development of the textile and garment industry and Australian Government initiatives to encourage supply chain diversification.

The key influencing factors identified in this report have been informed through consultations with a total of 12 organisations. These discussions included stakeholders currently operating in Bangladesh's textile and RMG industry. This roadmap has also benefitted from input from representatives from Bangladesh's textile and RMG peak industry bodies as well as Bangladeshi and Australian government representatives. A full list of stakeholders is included in the Acknowledgements section at the beginning of this report.

Opportunities for growth in the apparel manufacturing sector lie in enhancing productivity within existing production value chains without adversely impacting social welfare in the sector.

The country needs to go beyond low-cost labour as a source of competitiveness.

It should also be noted that a precursor to this establishment is the continued growth of the downstream knitting and garment-making sector. Establishing wool spinning capacity may be a precursor to early-stage processing, but detailed consideration of the factors influencing the establishment of these facilities (beyond those that apply to both spinning and early-stage processing) are beyond the scope of this roadmap.

The subsequent consideration of other factors influencing early-stage processing is to identify the other barriers or opportunities to establish such facilities, noting that the commercial and technical aspects are the most sizeable at this point in time.

3.1 Commercial and technical considerations and supply chain interdependence and integration opportunities

A key consideration to the establishment of early-stage processing capacity (the focus of this roadmap) will be proximity and time-to-delivery of product to spinning facilities. It is outside of the scope of this roadmap to consider the factors influencing the potential for spinning capacity establishment.

It is unlikely that an early-stage processing facility established in Bangladesh would be commercially viable without first establishing spinning capacity to consume early-stage processing output. Such a facility would need to import greasy or semi-processed wool and sell its tops to spinners in export markets.

There are recent examples of greenfield spinning capacity being established in countries such as Vietnam and Thailand. In the case of Vietnam, the lead time from establishment to scale has been around five years, with further spinning capacity now shifting to the region. There may be a case for Bangladesh to do similar and certain stakeholders have also been exploring this pathway.

Commercial drivers may also accelerate the consideration of establishing spinning capacity among incumbent firms. Bangladesh has made a concerted effort over the past decade to increase its spinning and processing capacity in cotton and synthetics. This is for two reasons – 1) to reduce fabric costs, 2) importantly, to reduce lead times as they do not have to wait for import of fabrics.

The costs of importing and transporting finished textiles from other countries with stronger currencies may threaten the garment sector's profits. The government recognizes the need for what it describes as "backward linkages" and has incentives in place to encourage growth in the production of textiles.

In the medium term, Australia should look to support exporters of early-stage wool processors using Australian wool (e.g., India and Vietnam) to increase their sales into the Bangladesh market.

Table 3.1: Integration pathways for Australian exports with Bangladesh

Time frame	Integration pathway	What has to happen
Today	<ol style="list-style-type: none"> 1. Australia exports greasy wool 2. Processing destination (e.g., China) 3. Bangladesh imports as wool yarn 	N/A
Medium-term	<ol style="list-style-type: none"> 1. Australia exports greasy and scoured wool 2. Diversified processing destination (e.g., India, Vietnam or elsewhere) 3. Bangladesh imports as wool yarn 	<ul style="list-style-type: none"> • New ESP locations are established or expanded (e.g., Vietnam and India) • Australia increases ESP processing capacity
Long-term	<ol style="list-style-type: none"> 1. Australia exports greasy and scoured wool 2. Diversified processing destination (e.g., India, Vietnam or elsewhere) 3. Bangladesh imports as tops <p>OR</p> <ol style="list-style-type: none"> 1. Australian exports scoured wool 2. Bangladesh imports scoured wool for dry processing 	<ul style="list-style-type: none"> • Bangladesh establishes spinning • Bangladesh establishes early-stage processing (dry-only)

Source: Deloitte Access Economics.

3.1.1 Cost-to-customer considerations

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 the relative competitiveness of locating early-stage processing in Bangladesh compared to existing supply chains.

3.1.1.1 Establishment costs

The establishment costs would depend primarily on the scale of operations (Table 3.2). Land acquisition, construction, permitting and other standard development costs will all require detailed further analysis, which may vary by location. It was beyond the scope of this analysis to quantify these costs.

Table 3.2: Findings on cost to establish an early-stage processing facility in Vietnam

Process type	Findings
Wet and dry	<ul style="list-style-type: none"> • Depends on the scale to be established, but wet processing generally only viable at a minimum 15mkg scale. • Estimates from Australia indicate that new wet-processing machinery costs would be in the order of AU\$10 million. The associated dry-processing machinery for a facility ~15mkg would be in the order of AU\$50 million.
Dry	<ul style="list-style-type: none"> • Depends on the scale to be established, but a minimum viable scale for a dry processing only plant is 5mkg with there is greater flexibility in scale of dry processing only relative to wet and dry. • Estimates from Australia indicate that new dry-processing machinery costs for a ~5mkg facility would be in the order of AU\$10 million.

Source: Various, including stakeholder consultations and Prological Consulting.

3.1.1.2 Ongoing costs and cost-to-customer

Phase 1 estimated the cost of dry processing for Bangladesh, relative to existing supply chains. It found that the production costs in Bangladesh would be competitive compared to alternative locations. The relative competitiveness of yarn and tops exports from Bangladesh to third countries would then mostly depend on the price that Bangladeshi processors could source tops or scoured wool, from Australia or elsewhere. Analysis for Vietnam and India has found that Australian costs of scouring is higher than existing supply chains.

Analysis for exports of yarn and tops from India and Vietnam have indicated that trade barriers and market access are another important factor influencing the potential cost-to-customer of Bangladeshi wool product importers.

3.2 Regulation

Bangladesh's performance across a range of regulatory and commercial measures reveals considerable scope for improvement. For example, the country ranked 168th overall out of 190 countries in the World Bank's *Doing Business* index in 2020.ⁱ Further World Bank analysis note a range of issues with Bangladesh's regulatory environment including regulatory gaps, ambiguity and unpredictability.⁹

3.2.1 Wastewater management of wet processing

Water pollution is already recognised as a significant problem in Bangladesh. Industrial pollution accounts for 60% of pollution in the Dhaka watershed, and the textile industry is the second largest contributor. In addition, the textile industry in Dhaka primarily draws on groundwater from the same aquifer used for the city's drinking water. This means industrial expansion could threaten both the quality and quantity of drinking water available to residents.¹⁰

The environmental standards for the textile industry in Bangladesh are regulated by the Environmental Conservation Act, 1995; the Environmental Conservation Rules, 1923; and the Forest Act, 1927. Schedule 12(B) of the Environmental Conservation Rules, 1997 lists concentration-based effluent standards for the discharge of treated wastewater by textile plants directly into the natural

ⁱ The World Bank *Doing Business* report was discontinued in 2021 due to data irregularities in the 2018 and 2020 editions. These do not relate to Bangladesh.

environment, including suspended solids and biological oxygen demand (BOD).¹¹ⁱⁱ In addition, the Department of Environment implemented a Zero Liquid Discharge Policy for industrial enterprises in 2014.

While environmental standards have been implemented, their enforcement appears constrained. This is due to institutional inefficiencies and a lack of appropriate resources and monitoring systems within government to enforce environmental compliance.¹²

With no early-stage wool processing industry, Bangladesh's RMG sector serves as the closest comparison from which to judge the potential regulatory environment any future wet processing could face. Given the existing challenges associated with pollution and availability, the development of other water intensive industries such as wool scouring may be difficult.

3.3 Infrastructure and logistics

The quality and quantity of infrastructure and logistics link from the facility to seaports with good links to import and export markets is essential to the establishment of early-stage processing in Bangladesh and the development of the wool supply chain in general.

Significant reductions in import and export times will help Bangladesh participate in fast fashion cycles and better meet customer inventory management needs. Without this improvement, Bangladesh will be stuck in the low value, basic garment sector and have little ability to utilize its existing production capacity for higher-value garments.

3.3.1 Port infrastructure

Currently, Bangladesh has three main seaports. However, 90% of Bangladesh's seaborne trade is being handled by the Port of Chittagong, suggesting that there is a lack of alternative ports that can handle operations.¹³ Over the past 10 years, there has been a doubling of container port traffic in Bangladesh from 1.6 million TEU in 2013 to 3.2 million TEU in 2021.ⁱⁱⁱ

As a result, the Port of Chittagong has long faced capacity constraints which has impacted the garment industry and reduced the country's attractiveness as a place to do business. A World Bank Garment Firm Survey in 2011 noted that the lead time for surveyed firms (number of days from order receipt to delivery) in Bangladesh is an average of 88 days, compared to 40–60 days in China and 50–70 days in India. The difference was attributed chiefly to inefficiency at the Port of Chittagong, where it reportedly takes 4.5 days to turn around a shipment of 800 TEU containers compared with 8–12 hours in Singapore. Evidence from stakeholder consultations suggest that the situation at the Port of Chittagong has not changed since then, with logistics considered inefficient and expensive. Such long lead times for imported inputs and exported products are impediments to sector growth.

Nonetheless, another stakeholder noted that existing pressure on Bangladesh's seaport infrastructure could ease somewhat with the inauguration of Bangladesh's first deep seaport, the Matarbari seaport, in 2026.¹⁴ It is expected that the new port will help reduce freight cost by around 57%, and reduce direct shipment time to Singapore and Malaysia by up to 60%.

3.3.2 Road infrastructure

In 2018, it is estimated that there was a total of 369,105 kilometres of roads in Bangladesh. However, just over 70% of the roads are unpaved.¹⁵ The relatively poor condition of Bangladesh's

ⁱⁱ Online sources suggest limits may have become more stringent with the 2023 update to the Environmental Conservation Rules (e.g., BOD). However, it is not possible to verify this as the official document is only available in Bengali.

ⁱⁱⁱ Port container traffic measures the flow of containers from land to sea transport modes and vice versa. It is measured in TEU or twenty-foot equivalent units, a standard size container.

infrastructure has impacted the business environment, particularly the impact of the narrow Dhaka-Chittagong highway slowing shipments of apparel.¹⁶

3.3.3 Energy infrastructure

Globally, wool processing facilities draw upon a mixture of grid-connected electricity and stationary (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.

With a current ranking of 176th in the world in 2020,¹⁷ Bangladesh is relatively uncompetitive compared to other countries to access electricity. While the cost of on-grid electricity is comparable to that in competing countries, the percentage of time off grid is three times higher and the cost of off-grid electricity is substantially higher.¹⁸

Amidst this environment, the Bangladesh Government has made investment in its electricity infrastructure, evident by an increase in generation capacity from 5 GW in 2009 to around 25.5 GW in 2022. Nonetheless, further investment in the electricity generation and transmission infrastructure will be required, with demand for electricity projected to reach 50 GW in 2041.¹⁹

3.4 Labour market and skills requirement

According to the World Bank, Bangladesh's workforce totalled 74.4 million people in 2022, with an unemployment rate of 4.7%. Approximately 4 million people are directly employed in the RMG sector.²⁰

Low-cost labour has been a key factor driving Bangladesh's competitiveness in the RMG sector. This workforce is relatively low-skilled, which results in lower productivity than competitors such as China or Vietnam. Improving worker skills can increase efficiency, decrease wastage, realize cost savings, and reduce employee absenteeism and turnover.²¹

Due to its specialisation in producing garments using cotton and synthetic fibres, Bangladesh has a relatively limited skill base associated with wool. This knowledge gap relates most foundationally to limited awareness or understanding of the fibre. The industry also has limited marketing experience with wool and a lack of technical skills ranging from sourcing expertise through to knowledge of machinery and processing.

Economic research indicates countries wanting to diversify their product base can more easily redeploy their human, physical, and institutional capital when the newly produced goods use similar assets and capabilities to goods in which the country has developed a competitive advantage in production.²² In this light, given the very similar manufacturing environments many skills that currently exist within the RMG industry are likely to be transferable to wool. These gaps could be addressed with on-the-job training programs and skills transfer arrangements with existing industry in which Australia could play a part.

3.5 Trade and market access

Findings from the Phase 1 report show that Bangladesh is relatively open to trade, particularly in the textile and apparel sector. A large portion (over 80%) of Bangladesh's merchandise exports consists of textile and apparel exports. Alongside the export exposure of the industry, Bangladesh has a liberal and investor-friendly investment regime, offering incentives under several schemes (Section 3.6.1).

3.5.1 Trade agreements and tariff access

At time of writing, Bangladesh has no Free Trade Agreements (FTAs) currently in force. However, it does have several Preferential Trade Agreements (PTAs), which are generally considered precursors to FTAs. Currently, Bangladesh has entered into 5 PTAs, largely with neighbouring countries. These PTAs typically includes a reduction in import duties without necessarily eliminating them completely, and have a reduced scope to that of FTAs (which may include features like more harmonised regulations and reduction in non-tariff measures).

Driven by strong economic growth, Bangladesh will graduate from “Least Developed Country” status in November 2026, which exempts poor nations from tariffs on exports to developed countries.²³ In anticipation of this loss of status within the next couple of years, Bangladesh has commenced discussions on FTAs with 11 countries including several Southeast Asian countries.²⁴

Australia is currently facing a flat Most Favoured Nation (MFN) tariff rate of 5% for exporting early-stage wool products into Bangladesh (Table 3.3). Therefore, there is an opportunity for Australia to gain a tariff advantage and therefore preferential access to Bangladesh via a bilateral or multilateral agreement. It should be noted that the import of greasy, scoured and carbonised wool also appears to be exempt from Value Added Tax (VAT).

Table 3.3: Indirect taxes applied for importing wool products into Bangladesh wool products, Australia (%)

Product	Australian tariff rates (%)	VAT (%)	Total tax incidence (%)
Greasy wool	5%	0%	10%
Scoured wool	5%	0%	10%
Carbonised wool	5%	0%	10%
Carded wool	5%	15%	31%
Combed wool	5%	15%	31%

Sources: WTO, Deloitte Global Trade Advisory.

The import of early-stage processed wool could incur a number of additional costs including an advanced income tax (5% tax of the dutiable value levied on goods imported for commercial purposes), cargo landing charge (a 1% charge levied on the Cost, Insurance and Freight (CIF) value of goods imported), container scanning charge and document processing fee amongst others. The imposition of these additional indirect taxes increases the total tax incidence incurred, particularly on carded and combed wool, and could explain the sentiment amongst industry that the tax on wool is high.

Tariffs on wool yarn, fabric and garment exports from Bangladesh into most destinations are currently zero due to Bangladesh’s Least Developed Country status (Table 3.4). Bangladesh currently sits within the LDC category and is scheduled to graduate from this category in November 2026.²⁵

Tariff rates can be expected to increase on these products after that date. Bangladesh is in the process of negotiating a number of free trade agreement to mitigate these changes. For example, the graduation from LDC status would lead China to impose a tariff of up to 6% on wool yarn, 8% for fabric and 5.2% on garment imports under the Asia-Pacific Trade Agreement (APTA).

Table 3.4: Import tariffs faced by Bangladesh wool yarn, fabric and garments exports to a selection of destinations

Destination	Tariff rates		
	Yarn	Fabric	Garments
United Kingdom	0%	0%	0
European Union	0%	0%	0%
United States of America	0%	6.9%	7.2%
China	0%	0%	0%

Sources: ITC.²⁶

3.5.2 Non-tariff measures (NTMs)

Bangladesh has an Importer Registration Scheme, where companies must obtain an Import Registration Certification (IRC), prior to importation of goods. Administered by the Ministry of Commerce, the process to obtain an IRC includes a variety of identity and financial checks, a Tax Identification Number (TIN), a valid trade licence, a membership certificate from a local Chamber of Commerce and a payment of an application fee depending on the import value ceiling. It is estimated that this process could take up to four weeks. Similarly, an Export Registration Certificate (ERC) is required to export goods from Bangladesh. A similar set of documents to the IRC needs to be provided when requesting an ERC, and could also take up to four weeks to obtain. This could impose additional costs and time delays on importers and exporters.

In addition, to import licensing requirements, some of the other non-tariff measures that could be applicable to imported goods include requirements to ensure that businesses label their product with the correct country of origin.

Currently, the prevalence of non-tariff measures in Bangladesh is relatively low, reflecting in part the country's status as a LDC. Consequently, Bangladesh does not impose any specific NTMs on wool or Australian imports. Nonetheless, it is assessed that regulations and processes can change rapidly in Bangladesh, and further engagement with local government bodies is recommended in order to have access to the most current information on NTM processes.

In addition, the additional costs and time delays resulting from the adherence to NTMs could be mitigated somewhat should wool manufacturing industries undertake production activities in designated Special Economic Zones (SEZs). Companies with production facilities within these SEZs could enjoy duty and VAT free import of capital machinery and raw materials, and possible exemption of income tax, royalties and capital gains taxes. There are several SEZs that specialise in textiles including the Shreehatta Economic Zone (Spinning, weaving and dyeing), Bagerhat Economic Zone (Apparel/RMG), Abdul Monem Economic Zone (Textiles, garments and accessories) and the Korean Export Processing Zone, the first private Export Processing Zone in Bangladesh.²⁷

3.5.2.1 Non-tariff measures applied to Bangladesh wool exports

Woollen yarn exported from Bangladesh to the United States will have to adhere to relatively more NTMs compared to exports to China, Japan and the European Union in particular (Table 3.5). Coupled with the relatively longer geographic distance between Bangladesh and the US, it is likely to be more expensive for Bangladeshi spinners to export woollen yarns to the US than other possible garment making countries.

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

Country	Number of NTMs faced	Examples of possible NTMs faced by Bangladeshi woollen yarns
China	6	<ul style="list-style-type: none"> Prohibited to import directly or indirectly from countries where scrapie occurs. Labelling requirement including pH value, formaldehyde content, smell etc of the product. Application of value-added tax in the import of wool products.
European Union	3	<ul style="list-style-type: none"> Labelling requirements. Restrictions on the use of certain chemical products in textile and leather products.
Japan	7	<ul style="list-style-type: none"> Labelling requirements Woollen yarns must meet the standards in regard to the content of harmful substances and amounts.
United Kingdom	3	<ul style="list-style-type: none"> Labelling requirements. Restrictions on the use of certain chemical products in textile and leather products.
United States	10	<ul style="list-style-type: none"> Labelling requirements. Adhere to traceability requirements that make it possible to track a product through stages of production, processing and distribution.

Notes: Analysis of NTMs from the European Union, Japan and the United States of HS codes 5106, 5107 and 5109 affecting Vietnam 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: International Trade Centre.

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

3.5.3 Market access and animal disease events

The *Imports and Exports (Control) Act, 1950* provides that a ban on export and import, restriction or other means of control can be used for any animal or animal product that has a possibility to be a reason for animal disease. In addition, the *Livestock and Animal Products Quarantine Act, 2005* gives the quarantine authority broad powers to delay shipment and undertake tests on animal products at the importer's expense. As greasy wool imports constitute an animal product, it could be subject to these conditions.

Nonetheless, the risk of an animal disease event, such as the onset of FMD in Australia, limiting market access for Australian greasy wool exports into Bangladesh is assessed to be relatively low. This reflects the prevalence of animal disease events in Bangladesh, including FMD which is endemic within its domestic livestock population.

In addition, due to a lack of approved strategy for FMD control, Bangladesh currently has limited coordination of possible control measures. While conscientious farmers use vaccines routinely in crossbred cattle against FMD, the high cost ensures that this measure is likely to remain a relatively limited avenue for control.

3.6 Current Australian and Bangladesh government strategies on wool

While there are strategies in place by the Australian Government that could increase diversify trade into Bangladesh, the goals and plans outlined by the Bangladesh Government are currently only directed at the wider textile and garment industry, rather than a specific focus on wool.

3.6.1 Current Bangladeshi Government strategies

As shown in Table 3.6, the Bangladeshi Government has a range of strategies designed to build the country's general manufacturing capabilities and grow the broader textile and apparel sector. This could have an indirect impact on the development of the wool processing sector in Bangladesh. Nonetheless, conversations with industry highlight that it requires more support, particularly in selling wool products and financing the cost of purchasing some inventory.

Table 3.6: Relevant strategies by the Bangladeshi Government to encourage development of the textile sector

Strategy	Description
Vision 2041	<ul style="list-style-type: none"> • Combination of four 5-year plans that aims to achieve Bangladesh high income status through industrialisation, particularly in export-oriented sectors. • To that end, it includes policy support for high-end RMGs, the current focus of the local textile industry.²⁸
Textile Policy, 2017	<ul style="list-style-type: none"> • Aims to build a strong and internationally competitive textile and apparel industry, with targeted interventions to increase productivity, exports and create more jobs in the sector. • Outlines strategic development plans for several textile sub-sectors including spinning, weaving, knitting and export oriented RMG. • Seeks to promote waste management technologies and build Effluent Treatment Plants (ETPs) in the dyeing, printing and washing industries to reduce water pollution.²⁹

Sources: Various.

3.6.2 Current Australian Government strategies

At the same time, Table 3.7 highlights several Australian Government several strategies and packages that it is implementing that can assist the wool industry in seeking to diversify their supply chain into Bangladesh.

Table 3.7: Initiatives by the Australian Government to encourage trade diversification

Strategy	Description
Trade and Investment Framework Agreement (TIFA)	<ul style="list-style-type: none"> Joint working group will be formed to consider all aspects of increased trade and investment in both Bangladesh and Australia. It is expected to contribute to the expansion of bilateral trade opportunities in multiple sectors, including in agriculture.³⁰
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. 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.³¹

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.³² Amidst a backdrop of risks relating to supply chain disruptions, such services give businesses, particularly small and medium sized enterprises, 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.³³

Based on the OECD trade facilitation index, while Bangladesh has made progress in reducing some barriers to trade, compared to other lower middle-income countries, the country would benefit from continued reforms in a number of policy areas. These areas including reducing the number of trade-related documents, decreasing the time needed for companies to prepare such documents, simplifying procedures, reducing the percentage of physical inspections, and expanding the coverage of Authorised Economic Operator programs.³⁴

It is amidst this context that there is a role for trade facilitation services to play an important part in growing trade between Australia and Bangladesh. For instance, the Australian Trade and Investment Commission (Austrade) has several programs and grants that can help eligible businesses grow their exports and facilitate connections with valuable contacts. It should be noted that there are other organisations in India such as the Australia-Bangladesh Chamber of Commerce and Industry who can also provide some trade facilitation services.

4 Recommendations and action

This roadmap presents a pathway for Bangladesh to become an internationally recognised source for wool garments. Getting this right could present future integration opportunities for Australia.

4.1 Setting the scene

Bangladesh has one of the world’s largest exporting textile and apparel sectors, focused on cotton and synthetic spinning, fabric, and garments. Incorporating wool into its product mix could complement Bangladesh’s ambitions to develop more sophisticated and value-added products, for example in technical garments.

Growing wool’s presence in Bangladesh will require working from the ground up. Most immediately, there is a general lack of industry awareness around wool. This is the result of the country not currently being a large market for sourcing wool products by global brands. Efforts should focus on both growing the Bangladesh industry awareness and knowledge of wool while also working with brands, other buyers and incumbent wool knitters and garment makers to highlight the opportunity for wool processing to be further developed in the country. Australia can help in growing awareness and promoting wool’s benefits.

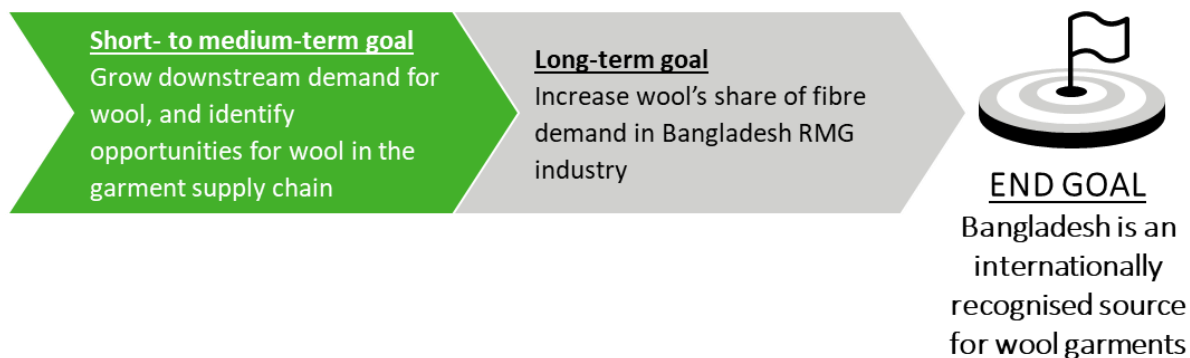
Australia’s trade diversification of wool exports through Bangladesh will require intermediate export destinations in the short- to medium-term. For example, Indian yarn exports could provide inputs to wool fabrics produced in Bangladesh which are further made into garments.

4.2 Roadmap recommendations framework

The roadmap outlined in Figure 4.1 seeks to present a pathway for Bangladesh to become an internationally recognised source for wool garments, which could present future integration opportunities with Australia. It has benefitted from the views, insights and feedback from many industry and government stakeholders.

It includes short-, medium- and long-term goals that can support Bangladesh to realise its ambition to become an internationally recognised source for wool garments. To achieve these goals, it is important that the manufacturing ecosystem, and the supporting institutions in Australia and Bangladesh, work together to implement the recommendations that fall under the goals.

Figure 4.1: Framework underpinning roadmap recommendations



Source: Deloitte Access Economics.

4.2.1 Short- to medium-term recommendations

In the short- to medium-term, the primary goal should be to implement measures to increase the adoption of wool throughout the apparel and textile supply chain in Bangladesh, primarily by increasing downstream demand. In part, this can be achieved through increasing their knowledge of and exposure to woollen products.

1. Demonstrate to Bangladesh's garment industry the case for change on the market opportunity for wool.

- The wool industry should invest in increasing familiarity and understanding of wool within Bangladesh. This could be achieved through a public market research report on the potential opportunities for wool in the garment supply chain, including its uses and benefits. This report could also analyse the impact of incorporating wool would have on firm profitability.
- This provides a role for Australian industry to develop a platform to promote merino wool and build new connections with downstream suppliers in Bangladesh.

2. Encourage uptake and integration of wool into existing cotton and synthetic spinning operations.

- Establish an in-country representative to facilitate wool-related market connections and grow general understanding of wool products in the Bangladesh textile and apparel manufacturing industries. Regular market connections can help increase manufacturer's awareness of the uses of wool, and how to integrate it into the supply chain, particularly the uses of wool as a fibre.
 - As a first step, this could include collaboration between Australian wool processors and Bangladesh cotton and synthetic spinners on how wool could be blended into these products.
- A technical feasibility study, investigating the degree to which existing machinery could be repurposed to process wool should be conducted initially.

3. Increase demand for Bangladesh wool-based garments and products among procurement buyers and brands.

- Market relationships should also be targeted towards the major brands and other buyers of Bangladesh apparel products. These purchasing decisions ultimately determine the product mix, and greater market connections can help develop awareness of Bangladesh as a supplier of woollen goods.
- Ensuring strong wool-related market connections between buyers and brands of Bangladesh's wool-based product exports can:
 - Help facilitate the transfer of knowledge and technology.
 - Lead to greater understanding and clarity for existing cotton and synthetics textile operators to adapt their operations to handle wool.
 - Help to grow final demand for wool and increase Bangladesh's wool garment export market share.

4. Encourage supply diversification among incumbent wool knitters and garment makers based in Bangladesh.

- Connections should also be established with overseas-based suppliers, particularly in countries such as India and Vietnam that can supply the intermediate yarn and fabrics.

4.2.2 Long-term recommendations

Increasing wool's market share of Bangladesh's textile and apparel supply chains will rely on the willingness and ability of the downstream components of the supply chain to purchase from these new sources. The next step for Bangladesh is to implement measures that can supply the wool inputs needed meet the increased demand. Given the presence of existing downstream

components of the supply chain, increasing the amount (and share) of wool in fibre can feed through to the larger RMG industry and help Bangladesh reach its end goal of becoming an internationally recognised source of woollen garments.

5. Develop the case for wool spinning capacity to be established in Bangladesh.

If wool garment production were to increase, this would improve the commercial case to develop its supplying industry - woollen yarn spinning. Wool could also be incorporated into existing cotton and synthetic spinning for blended yarns. This would help reduce dependency on imported yarns and reduce product waiting times for manufacturers.

Establishing wool spinning would require identifying commercial partnerships to provide wool tops to Bangladesh spinners. These products could be sourced from neighbouring countries such as India and Vietnam, who may increase their production capacity of tops in the future. Increasing demand for wool tops in these countries would ultimately diversify demand for Australian greasy wool.

6. Foster a conducive business environment to encourage the establishment of more firms willing to process wool, including reviewing regulations, negotiating free trade agreements and building skills.

It is important that any barriers to expansion are considered and addressed to encourage existing wool processing capabilities outside of Bangladesh to relocate into the country and to encourage existing cotton and synthetics lines to handle wool. These considerations may include:

- Reviewing wastewater regulations and management approaches.
- Signing FTAs with countries that are the sources of intermediate inputs (e.g., Vietnam and India) and sources of final demand.
- Ensuring that the local workforce has the appropriate skillset to incorporate wool into the supply chain and can adapt to changing global wool trends.
- Incorporating technology and embarking on product and process innovation to increase efficiencies, which can make Bangladesh's garment products more price competitive.
- Expand and promote the use of Special Economic Zones that specialise in textiles, which could increase the attractiveness of wool processing, enticing firms to shift their facilities to Bangladesh.
- Government incentives which can help existing cotton and synthetic textile operators to purchase the machines needed to handle wool.
- Should Australia and/or Bangladesh develop top making facilities, there could be an opportunity for Australia to be a direct supplier for the Bangladesh textile industry.

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