



Travelling textiles

A sustainability roadmap of
natural fibre garments

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Brotherhood
of St Laurence

Working for an Australia free of poverty

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Summary

Introduction

Corporate responsibility and good governance are increasingly recognised as fundamental to business. They are systems which require the development of policy and practice to address the social and environmental implications of day-to-day operations. While many large enterprises have made significant progress, for small and medium enterprises (SMEs), challenges remain.

The Australian Government (Treasury) has funded St James Ethics Centre to promote responsible business practice (RBP) in Australia. The Brotherhood of St Laurence (BSL) is one of a number of organisations involved in the project. In collaboration with Green Capital and NetBalance, a product road mapping component has been undertaken. A product roadmap is a tool to better understand the environmental and social impacts of a particular product throughout the supply chain, and to assess ways in which these impacts can be mitigated. The BSL's focus was to develop a roadmap of the garment sector. This report and case study is the roadmap of two natural-fibre garments. It reveals how SMEs in the Australian textile and clothing sector could be assisted to improve their sustainability practice.

One of Australia's well-established fashion labels, Gorman, agreed to open their supply chain for mapping purposes. Gorman is a retailer and wholesaler with eight retail outlets in Sydney and Melbourne and thirty-two wholesale clients, including David Jones. Two products were chosen, the **Merino Tee** and the **Forest Dress**, which are sourced and manufactured in Australia, Vietnam, China, Japan, and New Zealand. Both products are made from natural (as opposed to synthetic) fibres, reflecting the Gorman range, which mainly uses renewable textiles. The company has a reputation for being sustainable, and has implemented a number of initiatives, including the design and production of an organic range. The Gorman Ship Shop, a mobile store, designed to be eco-friendly in design and function, is an interesting retail response. They have publicly expressed concern for working conditions.

Methodology

Twelve in-depth interviews were conducted with key representatives of companies in the Gorman supply chain (including Gorman itself), as well as relevant industry associations, and garment sustainability experts. Additional consultation with non government organisations and accreditation authorities was undertaken. Interviews were not conducted with suppliers in China and Japan responsible for the processing of raw materials and yarn manufacturing. Most notable was the unwillingness of the

Melbourne based manufacturer (Merino Tee) and the textile agent (Forest dress) to be interviewed, despite the best efforts of Gorman.

Key findings

In order to embed responsible business practice in garment production, it is essential to understand and disclose all stages of the chain, including fibre cultivation, textile and clothing production, retailing, consumer use, and end of life, and to assess the social, environmental, and economic impacts at each stage.

Although the supply chain is complex, there are SMEs already committed to sustainable and responsible business practice. Gorman is one such company. Gorman is doing more than most fashion labels and should be acknowledged for their initiatives. There does however appear to be a disconnect between the broader "sustainability aspirations" of Gorman and their mainstream business practices.

To date, Gorman has focused on the environmental impact of their business, particularly through their fabric choices and their energy use in retail. Gorman is yet to address the social dimensions, especially working conditions, in the cut, make, and trim stage of production in both Australia and Vietnam. It could be argued that the Gorman response has been strong on statement of commitment and soft on a systemic approach to fully understand their supply chain, particularly its labour dimensions. That said, Gorman has expressed an interest in attaining accreditation with the Home workers Code of Practice for their Australian based manufacturing, and have encouraged their Vietnamese manufacturer to become SA8000 accredited.

Collaboration with suppliers can contribute to innovative, sustainable garments. This was clearly demonstrated through the partnership between Gorman and their Vietnam supplier, Un-available, who influenced and inspired Gorman to develop their organic range. In addition, Gorman has benefited from the direct relationship with The Merino Company (TMC), vertically integrated business, with significant influence due to their position as a global wool solutions company. This led to the development of the organic Merino Tee.

Garment industry drivers

In the garment sector, the greatest driver for SMEs is business survival in a highly competitive industry. Keeping a viable, innovative garment industry in Australia is a key priority. Market access, developing competitive advantage, and responding to consumer demand for ethical fashion are strong drivers of business practice. However, the higher cost of sustainable production, consumer's reticence to pay more for sustainable goods, and "fast fashion" expectations remain the greatest barriers to long-term sustainability.

For Gorman, the environmental impact of production appears to be a stronger sustainability driver than consideration of labour rights and human rights. This may well be because it is easier to measure, and the climate change message has gained momentum. However, ensuring fair and decent working conditions and investing in human capital can significantly improve productivity, quality, efficiency, and market access.

Current and future sustainability challenges

For the garment industry to achieve more responsible business practices, the key sustainability challenges include:

1. **Costs of sustainable production** – Current limited production volumes for SMEs do not support affordable sustainable fashion.
2. **Managing relationships** – Increased outsourcing, subcontracting and use of intermediaries make it harder to uphold responsible business practices throughout the supply chain.
3. **Consumer and fashion trends** – The increasing number of fashion items (on-trend and low-cost) that are purchased and soon discarded adds to the industry's environmental impact.
4. **Working conditions** – Poor working conditions exist throughout the supply chain, in fibre cultivation, outwork in Australia and overseas, and factories in low-wage countries. Workers' health and livelihoods may be at risk.
5. **Energy and water consumption** – The production of raw materials, yarn, textiles, and garments are water and energy intensive.
6. **Chemical and pesticide use** – Intensive use of chemicals in the growing of cotton and wool and the production and processing of yarn and textiles impacts on the health of workers and consumers.
7. **Environmental degradation** – The environment may be damaged by land clearing, over-grazing, and poor farming practices in fibre cultivation; and contaminated by pest and disease controls used in farming and by untreated effluents and air pollution from the textile production processes.
8. **Animal welfare** – Animals may be subject to inhumane treatment in farming practices such as mulesing.
9. **Washing and care** – Care of garments requires considerable energy and water, and may release washing detergent phosphates into local waterways, or may involve toxic chemicals such as those used in dry-cleaning.
10. **End of life management and textile waste** – Clothing and textile waste (including packaging) may end up in landfill or be dumped in developing economies.
11. **Greenhouse gases** – Methane and other gases are emitted by animal flatulence, production and agricultural processes, transport, and textile decomposition in landfill.

12. **Regulatory frameworks, standards and industry certification** – Regulations and voluntary initiatives are often poorly monitored, but will become increasingly important to accessing markets and demonstrating responsible production to discerning consumers.

The solutions are complex, and made more so by the lack of a definitive “sustainable” textile. It is not as straightforward as “natural fibres are better than synthetic”. When using natural fibres, the energy, water, and chemical use in cultivation, production and consumer use, washing and care needs to be considered, as do issues such as environmental damage, and workers' exposure to hazardous chemicals, dust and fumes.

The roadmap revealed there is no quick fix to produce the ultimate sustainable garment. The global trend for “fast fashion” and the reticence of mainstream consumers to pay a premium price for “ethical fashion” limit responsible business practice in a highly competitive sector. Consideration of water, energy, chemical and pesticide use is critical, as is the impact of certain processes on environmental and human health.

The sustainable garment of the future would be designed carefully and made from renewable material. It would be pesticide free and produced by workers in decent working conditions. It would be washed at low temperatures and have fashion upgrades to extend its fashionable life. Finally it would be recycled, reused or composted. (Draper et al 2007, p.2).

Further, it is rare to find a garment that can be traced to being made in one country. The Gorman roadmap confirmed incomplete knowledge of their supply chain. While some aspects were well understood, others such as a mechanism to ensure fair and decent wages and hours of work were vague and based on trust. Also, they did not have the tools to ask robust sustainability questions, both social and environmental, of their suppliers and make informed decisions. There is also a reluctance to exert pressure on suppliers. Both Gorman and their Vietnam manufacturer confirmed that small production runs meant they had little influence and they did not want to risk losing suppliers.

The effective monitoring of national laws, voluntary mechanisms, and certification standards remains a critical challenge. Without improvement, sustainability claims through labelling will continue to be met with both confusion and scepticism by fashion label owners, retailers, consumers, and watch dog organisations.

The Gorman roadmap clearly demonstrated that innovative, sustainable solutions are best achieved when incorporated at the earliest design concept stage, and in direct collaboration with suppliers. It also confirmed that energy efficiency and waste management gains can be made through careful use of lighting and heating in stores, and through initiatives designed to promote more sustainable practices among customers and staff. The use of organic wool made the Merino Tee more easily traceable and a better environmental choice; and the use of renewable textiles improved the sustainability performance of the garments at some stages of the roadmap.

Information, tools and resources

It became clear that the industry gathers information from diverse sources. Industry magazines and the internet were cited as most useful to keep abreast of global industry developments, while, networking with industry peers to monitor trends is common. Suppliers and intermediaries were recognised as having considerable knowledge, experience and expertise, particularly regarding product and production advances, and to develop more innovative and efficient business practices. There is also a growing reliance on business and environmental consultants and auditors, although the cost is often prohibitive for many SMEs. Non-governmental organisations (NGOs) were recognised for their knowledge and in-depth understanding of the sustainability issues.

The roadmap highlighted the need for simple and easy to read resources and tools with a practical focus. Some respondents wanted only basic information on how to make their businesses more sustainable. Others, with some systems in place, sought more sophisticated tools that would, for example, enable self-assessment of their business practices to identify and mitigate potential risks. Suggestions included:

- product information and technical data on the social and environmental implications of choosing particular fibres, textiles, and production methods
- information on the various certification and accreditation mechanisms, including an assessment of their credibility, shortcomings, and cost and process to attain.
- assistance in navigating the global dimensions of their businesses, and the key social and environmental risks of operating in particular countries
- assistance in managing supplier relationships and partnerships and critiquing their capacity
- creation of a garment sustainability portal and the innovative use of various social networking platforms.
- establishment of e-learning frameworks

The Brotherhood of St Laurence has developed three tools in support of the St James Ethics Centre project: *Strengthening supplier relationships* pro forma agreement,

Supplier information questionnaire and a fact sheet, Responsible business conduct: the international dimensions for small medium enterprises.

Role of government

Those interviewed expressed the opinion that the Australian Government could do more to encourage and reward responsible business practice in the garment industry. Incentives were needed to offset the higher costs of production, and access to grants could be based on sustainability criteria.

The government could assist by ensuring the regulations for garments imported are consistent with those manufactured in Australia. For example, legislation to ban the importation of garments that have been exposed to hazardous chemicals, that are prohibited in Australian production. The recently introduced European REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances) legislation was given as a best- practice example.

Introducing an “ethically made” labelling system or “sustainable quality mark” was raised. However, the challenges were also noted given the complexity of garment supply chains, the vast number of intermediaries involved, and industry and consumer concerns about the integrity of some schemes.

Energy efficiency gains made through responsible use of lighting and heating in stores could be promoted through retail retro-fitting subsidies, similar to those available in the residential housing sector. This would not only improve sustainability but also create green jobs. An additional job creation scheme to emerge was government assistance for SMEs engaging environmental consultants, either directly or from an established government pool of consultants.

These initiatives may be best overseen through the establishment of a national corporate responsibility agency to strengthen voluntary mechanisms, disseminate resources, develop sustainable procurement policy and practice, enforce mandatory sustainable business regulations and reporting, and devise sustainable business subsidies and incentives.

The way forward

The Gorman case study confirmed that a roadmap is a useful tool for understanding the social and environmental impact of business decisions and operations throughout the supply chain. It revealed that Gorman is leading the way in the SME garment sector in both sustainability commitments and practice. There is however scope for Gorman to strengthen this work through a more systematic and verifiable approach, particularly with regards to labour practices in both Australia and overseas. Responsible business

practice needs to be embedded in the entire business operation, not just the organic collection and initiatives aimed at reducing energy used in their Australian retail outlets. Real gains can be made by embedding sustainability principles at the design stage of production. Further, direct collaboration with suppliers can result in the production of innovative and more sustainable garments. This was clearly demonstrated through the partnership between Gorman and their Vietnam supplier, Un-available, which influenced and inspired Gorman to develop their organic range. In addition, Gorman has benefited from the direct relationship with The Merino Company (TMC). TMC has a vertically integrated business model, and significant influence due to their position as a global wool solutions company. This led to the development of the organic Merino Tee.

A multi-dimensional response is needed to drive responsible business practice. A combination not only of incentives (e.g. taxation benefits, access to small business and export development grants and subsidies, market and retail access, preferred supplier for government procurement) but also of robust and enforceable regulation and voluntary mechanisms is required, along with the development of practical tools and resources to assist SMEs.

Recommendations

The Gorman product roadmap identified significant opportunities for the Australian government to design innovative policy initiatives to strengthen the Australian garment sector's capacity to operate in a sustainable and responsible manner. It is recommended the Australian Government:

1. Establish a national corporate responsibility agency. The agency would have responsibility for implementing mandatory sustainable business regulations and reporting, strengthening voluntary mechanisms, developing and disseminating tools and resources, sustainable procurement policy and practice, and influencing the development of sustainable business subsidies and incentives.
2. Develop resources, tools and technical assistance on existing and emerging sustainable fibres, production processes and certification programs. This would include their potential use in the clothing sector, and an assessment of their environmental and social sustainability impacts.
3. Facilitate public sector investment in flexibly delivered training packages and educational resources to build skills and technical capacity to improve sustainable design and manufacturing in the garment sector.
4. Introduce subsidies and incentives to encourage sustainable business practice. For example, "tax breaks" for enterprises that develop organic garment collections, grants to defray the costs of factory audits and attaining

certification, and subsidies for enterprises interested in retro-fitting existing stores, and sustainable building options for new stores.

5. Create “green-jobs” through retail retro-fitting initiatives and access to environmental consultants with expertise in SME manufacturing and retail.
6. Introduce measures like the EU REACH legislation to regulate the use of chemicals, including in imported clothes.
7. Review programs such as the Textiles, Clothing and Footwear (TCF) Assistance Packages, Austrade administered Export Market Development Grants (EMDG) and AusIndustry Enterprise Connect, to ensure funding eligibility criteria is based on responsible business principles.
8. Implement the 2008 Australian TCF Review recommendation to establish a TCF Innovation Council ensuring the Council's terms of reference include social and environmental sustainability, and Council membership includes individuals and organisations with experience in this area.
9. Implement the TCF Review recommendation to establish an Ethical Quality Mark for the Australian garment industry ensuring that the mark encompasses both Australian and International sourcing, and includes information on country of origin.

Introduction

Governments, communities, consumers and international bodies are increasingly demanding that companies be more accountable for their business operations offshore. Some respond by doing very little; others are addressing issues such as working conditions, human rights, and environmental management through responsible business practices.

The Australian Government (Treasury) has funded St James Ethics Centre over a period of three years to promote responsible business practice (RBP) in Australia. This work includes a product road mapping component undertaken by three organisations: the Brotherhood of St Laurence (BSL), Green Capital and NetBalance. A product roadmap is a tool to better understand the environmental and social impacts of a particular product throughout the supply chain, and to assess ways in which these impacts can be mitigated. The BSL focus was on the garment sector, an industry characterised by complex global supply chains often including low-wage economies with poor enforcement of labour and environmental standards. One of Australia's well-established fashion labels, Gorman Industries, agreed to open their supply chain for mapping purposes.

Brotherhood of St Laurence

The Brotherhood of St Laurence (BSL) is a Melbourne-based community organisation that has been working to reduce poverty in Australia since the 1930s. Our vision is "an Australia free of poverty". Our work includes direct service provision to people in need, the development of social enterprises to address inequality, research to better understand the causes and effects of poverty in Australia, and the development of policy solutions at both national and local levels.

The BSL previously operated a small Australian-based garment manufacturing business, Hunter Gatherer, which is an accredited No Sweat Shop retailer. In addition, the BSL operates a donated goods business, which sorts, re-sells, and disposes of large quantities of second-hand clothing.

The authors of this report have extensive research and advocacy experience in the issues faced by small and medium enterprises in developing corporate responsibility (specifically in the Australian garment sector), voluntary and mandatory regulatory frameworks, and standards, and labour rights issues in Australian and Chinese manufacturing supply chains.

Gorman Industries

Gorman is an Australian fashion retailer and wholesaler with eight retail outlets in Sydney and Melbourne and thirty-two wholesale clients, including a major national department store. The company has an online store, and a mobile pop-up store constructed from a recycled shipping container which only sells products online. The company has been operating for ten years.

All manufacturing processes apart from patternmaking and some sample production are outsourced to suppliers in Australia and overseas in countries such as; Vietnam, China, Japan and New Zealand.

Gorman has made a public commitment to environmental and social responsibility, including decent working conditions. They were one of the first fashion retailers in Australia to develop an organic range of garments. They have undertaken energy and waste audits of their Australian operations and their Vietnamese manufacturer, and have developed a Green Guide policy.

Understanding the clothing industry

The clothing and textile industry is a major contributor to the global economy, encompassing both small and large-scale operations worldwide. It is estimated to be worth US \$1 trillion, contribute to 7% of world exports and employ some 26 million people (Draper et al. 2007, p.3). According to the Council of Textile and Fashion Industries of Australia (TFIA), clothing and textile sales are worth A\$9 billion each year, and the industry accounts for ten per cent of manufacturing establishments in Australia (TFIA 2006).

Since the 1970s there has been a significant restructuring of the garment industry. Through the reduction of trade quotas and tariffs and the progressive opening of markets to imports, a global business model has emerged “based on companies outsourcing production through global supply chains that demand low-cost and flexible labour” (Raworth 2004, p.17). Australia has followed these global trends, with a significant rise in import share of textile clothing and footwear (TCF) products:

Imports as a proportion of domestic Australian output increased more than threefold between 1980 and 2006, from 28% to 91% (Green 2008).

The industry is now defined by high-speed production, just-in-time manufacturing and high-volume consumption. This trend, often described as “fast fashion” (see box), has resulted in both consumers and retailers changing their buying patterns: “Consumers are accustomed to increasing variety and lower prices” (Allwood et al. 2006, p.12). Where previously only summer and winter ranges were produced, now there is an expectation that retailers change their ranges every few weeks. Further, reduced tariffs

and quotas, a move to manufacturing in low-wage countries, and increasing downward pressure on environmental and working conditions have resulted in a dramatic reduction in the price of garments, and increased purchases:

In Britain, between 2001 and 2005, spending on women's clothing grew by 21% and that on men's by 14%. During the same time ... prices actually dropped by 14% in real terms, so sales by volume increased by 37%. Thus, over four years, the number of garments bought per person in the UK increased by over one third (Allwood et al. 2006, pp.11–12).

The fast fashion dilemma: Consumers now expect lower prices and rapid change of styles in store. The development of seamless production technologies to enable "just in time" production of complete garments, use of innovative technologies, such as computerised seamless knitting machines, Laser Sewing Machines, and CAD (Computer Aided Design) technology provides an opportunity to achieve "mass customisation" in the clothing industry, without increasing costs. These technological developments may lead to quicker and cheaper production as less labour intensive cutting and sewing is required. While significant environmental benefits may arise from more streamlined production, including reductions in fabric waste, and transportation, it does not address the broader sustainability issue of excessive consumption, due to more choice and cheaper garment costs, and high levels of post-consumer landfill waste. Similarly, the social cost of job losses in low-wage countries, due to increased mechanisation, is not considered. (Allwood et al. 2006)



Corporate responsibility in the Australian garment sector

Research undertaken by the Brotherhood of St Laurence confirmed that the Australian industry was lagging behind other countries in promoting responsible business practice. In particular, the uptake of voluntary and mandatory mechanisms to protect workers in international and local supply chains has been slow. Further, there was a lack of awareness of, and in some cases a lack of feeling of responsibility for, the difficult working conditions faced by many garment workers. Small and medium enterprises in particular identified challenges in implementing corporate social responsibility (CSR) strategies in their supply chains, citing issues of access to suppliers, small manufacturing bases and limited organisational capacity (Diviney & Lillywhite 2007).

Voluntary mechanisms: Voluntary mechanisms are useful in harnessing an organisation's commitment to responsible business practice, and providing guidance on minimum standards. The United Nations Global Compact and the OECD Guidelines for Multinational Enterprises are two global examples; and the Home workers Code of Practice is an Australian initiative in the garment sector. However, the voluntary aspect of application can result in ad hoc practices, and there is no effective enforcement. Best practice examples are multi-stakeholder initiatives. Voluntary mechanisms are not an alternative to compliance with national laws and international standards; however, they provide a useful framework and can assist incremental improvements in business practice.

While environmental aspects of garment production were outside the scope of the earlier BSL study, the present research explored numerous environmental challenges throughout the production process.

A heightened concern for the environment, the association of garment production with "sweatshop" working conditions in both Australia and overseas, and robust NGO campaigns have contributed to the small but growing consumer interest in ethical fashion. A small number of companies, such as Gorman, The Merino Company, and Unavailable, are responding, and have introduced environmental sustainability initiatives. They would still benefit from a more verifiable systematic approach involving disclosure of the social, environmental and economic impacts at all stages of production.

Corporate responsibility and "sustainability"

Throughout this report, the term sustainability is frequently used to embrace both environmentally and socially responsible business practice and ongoing business viability. Although environmental and labour rights concerns are sometimes presented as a threat to profitability, it can also be argued that companies which strive to protect both environment and workforce are well positioned to avoid costly accidents or disputes and to gain access to emerging markets, through their responsible business practice.

Benefits of a garment product roadmap

Undertaking a roadmap analysis is an excellent way to strengthen organisational capacity. Benefits include:

- risk management and mitigation of the social and environmental impacts
- improved governance through enhanced transparency, disclosure, and accountability
- brand protection, competitive advantage, and customer loyalty
- access to markets that require verifiable corporate responsibility
- access to new technologies, raw materials, and components
- access to finance, subsidies, grants, and incentives
- innovation in capacity building, design, and production through direct relationships with suppliers
- efficiencies in energy and water use, packaging, labour disputes, litigation, and stakeholder damage control
- strengthened social "licence to operate" through meaningful relationships with governments, business partners, local communities, trade unions, NGOs, subcontractors, and suppliers.

Developing tools for responsible business practice

A complementary part of the project, not detailed in this report, was to develop a number of tools to assist SMES to further understand the complexity of their business and the social and environmental impact of operations, and develop direct relationships with suppliers. This is fundamental in progressing responsible business practice through continuous improvement.

The Brotherhood of St Laurence has developed three tools for the St James Ethics Centre project:

1. *Strengthening supplier relationships agreement pro forma*
2. *Supplier information questionnaire*
3. *Fact sheet: Responsible business conduct: the international dimensions for small medium enterprises*

These tools draw on best practice of organisations such as The Body Shop, Oxfam UK, the Clean Clothes Campaign, the Australian Human Rights Commission and the Brotherhood of St Laurence. The tools are available on the St James Ethics Centre HUB of Responsible Business Practice: <<http://thehub.ethics.org.au>>.

Roadmap methodology

Research objective

The objective of this project was to assess how small and medium enterprises in the Australian textile and clothing sector could be assisted to improve their capacity to address sustainability issues.

Incremental progress towards responsible business practice can be gauged by an assessment of an enterprise's sustainability policy and business culture, and its sustainability practice, reporting and operation throughout all production stages.

The garment roadmap has been structured around a review of these two indicators—what an enterprise commits to doing and its supporting policy, and what actually occurs in day-to-day operation. Several broad research questions underpinned the project:

1. What are the key social and environmental sustainability issues at each production stage of an Australian textile and clothing supply chain?
2. Who do companies in Australian textile and clothing supply chains go to for information/resources/assistance in relation to running their business generally and finding out about sustainability specifically?
3. What are the potential and current drivers for companies to make changes to their business practices in relation to sustainability?
4. What are the current and future challenges for Australian textile and clothing companies when addressing sustainability issues in their business practice?
5. What tools/resources/programs do companies need to address sustainability issues in their business practice?
6. How can government, business organisations, and NGOs assist in providing an enabling environment for companies to address sustainability issues in their business practice?

How we went about it

To limit the task to a manageable size, we decided to select one small to medium size fashion label and to map the journey, from design concept to wardrobe, of two garments made from natural fibres. Consideration would also be given to selling, consumer use, waste and disposal, and freight.

Gorman was identified as a company with stated sustainability intentions and initiatives in place to improve the environmental impact of its operations. Two garments were

chosen: the **Merino Tee**, because it was in the Gorman organic collection and thought to be “made in Australia”, and the **Forest Dress**, because it was in the Gorman mainstream (non-organic) collection and “made in Vietnam”.

The product roadmap of the two garments is by no means an exhaustive social and environmental life cycle assessment. Data was collected via interviews with some of the suppliers and desk research exploring some of the key environmental and social issues at each step.

Substantial desk-based research identified a large body of literature, much of it highly technical or specialised; but there were relatively few sources which succinctly described all aspects of garment production, including the social and environmental impact, the pros and cons of textile choice, global dimensions and consumer trends. Among the most useful sources were works from the UK by Allwood et al. (2006), Draper et al. (2007), Fletcher (2008) and Madsen et al. (2007).

The authors also drew on their research in the garment industry (Diviney & Lillywhite (2007); their experience in managing a NoSweat Shop accredited fashion label, Hunter Gatherer; the outcomes of a 2008 event “Fashioning a sustainable garment industry”; and best practice initiatives of organisations such as Oxfam UK, The Body Shop, The Clean Clothes Campaign and of the UK Department of Environment, Food and Rural Affairs (DEFRA) and the New Zealand Business Council for Sustainable Development.

Collaboration with project partners Green Capital and NetBalance assisted in the development of a generic roadmap tool, and of common interview questions relating to environmental and social issues. The project methodology was designed to reflect the key phases of a garment roadmap.

Who we spoke to

Twelve in-depth interviews were conducted with key representatives of the Gorman supply chain, relevant industry associations and garment sustainability experts. These included the owner of Gorman and her staff, the textile agents and suppliers (The Merino Company and Levatex), the New Zealand textile mill (Levana) – via questionnaire, the Vietnam manufacturer (Un-available) – via telephone interview, and the environmental consultant used by Gorman (Tosh Enterprises).

China-based suppliers responsible for processing of raw materials and yarn manufacturing did not respond to email requests for interview. However, The Merino Company was able to provide some information on these two facilities regarding certification. Nor could the Japanese fabric supplier for the Forest Dress, or suppliers of all tags and labels in China and Vietnam be interviewed. More significant was the

unwillingness to participate of the Melbourne-based manufacturer of Merino Tee and the textile agent for Forest Dress, despite the best efforts of Gorman¹.

An in-depth interview was conducted with the Council of Textile and Fashion Industries of Australia. Staff of the Technical Textile Nonwoven Association, the NoSweat shop label, the Fairtrade Association Australia and New Zealand and Oxfam Australia provided valuable input. A GOTS representative in the Netherlands provided information on the GOTS accreditation.

¹ At Gorman's request, these companies are not named in the report.

Overview of the garment supply chain

The clothing industry roadmap

A typical roadmap includes consideration of the design, fibre cultivation, production, selling, consumption and disposal phases. These are the building blocks; however, each roadmap will vary in complexity according to the size of the enterprise, industry sector, the production process, and the global dimensions. Figure 1 shows the roadmap of a natural fibre garment.

Figure 1 Roadmap of a natural fibre garment



The roadmap for a natural fibre garment

- **Design and production management** – garment and textile design, patternmaking and sampling
- **Wool and cotton cultivation** – cotton and wool growing and harvesting
- **Processing raw materials** – ginning, scouring, carding and combing
- **Yarn manufacturing** – spinning
- **Knitting and weaving** – textile production
- **Fabric processing** – pre-treatment, dyeing, printing and finishing
- **Cut, make and trim** – garment cutting, sewing and application of trims
- **Wholesaling and retailing** – retail, wholesale and on-line
- **Consumer use** – wearability, washing, drying and ironing
- **Textile waste and disposal** – pre and post consumer waste
- **Freight** – road, rail, sea and air-freight

Key sustainability issues in the garment sector

This report identifies key social and environmental issues and impacts of the clothing industry. The Gorman roadmap of the two chosen natural fibre products, the **Merino Tee** and the **Forest Dress**, provides through case studies an overview of these issues, sustainability initiatives throughout the Gorman supply chain, and some identified gaps in sustainability policy and practice. The impacts of a garment made from synthetic fibres are not directly addressed.

The broad research questions provided a framework to assess not only the social and environmental issues, but also current and future sustainability challenges, industry drivers, and the role of government in fostering sustainable business practice.

Social and environmental issues

Environmental impact

Garment production is characterised by a high consumption of water, energy, chemicals and pesticides. It involves a long and complex sequence of processes, and generates a significant amount of waste. Inefficient production results in substantial wastage and damage to the environment.

The excessive water and energy use in the cultivation and processing of raw materials, textile production, and in the washing and care of garments, leaves a large environmental footprint. Toxic chemical and pesticide use, land and water degradation, effluent discharge and textile waste disposal are among the common environmental impacts. Other issues such as air emissions, notably Volatile Organic Compounds (VOCs), and excessive noise, dust and fumes impact not only on the environment, but also on the health of workers (Moussa 2009).

Social impact

Social concerns about the working conditions of low-paid garment workers have been a major and historical driver of corporate responsibility. Campaigns led by the "anti-sweatshop" movement have had some success. Nonetheless, the complexity of global production networks, particularly through outsourcing and sub-contracting arrangements with second and third tier suppliers, licensing agreements, "arms-length" relationships and use of intermediaries, means that challenges remain in responsible supply chain management. The clustering of garment production in developing countries frequently results in poor enforcement of national laws, international standards and company codes.

In many countries, the garment industry is characterised by long hours, low wages, and excessive overtime. Significant occupational health and safety issues include exposure to harmful pesticides, chemicals and toxic fumes, respiratory problems and hearing loss from noise and dust pollutants. Repetitive strain injury and industrial accidents from unsafe equipment, lack of protective clothing, fatigue, and pressure to work at speed to meet production targets are common. The use of child labour in some cotton growing and garment processing countries is well documented. The precarious nature of employment, low skill base of many workers and workplace sexual harassment contribute to exploitative conditions. In China, which produces more than a quarter of the world's clothing and textiles (Allwood et al. 2006) workers are restricted from joining unions and collectively bargaining outside the structures of the only recognised trade union, the All-China Federation of Trade Unions. This also makes it difficult to raise grievances and have disputes fairly settled. Similar issues are found in many garment producing countries.

Organisations such as the ILO recognise the social dimension of globalisation and promote the Decent Work Agenda (see box) as a way to progress sustainable development and social justice.

Decent Work Agenda

The ILO Decent Work Agenda's strategic objectives relate to employment, social protection, social dialogue, and rights at work. These objectives hold for all workers, women and men, in both formal and informal economies; in wage employment or working on their own; in the fields, factories and offices; in their home or in the community.

(ILO 2008)

Poor working conditions in the garment sector are not confined to low-wage countries. In Australia, the use of home-based outworkers in the cut make and trim stage of production is common. These are among the most marginalised and precarious workers. Over the past decade, state and federal inquiries have consistently found that

outworkers receive payment and conditions significantly below their award and statutory entitlements (see for example, Productivity Commission 2003; Industry Commission 1997). Brotherhood research in 2007 confirmed that conditions had worsened in the last five years. Some outworkers reported they were paid as little as \$2.50 for a detailed shirt which took one hour to sew, while others advised they were paid between \$2 and \$3 an hour (Diviney & Lillywhite 2007).

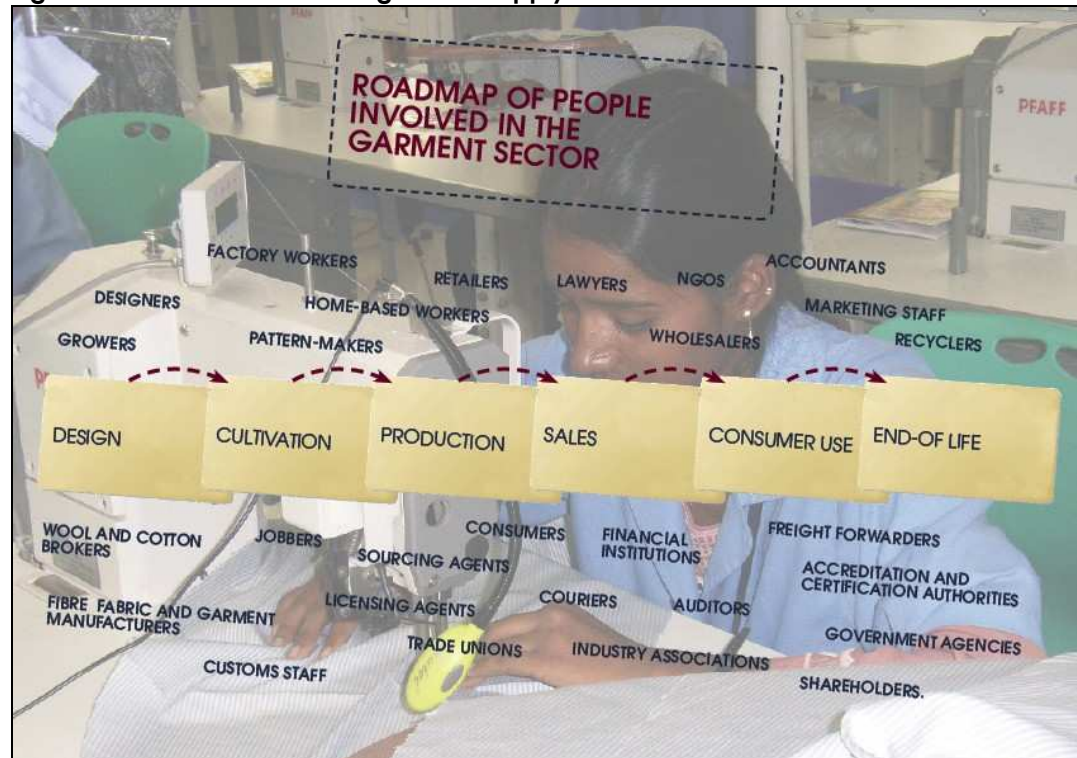
Current and future sustainability challenges

For the garment industry to achieve more responsible business practices, the key sustainability challenges include:

1. **Costs of sustainable production** – Current limited production volumes for SMEs do not support affordable sustainable fashion.
2. **Managing relationships** – Increased outsourcing, subcontracting and use of intermediaries make it harder to uphold responsible business practices throughout the supply chain.
3. **Consumer and fashion trends** – The increasing number of fashion items (on-trend and low-cost) that are purchased and soon discarded adds to the industry's environmental impact.
4. **Working conditions** – Poor working conditions exist throughout the supply chain, in fibre cultivation, outwork in Australia and overseas, and factories in low-wage countries. Workers' health and livelihoods may be at risk.
5. **Energy and water consumption** – The production of raw materials, yarn, textiles, and garments are water and energy intensive.
6. **Chemical and pesticide use** – Intensive use of chemicals in the growing of cotton and wool and the production and processing of yarn and textiles impacts on the health of workers and consumers.
7. **Environmental degradation** – The environment may be damaged by land clearing, over-grazing, and poor farming practices in fibre cultivation; and contaminated by pest and disease controls used in farming and by untreated effluents and air pollution from the textile production processes.
8. **Animal welfare** – Animals may be subject to inhumane treatment in farming practices such as mulesing.
9. **Washing and care** – Care of garments requires considerable energy and water, and may release washing detergent phosphates into local waterways, or may involve toxic chemicals such as those used in dry-cleaning.
10. **End of life management and textile waste** – Clothing and textile waste (including packaging) may end up in landfill or be dumped in developing economies.
11. **Greenhouse gases** – Methane and other gases are emitted by animal flatulence, production and agricultural processes, transport, and textile decomposition in landfill.

12. **Regulatory frameworks, standards and industry certification** – Regulations and voluntary initiatives are often poorly monitored, but will become increasingly important to accessing markets and demonstrating responsible production to discerning consumers.

Figure 2 Who's involved in the garment supply chain?



The garment supply chain involves vast numbers of SMEs through complex outsourcing and sub-contracting arrangements. As Figure 2 shows, those directly involved in production include: designers, growers, wool and cotton brokers, fibre, fabric and garment manufacturers, factory and home-based workers, pattern-makers, “jobbers”, sourcing and licensing agents. Then there are the wholesalers, retailers, marketing staff, consumers and recyclers. And there are also the transport logistics experts, freight forwarders, export and customs staff, not to mention “blokes on motorbikes” sourcing small trims from local markets in Vietnam.

While not directly part of the supply chain, numerous government agencies and departments are involved, as well as accreditation and certification authorities, auditors, lawyers, accountants, financial institutions, industry associations and trade unions. NGOs and shareholders are becoming increasingly influential stakeholders.

These global dimensions of the garment supply chain give some insight into the challenge of understanding all business operations and relationships, and managing them responsibly. It also explains why companies such as The Merino Company have become more vertically integrated, from "sheep-to-shelf", and Un-available in Vietnam will increasingly manage in-house processes such as printing and dyeing, rather than outsource. This is however, an option most SMEs do not have.

Case study: Gorman

Who is Gorman?

Gorman Industries is a 10-year-old Australian fashion retailer and wholesaler with eight retail outlets in Sydney and Melbourne and thirty-two wholesale clients, including a national department store. The company has an online store, and a mobile pop-up store constructed from a recycled shipping container which promotes online sales.

All manufacturing processes apart from patternmaking and the production of some samples are outsourced to suppliers in Australia and overseas in Vietnam, China, Japan and New Zealand (see Figure 3). The company operates from eleven sites including, a head office, a warehouse, and the eight retail outlets. The organisation has sixty-five staff with the majority working in sales (fifty-three) and the remainder working in design and production (four), management and administration (six) warehouse and despatch (one) and marketing (one). In 2008 the company produced approximately 70,000 garments. Of 160 styles in the current range, twenty-five are made from organic materials including merino wool and cotton.

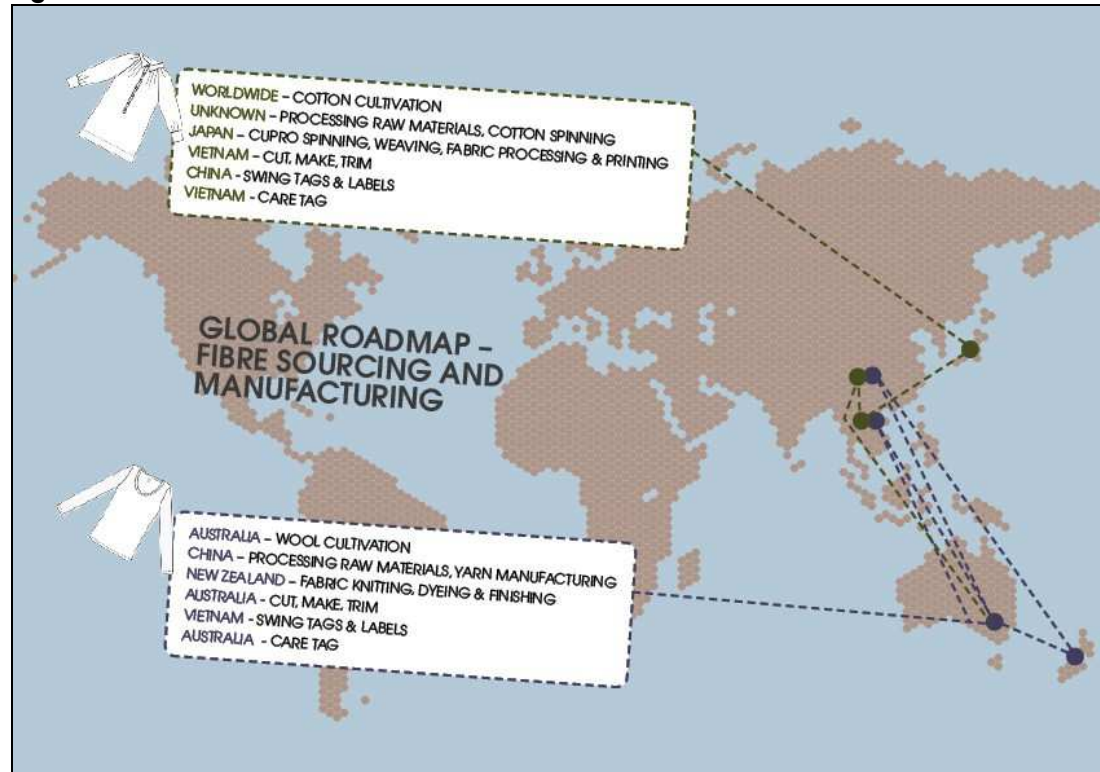
Gorman sustainability policy and commitments

Through its website, in store promotions, marketing and the media, Gorman has made a public commitment to environmental and social responsibility. Already choosing to use natural fibres where possible, it was one of the first fashion retailers in Australia to develop an organic range. In 2006 Gorman hired an environmental consultant for nine months to do an energy and waste audit of its Australian operations and their Vietnamese manufacturer. The consultant developed a *Gorman Green guide* to help inform sustainable decision making. It focuses on environmental issues, but does consider "social standards and practices" described as a "fair wage and fair working conditions" (meal breaks, toilet breaks, sick leave, holiday leave etc).

Though Gorman does not produce a sustainability report, the website lists numerous environmental initiatives which relate to energy use, recycling, incentives for improving staff and customer environmental practice, raising awareness about environmental issues; donations to environmental organisations, using less and more sustainable packaging, using more sustainable textiles and developing environmentally sound retail outlets. Lisa Gorman, the owner of Gorman Industries, has also made public commitments in the media relating to sustainability:

We should know where and from what raw materials our clothes are made, who made them and in what conditions they worked (Breen-Burns 2009).

Figure 3 Global dimensions of the Forest Dress and the Merino Tee



The Gorman roadmap: Merino Tee and Forest Dress

The following tables summarise the complexity and global dimension of the Gorman supply chain for just two products, the Merino Tee and the Forest Dress.

Table 1 Merino Tee roadmap at a glance – from sheep to shelf

Production stages	Gorman practice
Design and production management	<ul style="list-style-type: none"> The Merino Tee is in the Gorman organic collection. The design and patternmaking were done in-house. Levatex, the agent for Levana Textiles, and parent company The Merino Company, assisted Gorman at the design stage to develop the organic Merino range. First samples were made in-house and the “salesman’s samples” were outsourced to a local (Melbourne) manufacturer.

Wool cultivation	<ul style="list-style-type: none"> The Merino Company offers customers traceability of product from “sheep to shelf”. The Australian certified organic merino wool used for the Merino Tee could be traced by batch number to nine wool growers: three in Victoria, two in Western Australia, two in New South Wales and two in Queensland. This was managed by The Merino Company and a wool broker.
Processing raw material	<ul style="list-style-type: none"> The wool was sea-freighted to China for scouring, carding and combing at the Pindar factory in Guangzhou. This process is GOTS accredited.
Yarn manufacturing	<ul style="list-style-type: none"> The finished product (wool top) was transported by truck to the China Textile Resource Corporation (CTRC), also in Guangzhou, for spinning into yarn.
Knitting and weaving	<ul style="list-style-type: none"> The yarn was sea-freighted to New Zealand for knitting and dyeing at Levana Textiles, owned by The Merino Company. Knitted fabric is packaged on recycled cardboard cylinders and plastic wrapped. Fabric was air-freighted to the Gorman warehouse in Melbourne. This was managed by Levatex.
Fabric processing	<ul style="list-style-type: none"> The merino dyes used by Levana Textiles are Oeko-Tex and GOTS approved, and endorsed by the Institute for Market Ecology.
Cut, make and trim	<ul style="list-style-type: none"> Fabric was couriered to the Melbourne manufacturer, for garment cut, make and trim process. Melbourne manufacturer affixed the care label, swing tag and Gorman label. These labels were all sourced in Vietnam by Gorman’s Vietnam manufacturer, Un-available, from a small label enterprise which has not been audited. The accompanying safety pin was purchased at a “small Vietnam market”. The unbleached cotton tie to affix labels was sourced from Wattle, a supplier in China, Melbourne manufacturer pressed the garment in-house and then flat packed it in cardboard boxes (no plastic) before sending by courier to the Gorman warehouse.
Retailing and wholesaling	<ul style="list-style-type: none"> Garments were sent by courier and airfreight to the eight retail outlets and thirty-two wholesale clients.

Table 2 Forest Dress roadmap at a glance– from cotton field to customer

Production stages	Gorman practice
Design and production management	<ul style="list-style-type: none"> • The Forest Dress is in the Gorman mainstream collection • The design and patternmaking was done in-house. • First samples were made in-house and the “salesman’s samples” were outsourced to Un-available, the manufacturer in Vietnam used by Gorman.
Cotton cultivation	<ul style="list-style-type: none"> • The raw material was a Cupro/cotton mix. The country source of the cotton is unknown, because cotton is sold on the commodities market.
Processing raw material	<ul style="list-style-type: none"> • Bernberg Cupro was used in the Forest Dress, which is produced at the Asahi Kasei Nobeoka factory in Japan. It is Oeko Tex Standard 100 certified.
Yarn manufacturing	<ul style="list-style-type: none"> • Country and details unknown
Knitting and weaving	<ul style="list-style-type: none"> • Country and details unknown
Fabric processing	<ul style="list-style-type: none"> • The fabric was printed in Japan using a digital process. • The sourcing and printing of the fabric was handled by an agent in Australia, and an agent in Japan,.
Cut, make and trim	<ul style="list-style-type: none"> • Fabric was airfreighted from Japan to the Vietnamese manufacturer, Un-available, for garment cut, make and trim process. Un-available is seeking SA8000 certification and has been audited by Levi's and ICON's auditors. Gorman environmental consultant, Tosh Enterprises conducted an energy and waste audit at the factory. • The trim (plastic button) was sourced from Wattle, a supplier in China, and air freighted to Vietnam. • The finished Forest Dress was transported by truck to a nearby Taiwanese-owned factory, Lucreatia, to be washed. This factory has been audited by several global brands such as Gap, Levis and Sears—all with well-established corporate responsibility programs. • The Gorman label, swing tag and unbleached cotton tie to affix swing tags were sourced from Wattle in China, and air freighted to Vietnam to be affixed by Un-available. • The care label was sourced from a small factory in Vietnam, Tinh Nghip, which has not been audited. The Vietnam manufacturer, Un-available, used a local agent to source, threads, pins and small items from the market. These were transported by motorbike. • The completed Forest Dress was then pressed, packed in a plastic-lined box, and air-freighted to the Gorman warehouse in Melbourne.
Retailing and wholesaling	<ul style="list-style-type: none"> • Garments were sent by courier and airfreight to the eight retail outlets and thirty-two wholesale clients.

Unpicking the garment roadmap

The Gorman roadmap provides an opportunity to understand the social and environmental impact at each production stage. Following is a synopsis of the key sustainability issues, some initiatives to improve responsible business practice and a snapshot of Gorman practice where known. Reference is made to a number of certification schemes (see Appendix for descriptions).

Design and production management

Understanding the issues

The design and production management phase of the roadmap is perhaps the most critical stage to influence sustainability practices. While there is no such thing as a totally sustainable garment, careful decisions throughout the life cycle of the garment can make a difference.

To produce sustainable garments requires creative and innovative design and production practices. The business owner, designer, and production manager need to address the sustainability impacts right from the outset, and incorporate into their design brief. This will inform the design features, type, materials and trims of garments, processes used, the contractors and location chosen, the product information provided to consumers, washing and care requirements, and the methods used to market the product. The design phase should also include consideration of end-of-life impact.

Partnering with suppliers who share an interest in responsible business practice will contribute to success through incremental improvements:

Gorman already had a strong relationship with us ... They were our first customer to ask for organic merino and this led to innovation and understanding the environmental issues (Spokesperson, Levatex).

The product roadmap is a tool that can be used to map the supply chain.

Responsible business practice in design and production

- Understand the entire garment supply chain, what processes are used, who's involved and where.
- Design garments for longevity, durability and versatility. Incorporate design principles that allow the garment to be easily updated, repaired or re-purposed.
- Understand the intended use. For example, design garments for everyday wear from durable fabric that needs minimal care, i.e. can be washed in cold water, dries quickly and does not require ironing or dry-cleaning.
- Research the most sustainable textile option that will meet product requirements.
- Incorporate recycled materials where possible
- Find out about environmental and social regulation in the countries where manufacturing occurs and whether compliance issues exist.
- Source from countries that allow freedom of association and independent unions.
- Use the tools developed for this project (*Strengthening supplier relationships* pro forma agreement, *Supplier information* questionnaire, and fact sheet, *The international dimensions of responsible business conduct for small medium enterprises*), to frame good questions and constructive relationships.
- Choose contractors with procedures which reduce production and management practices harmful to workers and the environment.
- Find out whether an environmental audit has been done on supplier facilities and request a copy of the findings.
- Source products or facilities from businesses with credible certification or accreditation
- Slow down the fashion cycle, ensuring production lead times do not place pressures on suppliers that result in poor environmental and social practices.
- Develop long-term direct relationships with suppliers and collaborate on innovative, sustainable and efficient production.

Gorman practice: Merino Tee and Forest Dress

Gorman's *Green guide* has a production section which addresses issues such as transport, environmental and social standards, and the sourcing of products that are more durable and easily recycled.

The Merino Tee was designed with sustainability in mind. This included the use of an organic textile, environmentally friendly dyes, reduced transport, and a simple design, for long-term use and to reduce production costs, thereby offsetting the price of an organic textile. At the outset, textile supplier Levatex was unable to provide an "off-the-shelf" organic knit product that met Gorman's specifications of a lightweight, ribbed fabric which would wear and wash well. As a result, Gorman, Levatex, and The Merino Company worked together to design and source a product that met design specifications and sustainability requirements. The Merino Company and Levatex were chosen for their capacity to deliver an affordable, quality, certified organic merino product, which was traceable from "sheep to shelf". Efforts to reduce transportation were not fully realised. While the wool sourcing and cut, make and trim occurred in Australia, Gorman was unaware the yarn and fabric production took place in China and New Zealand.

The Forest dress, was a less sustainable garment. Designed as to be "on trend", it was not part of the organic range. However, sustainability considerations were addressed at the design stage. Gorman chose Cupro/cotton for its renewability and biodegradability. Digital printing was chosen as a more environmentally friendly process. The plastic buttons chosen were not the most sustainable choice; however other buttons in the range are made from renewable resources such as cotton, wood and coconut husk.

No design decisions were made to address social sustainability issues, for either garment.

Wool and cotton cultivation

Understanding the issues

Wool and cotton are both natural fibres, often promoted as environmentally sound textile choices as they are biodegradable and renewable resources. However, their environmental impacts still need to be considered.

Merino wool

Merino sheep are regarded as having the finest and softest wool and make up over 80 per cent of Australia's 100 million sheep (Australian Wool Innovation Ltd 2009).

Environmental impacts related to wool growing that need to be considered include:

- the use on sheep of pesticides, hormones and antibiotics, many of which are water-soluble and can contaminate groundwater, posing risks to animal and human health (Organic Trade Association 2009).
- degradation of soil, vegetation and habitats from grazing (Beeton et al. 2006).
- methane emissions from sheep flatulence. Australia's per capita agricultural emissions are among the world's highest, due to livestock flatulence (Garnaut 2008).
- animal welfare considerations, including treatment during breeding, rearing and transportation. Mulesing (see box) has had the most significant impact on the Australian wool industry.

Mulesing

Mulesing is the removal of strips of wool-bearing skin from the buttocks of a sheep. It is a common practice in Australia to reduce flystrike, which can be fatal for merino sheep if not treated. The National Farmers' Federation (2009) believes mulesing remains the most effective way to eliminate the risk of flystrike; but the animal rights organisation PETA opposes it as a cruel practice, with more humane alternatives available (PETA 2009). Breeding flystrike-resistant sheep in sufficient numbers will take time and money. Many European and American companies, including Nike, Liz Claiborne, Abercrombie and Finch, and Marks & Spencer, have boycotted Australian merino wool because of the practice, impacting negatively on sales (AAP 2009). The Australian wool industry has committed to a ban on mulesing by 2010 (National Farmers' Federation 2009).



Photo courtesy of The Merino Company

Cotton

Cotton is the largest single fibre in production, with 24 million tonnes produced in 2004. It is grown in more than sixty-five countries, mostly classified as developing countries (Alastair Usher Ergon Associates Ltd 2006). Tracing the origins of conventional (non-organic) cotton is difficult, because it is sold on the commodity market. Like wool, cotton is often promoted as a sustainable fabric choice because it is a biodegradable renewable resource; however there are sustainability issues throughout the cotton supply chain.

Chemical and pesticide use

Commercial cotton production is typically chemical intensive. In total, cotton accounts for sixteen per cent of global insecticide applications, far more than any other crop (Pesticide Action Network 2006). In OECD cotton producing countries, such as Australia and the US, there are more stringent environmental standards and health and safety regulations (Esty et al. 2008). The negative impacts of chemical exposure are greater in developing countries where training and safety equipment are less likely to be available (Mancini et al. 2005). Cotton farmers may experience acute pesticide poisoning, which in extreme cases can result in death (EJF 2007b). A study in India found that the average cotton farmer experienced three instances of pesticide poisoning over a single season (Mancini et al. 2005).

Chemicals and pesticides when not managed correctly can also have a detrimental effect on soil, water and air quality and the natural environment, with negative impacts on human health and biodiversity.

Water consumption

Cotton farming is also water-intensive, especially with poor management. Cultivation is the most significant stage for water consumption in the lifecycle of a cotton garment (Madsen et al. 2007). Over half of the world's cotton fields are irrigated, requiring up to 950 litres per square meter. This adds up to 10,000–17,000 litres of water just to produce one kilogram of cotton lint (EJF 2009). In Central Asia, the Aral Sea, once the world's fourth largest inland body of water, has been reduced to fifteen per cent of its former size due to poorly managed cotton farming (EJF 2005).

Social and labour issues

Cotton is grown in diverse environments from large-scale cotton farms such as those in Brazil, USA, Australia and Uzbekistan to small family holdings in South Asia and West Africa. However, 99% of cotton farmers live in developing countries, most operating small farms, producing 75% of the world's cotton (EJF 2005). Due to this diversity, the related social issues include both labour rights and development issues.

Protectionist trade policies such as cotton subsidies in the US, and to a lesser extent the EU, are having a detrimental impact on global cotton prices and especially on small farmers in developing countries. Reports from Africa and India highlight rising poverty among cotton farmers in countries heavily reliant on cotton production. According to a recent Oxfam report, eliminating US cotton subsidies would lift the incomes of 10 million Africans by eight to twenty per cent (Alston et al. 2007).

Cotton production – labour rights and social impact

Key considerations for cotton grown in developing countries include:

1. **Health and safety:** Workers are exposed to harmful toxins, primarily because they are not provided with—or do not wear—adequate protective equipment while spraying chemical pesticides and herbicides. A lack of education and training exacerbates the problem.
 2. **Worker and producer organisation:** Poor farmers lack resources to develop collective approaches that can aid in addressing social impacts. For example, in Brazil many workers are unregistered and therefore fall outside union structures and do not benefit from either statutory or collectively agreed protections.
 3. **Gender Impact:** Women and girls in West Africa and South Asia provide substantial labour in cotton cultivation, frequently as unpaid “family labour” or low-paid day-labourers. Women face significant difficulties in gaining access to credit facilities, due principally to men’s ownership of collateral assets.
 4. **Child labour:** in West Africa, South Asia and Uzbekistan, children contribute labour, primarily in cotton picking. This has a detrimental impact on their education and health. In Uzbekistan, children as young as seven are drafted as cheap labour during the cotton harvest. In some areas, schools are closed and children are forced to pick cotton. They may earn as little as 3 cents a kilo. Child labour is also reported in ginning facilities in Pakistan.
 5. **Forced labour / labour coercion:** This is a concern in cotton plantations in Brazil and Uzbekistan, and—in the form of debt bondage—in Pakistan and India.
 6. **Credit and debt finance:** Cotton farmers become unable to repay their debts, due to high input prices, crop failure, delayed or non payment from buyers, unaffordable interest rates, and land and water degradation from misuse of new farming methods requiring increased inputs.
- (Alastair Usher Ergon Associates Ltd 2006; EJF 2005, 2007)

Organic and Fairtrade cotton

Organic cotton addresses many of the problems identified in conventional cotton production. A switch from conventional to organic cotton eliminates the use of synthetic fertilisers, pesticides, growth regulators and defoliant. Fairtrade certification

guarantees farmers a fair price for their cotton. For example, Fairtrade cotton farmers in Mali receive a 70% higher price for their crop than other cotton farmers, and in Senegal a 40% higher price (FLO 2009). The Fairtrade certification program also addresses some working conditions, such as the handling of hazardous chemicals,

Choosing organic does not, overcome the impact of intensive water and energy use in both cultivation and production. When sourcing organic cotton it is important to ensure that farms are situated in countries that are suited to cotton production with a high rainfall so groundwater is not relied upon for irrigation.

The increasing consumer demand for organic cotton has other consequences. Organic farming produces lower yields, which may result in further environmental impact if more land is cleared or land previously used for food crops is used to grow organic cotton (Madsen et al. 2007).

One of the key issues for the garment sector is the premium price of both organic and Fairtrade cotton, which significantly increases the production costs of garments, for a relatively small market share. Government subsidies to offset the costs of developing organic garment collections would assist SMEs and contribute to economy of scale efficiency.

Responsible business practice in fibre sourcing

- Source fibres with respected social or environmental certification such as GOTS and Australian Certified Organic and Fairtrade, where possible.
- Source wool from farms that have a non-mulesing policy
- Source cotton from regions with rainfall suited to cotton cultivation.
- Explore alternative fibres such as hemp that may reduce environmental impact.
- Take into account the environmental and social impacts of the fibre throughout the garment's entire roadmap.

Gorman practice: fibre sourcing

Merino Tee

Gorman made a conscious decision to use certified organic wool for the Merino Tee to reduce environmental impacts. The Gorman wool batch can be traced to nine Australian Certified Organic farms. This certification ensures that feed and forage is from organic sources, that synthetic hormones, pesticides and genetic engineering are not used, that livestock producers do not over-graze their pastures, and that sheep are not dipped in insecticides to control external parasites. Certification does not address energy and water consumption.

The Merino Tee wool came from farms that practise mulesing as well as others that have phased it out. Gorman did not realise that non-mulesed wool could be included in the specifications to The Merino Company for their products. As a result of this roadmap, non-mulesed wool will be included in their future product specifications.

Forest Dress

The Forest Dress is made from conventional cotton, making it impossible to discover the social and environmental conditions of cultivation because it is purchased on the commodity market. Although this product is not organic, 40% of Gorman's range is made from organic materials. When interviewed, Gorman staff did not identify the social impacts of conventional cotton farming. They also indicated that it would not be commercially viable to produce a full organic range, as retail prices would significantly increase.

Processing raw materials and yarn manufacturing

Understanding the issues

Processing raw materials for a natural fibre garment can include fibre cleaning and the regeneration of cellulose fibres. The Gorman natural fibre roadmap processes include cleaning, scouring, carding and combing and producing the regenerated cellulose fibre, Cupro. There is a growing trend to relocate all aspects of yarn processing and fabric production to developing countries to take advantage of factors such as cheap labour and less rigorous environmental standards, economies of scale, access to technology, and market access.

Cleaning wool and cotton

Wool scouring is a process in which greasy wool is washed in hot water and detergent to remove the non-wool contaminants and then dried. This consumes large quantities of water and energy and can result in undesirable emissions with strong odours into the atmosphere. Untreated effluent can be highly polluting due to contaminants including wool wax, dirt and suint (water-soluble material), as well as pesticide residues. The use

of detergents also contributes to water quality problems. The organic effluent load from a typical Australian wool-scouring plant is approximately equivalent to the sewage from a town of 50,000 people (Christoe 2003). In Australia, the wool scouring industry is under increasing regulatory and community pressure to minimise its environmental impact. As a result, and to take advantage of cheaper labour, Australian wool is often shipped offshore to scouring facilities in China and India, where environmental and labour regulations are less rigorous and poorly enforced, so sludge and waste water are less likely to be recovered or recycled (Curtin University of Technology 2006; Christoe 2003). Poor working conditions include high temperatures and slippery floors (Christoe 2003).

Raw cotton is a cleaner raw fibre than wool and initial cleaning processes are mainly dry (Direction Générale de la Prévention des Risques n.d.). The cotton is passed through machines that open and separate the cotton seeds from the seed pods (ginning) and impurities are removed. The process generates significant cotton dust and noise (Saadat 2006) (see box), and in Pakistan it is reported that children are employed in ginning factories (EJF 2007a).

Ginning machine rollers can be made from chrome composite and carcinogenic chromium particles are carried into the lint, affecting workers and polluting the yarn. Rubber rollers are an alternative (Iyer & Mastorakis 2006).

Dust noise and fumes considerations

Workers processing wool and cotton (carding, ginning, combing, spinning, knitting and weaving) are frequently subject to serious health hazards as a result of unprotected exposure to high levels of dust, noise and fumes. Associated respiratory illnesses, lung disease, and hearing loss can take years to emerge (IFC 2007). Workers are rarely, if ever, compensated.

Carding and combing

Carding is a process in yarn production where wool and cotton are separated into individual fibres, removing most of the remaining impurities. When very fine yarns are desired, carding is followed by combing, a process that removes short fibres, leaving a sliver composed entirely of long fibres. The carded and combed sliver is then spun. These are dry processes, so the main sustainability issues are associated with energy used to run the machinery, and the dust particles that are released (Direction Générale de la Prévention des Risques n.d.).



Photo courtesy of The Merino Company

Spinning

Spinning is the process by which natural fibres or synthetic cellulose materials are turned into yarn. It is highly automated, energy intensive and noisy. To assist production, spinning lubricants and conditioning agents are applied to the fibres. These preparations have environmental impacts for the subsequent finishing steps, because they need to be completely removed before dyeing. They can be found in air emissions or in the waste water produced at the fabric processing stage, giving rise to air pollution and effluent with a high organic load (Générale de la Prévention des Risques n.d.). Yarn spinning is increasingly outsourced to low-wage countries, such as China, where poor labour practices are common.



Photo courtesy of The Merino Company

Producing regenerated cellulose fibres – Cupro/cotton

For the Forest Dress, Gorman has used Cupro/cotton. Cupro (Cuprammonium) is a regenerated cellulose fibre made from either wood pulp or cotton linter (the short fibres that remain when cotton lint is removed from cotton seeds). The textile is produced by mixing copper sulphate with water and ammonia to dissolve the fibres. The solution is then filtered, aerated and spun.

Regenerated cellulose fibres are considered a better environmental choice than synthetic fibres such as polyester and nylon, which are petroleum-based and non-renewable and can take up to forty years to bio-degrade (Draper et al. 2007). However the production of regenerated fibres is energy intensive (Allwood et al. 2006), and some commentators question whether the process to turn plant matter into cellulose is itself sustainable in terms of energy use (Draper et al. 2007).

Responsible business practice in processing and yarn manufacturing

- Ask whether wet processing facilities have contaminant recovery and waste water systems, processes for effluent recycling and ensuring air quality.
- Find out if suppliers' occupational health and safety policies address issues related to dust, noise and fumes, and whether the factory has adequate ventilation and workers wear protective clothing.
- Find out whether the factory has processes for reducing and recycling, for example to use the heat generated and water used in one process for other processes in the factory.

Gorman practice: processing and yarn manufacturing

Merino Tee

The Merino Company outsources wool scouring, topmaking and spinning to GOTS-accredited facilities in China. The GOTS standard specifies prohibited substances and restricted inputs in all production stages. For example, paraffin oils and substances derived from natural raw materials are the only spinning oils allowed, and ammonia and chlorine are prohibited in wool scouring.

GOTS accredited facilities must have procedures to minimise and monitor waste and discharges, and a process to follow in case of waste or pollution incidents. They must produce documentation that shows staff are trained in water and energy conservation, and must also keep records on chemical use and energy and water consumption. Facilities involved in wet processes must have access to a wastewater treatment plant. GOTS does not, however, set targets or requirements for water or sludge recycling or for energy savings.

GOTS accreditation has a list of social clauses based on the ILO conventions. Since the GOTS International Working Group does not have any member organisations with expertise in social compliance, it relies solely on audits to decide on certification, with some risk that problems will be overlooked. The standard requires freedom of association and the right to collectively bargain; but this conflicts with China's national labour law.

Forest Dress

Minimal information was available on the environmental and social impact of fibre processing and yarn spinning for the Forest Dress, other than confirmation that Cupro/cotton is both renewable and bio-degradable, and has Oeko-Tex accreditation. As Cupro is a patented product there is very little independent data on it. The Melbourne-based textile agent declined to be interviewed but did confirm that the Japanese company, Asahi Kasei, one of only two Cupro producers in the world, produced the yarn and textile. Asahi Kasei, one of Japan's largest multinational companies, does have sustainability policies. It produces an annual sustainability report using the Global Reporting Initiative, has won national environmental awards in Japan, and is a member of the United Nations Global Compact (Asahi Kasei 2009). The company website states that Cupro is produced only at Asahi Kasei's Nobeoka factory in Kyushu, Japan (Asahi Kasei 2009).

Knitting and weaving

Understanding the issues

Knitting and weaving are predominantly mechanical processes. Key sustainability issues include energy use, solid waste (such as off-cuts and packaging), and workers' exposure to dust and noise if protective clothing is not worn. For example, average

sound levels range between 92 and 96 dB in weaving factories, with peak levels up to 136 dB. Exposure for more than 8 hours a day to sound in excess of 85 dB is potentially hazardous (Moussa 2009).

Another significant environmental impact at this stage is the application of oils in knitting, and sizing agents in weaving, to protect the fibres during processing. These coatings and lubricants, those used in yarn production, are slow to biodegrade, and can create hazardous effluents, if left untreated when washed from the textile before dyeing (Direction Générale de la Prévention des Risques n.d.). There are however, more sustainable alternatives, which include reclaimable sizing agents (polyvinyl alcohol PVA) which can cut pollution by 94%. However, these are more expensive and there is little financial incentive to use them, as the weaving facilities and fabric processing facilities are often owned by different companies and located in different countries. Weaving facilities are reticent to invest in PVA when downstream producers enjoy the benefits (Fletcher 2008).



Photo courtesy of The Merino Company

Responsible business practice in knitting and weaving

- Identify vertically integrated facilities so that more environmentally friendly processes and materials such as PVA can be utilised.
- Ensure facilities have policies and procedures that deal with textile and packaging waste.

- Request water-soluble and biodegradable lubricants as substitutes for mineral knitting oils, sizing and conditioning agents.
- Ask whether factories are using renewable energy, or have a plan to reduce their energy consumption.

Gorman practice: knitting and weaving

Merino Tee

The knitting of the Merino rib fabric for the Merino Tee is arranged through Levatex, a Melbourne-based agent, and done at Levana Textiles in New Zealand, owned by The Merino Company. According to Levana, its factories comply with New Zealand Regional Authority requirements for air emissions, waste, and hazardous chemicals storage and use; its machinery is regularly maintained and monitored to keep airways clean and efficient; and filters minimize energy consumption. Levana is not GOTS-certified but meets GOTS standards for knitting, ensuring that organic and conventional fibres are not mixed, and that organic fibres are not contaminated by contact with prohibited substances.

Levana's sustainability initiatives include research into new yarns from corn, coconut, and soya; and recycling off-cuts, packaging, and chemical drums. The company has also contributed to local community needs, most notably "Whale Watch", when beached whales were wrapped in wet Levana wool. The company has an OH&S policy that addresses health risks related to noise, dust and fumes, and is in the process of applying for ISO14000 certification.

Forest Dress

There is no further information relating to the weaving of the Cupro cotton fabric used in the Forest Dress. Refer to the processing raw materials and yarn spinning sections.

Fabric processing

Understanding the issues

Fabric processing, the final stage of textile production², includes:

- **pre-treatment** which includes desizing (removal of sizing agents), scouring, bleaching and mercerising (improving the strength, lustre and dye)
- **dyeing and printing**
- **application of finishes** to improve performance, such as stain resistance and anti-shrinking. These processes can occur either after yarn production, or after

² Processes such as pre-treatment, dyeing and finishing may occur during yarn production rather than at fabric stage. Similar environmental concerns apply.

the knitting and weaving stage. Natural fibres such as wool and cotton typically require greater finishing than synthetic fibres.

Most processes at this stage are described as wet processes. Fabrics are often treated with chemical and liquor baths and require several washing, rinsing and drying steps, generating significant waste water effluent that if left untreated is highly coloured and contains heavy metals and non-biodegradable substances (IFC 2007). According to studies in 2003 in China, the recycling rate of textile dyeing and printing waste water was less than 10% (Pan et al. 2008).

These processes can also place significant demand on local freshwater resources. Wet processes are energy-intensive, estimated to account for approximately 60% of the energy consumed in the textile industry (Jadav & Ajmera 2009). Air emissions produced during fabric processing can be toxic; and waste includes spent dyes, pigments and printing pastes and sludge from process wastewater containing grease that is difficult to biodegrade. Switching from traditional printing to digital printing can reduce space requirements (by 60%) noise (60%), thermal energy usage (80%), wastewater (60%), and electricity consumption (30%); and the by-production of waste dyes is eliminated (LIFE 2006).

Other considerations include the health and safety effects of chemical use and handling in the dyeing process for workers and communities living close to factories. Chemical residue in finished products can have a detrimental impact on both workers handling the goods and consumers wearing the textile close to their skin. For example, chromium is a major cause of allergic contact dermatitis in dye house workers and some of the commonly used Azo dyes contain carcinogenic arylamines. Fire retardants often contain formaldehyde (IFC 2007; ICLEI 2008; Direction Générale de la Prévention des Risques n.d.).

These issues are particularly problematic in countries with few environmental laws or weak enforcement mechanisms. For example, Gorman's manufacturer in Vietnam expressed concern about local dye house practices. He is moving to vertically integrated production (through the purchase of a factory with a waste water facility) to have greater control over dyeing, printing and embroidery processes. He advised:

The dye houses are polluting the waterways. They run six burners all on coal. When the dye house down the road starts its operation the entire square kilometer will be covered in soot. The rivers are often brightly coloured and the runoff is going into the water table (Spokesperson, Un-available).

Responsible business practice in fabric processing

- Replace potentially hazardous chemicals and compounds with safer substances such as biodegradable/bioeliminable compounds.
- Ensure chemicals prohibited by the Oeko-Tex Standard and REACH are not used in textile processing.
- Ensure factories have relevant certification and processes to monitor and reduce the environmental and social impact of fabric processing.
- Assess whether the fabric process adopted is the most environmentally sound.
- Determine whether facilities have processes for safe use and storage of chemicals, dyes and agents.
- Choose factories that reuse waste and recycle chemicals dyes and agents, for example printing pastes can be recovered and recycled after each run.

Gorman practice: fabric processing

Merino Tee

The Merino rib fabric was dyed at the Levana factory, the same factory where the textile was knitted. Levana's environmental practice relating to fabric processing includes the treatment of wastewater by the local water treatment authority, the recycling of water from the dye house (used for other processes in the factory), water and energy saving initiatives. The dyes used are both Oeko-Tex and GOTS approved, and endorsed by the Institute for Market Ecology. Levana reportedly does not use formaldehyde or solvents. Gorman chose to use a more expensive, environmentally-friendly shrink-proof finish, Eco-Wash, which does not contain chlorine. This finish was applied after top-making in the Chinese facility, Pindar.

The Gorman organic label attached to the garment does, however, have a high density print with PVC ink, which is potentially toxic to workers and consumers. Although the risk to consumers is minimal considering the size of the label, the risk to workers in the Vietnamese factory is greater. Gorman's Vietnamese manufacturer, Un-available, outsources the label production to a small local supplier. Un-available advises that they "doubt any social or environmental auditing has been done at that factory".

Gorman practice: fabric processing

Forest Dress

The Cupro/cotton fabric has Oeko-Tex accreditation. It is unclear if this accreditation extends to the fabric finishing and printing stages. The textile agent advised that the Japan-based printing house used a digital printing process, and their representative “assumed the dyes were Azo free because most dye houses in Japan would avoid using these dyes”. We were unable to confirm trends in the use of Azo dyes in Japan, or whether the Japanese government had taken steps to ban Azo dyes, as had the EU, which restricts the use of certain Azo dyes in consumer goods. The EU has introduced new legislation (REACH) that requires firms to provide lists of the chemicals they use and to specify any possible risks.

Cut make and trim

Understanding the issues

The cut make and trim (CMT) stage is when the textile is turned into a garment. Cutting can be done by an automated computerised system, cutting through all layers of fabric and grading the patterns. Some smaller manufacturers still do this part of the process by hand, using paper patterns. The automated system generally results in less fabric wastage. The garments are then sewn and trims and labels affixed. Trims are decorative or functional items, including beading, buttons, binding, ribbons, zips and embroidery. Trims are generally sourced through a buying agent who may source product from hundreds of factories worldwide. CMT facilities often press, iron or pass the garment through a finishing oven, before packaging for final delivery.

Labour rights

This stage is highly labour-intensive and there is global concern regarding poor working conditions. Like other production stages, the CMT process is frequently outsourced to developing countries, where long hours, poor wages, and occupational health and safety risks are common, despite the existence of labour laws. Workers frequently incur hand and repetitive strain injuries, and in larger factories illnesses associated with exposure to noise and dust. In countries such as China, rural workers live on-site in dormitories that offer little privacy. Sexual harassment, harsh management practices, loneliness and rural-urban discrimination are common (Lillywhite 2007).

Even within Australia, the CMT process lacks transparency, accountability and enforcement of regulations to protect workers' rights. Home-based outworkers are often invisible in the supply chain and can experience exploitation, low wages and precarious employment (Diviney, Lillywhite, 2007).

Environmental impact

The key environmental impacts at this stage of production are:

- Textile wastage at the cutting table and from production errors
- Solid waste, including packaging and metal hangers
- Noise from sewing machines, particularly in larger factories
- Dust around the sewing machine resulting from the needle action
- Chemical residues from fabric treatments such as resins containing formaldehyde

Energy usage at the CMT stage, however, is lower than at other stages.

Size and influence

A key issue at this stage of production is the difficulty SMEs face in influencing improvements in working conditions. Their small size, and quantities sourced, restricts their influence through purchasing power. In addition, SMEs such as Gorman face limited supplier choice to meet their quality, design and “small-run” production. Losing a “good supplier” (in terms of quality, price, and delivery) through applying pressure to improve conditions is considered a high-risk option.

The reality of tracking and influencing suppliers was clearly articulated by Gorman's Vietnam CMT manufacturer:

We use 150 suppliers ... [from] some of them we are ordering 75 buttons a year, some of them 25 special embroidery yarns. With that size orders, we can't go in and ask things about their business, they would say, “Why? Go away, you are wasting our time”.

I could use a factory for [Gorman] swing tags that has good facilities and processes, but it will double the cost and you must order 25,000 pieces. That would take six years to use ... I can't hold 25,000 pieces and they [Gorman] can't take them ... so I use a supplier round the corner who is not “all singing and dancing”, but will do 1000 pieces for a good cost.

We don't apply sustainability practices to our outsourcing practices ... some of these companies are shacks at the end of the garden, and some are big international organisations with high standards.

The labour law is massive and rigorous in Vietnam ... but there is nothing for the environment, not that it matters what guidelines are in place, bribery can take it away.

Responsible business practice in CMT

- If manufacturing in Australia, sign up to the No Sweatshop Label and ensure company compliance with federal and state clothing trades awards.
- Seek out factories that are certified (e.g. SA 8000), are used by large brands such as Levis and Gap and therefore likely to be regularly audited, or are participating in ILO initiatives such as Better Work and Better Factories Cambodia. Develop partnerships and join multi-stakeholder initiatives to improve ethical sourcing practices
- Engage experienced independent auditors to undertake regular factory inspections.

Gorman practice: cut make and trim

The CMT practices of both the Merino Tee and the Forest Dress proved difficult to map and verify. The manager of the Vietnamese factory was very forthcoming about the reality of manufacturing in a low-wage country with poor regulatory mechanisms, but many of his responses related to outsourcing, rather than conditions and practices within the Un-available factory, where the CMT process occurs. Un-available have been audited as part of the corporate responsibility programs of their clients, Levi, Lee and Wrangler. Gorman staff have an ongoing direct relationship with Un-available, visit the factory regularly, and spoke positively about conditions at the factory. The Un-available website refers to a no sweatshop policy, although this was not made available. Gorman has requested that Un-available become SA8000 accredited and will need to pursue this energetically.

It was disappointing the Merino Tee CMT manufacturer in Melbourne declined to be interviewed. Gorman visits the business frequently, and confirmed they used outworkers. Gorman is registered with the state Board of Reference and lists their contractors, as stipulated by the Clothing Trades Award. Statements made by Gorman in meetings indicated they were considering becoming an accredited No Sweat Shop manufacturer; this would improve their performance in decent working conditions.

It also proved difficult to gather detail on the trims (buttons). Wattle, the supplier based in China, did not respond to a request for interview.

Retailing and wholesaling

Understanding the issues

Retail

Selling garments has an impact on the environment. Transporting stock, customer travel, store fit-outs, packaging, lighting and heating all use resources and produce waste. However, gains can be made through retro-fitting stores, using sustainable materials in store fit-outs, adopting energy-saving techniques, recycling and promoting ethical practices to consumers and staff.

More eco-friendly retailing methods, such as on-line shopping, using networking sites and "pop up" temporary stores to market goods, are an option. The energy advantages of the lack of a physical store and less customer travel are offset to some degree by the transport and packaging needed for home delivery. According to a life cycle assessment study by British retailer Marks & Spencer, a move to e-commerce would result in a 1.56kWh energy saving when selling a pair of trousers (Collins & Aumonier 2002). Pop-up stores can also be more environmentally friendly because they often utilise unused buildings, operate for short periods during peak sale times and do not require permanent store fit outs.

Wholesale

Wholesale clients are also coming under increasing pressure to demonstrate responsible business practice. Although Australian retailers have been slow to embrace voluntary corporate responsibility frameworks (Diviney & Lillywhite 2007), some larger retailers in Australia are now producing CSR reports and developing ethical sourcing (CorporateRegister.com 2009).

Overseas there are a growing number of retailers with ethical sourcing strategies. High-profile examples include Marks & Spencer in Britain and Gap in the US. Increasingly, OECD countries are also developing regulatory CSR frameworks relating to international supply chains. For example, a new resolution by the European Parliament, "Corporate social responsibility: a new partnership", requires corporations to monitor and report on their performance with respect to human and worker rights and the environment. Further, the recently introduced REACH legislation requires firms to provide lists of the chemicals they use and specify any risks.

Australian garment companies may need to respond to these CSR trends by demonstrating their responsible business practice, if they are to continue to supply major retailers and access European markets in the future.

Consumption trends

Clothes in Australia are getting cheaper and we are buying more of them. A t-shirt can be bought for as little as A\$10, worn a couple of times and then discarded. This “fast fashion” trend results in more clothes being produced, purchased and discarded. Household expenditure on clothing and footwear has seen strong growth. In 2004–2005 alone, expenditure rose by 7.5% to over A\$20 billion (TFIA 2006). Hamilton et al. (2005) estimate that Australians spend A\$1.56 billion every year on clothes and accessories that are not worn. However, there is a growing “ethical fashion” consumer market (see box) concerned with the environmental and social impact of their consumption.

The ethical consumer

The growth in Fairtrade products in Australia confirms demand from consumers who want to shop ethically. Fairtrade sales have grown by over 80% compared with 2007, passing A\$23 million (Fairtrade Association of Australia & New Zealand 2009).

According to Mobium Group (2008), the consumer market for natural, healthy and sustainable products and services in Australia has grown over 25% to A\$15 billion in 2008, and is expected to reach at least A\$22 billion by 2010. However, Mobium also found that while 90% of Australians say they care about the environment, when it comes to the crunch, only about 10% actively make purchasing and lifestyle choices that reflect this. Some of the barriers included the price premium paid for more sustainable goods and difficulties navigating the “wash” of often unsubstantiated health and environmental claims. According to PricewaterhouseCoopers (2008), achieving sales will be challenging if sustainable products are more than 10% more expensive than regular items.

An American study by WSL Strategic Retail, *How Americans shop*, identified a movement away from faddish consumption towards purchasing things that have longevity (Lieberman 2008).

Packaging

Packaging including bags, wrapping and promotional tools such as swing tags, is another sustainability consideration for retailers, particularly the use of plastic. Studies have found that many consumers believe that products are over-packaged (PricewaterhouseCoopers 2008). There has been strong community support for a ban on plastic shopping bags in Australia. In response, government and industry have developed a National Packaging Covenant (see Glossary).

Labelling

Increasingly consumers are relying on product labelling to guide their ethical purchasing decisions. However, both consumers and garment companies are confused

and overwhelmed by the number of certification schemes and how to go about verifying sustainability claims. There is also evidence of companies making false claims. This has become an issue for The Australian Competition and Consumer Commission (ACCC), which has received numerous complaints about the widespread “green washing” of consumer and industrial products and has announced an investigation into “environmentally friendly” marketing claims (ABC Radio 2007).

Garment retailers interested in accessing niche “ethical” markets must recognise that:

Good product labelling is essential and retail and consumer goods companies must ensure that sustainability claims on products they sell are appropriately certified (Pricewaterhouse Coopers 2008, p.12).

Responsible business practice in retailing and wholesaling

- Foster a sustainable workplace culture through the development of a sustainability code of conduct, establishing a sustainability team, staff training, and awarding staff for innovative ideas and practices.
- Develop more eco-friendly retailing methods such as on-line shopping and “pop up” temporary stores, retro-fit existing stores and ensure environmental requirements are included in plans for new stores.
- Ensure packaging meets requirements of the National Packaging Covenant.
- Conduct a sustainability audit of stores.
- Ensure any sustainability claims made regarding business operations and products are credible and verifiable.



Photo courtesy of Gorman

Gorman practice: retailing and wholesaling

Gorman's *Green guide* has a section which addresses issues such as the sustainability of office equipment and cleaning products, energy use, reducing staff and consumer transport use, and educating customers on issues of sustainability.

Gorman engaged an environmental consultant to do an energy audit of all their stores and head office. This resulted in three stores being retro-fitted to improve energy consumption. Changes to lighting in one store reduced energy consumption by 35%. Other simple initiatives have been signs on store doors that explain that the store is open, but the door is shut to save energy.

Packaging has also been considered. Gorman carry bags are made from unbleached recycled paper. If a customer declines a bag, the cost of the unused bag is donated to Friends of the Earth. Gorman's swing tags are made from recycled materials with an unbleached thread; and where possible, labels are tied to the garment to avoid using safety pins. To encourage sustainability, various customer promotions have offered discounts when a customer produces a green power bill, public transport ticket or bike helmet. Gorman often includes sustainability messages in store signage and displays.

Gorman has had limited success influencing wholesale clients to take on better sustainability practices. However, their organic range contributed to Gorman's brand differentiation and had helped to attract new wholesale clients. For some clients however, the price of organics is a deterrent. Gorman produces high-end designer products, which would not be classified as "fast fashion" goods.

The Gorman website offers customers the option of online shopping, which is also promoted at fashion events and community festivals through the Gorman Ship-Shop.

Gorman Ship Shop

The Gorman Ship Shop is a mobile store planned to be eco-friendly in design and function and to draw attention to the environmental impact of traditional "bricks and mortar" stores. It is housed in a used shipping container, with recycled and sustainable materials used in its fittings. The store is easy to transport and can be moved by train.

The Ship Shop does not carry garments, a cash register or carry bags. Instead customers use a computer terminal to buy directly from the Gorman online store, and goods are posted to their door. The store sells only the Gorman organic range and in the words of Lisa Gorman "provides a platform for green initiatives with both the public and industry". The store has been set up at Rosemount Australian Fashion Week, Live Green Festival, L'Oréal Melbourne Fashion Festival and Bicycle Film Festival.

Consumer use

Understanding the issues

Washing and care

Depending on the textile, as much as 80% of a garment's carbon footprint happens as a result of washing and care (Collins & Aumonier 2002). Significant energy savings can be achieved if garments are suitable for low-energy types of care (cold-water washing, quick drying, preferably no ironing) and are clearly labelled accordingly. Consumers need to be reminded to choose energy-efficient appliances.

The impact of washing detergents also needs to be considered: if phosphates from detergents enter the water system they can result in the growth of green algae, causing harm to certain water based organisms (Allwood et al. 2006).



Responsible business practice for influencing consumer use

- Ensure care labels include the most sustainable option for washing and care.
- Train sales staff to advise customers on the most sustainable ways to wash garments they are purchasing.
- Include customer tips on washing and care in store displays and marketing materials.

Gorman practice: influencing consumer use

For Gorman, washing and durability were key requirements in the design stage of both the Merino Tee and the Forest Dress. Neither product requires dry-cleaning, both can be washed in cold water. While the Merino Tee does not require ironing, according to Gorman staff the Forest Dress should be pressed "to look its best". Many products labelled "dry-clean only", can actually withstand hand-washing. When textile suppliers recommend dry cleaning, Gorman staff tests the textile to see whether it can in fact be washed.

Gorman has a strategy to "encourage customer behaviours that have a positive impact on the environment". They have had in-store displays that recommend sustainable washing practices and have provided phosphate-free detergents at marketing events.

Textile waste and disposal

Understanding the issues

Waste generated by garment production can be divided into two categories: pre-consumer textile waste (by-products from fibre, yarn, garment, and fabric production) and post-consumer textile waste (clothing that is discarded).

Where recycling programs exist, most pre-consumer waste can be utilised by other industries or used in the production of new products. Studies indicate that only a small proportion of post consumer textile waste is recycled. For example, in the UK in 2005, 1.9m tonnes of textiles were purchased; 1.2m tonnes were discarded, ending up in incinerators or landfill, and only 0.3m tonnes were sold or recycled through charities (Morley et al. 2006).

In Australia, recovery of post-consumer waste is mainly carried out by charitable organisations that either sell the donated goods through their charity stores, export the clothing, or sell damaged cotton and silk cloth to rag merchants for use in industry. The Australian National Association of Charitable Recycling Organisation (NACRO) has estimated that 50m kilograms of textile waste is collected annually by Australian clothing recyclers through charity bins and donations, of which 12.5m kilograms are unsuitable for reclamation and sent to landfill (Caulfield 2009).

Textile waste in landfill has the potential to contaminate groundwater through the formation of leachate. Another product of decomposition is methane, a major greenhouse gas. Natural fibres and regenerated cellulose-based synthetics are less damaging than synthetic fibres as they are biodegradable; however they do produce large amounts of ammonia as well as methane. Ammonia is highly toxic in terrestrial and aquatic environments and can be toxic in gaseous form (Environment Council 2009).

A life cycle assessment study of Marks & Spencer textile goods compared the energy burden of producing new textile goods to that of recycling clothing, finding significant benefits for the latter. Processing and distribution of post consumer clothing used 1.7kWh of extracted energy per kilogram of clothing recycled. By way of comparison, the manufacture of a pair of polyester trousers (0.4kg) used 39.26 kWh of extracted energy (equivalent to over 97kWh per kilogram) (Collins & Aumonier 2002).

Responsible business practice: textile waste

- Ask suppliers about how they dispose of pre-consumer waste.
- Incorporate recycled products such as fabric off-cuts and second-hand garments or trims into your designs. For example, off-cuts from last year's range can be used as lining and trims in new designs.
- Promote clothes recycling in stores or offer a take back service for sold garments to ensure the products are properly recycled.

Gorman practice: textile waste

It was not possible to talk to the supplier or manufacturer of the textile for the Forest Dress, so nothing is known about their disposal of pre-consumer textile waste. However, Gorman's CMT manufacturer in Vietnam stated that waste targets were a key performance indicator for his management team, resulting in innovative solutions for using off-cuts to create new product. Textile off-cuts from the Un-available factory were also donated or sold to businesses, such as toy manufacturers to use as fillings.

The CMT manufacturer for the Merino Tee declined to be interviewed, and nothing is known of their waste management strategies. However, the New Zealand knitting mill Levana Textiles told us that they donate fabric selvage to be used as horticultural plant ties and by art/craft users.

Both these garments are made from biodegradable natural fibres, reducing their environmental impact in landfill. The Merino Tee, made from organic wool, contains fewer chemicals to leach into the soil and groundwater but will still release methane.

Gorman recently launched a recycling program to recruit local accessories designers to make products from recycled materials for Gorman stores.

Freight

Understanding the issues

The majority of Australian TCF companies have global supply chains. Many commentators and consumers are concerned about the environmental impact of the distances clothing travels to reach our wardrobes, often described as “fashion miles”. However, other commentators suggest that “changing production location has only a small global effect” (Allwood et al. 2006, p. 32).

A UK study found that 4.2 billion tonne-kilometres of freight were required to meet the demand of the UK T-shirt trade. This was equivalent to sending one kilogram of goods around the world some 105 million times (Allwood et al. 2006). Even though these figures seem enormous, garment life cycle studies have found the transport phase generates less CO₂ emission than the production or the consumer use phase (Allwood et al. 2006; Collins & Aumonier 2002). Nonetheless, transporting clothing still produces carbon emissions, and some modes of transport are more polluting: transporting one tonne of garments 100 kilometres emits 1.5 kg of CO₂ by ship, 2.1 kg by rail and 143.0 kg by air (DEFRA 2008).



Photo courtesy Serena Lillywhite

Responsible business practice: freight

Some suggestions for improving sustainable business practice relating to freight:

- Plan lead times effectively to reduce the need for airfreight.
- Source transport and logistic companies with environmental policies and strategies for reducing CO2 emissions
- Use facilities that are vertically integrated or located close to one another to reduce freight.

Gorman practice: freight

Gorman's *Green guide* includes a transport and logistics section to promote practices for reducing their freight emissions.

Gorman previously paid a premium to use an Australian courier company that stated it was operating in an environmentally sustainable manner. However, Gorman was dissatisfied with their environmental performance (e.g. failing to use small vehicles for small loads) so now use a cheaper regular courier service that makes no such claims.

Gorman chose Wattle in China as the supplier for all trims and labels given its proximity to Vietnam where one of their major manufacturers is situated. Gorman staff indicated that whenever possible they use sea-freight rather than air freight. However, when we talked to their suppliers, they indicated that air freight was used for Merino Tee and Forest Dress due to time constraints.

Towards sustainable garments

One of the greatest challenges facing not only consumers, but also fashion designers, brand owners and retailers, is making informed decisions about the sustainability of a garment. The Gorman roadmap clearly articulates these challenges. There is really no such thing as a “sustainable garment”.

Sylvester (2008) demonstrates the complexity in relation to choosing synthetic or natural fibres:

Synthetic fibres are commonly seen as “bad” and natural fibres as “good”. This preconception is influenced by a complex set of factors including raw material renewability, biodegradability and stereotyped associations made with chemicals, factories and pollution. The truth however is (as always) much more involved. While there is no dispute that producing synthetic fibres impacts on people and the environment, natural fibre cultivation and processing is also high impact (Sylvester 2008, p.7).

For SMEs the best option may be to make informed “least-worst” choices about fibres, fabrics, processes and facilities and thereby mitigate the negative impacts of that fabric and production process throughout the supply chain, providing remedy and compensation for harmful practices, and incentives for best practice. The Responsible Business Practice sections in the Roadmap give some guidance on decisions that can be made at different stages.

Garment industry drivers

The product roadmap research indicated shared opinions of respondents on the key drivers of sustainability. Keeping a viable, innovative garment industry in Australia was seen as vital. Market access and developing a competitive advantage through meeting the small but growing consumer interest in ethical fashion was also cited. However, this was qualified by a critical recognition that environmental and social sustainability must sit alongside a viable business model.

Among respondents to this research, the environmental impact of garment production appears to be a stronger driver than the social dimensions of poor labour practices. This

may well be because the former is easier to measure, and the climate change message has gained momentum. By comparison, there is a lack of knowledge of, and in some cases interest, in the conditions of workers in emerging economies (and Australia), and the efficiency gains through upholding decent working conditions, including wages and hours, are less recognisable.

Global trends, particularly the corporate responsibility practices of large enterprises, such as Levis and Gap, through their use of corporate codes, certification and auditing, were seen as influential. However, not surprisingly, the cost of producing sustainable fashion, the lack of incentives and recognition of best practice, were identified as barriers. Currently there are few incentives and subsidies to encourage sustainable production, and most customers are reluctant to pay the price for organic clothing. As described by Gorman's manufacturer in Vietnam:

It all comes down to cost. Let's face it, if it was cheaper, easier and more efficient to do things sustainably, then we would all be doing it ... but it's not, it's much more expensive, harder and time-consuming (Spokesperson, Un-available).

Sources of information

Earlier research commissioned by St James Ethics Centre confirmed that most SMEs have limited sources of information for business operation advice, and even fewer for information on responsible business practice. In most cases, this is provided by "trusted sources" such as industry associations, accountants and lawyers (Allen Consulting Group 2008).

The garment sector product roadmap indicated that those interviewed are more outward-looking and prepared to access information, tools and resources from diverse sources. There is a heavy reliance on industry magazines and the internet, particularly to keep abreast of developments in countries such as Germany and Canada. Networking with industry peers and monitoring best practice and trends is common. In Vietnam, for example, there is no formalised garment association, but informal networks are established with the expatriate community.

Of note was the importance attributed to collaboration with suppliers and intermediaries to keep informed of product and production advances and to develop more innovative and efficient business practices. Suppliers were recognised as having significant knowledge and experience.

There is a growing reliance on business and environmental consultants, and auditors, although the cost is prohibitive for most SMEs. NGOs were also recognised for their

knowledge and understanding of the sustainability issues, but many lacked an understanding of day-to-day business constraints.

Tools and resources

Respondents agreed there was a need for tools and resources to help SMEs in the garment industry become more sustainable. A lot of information was available globally, but much of it was considered too technical, and overwhelming. The need for easy-to-read resources and practical tools was stressed. Some respondents wanted only basic information. Others, with some initiatives in place, sought more sophisticated, but easy to use, tools to:

1. Self-assess their business practices to identify, and mitigate against, potential risks
2. Assess the impact of harmful chemicals and pesticides used in production
3. Calculate and summarise the sustainability impact of current and emerging fabrics and yarns
4. Understand the impact of different production techniques, such as digital versus other printing
5. Understand the various certification and accreditation mechanisms, including an assessment of their credibility, shortcomings, cost and process
6. Assess, screen and manage supplier relationships and partnerships with potential investors. A list of “good” suppliers and factories, and their capabilities, was requested
7. Understand the global dimensions of the business

Fact sheets and case studies were regarded as useful. They should be made available online, perhaps through a garment sustainability portal and also through the innovative use of various social networking platforms. Forums such as workshops, meetings, moderated online sessions, were proposed for suppliers and customers to discuss sustainability issues, challenges and progress. The establishment of e-learning frameworks to assist and support SMEs was recommended.

Given the complexity of undertaking an environmental audit of energy, water and transport use, engaging an affordable environmental consultant was recommended. The responsible management of working conditions was not highlighted.

Role of government

All respondents held the opinion that the Australian government could do much more to encourage and reward responsible business practice in the garment industry. There was agreement that incentives, such as “tax breaks”, for sustainable practice (e.g. the development of organic garment collections) and innovative partnerships, and costs

associated with factory audits overseas, would make SMEs more willing to develop sustainable business practices, and help off-set the higher production costs.

... The Australian government needs to help companies bridge that gap between the costs to produce an ethical garment. They need to give information and advice on where to get information, encouragement and incentives.
(Spokesperson, Un-available, Vietnam)

It was acknowledged that some grants, such as the TCF Strategic Investment Program (SIP) funding, are available. However, accessing information about them was identified as difficult for SMEs; and such initiatives tended to apply to one-off, short-term programs, and did not encourage long-term sustainability planning. To keep up with European practices, initiatives such as the Australian Export Market Development Grants (EMDG) scheme, administered by Austrade, should be reviewed to ensure eligibility criteria are based on responsible business principles. This would encourage Australian garment SMEs to adopt sustainable practices in order to benefit from access to global markets and to financial export incentives that reward sustainable business practice (Diviney & Lilywhite 2008). The AusIndustry Enterprise Connect program was given as another example of a government program where responsible business principles and practice could be embedded.

The Gorman roadmap demonstrated that energy efficiency and waste management gains can be made through thoughtful use of lighting and heating in stores. Gorman staff suggested that subsidies, similar to those available in the residential housing sector, could be offered to enterprises interested in retro-fitting existing stores, and seeking sustainable building options for new stores. This would not only protect the environment, but also create “green” jobs. An additional job creation scheme to emerge was government assistance for SMEs engaging environmental consultants, either directly or from a government pool of consultants.

The government could also assist in establishing a “level playing field” in the garment industry. For example, Australia has rigorous standards for the use of hazardous chemicals in garment production in Australia, thereby increasing costs. However, companies are free to import garments that have been exposed to those same banned substances from countries with less rigorous environmental standards. According to the TFIA, there is no testing for, or regulation of, chemicals in imported clothes. An Australian legislative response similar to the European REACH regulation was recommended.

Several respondents proposed introducing an “ethically made” labelling system or “sustainable quality mark”. However, the challenges of ensuring credibility were also

raised, given the complexity of garment supply chains, the vast number of intermediaries involved, and industry and consumer concerns about the integrity of some schemes.

These initiatives may be best overseen through the establishment of a national corporate responsibility agency charged with strengthening voluntary mechanisms, disseminating tools and resources, developing sustainable procurement policy and practice, enforcing mandatory sustainable business regulations and reporting, and devising sustainable business subsidies and incentives. The UK Department for Business Enterprise and Regulatory Reform (<www.berr.gov.uk>), and the UK department of Environment, Food and Rural Affairs (<www.defra.gov.au>) may provide guidance.

Conclusions

The garment roadmap confirmed product road mapping as a useful tool to understand the social and environmental impact of business decisions and operations throughout the supply chain. It revealed that Gorman, the company selected for study, is leading the way in the SME garment sector, in both sustainability aspirations and practice. The study found a commitment to responsible environmental practice from the owner of the company, and some staff and suppliers. Gorman is to be commended for its environmental initiatives and its willingness to disclose and open its supply chain to scrutiny.

The roadmap identified scope for Gorman to strengthen this work through a more systematic and verifiable approach, particularly regarding to labour practices in both Australia and overseas.

The roadmap confirmed there is no quick fix to produce the ultimate sustainable garment. The global trend for "fast fashion", and reticence of mainstream consumers to pay a premium for "ethical fashion", limits responsible business practice in a highly competitive sector. Further, consideration of water, energy and pesticide use is critical, as is the effect of processing on the natural environment and health of workers, local communities and consumers.

The sustainable garment of the future would be designed carefully and made from renewable material. It would be pesticide free and produced by workers in decent working conditions. It would be washed at low temperatures and have fashion upgrades to extend its fashionable life. Finally it would be recycled, reused or composted. (Draper et al 2007, p.2).

Nevertheless, the roadmap provided an opportunity to assess which stages of the production process could be most easily influenced, and where the greatest constraints were. It suggested that real gains can be made from embedding sustainability principles at the design stage of production. One key strategy of Gorman is the careful choice of fibres and textiles, for example, a focus on natural fibres, the development of an organic range, the use of recycled synthetics and regenerated cellulose fibres instead of synthetics and the sourcing of textiles with environmental certification. While this does not address all sustainability issues identified in the roadmap, it does reduce adverse environmental impacts.

The roadmap also revealed that energy savings could be made through better garment production practices, the smart use of lighting and heating in store, and by producing garments requiring only low-energy types of care

Moreover, collaboration with suppliers can contribute to innovative, sustainable garments. This was clearly demonstrated through the partnership between Gorman and their Vietnam supplier, Un-available, who influenced and inspired Gorman to develop their organic range. In addition, Gorman has benefited from the direct relationship with The Merino Company (TMC), vertically integrated business, with significant influence due to their position as a global wool solutions company. This led to the development of the organic Merino Tee.

We are always driven by what the customer wants ... we can achieve that more easily if we manage the entire supply chain and become more vertically integrated (Spokesperson, The Merino Company).

A direct, long-term stable relationship, through a vertically integrated business model was highly effective.

Not surprisingly, it is the responsible management of labour rights—hours, wages, occupational health and safety, exposure to harmful chemicals, dust, noise and fumes, as well as the right to join a union and collectively bargain for decent work—that remains the greatest challenge when production occurs in multiple locations managed by different companies in different jurisdictions.

Given the complexity of supply chains, a multi-dimensional approach is required to drive responsible business practice. Responsible practice must embrace all aspects of business—economic, social, environmental and governance. Supportive government policy would include not only incentives (e.g. taxation benefits, access to small business and export development grants and subsidies, market and retail consignment access, preferred supplier for government procurement), but also robust and enforceable regulation, and the development of tools and resources.

Recommendations

The Gorman product roadmap identified significant opportunities for the Australian Government to design innovative policy initiatives to strengthen the garment sector's capacity to operate in a sustainable and responsible manner. It is recommended the government:

1. Establish a national corporate responsibility agency. The agency would have responsibility for implementing mandatory sustainable business regulations and reporting, strengthening voluntary mechanisms, developing and disseminating tools and resources, sustainable procurement policy and practice, and influencing the development of sustainable business subsidies and incentives.
2. Develop resources, tools and technical assistance on existing and emerging sustainable fibres, production processes and certification programs. This would include their potential use in the clothing sector, and an assessment of their environmental and social sustainability impacts.
3. Facilitate public sector investment in flexibly delivered training packages and educational resources to build skills and technical capacity to improve sustainable design and manufacturing in the TCF sector.
4. Introduce subsidies and incentives to encourage sustainable business practice. For example, "tax breaks" for enterprises that develop organic garment collections, grants to defray the costs of factory audits and attaining certification, and subsidies for enterprises interested in retro-fitting existing stores, and sustainable building options for new stores.
5. Create "green-jobs" through retail retro-fitting initiatives and access to environmental consultants with expertise in SME manufacturing and retail
6. Introduce measures like the EU REACH legislation to regulate the use of chemicals, including in imported clothes
7. Review programs such as the TCF Assistance Packages, Austrade administered Export Market Development Grants (EMDG) and AusIndustry Enterprise Connect, to ensure funding eligibility criteria is based on responsible business principles.
8. Implement the 2008 Australian TCF Review recommendation to establish a TCF Innovation Council ensuring the Council's terms of reference include social and environmental sustainability, and Council membership includes individuals and organisations with experience in this area.
9. Implement the TCF Review recommendation to establish an Ethical Quality Mark for the Australian garment industry ensuring that the mark encompasses both Australian and International sourcing, and includes information on country of origin.

Glossary of selected certification standards

Certified Australian Organic (“the bud label”) This is the largest Australian organic certification program. The standard ensures the organic status of products, including requirements relating to farm management, soil fertility, pest and disease control, use of genetically modified organisms and conservation of local species. The certification also requires compliance with basic human rights principles and ILO core labour standards. The certification does not address energy use.

www.australianorganic.com.au

Clothing Trades Award: Garment wholesalers, retailers and manufacturers have a legal responsibility to comply with the federal Clothing Trades Award (or equivalent state award) (as well as the *Workplace Relations Act* which defines outworkers as employees, legally entitling them to the same conditions as factory workers). The awards also give the TCFUA (the union) the right to enter workplaces to monitor conditions. The awards stipulate that a company that either outsources work directly to an outworker or gives work to a contractor must register with a state or federal Board of Reference and list its contractors; and that companies must also keep records of the work they give to contractors, including the amount paid, time given for completion, and details of the complexity of the garments. The company giving work to an outworker is responsible for ensuring that person receives all employee entitlements. A company that outsources its work to a contractor must ensure that the contractor is award-compliant to avoid prosecution.

Global Organic Textile Standard (GOTS): This is an international standard that ensures both the organic status of textiles and responsible production, considering both social and environmental impacts. It covers the production, processing, manufacturing, packaging, labelling, exportation, importation and distribution of all natural fibres. The social criteria apply to textile processing, and in some circumstances to working conditions on farms. The social standards are comprehensive and based on the ILO core labour standards. The standards for water and energy use are, however, not as rigorous as those for waste, chemical use and pollution.

www.global-standard.org

ISO 14000: This series of international standards provides a framework for the development of an environmental management system and the supporting audit program. ISO 14001, the key standard of the series, specifies a framework of control for

an environmental management system against which an organisation can be certified by a third party.

<www.iso.org/iso/iso_catalogue/management_standards.htm>

National Packaging Covenant: This voluntary initiative by government and Industry is to is designed to minimise the environmental impacts of the disposal of used packaging, conserve resources through better design and production processes and facilitate the re-use and recycling of used packaging materials. The regulatory underpinning is provided by the National Environment Protection Measure on Used Packaging Materials (NEPM).

<www.packagingcovenant.org.au>

Oeko Tex Standard 100: This voluntary certification label ensures textile products do not contain substances that may be carcinogenic, allergenic, irritant and more generally harmful to human health. To gain certification, product samples undergo technical analysis, and spot checks are done in production sites. The standard does not address water and energy usage.

<www.oeko-tex.com/OekoTex100>

REACH: The new European Union Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) which came into force in 2007, aims to improve the protection of human health and the environment from the risks posed by chemicals. Firms must provide lists of all the chemicals they use and specify any possible risks.

<http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm>

SA8000: This is a voluntary, universal standard for companies to audit and certify labour practices in their facilities. Developed and managed by Social Accountability International, SA8000 is monitored by independent third party commercial auditing firms. It is based on the principles of international human rights conventions and measures company performance in eight key areas: child labour, forced labour, health and safety, free association and collective bargaining, discrimination, disciplinary practices, working hours and compensation.

<www.sa-intl.org/>

Better Work Programme: This program, a partnership between the International Labour Organization (ILO) and the International Finance Corporation (IFC), is designed to improve labour standards and competitiveness in global supply chains. It assists enterprises in developing countries to improve their practices to comply with core ILO labour standards and national labour law. It works with the textile and apparel industries in Vietnam, Lesotho and Jordan. The ILO also runs the Better Factories Program in Cambodia.

<<http://www.betterwork.org/public/global>>



Fairtrade Mark: This registered certification label for products sourced from producers in emerging countries aims to create opportunities for producers and workers who are economically disadvantaged or marginalised by the conventional trading system. Cotton is one of the many products certified by Fairtrade. The benefits of being a Fairtrade cotton producer include:

- receiving a stable price, which allows farmers to meet basic needs
- receiving an additional Fairtrade premium, paid to farmers' groups to be invested in their community or businesses.
- education and assistance with crop diversification, environmental sustainability and safe use of pesticides and chemicals.

Farmers who grow certified *Organic* Fairtrade products receive a premium.

<www.fairtrade.org.uk>

Global Reporting Initiative (GRI): This widely used sustainability reporting framework sets out principles and indicators that organisations can use to measure and report their economic, environmental, and social performance.

<www.globalreporting.org/AboutGRI>

No SweatShop label: This accreditation and labelling system is a joint industry–union initiative aimed at ending exploitation in the Australian fashion industry and promoting companies committed to ethical Australian manufacturing. It centres on a voluntary code of practice that enables companies to keep their supply chains transparent and ensure that everyone involved in the production of their garments receive, as a minimum, the award rates of pay and conditions. The accreditation system only relates to supply chains within Australia.

<www.nosweatshoplabel.com>

UN Global Compact: This is a voluntary initiative to encourage businesses to adopt and report on sustainable and socially responsible policies. It seeks to align business operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption.

<www.unglobalcompact.org>

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