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Wool and the Australian-Vietnam trade relationship

WoolProducers Australia

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Deloitte Access Economics

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Nam Dinh Silk Textile Company

Ninh Thuan Province People's Committee

Phuc Long IP

Phuoc Dong IP

Rosewood Wool

Vietnam Textile and Apparel Association

Whale Logistics

Glossary

Acronym	Full name
AANZFTA	ASEAN-Australia-New Zealand Free Trade Agreement
ABARE	Australian Bureau of Agricultural and Resource Economics
ABEI	Agri-Business Expansion Initiative
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
DAFF	Department for Agriculture, Fisheries and Forestry, Australia
DFAT	Department for Foreign Affairs and Trade, Australia
FMD	Foot-and-mouth disease
FTA	Free Trade Agreement
GDP	Gross Domestic Product
HS	Harmonised System
IWTO	International Wool Textile Organisation
NTM	Non-tariff measure
RCEP	Regional Comprehensive Economic Partnership
VAT	Value-added tax
VCCI	Vietnam Chamber of Commerce and Industry
VITAS	Vietnam Textile and Apparel Association
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 Vietnam.

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.

Vietnam, as a growing location for textile production, represents a potential key partner for trade diversification for Australian wool. Although Vietnam does not currently host early-stage wool processing capacity, an increasing volume of wool tops containing Australian wool are being imported into Vietnam primarily via China.

The expansion of early-stage processing in Vietnam and/or Australia, could offer an opportunity to increase direct trade in wool between Australia and Vietnam.

Vietnam has several comparative advantages in growing its wool supply chain

Vietnam has a robust and growing textile industry – one of the fastest growing textile industries of any country in the world. It has a small but growing wool sector:

- Vietnam is currently the sixth largest importer of worsted wool yarn (2,537 tonnes in 2021) and a top 20 exporter of knitwear and woollen suits.
- A growing number of spinning facilities are driving demand for wool top imports (these may soon reach capacity of 17,500 tonnes of yarn per year).

Vietnam's long history in textile manufacturing, increasing employment in the sector, favourable free trade agreement network and industrial park system, makes it an attractive location for textile manufacturing, as indicated by the shift of cotton processing to Vietnam in recent years.

Indicative cost-to-customer estimates highlight that establishing early-stage processing capacity in Vietnam would not impact competitiveness of yarn or tops exports to a range of destinations, relative to existing supply chains.

Barriers to overcome

Despite these advantages, several barriers have held back early-stage wool processing locating in Vietnam to date:

- The scale of the Vietnamese wool supply chain and demand for early-stage processed wool: spinning capacity had been limited in Vietnam, which was more focused on final garment production. However, more recently, there has been an increasing shift of upstream manufacturing to Vietnam.
- Ensuring the importation of required machinery meets regulatory requirements: if early-stage processing is established with used machinery, further approvals will need to be sought from the Government of Vietnam.
- Infrastructure and logistics: although industrial parks are able to service on-site infrastructure needs, infrastructure associated with supply chains and logistics may represent a challenge to developing this new supply chain.

Integrated wet and dry processing is feasible, but presents challenges

Most of the existing global early-stage wool processing industry co-locates wet and dry processing for manufacturing facilities. Colocation can help to minimise wool transport and handling costs, increase opportunities to blend wool and to minimise yield losses, among other factors. Furthermore, the cost-to-customer estimates of yarn and tops exported from Vietnam using Australian wool indicate a more cost-competitive product, relative to existing supply chains.

Securing support for wet processing in Vietnam may present some challenges due to regulations around wastewater management:

- There will be fewer locations that are available to establish wet processing in Vietnam than dry processing only. Nevertheless, several industrial parks have been identified with permission to host dying and textile manufacturing, which would make the acceptance of scouring facilities more likely.
- The involvement of local trade facilitation support may be required to provide the required information and education of relevant stakeholders to ensure familiarity and approval of, what is for Vietnam, a new process.

There is a clear pathway to establishing early-stage dry processing in Vietnam in the medium term

Sentiment among existing processors indicates potential for Vietnam to be considered as a location for establishing a dry processing only facility. The country already has an appropriate labour force with many of the existing skills to support dry processing development.

Several wool manufacturers in Vietnam have indicated a willingness to partner with a foreign company to establish early-stage processing. This would follow a path, subject to Government approval, that may involve the relocation of existing capacity from another location, rather than new capacity being built.

Separating wet and dry processing has existing examples within the global wool industry, but will present trade-offs that will need to be considered as part of a detailed business case on a specific project. It is also possible that, by sourcing scoured wool from Australia, the cost-to-customer of dry processing in Vietnam of top or yarn exports may be less competitive, relative to existing supply chains.

Australian and Vietnamese governments are strategically aligned on developing complementary industries

Several recent developments in the Australia-Vietnam relationship demonstrate the growing momentum and importance of linkages to establishing a direct wool supply chain.

- The Australia-Vietnam Enhanced Economic Engagement Strategy seeks to forge stronger commercial ties, particularly in the agribusiness sector.
- *Invested: Australia's Southeast Asia Economic Strategy to 2040* provides a long-term approach to increasing trade and investment ties between Australia and the region, including Vietnam.
- Vietnam's *Strategy for Development of Textile, Garment and Footwear Industry to 2030, Vision to 2035*, calls upon government and industry to develop raw materials processing and production, particularly in sustainable fibres (such as wool).

Trade facilitation initiatives supported by the Australian Government can play an important role in developing a long-term industrial transition to support Australian exports.

Tax concessions for the location of new manufacturing capacity by the Vietnamese Government may support the business case for the establishment of new facilities.

There are benefits to both countries of directly integrating their wool supply chains

Beyond the commercial benefits that would accrue to a potential investor in these processes, there are several flow-on benefits from increasing trade in this product between Australia and Vietnam.

- For Australia, the benefits are primarily opportunities for:
  - The Australian wool supply chain to increase its diversification.
  - Local Australian processors to have an additional market.
- For Vietnam, the downstream textile industry would benefit from:
  - A more secure supply of raw materials.
  - Employment, skills development and technological transfer.
  - An avenue for growing a sustainable material within its textile industry.

Roadmap opportunities for action

In the short to medium term, Vietnam would benefit from strategies that provide it with 'quick wins' – including establishing large scale early-stage processing facilities.

- As a rapidly growing textile manufacturing hub, Vietnam should establish its first early-stage wool processing facility, which could benefit downstream processors and manufacturers in particular.
- Encourage Vietnamese wool processing firms to continue to evaluate cases for an early-stage processing facility in Vietnam, particularly targeted at multi-national early-stage processors for potential partnership. Securing customer commitments or offtake agreements will strengthen the case for relocating capacity and reduce project risk.
- Government agencies and industry bodies (e.g., the Vietnam Textile and Apparel Association) can act as ecosystem enablers by establishing the conditions and design policies that can attract early-stage processors to relocate their operations into Vietnam. Dedicated Australian trade facilitation resources, particularly with an understanding of the local market, could complement these investment attraction initiatives.

In the long term, a deliberate set of strategies will be needed to ensure sustainability of any future facilities – including scaling production to build a thriving industrial presence.

- The action of a few firms establishing initial operations, for example by relocating their supply chain, can act as a catalyst for other firms located throughout the value chain to follow suit. This has been most clearly demonstrated in the wool spinning sector in Vietnam.
- Australian and Vietnamese Governments can continue to monitor and evaluate their performance against existing strategies to encourage trade and complementary industry development, including in wool.
- In Vietnam, this will also involve monitoring whether the shift of textile and clothing production capabilities continues, and to implement policies to support the continued growth observed in the textile industry.

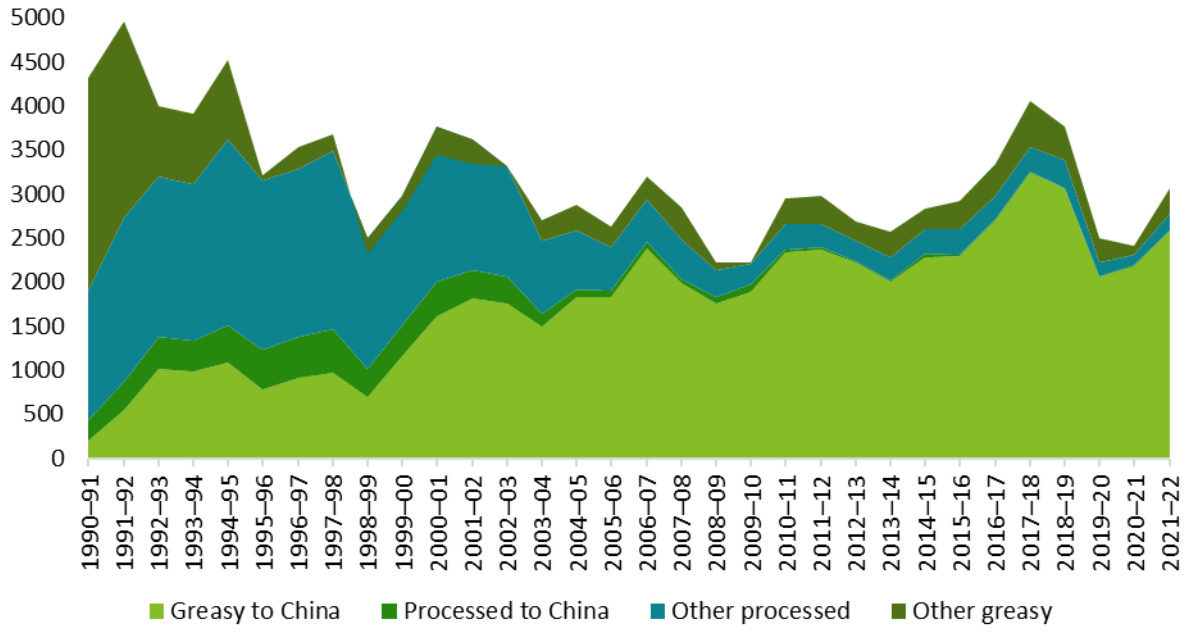
1 The case for change

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 Vietnam

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. Vietnam is one such location due to:

- Close geographic proximity to China (where most early-stage processing currently takes place), which would reduce relocation costs relative to other locations.
- Rapidly expanding wool processing and garment manufacturing, amidst a longer running economic trends of manufacturing shifting to Southeast Asia.
- Recently expanded early-stage wool processing capacity, with further plans for expansion.
- Favourable trading environment, Vietnam having a number of bilateral and multilateral trade agreements with key export markets.
- Policies to encourage investment (e.g., wool is not included on prohibited sectors for foreign investment, low corporation tax and import tax exemptions).
- General good business environment (e.g., low labour costs, favourable environmental regulations and good connectivity).

WoolProducers engaged Deloitte Access Economics to conduct a detailed assessment of Vietnam's wool manufacturing industry to develop a roadmap for the development of early-stage processing in Vietnam 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 Vietnam's textile industry and the current state of Australian and Vietnamese wool trade.
- Chapter 3 provides an assessment of factors that can influence the development of early-stage processing facilities in Vietnam.
- Chapter 4 introduces the short-, medium and long-term goals and the steps that need to be taken in order for Vietnam to develop early-stage processing capabilities.

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 Vietnam's textile industry

Amidst broader growth of the textile and clothing sector, Vietnam already has an established downstream supply chain and is increasing investment in upstream processing capabilities.

2.1 Growth of Vietnam's textile industry

Figure 2.1 shows that Vietnam's textile industry has been a significant driver of growth, value added and employment over the last five years. Between 2017 and 2022, the amount of textile fibres produced in Vietnam grew an average of 8% year-on-year from 2.4 million tonnes to 3.6 million tonnes, including during the pandemic-hit years of 2020 and 2021. Similarly, rapid growth was also observed for fabrics and ready-made clothes which grew 53% and 23% respectively over the same period.

Figure 2.1: Vietnam production of textile fibres, fabrics and ready-made clothes from 2017 to 2022

	2017	2022	Change
Textile fibres	2.4 million tonnes	3.6 million tonnes	47%
Fabrics	1.7 billion m^2	2.7 billion m^2	53%
Ready-made Clothes	4.8 billion pieces	5.9 billion pieces	23%

Notes: Textile fibres are defined as materials produced naturally or artificially, which can be converted into yarn or fabric for clothing and also for domestic and industrial purposes by interlacing or interloping.
Source: General Statistics Office.

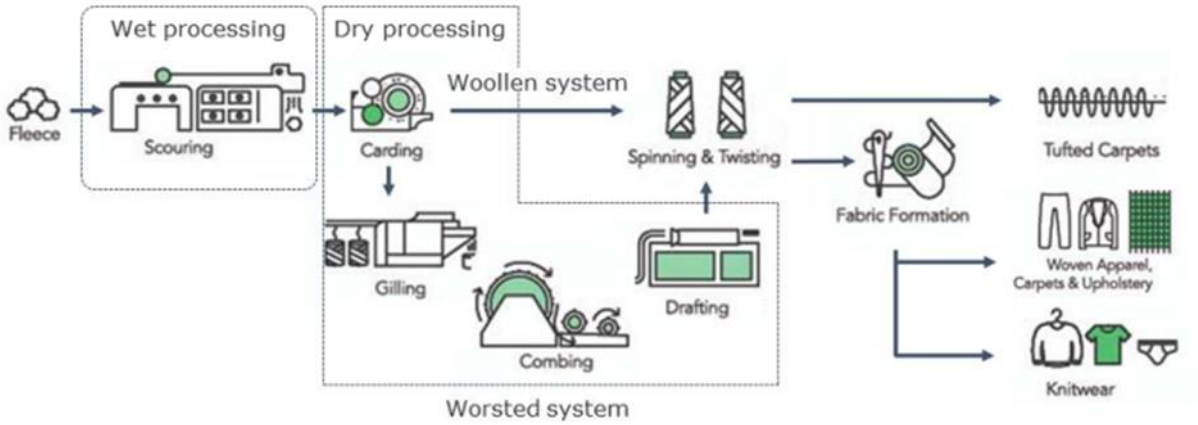
2.1.2 Structure of Vietnam's wool industry

Within a broader textile industry, a growing number of wool-focused textile manufacturers have established in Vietnam from spinners, weavers and knitters, to whole garment manufacturing.[5] The most common type of activity occurring is knitting, with most knitters focusing solely on that activity. By contrast, most spinners also do some downstream weaving as well.

A summary of the wool supply chain from farm to textile markets is illustrated in Figure 2.2. The supply chain outlined focuses on merino production, which typically enters the worsted processing system and supports apparel markets that are centrally supplied by Australian wool. Worsted-spun woven fabrics are used by fine tailors globally for clothes such as business suits, trousers and skirts. Meanwhile, worsted-spun knitted fabrics are super soft, incredibly versatile knits that are used for baby clothes, underwear, t-shirts, sportswear, leggings, dresses and other light-weight knitwear.

This roadmap, in considering the establishment of Vietnam's first early-stage processing capability, is focused on the factors influencing wet, dry or integrated (wet and dry) processing. Further analysis will be required on particular configurations of woollen versus worsted and specific product types which have not been explored in detail here.

Figure 2.2: Stylised description of worsted and woollen processing systems



Source: Adapted from IWTO.[6]

2.1.2.2 Increasing investment in upstream processing

Currently, domestic fabric production is relatively small and garment factories have to import fabric in accordance with regulations and requirements of downstream fashion brands. Expanding upstream manufacturing through technical transfers is now a focus for further industrial development.

In recent years, there has also been several large investments to expand Vietnam spinning capacity (Table 2.1). Such ongoing investment in textile manufacturing by some key industry players has increased the attractiveness and willingness for other players to follow suit. This has enabled Vietnam to become a growth market for wool production, particularly in the downstream manufacturing of the wool supply chain.

Table 2.1: Examples of upstream processing projects in Vietnam

Project	Production capacity	Description
Dalat Worsted Spinning Factory	2,200 tonnes	• US$50 million factory opened in 2023, and is the first worsted spinning mill to be opened in the country.[7] • Designed to produce around 4,000 tonnes of yarn,[8] largely for export to big global textile companies.
Zhejiang Xinao Textile and dyeing facility	6,500 tonnes (by 2027)	• US$153.8 million investment to build a 6,500 square metre factory.[9] • Currently have strong ties with early-stage processors in China.
Jiangsu Guotai Production Factory Project (Hantex)	7,000 tonnes	• 8,000 spindles wool spinning mill opened in Tay Ninh Province, Vietnam.[10]

Sources: Various.

Despite this growth in upstream wool processing, Vietnam currently has no early-stage processing facilities at scale. Nevertheless, investment in spinning facilities can make Vietnam more attractive to components further upstream on the supply chain (such as early-stage processing facility) to relocate into the country, as these spinning facilities will require tops (products of early-stage processing) as an input into their production.

2.2 Current state of Vietnam's wool trade

From 2011 to 2021, wool imports into Vietnam have increased from US$88 million to US$235 million, an average 10% per year growth rate.

In 2021, this trade comprised of the following components of the supply chain:

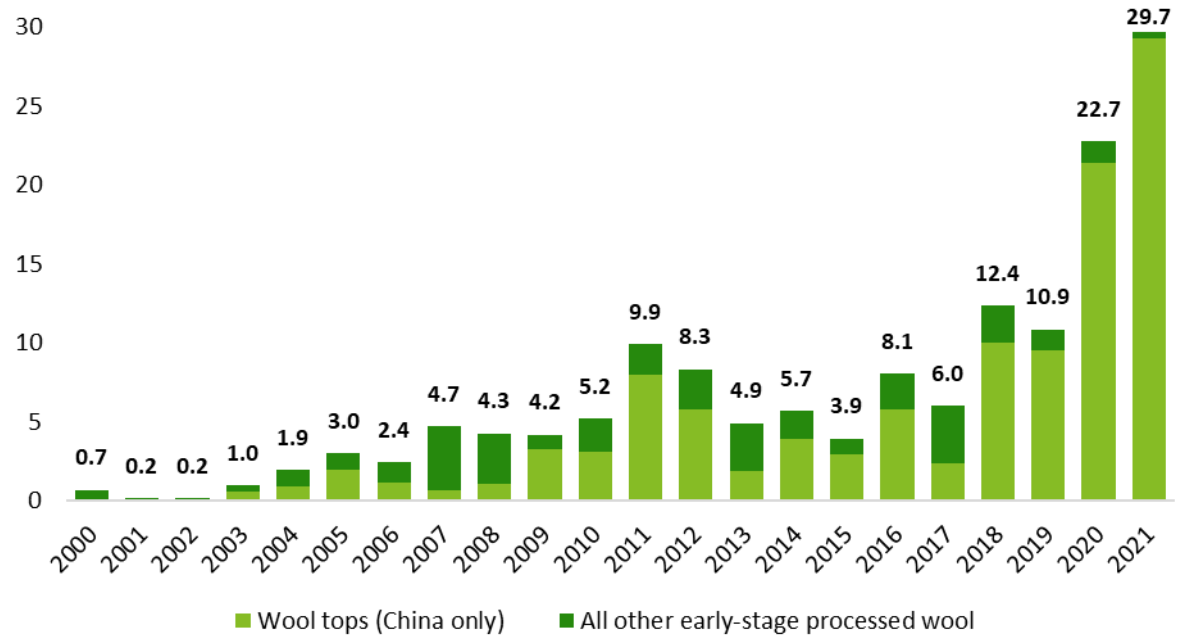
- **Yarn:** Vietnam is in the process of shifting to becoming a net exporter of wool yarns. It is currently the sixth largest importer of worsted wool yarn (2,537 tonnes in 2021).[11]
- **Fabric:** most woollen-based fabrics are imported into Vietnam, primarily as blended fabrics of <80% wool.
- **Final garments:** one of the top 20 exporters of knitwear and woollen suits.[12]

Over the last 10 years, there has been very little direct wool trade between Australia and Vietnam. This is likely a reflection of differences in industrial organisation between the two countries, with Australia mainly exporting greasy wool, while Vietnam's supply chain today begins with wool top imports (Figure 2.2). There is, nevertheless, significant amounts of Australian wool entering Vietnam via China in the form of tops.

2.2.1 Vietnam is increasingly importing wool tops

The amount of early-stage processed wool imported reached US$29.7 million in 2021, with imports growing during the COVID-affected years of 2020 and 2021. This helped contribute to the increase in production observed during those years. Most of the increase in the import of early-stage processed wool has been driven by an increase in imports of tops from China (Chart 2.1).

Chart 2.1: Vietnam imports of wool tops from China and all other early processed wool imports (US$ millions)

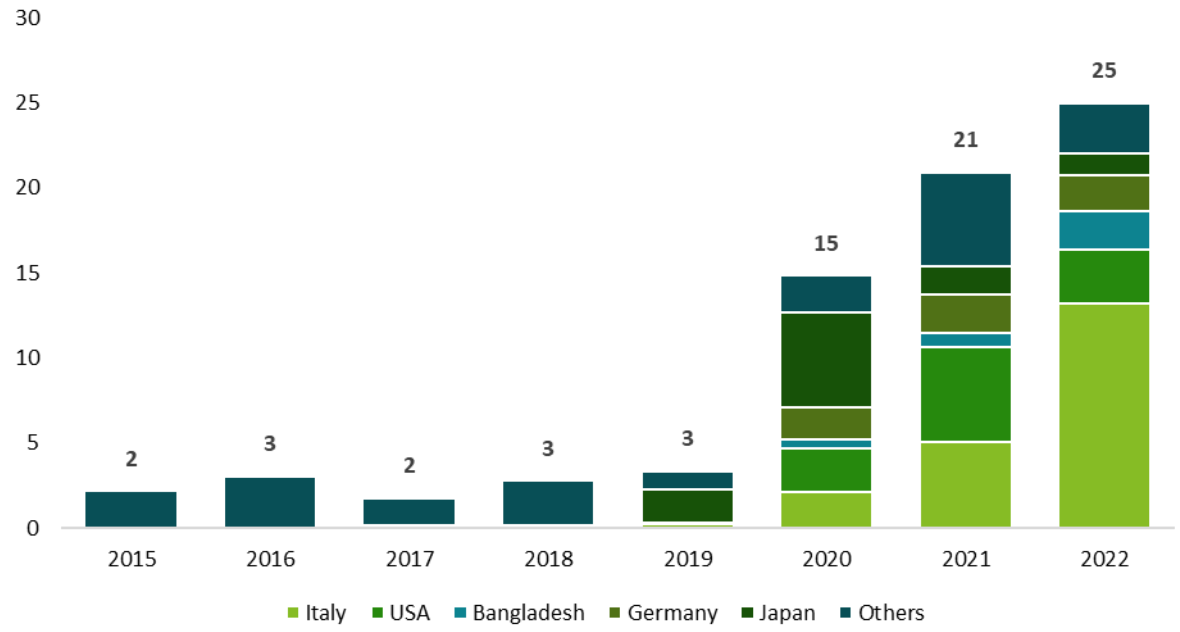


Source: UN Comtrade.

2.2.2 Vietnam wool yarn exports are growing

Most of the growth in early-stage processed wool imports can be attributed to the expansion of spinning manufacturing capabilites. Chart 2.2 shows that the amount of wool yarn that Vietnam exported increased from US$2.1 million in 2015 to US$25.0 million in 2022, with a particular sharp increase in exports between 2019 and 2020. This could be attributed to the large investment in export orientated spinning facilities as seen in Table 2.1. One spinner remarked that the growth of yarn exports to European countries (such as Italy and Germany) has been encouraged by the Free Trade Agreement between Vietnam and the EU.

Chart 2.2: Vietnam exports of wool yarn to its top 5 export countries (US$ millions)



Notes: Exports of HS codes 5106, 5107 and 5109 where Vietnam is the Reporter
Sources: UN Comtrade.

While there is an increasing amount of yarn exported, most yarn produced continues to feed through to fabric and garment makers in Vietnam. This has helped Vietnam become one of the top 10 exporters of wool knitwear and woven wool garments such as men's suits and jackets.[13]

2.2.3 Supply chain interdependencies and integration opportunities

Depending on the technical and commercial case, Table 2.2 highlights opportunities for Australian wool exports to further integrate with customers in Vietnam through three main product categories.

Table 2.2: Integration pathways for Australian exports

Australian exports of wool products to all destinations (volume, 2021-22)	Vietnam production (2022)	Integration pathway
Greasy: 308 kt greasy equivalent	Scouring and combing: 0 kg	• Establish new capacity for wet and dry capacity in Vietnam • Ensure that cost-to-customer is economical in Vietnam and third countries. • Increase trade between Australia and Vietnam
Scoured: 25 kt of greasy equivalent	Combing: 0 kg of production	• Establish business case for separating wet and dry processing • Establish new capacity in Vietnam for dry-processing • Expand existing wet processing throughput in Australia • May be cost competitive relative to existing supply chains, if impacts of separating wet and dry process can be managed
Combed: 0 kt greasy equivalent	Spinning: on track for 17.5 kt of wool yarn production capacity	• Expand existing wet capacity and establish new capacity for dry processing in Australia • Increase trade between Australia and Vietnam • May not be cost competitive relative to existing supply chains

Source: ABARES (2023).[14]

Competitive dynamics in early-stage wool processing market

If Vietnam and Australia were to increase early-stage processing capacity locations, rather than relocating existing capacity, there is a potential to increase competition in the early-stage processing market. It is possible that incumbent firms respond to new entrants with competitive responses, including reduced prices. This poses a financial risk to the establishment of new capacity in Australia and Vietnam and to any other producers in the supply chain who compete at higher average production costs. Over the long run, if increased capacity is able to drive competition and innovation to reduce firm-side costs, a lower average price of tops could be a driver of increased demand for wool-products.

3 Factors influencing development of Vietnam early-stage processing

The development of early-stage processing capabilities in Vietnam will be influenced by a wide range of factors; regulatory, infrastructure and skills are among the most influential.

This section discusses the factors influencing wet, dry or integrated (wet and dry) processing as a central initial decision in the development of early-stage processing in Vietnam and integration opportunities with Australia. In order of influence, this includes:

1. Regulation: including industry sentiment on regulation surrounding wastewater management of wet processing.
2. Infrastructure and logistics: including an assessment of port, road and energy infrastructure in India.
3. Skills requirement and the labour market in Vietnam.
4. 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.
5. Current government strategies: in Vietnam to encourage textile industry development and Australian Government initiatives to encourage supply chain diversification.

The key influencing factors identified in this report have been informed by consultations with a total of 22 organisations. These discussions included organisations currently operating in Vietnam as part of the wool supply chain and the wider Vietnamese textile industry, including industrial parks, banks and yarn, textile and apparel manufacturers. Early-stage processors operating outside of Vietnam were also consulted to understand the current state of the market and potential willingness to invest in or relocate operations to Vietnam. This roadmap has also benefitted from input from Australian wool industry bodies and Australian Government representatives in Vietnam. A full list of stakeholders is included in the Acknowledgements section at the beginning of this report.

3.1 Regulation

The Phase 1 report analysed Vietnam's performance against a range of regulatory indicators influencing ease of doing business and other relevant commercial and cultural barriers. This report highlighted that Vietnam performs reasonably well as a diversification location for Australia's wool exports.

Regulations to manage the environmental impacts of new facilities are a significant consideration in the establishment of new early-stage processing. The management of wastewater is the most significant of these.

3.1.1 Wastewater management of wet processing

If wet processing (scouring) were to be established in Vietnam, the regulations around wastewater management will represent a significant barrier to site selection and will require wide consultation. Stakeholders indicated that foreign companies might find it difficult to get the wastewater permit needed to establish an early-stage processing facility. One solution could be foreign-based processors partnering with existing firms who own a wastewater discharge permit.

There are, however, several locations where applications for wastewater discharge permit may be accepted. Particular industrial parks located in provinces which include textiles in their economic development plans and have examples of establishing dying facilities are the most prospective. Further details of possible industrial parks can be found in Box A.

The regulation of wastewater discharge permits and approvals is generally administered by provincial governments (with input on technical considerations and approvals of imported machinery provided by the national government). Meetings with the Ninh Thuan and Nam Dinh People's Committee highlighted that, with appropriate steps taken and processes followed, wastewater processing could be approved and supported. As industry seeks to develop early-stage processing in Vietnam, early engagement, with the support of local connections, appears essential to securing this kind of support.

For this reason, the wastewater management regulations are a **key factor influencing the location of wet-processing facilities in Vietnam.**

3.2 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 Vietnam that has both import and export linkages.

3.2.1 Port infrastructure

In the last 10 years, Vietnam's robust economic growth has led to a significant increase in freight traffic from 151 million tonnes in 2010 to 356 million tonnes in 2021. Currently, Vietnam has 251 ports, including 44 major seaports.[15]

According to stakeholders, most of Vietnam's wool top imports currently arrive at **Cat Lai port** in Southern Vietnam, the biggest seaport in Vietnam. It is situated in Ho Chi Minh City's port area, and therefore has good connectivity with neighbouring provinces where an early-stage processing facility can be built (e.g., Binh Duong, Ba Ria–Vung Tau, Dong Nai Provinces and Ho Chi Minh City). An alternative, deep water port in Southern Vietnam is **Cai Mep – Thi Via port**. While the port services goods from a smaller geographical area (Dong Nai and Binh Duong Provinces), it does have linkages with the US and EU markets and can handle large container ships.

In northern Vietnam, the port of Haiphong, particularly the **Haiphong International Container Terminal,** is one of the only deep-water ports available in Northern Vietnam capable of accommodating large container ships. Haiphong port also has good connectivity, with direct shipping to the major US and EU markets, thereby reducing the need for transhipments through Hong Kong and Singapore which can reduce firms' logistics costs and days to customer. [16] In addition, its proximity to China will help processors reduce the extent of disruption to existing supply chains.

As the government plans the development of more seaports to increase capacity, it should be noted that Vietnam ranks 85th out of 141 countries in the World Economic Forum's Competitive Index, with a score of 3.8 (out of 7) in terms of the quality of its port infrastructure in 2019.[17] This highlights the need for further investments in existing facilities to help lift Vietnam's competitiveness.

3.2.2 Road infrastructure

Vietnam's road system is responsible for nearly two-thirds of Vietnam's goods and passenger transport.[18] However, the country was ranked 103rd out of 141 countries in 2019 for the quality of road infrastructure, with a score of 3.4 (out of 7).[19] In part, this could be due to the fact that 20% of roads are paved with low to medium quality materials that result in cracked and bumpy surfaces, impacting the true speed that trucks can travel.

Despite its relatively low ranking, most stakeholders remarked that this was not a significant barrier to investment and ongoing operations (particularly in the spinning sector). The quality of road infrastructure varies by province, and this could be a significant determinant of where a facility could be located.

Stakeholders indicated that the tonnage of greasy wool bale transport would be compatible with the trucking network. However, it was noted that given its lower weight, transporting clean wool has its advantages, with greater quantities of wool able to be transported. Therefore, a dry processing only facility could have lower transport costs compared to a facility that incorporates wet processing.

3.2.3 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, early-stage processors in China are often located next to coal-fired power station to exploit the excess heat to dry the wool once it has been washed.

Currently, all industrial parks in Vietnam are supplied by the state-owned grid electricity provider, Vietnam Electricity, and stakeholders underlined the limited ability for manufacturers to generate their own power. While Vietnam Electricity absorbed a significant proportion of the energy input price increase in 2022, it has indicated that, in lieu of increased losses, a greater proportion of costs could be passed on to consumers and firms moving forward.[20] Therefore, it is likely that firms in Vietnam will face short-term increases in costs of production.

Box A: Choosing an industrial park to locate an early-stage processing facility

Due to the availability of supporting infrastructure, industrial parks are one of the most likely options for the establishment of a new early-stage processing facility at the scale of most sites globally.[a]

Currently, there are 260 industrial parks operating in Vietnam. As part of this study, five industrial parks were visited. They were selected due to their hosting of textile facilities and wastewater processing capacity. Table A.1 assesses the five industrial parks based on some high-level factors that are influential in determining the location of the facility.

Table A.1: Key facts about industrial parks

Factor	Du Long Industrial Park	Minh Hung Silico	Aurora Industrial Park	Phuoc Dong Industrial Park	Phuc Long Industrial Park
Provincial statistics					
Location	Ninh Thuan Province	Binh Phuoc Province	Nam Dinh Province	Tay Ninh Province	Long An Province
Gross Regional Domestic Product (2022)	US$2.0 billion	US$3.8 billion	US$4.0 billion	US$6.4 billion	US$4.6 billion
Population (2022)	598,700	1.0 million	1.9 million	1.7 million	1.2 million
Provincial Competitive Index ranking (2022)	30th out of 63 provinces / cities	43rd out of 63 provinces / cities	31st out of 63 provinces / cities	55th out of 63 provinces / cities	10th out of 63 provinces / cities
Park statistics					
Occupancy rate	10%	45%	20%	82%	97%
Lease term (from 2023)	34 years	43 years	42 years	35 years	36 years
Infrastructure					
Freshwater supply capacity	15,000m^3/day	30,000m^3/day	170,000m^3/day	120,000m^3/day	60,000m^3/day
Wastewater capacity	12,000m^3/day (800m^3/day already allocated)	23,000m^3/day	110,000m^3/day	160,000m^3/day	5,300m^3/day
Transport	45km from Ca Na seaport, 52km from Cam Ranh airport	106 km from Cai Lat port, 98km from Ho Chi Minh City and Airport	140km from Hai Phong Port, 150km from Noi Bai – Hanoi Airport	60km from Ho Chi Minh City, 20km from Moc Bai international border gate to Cambodia	41km from Cat Lai port, 33km to Tan Son Nhat airport

Table A.1: Assessment criteria of various industrial parks (Cont.)

Incentives					
Corporate tax reduction and exemption (Baseline: 20%)	10% tax rate for the next 15 years, 0% land tax	17% for the first 10 years of revenue, 2-year exemption from the first profitable year and 50% reduction in next 4 years	10% for the first 15 years	2-year exemption from the first profitable year and 50% reduction in next 4 years	2-year exemption from the first profitable year and 50% reduction in next 4 years
Import tax exemption	0% import tax for new equipment	5-year exemption	0% import tax on machinery and equipment	0% import tax on new machinery	0% import tax on new machinery

Notes: Provincial Competitiveness Index is an annual survey of Vietnam's business environment. It assesses and ranks provinces based on their economic governance, including their willingness to develop a business-friendly environment conducive to private sector growth. Only the top 30 provinces rankings are shown.
Sources: Various including General Statistics Office, Vietnam Chamber of Commerce and Industry and Vietnam Briefing

Many processors recognised the benefits of locating early-stage processing close to an existing downstream customer as it reduces delivery time, costs and the amount of carbon emissions generated through the supply chain. While Du Long Industrial Park (Ninh Thuan Province) is relatively small compared to the other industrial parks visited, it is the site of further development by Dalat Worsted Spinning Co for top dying. Similarly, a dry-processing facility located in Thanh Thanh Cong Industrial Park (Tay Ninh Province) could find customers in spinners Xinao and Hantex.

While Aurora Industrial Park does not currently have wool processing facilities, it has a firm textile-industry focus of the five industrial parks visited, with the largest water supply and wastewater capacity. Therefore, it could be more suitable for a wet-processing facility.

Nonetheless, it should be noted that the consideration of a possible site for an early-stage processing facility will require more specific information to be gathered. Foreign-based processors need to conduct a feasibility study to ascertain the best possible location for their facility. During this process, it is important that processors gather more information about the industrial park and the province it is located in, which can enable it to make a more informed decision based on the structure of its current business.

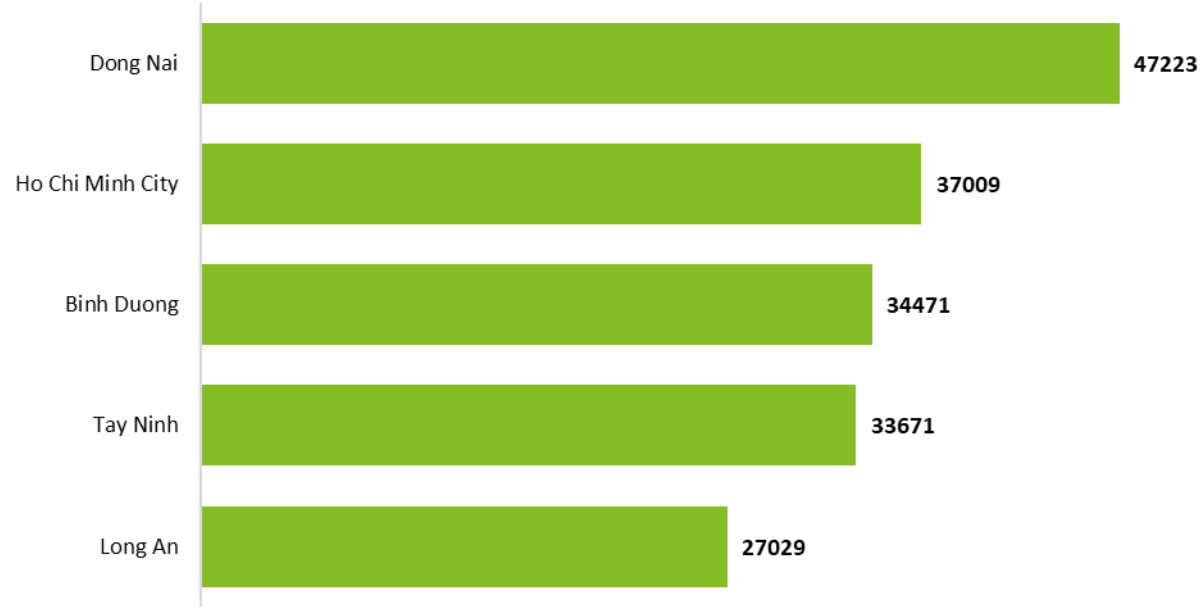
[a] It is possible for early-stage processing facilities to be located outside of industrial parks, but significant approvals and infrastructure is required.

3.3 The labour market and skills required for early-stage processing

Driven by population increases and robust economic growth in recent years, Vietnam's labour force has grown from 50.5 million in 2010 to 55.9 million in 2022. Its unemployment rate was 2.3% in 2022. In the first quarter of 2023, 26.4% of workers held a degree or certificate, representing a slight increase compared to the same time the year before.[21]

Apparel (1.6 million jobs), footwear (1.2 million jobs) and textile manufacturing (0.3 million jobs) were some of the biggest employers in Vietnam.[22] In addition, these sectors were some of the top contributors to job *creation* between 2006 and 2019, further emphasising the impact of the growth of the broader textile and garment industry in Vietnam.

Chart 3.1: Textile manufacturing jobs by province, 2019



Source: World Bank.[23]

In line with the growth in manufacturing in Southern Vietnam, the provinces that employed the most textile manufacturing workers in 2019 were Ho Chi Minh City or its neighbouring provinces (Chart 3.1). Some of these provinces (Dong Nai, Tay Ninh, Long An and Binh Duong) also created the most textile manufacturing jobs between 2006 and 2019. In part, this could be attributed to production moving out of Ho Chi Minh City to neighbouring provinces, driven by relatively lower cost and greater availability of land for expansion.

The Vietnam Chamber of Industry and Commerce reports that firms in 2022 were finding it more difficult to hire managers and supervisors than low-skilled labour.[24] An early-stage processing facility is expected to rely upon this group of in-demand workers, particularly if the facility has a high degree of automation. Therefore, it is imperative for the government to undertake measures to increase the supply of such workers in the future.

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 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.[i] 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.

Stakeholders indicate that while there are vocational education colleges in some provinces, most of the training provided is on-the-job training. Dalat Worsted Spinning Co, for example, sends workers overseas to train at other facilities, including in China, Japan and the EU. These workers are usually sent before they commence their job and will acquire relevant and adjacent skillsets that will assist them once they return to Vietnam.

The relocation of early-stage processing facilities into Vietnam could also result in a technological and knowledge transfer between foreign-based processors and the local textile industry. With a greater proportion of skilled workers, this could have positive spillover effects, increasing the overall productivity of the sector and potentially increase workers' wages.[25]

3.4 Trade and market access

Vietnam has developed into a key manufacturing centre for exportable goods. Membership of various bilateral and multilateral free trade agreementshas enabled Vietnam to become well integrated within numerous global supply chains. Consequently, this has increased the ratio of trade-to-GDP from an already high 131% in 2013 to 187% in 2021.[26]

3.4.1 Trade agreements and tariff access

With Australia and Vietnam being members of several regional FTAs (e.g., AANZFTA, CPTPP and RCEP),[ii] Australia has enjoyed preferential access to the Vietnamese market. Greasy, carded and combed wool receives a 0% concessional treatment under these regional FTAs (Table 3.1). Australia has no tariff advantage when compared to other major suppliers such as China (which also FTA access). Nonetheless, processors may have to pay agent fees and custom duties, which are calculated on the basis of Cost, Insurance and Freight value. Such duties have to be paid immediately to the General Department of Vietnam Customs.

Table 3.1: Vietnam import tariff for wool products

Product	Australia	China
Greasy wool	0%	0%
Scoured wool	0%	0%
Carbonised wool	0%	0%
Carded wool	0%	0%
Combed wool	0%	0%

Source: DFAT and WTO.

Analysis from UN Comtrade and Woolmark Sourcing Guide shows that Vietnam's key export markets for wool yarns, woven garments and knitwear are the EU, US and Japan. Vietnam's trade agreements with countries and regions like Japan and the European Union has enabled tariff-free trade for its

[i] 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.

[ii] ASEAN-Australian-New Zealand Free Trade Agreement (AANZFTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and Regional Comprehensive Economic Partnership (RCEP)

woollen textile products (Table 3.2). By contrast, as there is currently no trade agreement between Vietnam and the US, meaning firms seeking to export into the US could have to pay an up to 6% tariff. Nonetheless, it should be noted that woollen yarns exported from Vietnam into the US that are put up for retail sale are tariff-free.

Table 3.2: Vietnam export trade for wool products to a selection of destinations

Destination	Tops	Yarn
Bangladesh	N/A	5%
European Union	0%	0%
Japan	0%	0%
Korea, Republic of	0%	0%
Thailand	0%	0%
USA	3.4%[1]	0% - 6%

Note: [1]Tariffs 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 Vietnam is the reporter; The HS codes for wool yarn are 5106, 5107 and 5109. Destinations listed in alphabetical order.
Source: ITC.[27]

Against a standard value-added tax (VAT) rate of 10%, greasy and scoured wool will not be subject to VAT at the time of importation. In addition, under certain circumstances, VAT that wool tops incur may be recovered by importers. It is also noteworthy that the Special Consumption Tax does not apply to early-stage processed wool.

3.4.2 Non-tariff measures

Vietnam has a wide coverage of non-tariff measures (NTMs) with 100% for agricultural goods and 89% for manufacturing goods affected by one or more NTMs. The NTMs imposed on imports into Vietnam appear to protect consumers and improve the transparency of product supply chains. Most measures that are enforced and initiated are Sanitary and Phytosanitary measures (SPS) and Technical Barriers to Trade (TBT). In 2021, Vietnam had 30 TBT and 23 SPS measures in force, with most of the growth in NTMs observed from 2015 to 2021. This is in line with a global increase in NTMs imposed by countries.[28]

A strong and developing environmental policy within Vietnam can also explain the increase in NTMs in recent years, particularly the imposition of biosecurity and animal licensing. There are numerous prohibitions on the importation of goods that could threaten biodiversity and existing livestock (however FMD is endemic to Vietnam, so unlikely to drive NTM response in Vietnam). Australian imports may require extensive records or provision to meet this requirement. Moving forward, as environmental concerns increase, there could be further environmental regulations that processors may need to adhere to in the production and trading process. There is a risk that this is more pronounced in Vietnam than in other countries, due to the pace at which heavy industry and manufacturing has been developing there.

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

Adhering with these NTMs might result in time delays (from needing to meet labelling, quarantine and inspection requirements), imposing additional costs on firms. Examples of relevant non-tariff measures that Vietnam applies to early-stage processed wool are outlined in Table 3.3.

Table 3.3: Examples of relevant non-tariff measures applicable to the import of early-stage processed wool into Vietnam

Non-tariff measure	Description
Sanitary and phytosanitary measures	• Greasy wool imports may be subject to quarantine inspection and be required to complete compulsory health declarations. • Testing results for compliance with formaldehyde content must be provided before customs clearance.
Technical barriers to trade	• Labelling requirements.
Import licensing and permits	• From the date of being granted the Certification of Registration of the right to import, a foreign trader without a presence in Vietnam must publicly announce the contents stated in his/her registration certificate in three issues via mass media. This applies not only to the issuance of a new Certification of Registration, but also after it is granted, amended, supplemented and extended.
Other formalities	• Importer of record (IOR) must present a certificate of free sale for export and imports. This certificate covers goods produced domestically for export.

Notes: Non-tariff measures are grouped according to UNCTAD International Classification of Non-Tariff Measures.
Source: Deloitte Global Trade Advisory.

The impact of non-tariff measures could be mitigated somewhat by the priority customs services (Authorised Economic Operator – AEO) offered by Vietnam customs. To qualify for priority treatment, firms must maintain a system for managing and monitoring supply chains, meet specific export and import turnover requirement and comply with customs, taxation and accounting laws. Eligible companies can enjoy a variety of benefits including exemption from physical inspection of goods and the ability to submit incomplete customs declarations for a period of 30 days. The impact of NTMs into Vietnam could also be addressed via wool preparation, packaging and quality assurance systems undertaken before the wool gets shipped to Vietnam.

3.4.2.2 Non-tariff measures on importing used machinery

If the most viable pathway for Vietnam to establish early-stage processing involves relocating existing processing capacity, consideration will need to be given to Vietnam's regulations on importing used machinery.

Early-stage processors will need to be aware of the following regulations which came into effect in 2019:

- Machinery and equipment that is more than 10 years old will be banned, with the Ministry of Science and Technology publishing a list of old machinery and equipment whose import is banned.
- Importers that wish to import machinery that is more than 10 years old can submit documents outlining the reasons for importing such machines. The Ministry of Science and Technology will grant approval on a case-by-case basis.[29]

- The imported machinery must be manufactured in accordance with Vietnam's National Technical Regulation (QCVN) or Vietnam's Standard (TCVN) or Standards of G7 countries regarding safety, energy saving and environmental protection.
- Imported machinery should have at least 85% of original capacity and energy consumption should not be up by more than 15% of original design.
- The technology used must be in use in at least three production facilities in a member state of the Organization for Economic Cooperation and Development (OECD).
- Machinery that is obsolete, of poor quality, and environmentally damaging cannot be imported.

3.4.2.3 Non-tariff measures applied to Vietnam wool exports

Table 3.4 shows that woollen yarn exports to North America will have to adhere to relatively more NTMs compared to exports to the European Union and Japan. Coupled with the relatively longer geographic distance between Vietnam and US, it is likely to be more expensive for Vietnamese spinners to export woollen yarns to the US than the European Union and Japan.

Table 3.4: 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 Vietnamese woollen yarns
Bangladesh	6	• Trade of these goods are subject to dealer's permits, which is subject to a fee. • Receiving firms in Bangladesh need to apply for an import permit issued by the Government. • Labelling requirements.
European Union	4	• Restrictions on the use of certain chemical products in textile and leather products. • Labelling requirements.
Japan	7	• Woollen yarns that are put up for retail sale must meet the standards in regard to the content of harmful substances and amounts. • Labelling requirements.
Korea, Republic of	2	• Labelling requirements.
Thailand	0	• N/A
United States	13	• 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 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: UN TRAINS.

Analysis of import NTMs at these key markets suggest that Vietnamese 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 Vietnamese wool yarns.

3.4.3 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 Australia greasy wool exports into Vietnam is assessed to be relatively low. In part, this reflects the fact that most of Vietnam's imports are wool tops, with the World Organisation of Animal Health (WOAH) noting that scouring would mitigate the risk of FMD. It is noted that Vietnam currently imports other livestock products from FMD endemic countries such as India.

The limited risk also reflects the prevalence of animal disease issues in Vietnam. FMD is described as endemic, with cases found across local buffalo, cattle, pig and bovine populations.[30] Outbreaks tend to occur at regular intervals, peaking during the wet season months (November – February), throughout the country.

To mitigate these risks, Vietnam has implemented a national control program which include vaccination of susceptible animals as well as livestock movement controls and programs. The last phase of the control program concluded in 2020 and targeted 26 provinces, mostly provinces that border neighbouring countries.

3.5 Current government strategies relating to industrial and textile development

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

3.5.1 Current Vietnamese Government strategies

As shown in Table 3.5, the Vietnamese Government has textile-related industrial development strategies which can help firms better utilise technology and natural resources to grow their business. At the same time, the strategies also outline action items, for stakeholders to implement, which can grow the textile industry and make Vietnam a more attractive location for foreign-based wool processors.

Table 3.5: Relevant strategies by the Vietnamese Government to encourage development

Strategy	Description
Resolution No.23-NQ/TW	• National industry policy to 2030, with a vision to 2045. • The action plan calls for manufacturing and processing industries to account for 30% of GDP by 2030, with a 10% annual growth in value-added activities.[31] • Identifies the textile and footwear industry as one of the industries with the highest comparative advantages.
Strategy for Development of Textile, Garment and Footwear Industry to 2030, Vision to 2035	• Target of US$70 billion worth of textiles and garment exports by 2030, with a focus on sustainable large-scale textile production with a short lifecycle.[32] • As part of the strategy, it calls upon the government and industry to work together to develop raw materials and auxiliary materials for production. Therefore, investment in projects that can increase production in environmentally friendly, high-quality yarns are encouraged. • The government will be seeking to develop a mechanism to support funding for the waste and wastewater treatment in specialised industrial zones. • Funding made available to support textile enterprises and their workers in vocational training and application of advanced machinery and equipment.

Notes: Further details on Vietnam's industry and wool development strategies are provided in Appendix A.
Sources: Vietnam Briefing, Vietnam Textile and Apparel Organisation

3.5.2 Current Australian Government strategies

There are several opportunities for processors in Australia to utilise existing government strategies and packages to diversify its supply chain into Vietnam (Table 3.6).

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

Strategy	Description
Australia-Vietnam Enhanced Economic Engagement Strategy	• Support Vietnam to streamline administrative procedures for businesses through a digital transformation of Vietnam's custom procedures. • Forge stronger commercial ties between Australia and Vietnam, including in the wider agribusiness sector. • Collaborate on e-certification to increase mutual acceptance of electronic documents.[33]
Invested – Southeast Asia Economic Strategy to 2040	• Outlines several economy-wide recommendations that can help drive greater commercial activity, including raising awareness of each other's economies and societies, streamlining foreign investment in Australia and Southeast Asia and implementing de-risking mechanisms that can encourage greater investment into Southeast Asia. • Agriculture and food is identified as one of the priority sectors in the *Invested – Southeast Asia Economic Strategy to 2040*. • Specific recommendations related to the agriculture and food sector include more technical expertise and frameworks to support Australian export businesses to comply with new and existing import requirements. The strategy also calls for long-term support to be provided to Southeast Asian trading partners to increase their capacity to address biosecurity threats.[34]
Agri-Business Expansion Initiative (ABEI)	• 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. [35] • 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, Austrade

3.5.3 The role of trade facilitation services in market development

In addition to the strategies above, which set the direction of action between both countries, on-the ground trade facilitation services play an important role in growing trade between Australia and Vietnam.

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.[36] Amidst a backdrop of risks relating to supply chain disruptions, these services give businesses, particularly 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.[37]

As Vietnam becomes increasingly integrated into numerous supply chains, it has made substantial efforts to reduce trade cost and time to facilitate trade activities, particularly in areas such as information availability and internal border agency cooperation.[38] Nonetheless, its performance on the OECD trade facilitation indicators show that compared to similar middle income countries, Vietnam requires relatively more trade-related documents that take time to prepare and it lacks full-time automated processing for customs.[39]

Amidst this context there is a role for organisations to support industry development and trade facilitation. For instance, the Australian Industry Hub Vietnam (AusHub), a partnership between the Australian Chamber of Commerce in Vietnam (AusCham) and the Australian Department of Foreign Affairs (DFAT), has a mandate to facilitate new bilateral trade and investment opportunities between Australia and Vietnam. Formed as part of the Australia-Vietnam Enhanced Economic Engagement Strategy, it is currently supporting three Australian industry bodies in activities that will facilitate market entry of Australian products into Vietnam,[40] with the eventual goal of being a service hub in areas such as marketing, human resources and marketing for businesses seeking to enter the Vietnamese market.[41]

It should be noted that there are other organisations in Vietnam, such as the Vietnam Chamber of Commerce and Industry (VCCI) and the Vietnam Textile and Apparel Association (VITAS), who also provide trade facilitation services. However, these organisations reflect the interests of their members, many of whom are not currently connected to wool supply chains and span a wide range of textile and apparel industry sectors.

3.6 Commercial and technical considerations

Several individual commercial considerations will influence the development of early-stage processing in Vietnam. It is not the role of this roadmap to predict or recommend the appropriate scale or configuration of early-stage processing in Vietnam. Findings from stakeholder consultation and the research presented above can provide an understanding of the overall factors influencing the development of this industry.

Textile industry companies in Vietnam recognised that, as a standalone production process, establishing early-stage processing may not have a high margin or commercial incentive. This relates to the competitive global marketplace and the relatively transferrable technology. For certain supply chains, other factors such as delivery times and exposure to trade risk may be more influential in moving early-stage processing. For an individual processor, much of the benefit of relocating early-stage processing to Vietnam will be to reduce delivery times within their supply chains and reducing the risk of concentrated supply chains.

When entering the Vietnam market, processors can consider a variety of different ownership models as seen in Appendix B. Conversations with stakeholders indicate that most early-stage processors are likely to enter a partnership (i.e., joint venture) which can enable foreign-based processors to rely on existing infrastructure and resources to expand into Vietnam. Consequently, this could reduce the amount of capital investment that foreign-based processors require to establish operations. For instance, Dalat Worsted Spinning Co is a joint venture between Sudwolle Group and Lien Phuong Textile and Garment Corporation, with further plans to expand operations at the site.[42]

3.6.1 Configuration of first early-stage processing capability in Vietnam

Stakeholders noted that a key decision facing an early-stage processor establishing operations in Vietnam is the configuration of the process; that is, wet or dry processing, or a co-located combination of both.

Most of the early-stage wool processing industry co-locates wet and dry processing for manufacturing facilities to increase opportunities to blend wool and to minimise yield losses, among other factors. Co-locating early-stage processing with a downstream spinning facility could also increase manufacturing efficiencies, reduce resource duplication and minimise wool transport and handling costs throughout the supply chain.

There are some notable examples of early-stage processors that have separated their wet and dry stages of processing (e.g., Indorama). A combination of modern machinery, innovation in logistics and the particular markets for end products influences the performance of these configurations.

One stakeholder indicated that although wet processing appears feasible in Vietnam, the most viable path is to establish a dry processing only facility as an initial option if there is sufficient supply of scoured wool for import. Table 3.7 outlines several advantages and disadvantages of dry processing only versus wet and dry processing.

Table 3.7: Advantages and disadvantages of establishing a dry processing only facility in Vietnam compared to co-locating a wet and dry processing facility in Vietnam

Advantages	Disadvantages
• Relatively lower electricity needed, and therefore lower energy costs. • Smaller capital expenditure required to establish dry processing only, thereby reducing financial risk. • Easier to establish one type of processing (i.e., dry processing only) rather than two types of processing activities (i.e., wet and dry processing) simultaneously. • Less technical capabilities required, which could be a significant benefit amidst a tight market for skilled labour. • Greater flexibility on location of possible facility as there is no effluent discharge. • Opportunities to develop dry processing 'corporate memory': expertise in efficiently operating a dry processing facility.	• Relies on the availability and reliability of imported scoured wool, which are subject to sanitary measures. • Yield loss from baling and unbaling of wool. • Limitations on blending different wool types, which one stakeholder noted is important for European topmakers. • Separating wet and dry processing may result in a duplication of resources (e.g., additional labour, capital and warehouse storage required) which can increase costs.

Source: Deloitte Access Economics.

Ultimately, it is a decision for processors to determine the most commercially appropriate configuration. From a business strategy point of view, this decision largely depends on downstream demand for textile, clothing, bedding and other wool products, which require different types of wool and therefore different processing configurations. Wool clothing and textiles are manufactured from fine micron wool, which requires strict quality assurance processes. Operating a combined wet and dry processing facility gives manufacturers greater control over the quality of wool from greasy to tops.

On the other hand, bedding, carpet and some categories of textiles are manufactured from broader micron wool. Since there are generally less technical issues in using clean broader-micron wool purchased from the market than fine micron wool, establishing a dry processing-only facility to process broad microns is a common pathway for wool processors. To answer the question of 'what type of processing capability to establish', it is necessary to work backwards from the types of finished wool products demanded in the global market.

3.6.2 Cost-to-customer of Australian wool integrating with Vietnam early-stage processing

Firms producing early-stage wool processing products compete primarily on cost. Over time, the geographic location of earl-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 Vietnam compared to existing supply chains. It contains two parts:

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

To interpret these estimates, it should be noted 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 to delivering woollen products to downstream customers is just one dimension that could influence a firm 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 reflect the current markets for Vietnam yarn exports. Bangladesh and India are included to benchmark across other roadmaps in this series.

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

3.6.2.1 Establishment costs

The establishment costs would depend primarily on the scale of operations and whether new or used machinery is used (Table 3.8).

Table 3.8: Findings on cost to establish an early-stage processing facility in Vietnam

Process type	Findings
Wet and dry	• Depends on the scale to be established, but wet processing is 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. • Use of used machinery requires consideration of regulations around age of machinery (Chapter 3.4.2.2). • Establishing in an industrial park would provide ready-built warehouses in many cases and costs of leasing land and terms will vary by park. • It is expected that a wastewater facility would need to be built and funded by the project proponent, with most industrial parks having insufficient wastewater processing capacity as part of shared user infrastructure.
Dry	• Depends on the scale to be established, but a minimum viable scale for a dry processing only plant is 5mkg.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. • Used machinery would need to consider regulations around age of machinery (see Section 3.4.2.2).

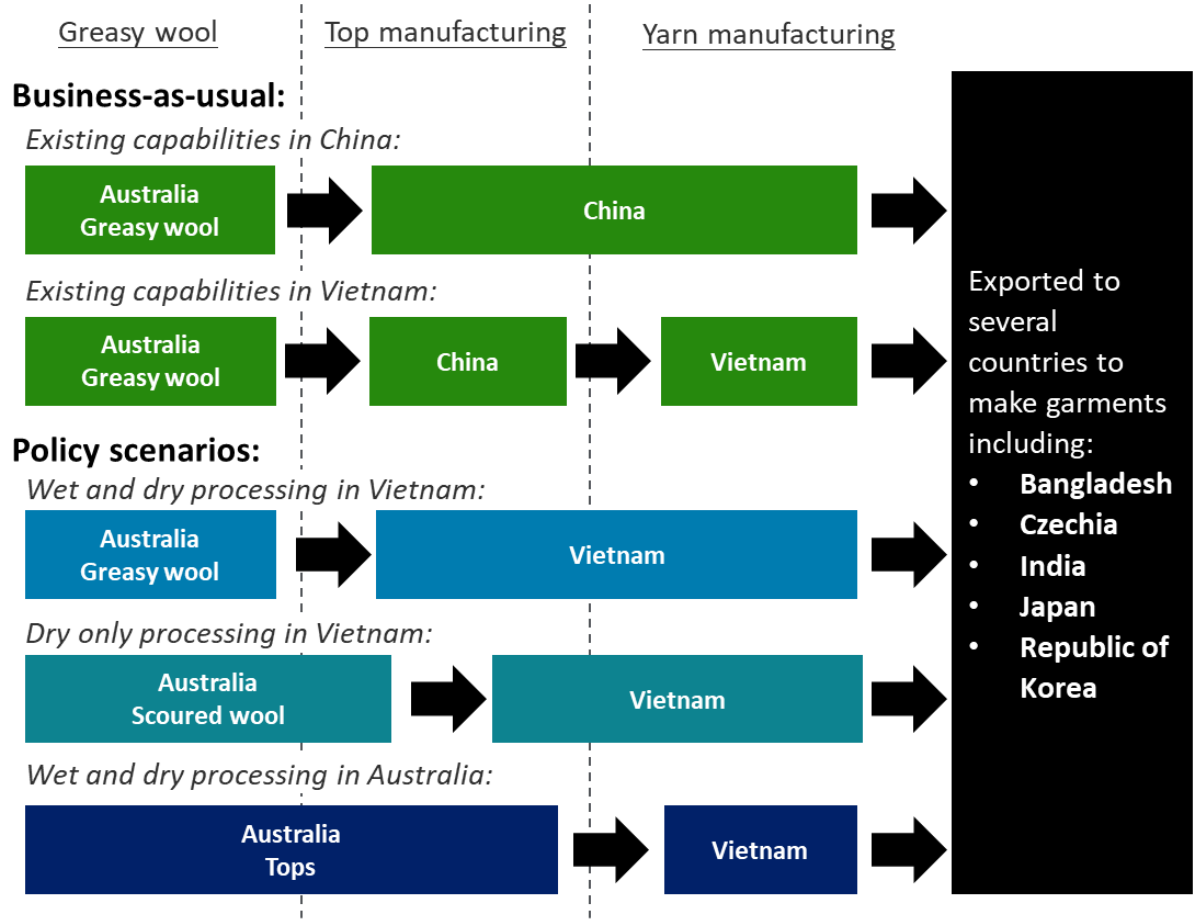
Source: Various, including stakeholder consultations and Prological Consulting.

3.6.2.2 Supply chain configuration to export yarn

There are several potential configurations of wool supply chains for the manufacturing and trade of wool products between Australia, Vietnam 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. This then feeds through to the local spinning facility (existing capabilities in China) or is exported to existing spinning facilities located in other countries such as Vietnam (existing capabilities in Vietnam). These business-as-usual scenarios consider the current wool processing capabilities in both countries, where Vietnam is only able to spin tops into yarn, and does not have early-stage processing.

The policy scenarios seek to benchmark the relative costs of delivering yarn to customers after establishing early-stage processing in Vietnam (either wet and dry or dry only processing) and Australia (wet and dry processing in Australia) compared to business-as-usual. It is assumed that in both the business-as-usual and policy scenarios that the yarn that is produced in China or Vietnam is subsequently shipped to other countries for garment making. The policy scenarios all assume costs of scouring and top making in Australia as analysed through the domestic business case.[43]

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



Source: Deloitte Access Economics.

3.6.2.3 Production cost at point of yarn export

The cost-to-customer calculations highlight that processing costs will be a main determinant of a country's yarn export competitiveness (compared to transport, logistics and trade related costs). Therefore, a relatively cheaper processing costs, highlights that establishing early-stage wool processing in Vietnam is unlikely to make the cost-to-customer of yarn exports more expensive, relative to existing supply chains (Chart 3.2). Such differences in processing costs could also explain why it is still relatively attractive for firms in China to export tops to Vietnam to be spun rather than feed through to local spinning facilities, despite the increase in transport costs.[iv]

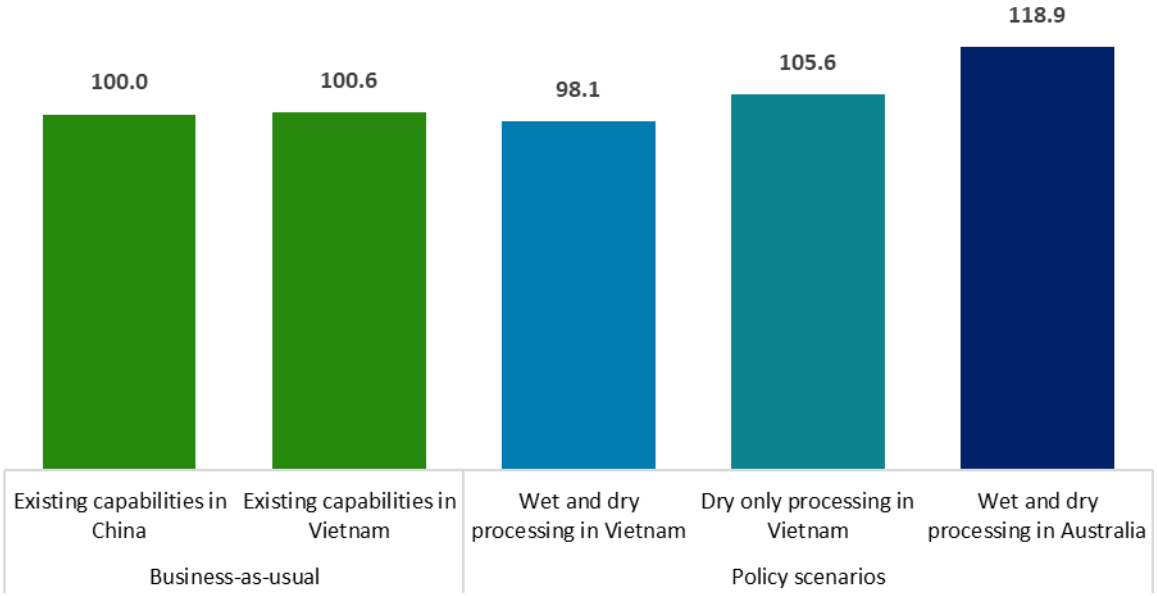
Exporting greasy wool to Vietnam for early-stage processing and yarn manufacturing could offer the most cost-competitive integration pathway for Australia, but may face greater challenges in establishing wet processing in Vietnam.[v]

[iv] The production cost of spinning tops into yarn is assumed to be equal between China and Vietnam. Therefore, the baseline scenario of producing yarn in Vietnam is relatively more expensive than producing yarn in China as it accounts for the costs associated with exporting tops from China to Vietnam to be spun into yarn. It is possible that the cost of spinning tops into yarn in Vietnam is cheaper than in China, given that processing costs in Vietnam is generally lower, which could mitigate the increase in transport costs.

[v] Opportunity to utilise existing infrastructure which is already geared to exporting greasy wool for early-stage processing overseas.

For the dry only processing and wet and dry processing in Australia scenarios, the cost of producing yarn is higher relative to business-as-usual. This is primarily driven by the higher estimated processing cost of scouring and top-making in Australia relative to China.

Chart 3.2: Cost of producing yarn in different supply chain models, relative to producing tops and yarns in China

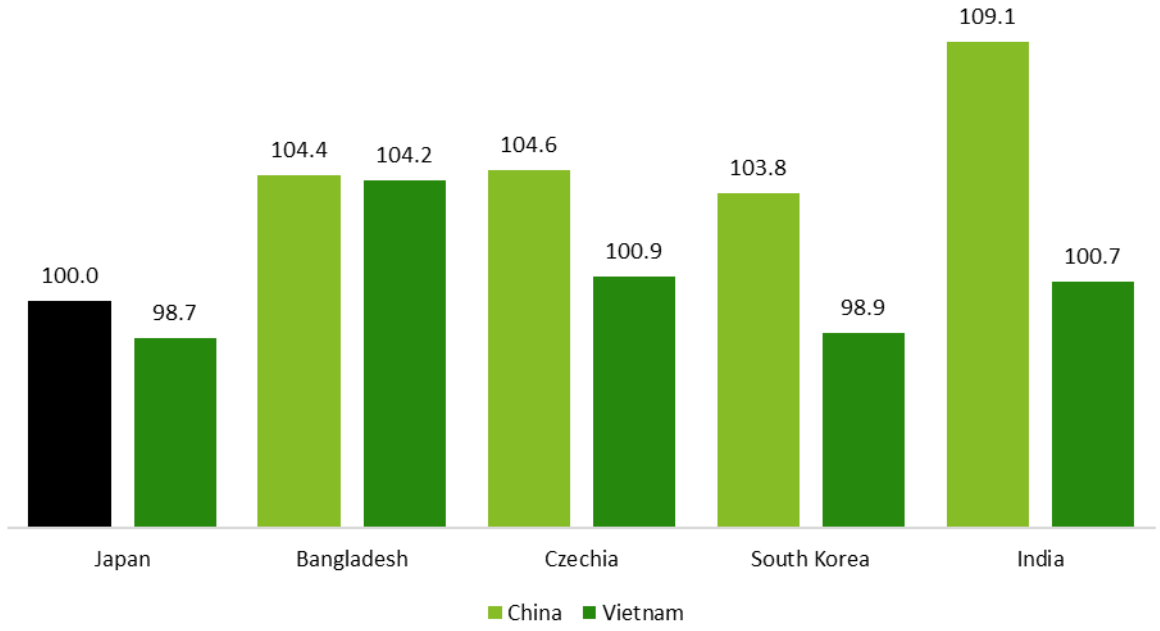


Source: Deloitte Access Economics.

3.6.2.4 Cost-to-customer of yarn export to third countries

Comparing the two business-as-usual scenarios, yarn exports from Vietnam are more cost competitive relative to those exported from China (Chart 3.3). In particular, the impact of Free Trade Agreements enabling tariff-free access for early-stage processed wool has ensured Vietnam has a relative cost advantage to exporting yarn to Czechia (European Union), India and South Korea.

Chart 3.3: Cost to deliver yarn to customers in selected countries, produced in current capacities in China or Vietnam



Note: Costs of delivering yarn to customers in selected countries are benchmarked relative to the cost of delivering yarn to a customer in Japan based on current capabilities in China.
Source: Deloitte Access Economics.

Establishing early-stage processing in Vietnam is estimated not to increase costs of delivered yarns compared to the business-as-usual supply chains (Table 3.9). Processors that have downstream customers in South Korea and Japan could see the biggest reduction in costs compared to several other possible locations.

Despite its close geographic distance to Vietnam, it is relatively 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, the maiden *National Tariff Policy 2023* suggests that tariff rates could be reduced in the future, to align with Bangladesh's commitment with the World Trade Organisation.[44]

Table 3.9: 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

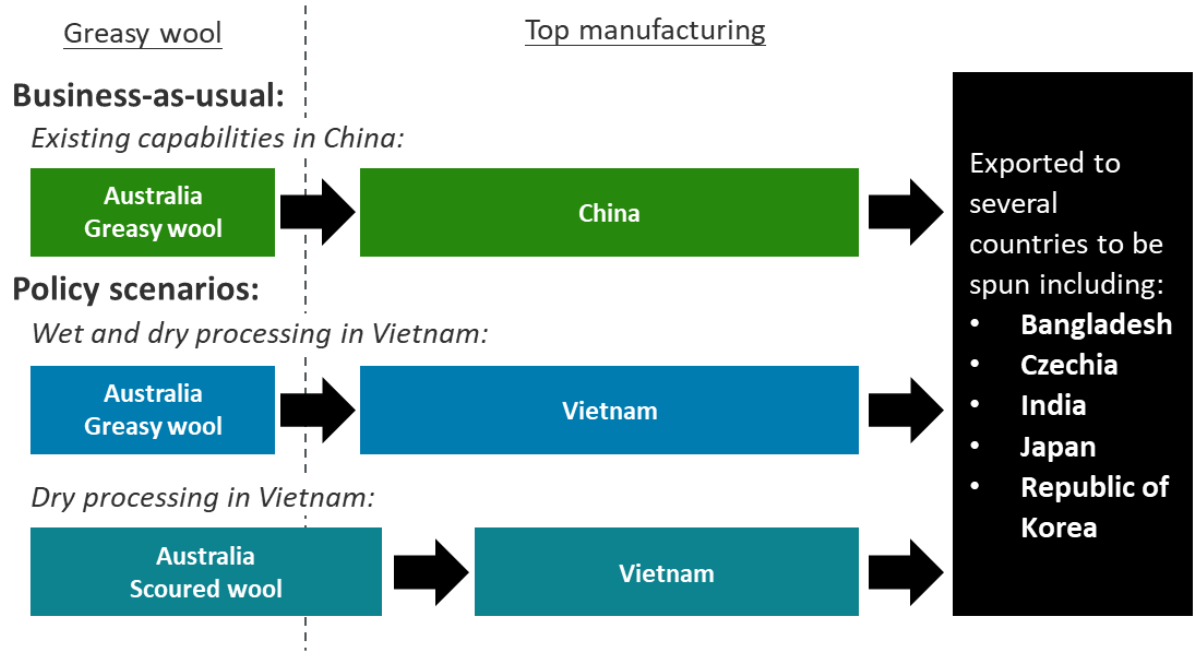
Policy scenario	Garment destination country	Total cost-to-customer index
Wet and dry processing in Vietnam	Bangladesh	101.6
	Czechia	98.4
	India	98.2
	Japan	96.2
	South Korea	96.4
Dry only processing in Vietnam	Bangladesh	109.4
	Czechia	105.8
	India	105.6
	Japan	103.6
	South Korea	103.8
Wet and dry processing in Australia	Bangladesh	123.0
	Czechia	118.7
	India	118.8
	Japan	116.5
	South Korea	116.7

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

3.6.2.5 Supply chain configuration to export tops

There is an opportunity for tops that are produced in Vietnam to serve as an input into local spinning facilities or to be exported to third countries where spinning capacity is located. Figure 3.2 shows two potential configurations considered here, relative to business-as-usual.

Figure 3.2: Stylised depiction of modelled supply chain for exporting tops, building early-stage processing capabilities in Vietnam or Australia

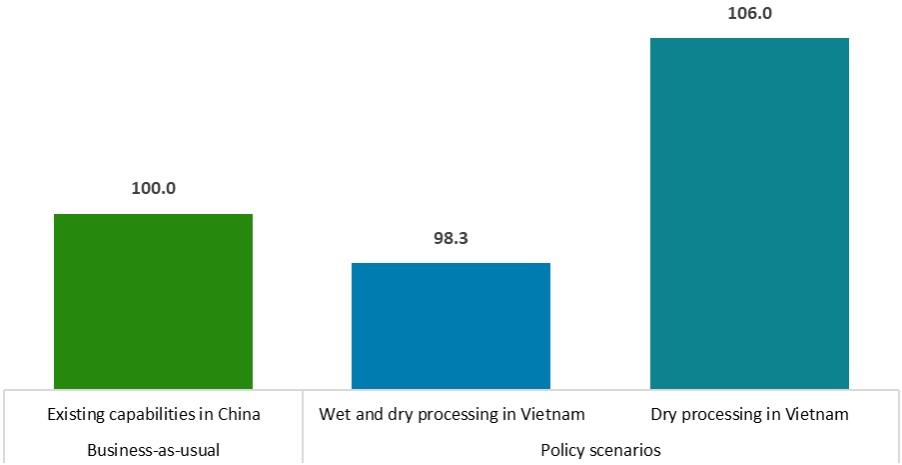


Source: Deloitte Access Economics

Similar to the cost of producing yarn, it could be relatively cheaper for processors to produce tops by relocating and building out early-stage processing in Vietnam (Chart 3.4), which can be supplied by greasy wool from Australia. This pathway also enables Australia to utilise existing infrastructure which is already geared towards the export of greasy wool for early-stage processing overseas.

Higher processing costs in Australia ensures that exporting scoured wool from Australia to Vietnam is a less cost-competitive integration pathway.

Chart 3.4: Cost of producing tops in different supply chain models, relative to producing tops in China



Source: Deloitte Access Economics

Across several countries with spinning capacity and that import tops, processors could be attracted to relocate early-stage processing to Vietnam to reduce their cost of exporting tops to various third countries (Table 3.10).

Table 3.10: Relative costs of exporting tops to various third countries, relative to the cost of delivering yarn to a customer in Japan based on current capabilities in China.

Scenario	Garment making trade route	Total cost index
Business-as-usual (Existing capabilities in China)	China to Japan (Baseline)	100.0
	China to Bangladesh	105.8
	China to Czechia	103.9
	China to India	99.6
	China to Republic of Korea	106.8
Policy - Wet and dry processing in Vietnam	Vietnam to Bangladesh	103.2
	Vietnam to Czechia	99.9
	Vietnam to India	99.3
	Vietnam to Japan	97.7
	Vietnam to South Korea	97.9
Policy - Dry processing in Vietnam	Vietnam to Bangladesh	111.2
	Vietnam to Czechia	107.5
	Vietnam to India	107.0
	Vietnam to Japan	105.3
	Vietnam to South Korea	105.5

Source: Deloitte Access Economics

4 Opportunities for action

A pathway exists for the development of early-stage processing in Vietnam, as the country seeks to build a vertically integrated supply chain. This could present possible integration opportunities for Australia.

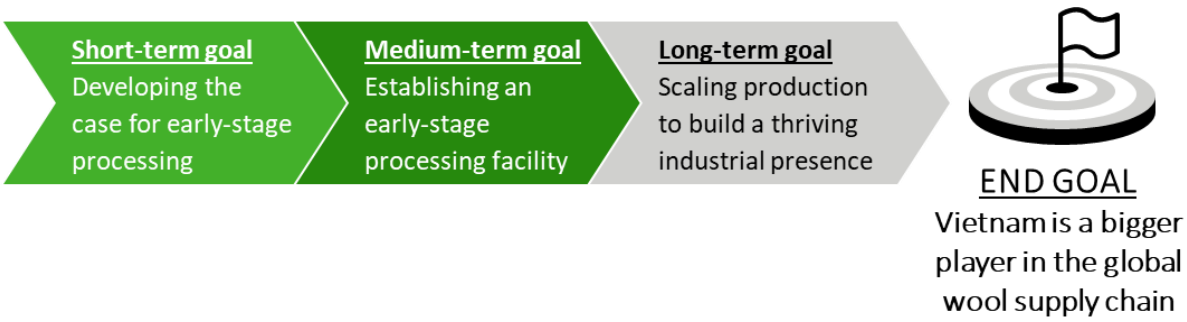
This roadmap has identified the key factors influencing the establishment of early-stage processing in Vietnam and the feasibility of this taking place in the near term. The opportunities for action in this chapter build out the next steps for industry and governments.

4.1 A pathway to expand Vietnam's role in global wool supply chains

A clear set of short-, medium- and long-terms goals can support Vietnam in expanding its role in global wool supply chains (Figure 4.1). These goals consider the current state of wool trade between Australia and Vietnam, and the current strengths, challenges (or 'weaknesses'), opportunities and threats facing the wool industry around the world, and specifically in Vietnam and Australia. Their development has benefitted from the views, insights and feedback from many industry and government stakeholders (Figure 4.1).

To achieve these goals, it is important that the manufacturing ecosystem, and the supporting institutions in Vietnam and Australia, work together to implement the recommendations support these goals. Key to this is the establishment of Vietnam's first at-scale early-stage processing facility.

Figure 4.1: Framework underpinning roadmap



In the short to medium term, Vietnam would benefit from strategies that provide it with 'quick wins' – including establishing large scale early-stage processing facilities.

- Vietnam (particularly downstream processors and manufacturers) would benefit from establishing its first early-stage wool processing facility.
- Encourage Vietnamese wool processing firms to continue to develop cases for an early-stage processing facility in Vietnam, particularly targeted at multi-national early-stage processors for potential partnership. Securing customer commitments or offtake agreements will strengthen the case for relocating capacity and reduce project risk.
- Government agencies and industry bodies (e.g., the Vietnam Textile and Apparel Association) can act as ecosystem enablers by establishing the conditions and design policies that can attract early-stage processors to relocate their operations into Vietnam. Dedicated Australian trade facilitation resources, particularly with an understanding of the local market, could complement these investment attraction initiatives.

In the long term, a deliberate set of strategies will be needed to ensure sustainability – including scaling production to build a thriving industrial presence.

- The action of a few firms relocating their supply chain can act as a catalyst for other firms located throughout the value chain to follow suit.
- Australian and Vietnamese Governments can continue to monitor and evaluate their performance against existing strategies to encourage trade and complementary industry development, including in wool.
- In Vietnam, this will also involve monitoring whether the shift of textile and clothing production capabilities continues, and to implement policies to support continued growth observed in the textile industry.

4.2 Developing the case for early-stage processing

4.2.1 Information gathering and market scan

Industry and government can build on the information provided as part of this roadmap to identify the most commercially viable and strategically appropriate development of early-stage wool processing in Vietnam. Further research and market intelligence may be required on the downstream markets for the expansion of Vietnam-based early-stage processing. This research could examine the market segmentation across intermediate product types (e.g., yarn products) and final product demands (e.g., garments versus technical uses).

4.2.2 Feasibility study of possible locations for early-stage processing in Vietnam

Regardless of the configuration of processing to be established in Vietnam (wet and dry or dry-only), a feasibility study should be conducted to determine the location of a potential facility. This roadmap has identified the factors influencing the location of such a facility, including proximity to downstream demand and infrastructure availability. This roadmap has not conducted detailed analysis of a particular facility type at a particular location, which will be required for a conclusion of feasibility.

Such a feasibility study would include information on:

- Configuration of the early-stage processing facility.
- Where the new early-stage processing facility will be located.
- What products will be produced at the facility, and an assessment of the market for these products.
- What type of wool will be required.

4.2.3 Address barriers to establishment of new capacity

Foreign-based processors should use the information gathered during the feasibility study and market scan to explore technical barriers to separating wet and dry processing as well as continue to engage VITAS to maintain familiarity with wool fibres and benefits in the Vietnamese market. At the same time, the Government should continue to invest in building and maintaining Vietnam's port and road infrastructure.

Stakeholders remarked that it is difficult for a foreign-invested company to obtain a wastewater discharge permit. Early-stage processors could partner with an existing firm who already has a wastewater discharge permit or choose to locate an early-stage processing facility within an industrial park.

The Australian Government could also play a role in encouraging partners based in Vietnam to adopt Australian wool. It should work together with firms to increase general awareness and adoption of wool (especially Australian wool) in Vietnam through a marketing campaign. Such a marketing

campaign could continue to address the misconception that wool is used for winter wear only and highlight the 'natural advantages' of Australian wool.

4.2.4 Continue to encourage the development and growth of downstream spinning, weaving and garment making

In the short-term, the Vietnamese Government should continue to encourage the development of current downstream wool and garment manufacturing capabilities and continued growth of these sectors driven by foreign investment. This will only strengthen the case for upstream early-stage processing to be established in Vietnam. Therefore, government and relevant industry bodies should:

- Provide support for firms as they seek to implement some of the action points:
  - This could take the form of government funding, or industry bodies helping to connect firms with other firms or people with the needed expertise.
  - Ensure that local vocational colleges have programs and courses relevant for the wool manufacturing industry.
- Work together to formulate a longer-term vision for the wool manufacturing industry, noting that the current textile industry development strategy is outlined to 2030, with a vision to 2035. This can give stakeholders greater certainty of where the wider industry is heading.
  - As part of the updated development strategy, there should be specific action plans and recommendation outlined for various textile products, including wool.
- Role for VITAS in acting as a liaison between industry and government – to communicate the views of industry to obtain better government outcomes.

4.3 Establishing an early-stage processing facility

In the medium term, with the case for establishing early-stage processing firmly understood, Vietnam's first early-stage processing facility could be established and built.

Many of the activities and actions at this stage will be driven by commercial decisions of processors and their partners. Where the Australian or Vietnamese governments see a case for accelerating the development of this supply chain, government support could facilitate the establishment a 'pilot' early-stage processing facility, to provide a 'proof of concept' and eventually a catalyst for other early-stage processing firms to relocate their operations into Vietnam.

The findings of this roadmap and of an assessment of the current global wool market today indicate that the relocation of existing capacity to Vietnam would be the most likely pathway.

There would be at least a 1- to 2-year lead time to secure permits and approvals if the facility were to be located within an industrial park. Locating near a downstream processor (e.g., a spinning facility) would lessen the training requirements for staff.

4.4 Long-term: Scaling production to build a thriving industrial presence

Beyond the establishment of Vietnam's first early-stage processing facility, a range of long-term opportunities for action can help to continue to grow the wool supply chain and increase trade and investment between Australia and Vietnam.

Table 4.1: Long-term opportunities to build a thriving industrial presence

Recommendation	Description	Industry and industry bodies	Vietnamese Government	Australian Government
Taking action to encourage final demand for wool-based products	Ultimately the capacity of the early-stage processing sector is linked to the final demand for wool-based products (both within Vietnam and overseas). Further research, strategies and policies, across the Australian Government and the wool producing industry will be important to ensure that demand for wool-based products continue to grow. Innovation from firms in product development and marketing is also an important component of this, diversifying the categories of products and breaking down preconceptions of wool uses.		x	x
Continued cooperation on trade and investment between Australia and Vietnam	The Australian and Vietnamese Governments should continue to work together to lower barriers to trade and investment between Australia and Vietnam.		X	X
Invest in building the capabilities and skills level of its workforce	Continued long-term investment in labour and skills development of all staff can build a better working culture. This can result in better business outcomes for firms (e.g., managers and sales representatives having a deep level of knowledge of wool products, the manufacturing process and the trends impacting the sector is useful when seeking to negotiate with suppliers) and lift sectoral productivity. To achieve these aims: • Processors should develop a structured on-the-job training program that includes a stint in an established manufacturing facility overseas to learn best practice. • Vocational colleges could offer relevant courses and diplomas that can enable workers to upskill themselves.	X	X	X (Facilitating collaboration with educational institutions)

Recommendation	Description	Industry and industry bodies	Vietnamese Government	Australian Government
Build understanding of the sustainability credentials of wool in Vietnam market	Downstream firms and consumers, particularly those in Europe, are placing a greater importance on sustainability before making purchasing decisions. The Government of Vietnam has also identified the role of sustainable fibres in achieving their long-term textile industry development strategies. There is an opportunity for Australian wool, leveraging its 'natural' advantage of being renewable, recyclable and biodegradable, to appeal to processors as it seeks to source inputs that are more environmentally friendly.[45]		X	X
Regularly monitor and evaluate performance against roadmap	Regularly review and update the roadmap based on changing market dynamics, trade policies, and emerging opportunities. The Vietnamese Government and industry bodies should ensure that updates to the roadmap are aligned to the sentiment of local textile processors and address their willingness to further expand and grow their upstream processing activities.	X	X	X

Appendix A Government strategies

A.1. Strategies to promote industrial development

In 2020, the Vietnamese Government issued *Resolution No.23-NQ/TW*, which sets out a national industry policy to 2030, with a vision to 2045. This leaves the industry well positioned to benefit from policies that seek to meet the targets under this action plan such as improving the effectiveness of the state and local authorities and the leveraging of science, technology and natural resources for industrial development.

A.2. Strategies to promote the development of the textile industry

The Vietnamese Government has also formulated a strategy that seeks to develop the broader textile industry. The *Strategy for Development of Textile, Garment and Footwear Industry to 2030, Vision to 2035* sets a target of US$70 billion worth of textiles and garment exports by 2030, with a focus on sustainable large-scale textile production with a short lifecycle. As part of the strategy, the government is seeking to invest.

To achieve these aims, the industry and government will work together to develop:

- Market development initiatives, with state agencies conducting a number of trade promotion and diversification activities including supporting enterprises at exhibitions and trade fairs. Businesses should also seek to develop their own development strategies and invest in marketing capacity so they can further integrate into the global supply chain.
- Policies to attract investment and develop the domestic value chain, with a database to be built which can provide a directory for textile businesses seeking to source raw materials. In addition, a program will be implemented that seeks to connect domestic and foreign enterprise to enable technology transfer and a transfer of knowledge. Furthermore, firms should continue to invest in services that could increase existing value-add (e.g., fashion and design).
- Production of raw materials and auxiliary materials, with the Government seeking to encourage investment in projects that can increase production of environment friendly, high-quality yarns. The government will also seek to develop a mechanism to support funding for the treatment of wastewater and waste in specialised industrial zones.
- Policies to improve management organisation, with state agencies to simplify administrative procedures and ensuring that the legal system can help attract investment. Industry associations also have an important role in advising relevant ministries develop policies and protect legal rights of businesses and consumers.
- Training and vocational education programs targeting workers in the dyeing, finishing and design manufacturing stages and upskilling management capabilities.
- Policies and mechanism to encourage the adoption of technology that can increase productivity and sustainability, such as firms investing in new processing and real time supply chain management systems that can increase the efficiency of their distribution system.
- Develop investment, credit and taxation policies that can give textile businesses greater access to capital.

Appendix B Ownership models for foreign based processors

When seeking to enter the Vietnamese market, there are a number of potential ownership model that a processor can consider as seen in Table B.1. Processors should carefully weigh up the advantages and disadvantages of each ownership model.

Table B.1: Different ownership models available in Vietnam that are suitable for processors

Ownership model	Description
Limited Liability Corporation	• 100% foreign-owned enterprise. • Separate legal entity and is an incorporated company. • No minimum capital required, but registered capital will be assessed by the Department of Planning and Investment for whether it is adequate to cover the expenses of the business until it generates enough revenue to cover its costs. • Estimated to take 15 days to obtain Investment Registration Certification and another 3 working days to obtain an Enterprise Registration Certification. • Advantage: No restriction on the scope of business. • Disadvantage: Cannot issue shares and have a maximum of 50 shareholders.
Joint-stock company	• 100% foreign-owned enterprise. • Separate legal entity with the intention to become a publicly traded company. • No minimum capital required, but registered capital will be assessed by the Department of Planning and Investment for whether it is adequate to cover the expenses of the business until it generates enough revenue to cover its costs. • Estimated to take 15 days to obtain Investment Registration Certification and another 3 working days to obtain an Enterprise Registration Certification. • Advantages: No restriction on the scope of business, and can issue shares. • Disadvantages: Three or more shareholders required, with regulations requiring a supervisory board for most joint stock companies.
Joint venture	• Partnership of companies and can comprise at least two foreign entities or at least one foreign and at least one local entity. • Statutory guidelines on foreign ownership, with a minimum contribution of 30%. • Could take 3 to 6 months to find a joint venture partner, conduct due diligence and negotiate a deal.

Sources: Vietnam Briefing.[46]

Appendix C 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 C.1).

Table C.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 India	109.1
	China to Republic of Korea	103.8
Business-as-usual (Existing capabilities in Vietnam)	Vietnam to Bangladesh	104.2
	Vietnam to Czechia	100.9
	Vietnam to India	100.7
	Vietnam to Japan	98.7
	Vietnam to Republic of Korea	98.9
Policy (Wet and dry processing in Vietnam)	Vietnam to Bangladesh	101.6
	Vietnam to Czechia	98.4
	Vietnam to India	98.2
	Vietnam to Japan	96.2
	Vietnam to Republic of Korea	96.4
Policy (Dry only processing in Vietnam)	Vietnam to Bangladesh	109.3
	Vietnam to Czechia	105.7

Scenario	Garment making trade route	Total cost index
	Vietnam to India	105.6
	Vietnam to Japan	103.5
	Vietnam to Republic of Korea	103.7
Policy (Wet and dry processing in Australia)	Vietnam to Bangladesh	122.9
	Vietnam to Czechia	118.7
	Vietnam to India	118.8
	Vietnam to Japan	116.5
	Vietnam to Republic of Korea	116.7

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