Sustainable Supply Chains: Moving Chinese Garment Manufacturers Towards Sustainability

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Abstract:
The fashion industry is beginning to understand the need to move strategically towards sustainability. Yet there appears at present little coordination between global fashion brands and their supply chains to pursue strategic sustainable development and ensure the long term resilience of their business. We asked: What does a fashion brand need to know about its first tier suppliers in China in order to form a strategy towards sustainability? We utilised a scientific, principle-based definition of sustainability and framework to identify the underlying challenges faced by two Chinese garment factories in moving strategically towards sustainability. The challenges enabled us to inform three strategic guidelines that a fashion brand should consider when working with its supply chain towards sustainability. Research draws on literature, interviews among industry experts, interviews with a major fashion brand, and on-site workshops with two of its first-tier garment factories in China. The results of our research indicate: 1) the specific challenges factories face are commonly associated with internal corporate culture, the fashion brand’s directives, and the regulatory environment in China; 2) the fashion brand should aim to broaden its purchasing priorities, generate increased collaboration with suppliers and build awareness towards empowerment and ownership of sustainability and associated strategies and actions.

Keywords: Strategic Sustainable Development, Garment Factory, Fashion Brand, China, Sustainability, Supply Chain
Acknowledgements

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Thanks are also extended to our advisors at BTH, Cecilia Bratt and Karl Henrik Robert and the whole MSLS Program Team. Your consistent reminders helped us translate our work from an exciting research project into an academic Thesis, and without your support and direct feedback this would not have been possible.

To all the experts who participated in interviews and assisted in our work, we are deeply grateful for sharing your knowledge and the depth you provided to our work. In particular we would like to thank Dr Liu Kaiming from the Institute of Contemporary Observation, Linda Hwang and Laura Ediger from BSR (Business for Social Responsibility), and Henrietta lake from Sancroft Consultants for their unique insights into various aspects of the industry that enabled us to understand complex situations in greater detail.

On a final note we would like to thank our partners and friends at the Institute of Contemporary Observation in China including, Noreen, Jack, Katrine and the rest of the team. We were truly inspired by your dedication to furthering human rights and environmental awareness in a challenging environment and we always welcomed your honest opinions of our work. We learnt immensely during our time with you and we hope to continue our relationship with you into the future to build awareness, empowerment and ownership of sustainability within China.

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Many Thanks,

Mark, John & Zach
Statement of Collaboration

This thesis was produced as a truly collaborative effort. Each member of the team brought a diverse range of experiences and skills to the process, creating a well-balanced group with wide ranging expertise. Throughout the thesis, the three of us supported and challenged each other enthusiastically, resulting in a much richer experience than we might have had working on projects individually.

The workload was shared equally. Each one of us played an important role in creating and presenting workshops, and administering interviews. Additionally, each of us has contributed to the whole of this document, submitting drafts and revisions in a group process so that the work reflects our collective ideas and vision. The team also developed close personal relationships that helped to make the work more efficient and rewarding. Recognizing when to lead and when to follow, the research and creation of different sections of this paper was directed by whoever was the most capable and appropriate at that stage of the process. Still, as with any team effort, there are star players that deserve individual recognition.

Mark Bannister originally conceived the project, and engaged his extensive professional network to secure partners and sponsors, as well as adeptly handling often complicated scenarios and situations during our month in China. Mark’s leadership from the outset was clear and focused and set the project on very positive trajectory. Always ready to go the extra mile, push the boundaries and never willing to say “good enough,” Mark’s investigative tenacity and adept interview skills uncovered significant insights and revelations during our research in China.

John Silkey was the lynchpin of the team. Combining clear vision, strong work ethic, and deep emotional intelligence, John led many successful workshops under difficult circumstances. Crossing cultural and linguistic barriers John was able to connect with our partners in China and our results are far richer because of it. He understands people in a deep and intuitive way, and has the near miraculous ability to hear and distil meaning. How many times did we see John say “What I’m hearing you say is…” and then watch the other person’s face light up and say “Yes. Yes, that’s exactly what I mean.” John’s steady guidance and patience were essential and much appreciated.
Zach Anderson drew on years of international work experience and business background to navigate to the heart of the matter on complicated issues. Zach’s body of knowledge, patience, and persistence in interviews allowed the team to gather much more genuine data, as Zach tactfully pushed for deeper answers to our questions, never settling for a “gloss-over” answer. Additionally, Zach’s personable professionalism and clarity in presenting sustainability to diverse audiences proved critical throughout this whole process.

Working together has been a privilege, and the experiences shared have contributed greatly to our personal and professional development. We are grateful to have enjoyed such a productive, positive, and fulfilling project, and also to have established valuable lasting friendships.

Mark Bannister

Zach Anderson

John Silkey

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Executive Summary

This report provides strategic guidelines for a fashion brand to address the systemic challenges facing garment manufactures in China, as part of a strategic move towards sustainability. The report outlines 12 common challenges facing garment manufacturers in China, and suggests how they can be best addressed by a fashion brand.

Background, Research Question & Methods

The global garment industry employs over 26 million people worldwide, with an annual turnover of one trillion US dollars (Allwood, 2007) and plays a significant role in the economic development of developing countries as a result of globalized supply chains. However, at present the industry is inherently unsustainable due to the heavy dependency and exploitation of natural and social capital. Over 50% of global garment exports originate from Chinese garment manufacturers resulting in detrimental effects upon natural and social systems. Global fashion brands play a significant role in influencing the social and environmental impacts of garment manufacturers. The environmental and social stewardship strategies employed by the fashion brand filter down the supply chain and often become the de facto strategies of first tier garment manufacturers.

The report focuses on a UK based fashion brand (“New Style”) and two of New Style’s first tier supplier factories in China. We have acknowledged the fashion brand as having the greatest influence over the supply chain and have also recognized the relationship with first tier suppliers as a leverage point in moving the garment industry towards sustainability. As a result the research questions asked by this report are as follows:

*If a fashion brand wants to move its supply chain towards sustainability, what does it need to know about its first tier suppliers in China to help inform its strategy?*

- *What challenges do Chinese garment manufacturers face?*

- *What strategic guidelines should form the core components of a fashion brands strategy in order to help its first tier suppliers overcome these challenges?*
In order to answer these questions we employed a variety of research techniques, including the analysis of industry best practice in supply chain engagement, literature evaluation, expert interviews and most importantly site visits of two garment manufacturers in China, conducting workshops and interviews to best understand the challenges faced on a daily basis in moving towards sustainability.

**Results**

**Challenges Facing Chinese Garment Manufacturers**

The results generated 12 common challenges facing garment manufacturers in China grouped into 3 causal categories of Brand Directive, Company Culture and Regulatory Environment. Figure 3.2 shows these challenges grouped under the causal categories. With the majority of challenges facing the two garment manufacturers arising within the relationship with New Style we were able to confirm our early assessment that the fashion brand has a direct influence on the majority of challenges facing Chinese garment manufacturers in moving towards sustainability.

**Strategic Guidelines for a Fashion Brand**

Understanding the root cause behind each of the challenges facing Chinese garment manufacturers enabled the identification of three strategic guidelines for fashion brands to adopt as an approach to best address the challenges moving towards sustainability.

These strategic guidelines are for fashion brands to utilise when developing actions as part of an overall strategy designed to engage and move first tier suppliers toward sustainability:

1. Does the action ‘Broaden Purchasing Priorities’?
2. Does the action encourage ‘Greater Collaboration’?
3. Does the action ‘Build Awareness’?

Figure 3.5 shows to what degree these strategic guidelines address the key challenges faced by garment manufacturers in China in moving towards sustainability.
Discussion

The results provide a clear understanding that the majority of challenges facing Chinese garment manufacturers can be directly or indirectly addressed by adopting strategic guidelines specific to fashion brands. These guidelines should be taken into consideration when implementing actions aimed at moving first-tier suppliers towards sustainability. This thesis identifies a number of actions being implemented by leading brands within the fashion industry that specifically address each of the guidelines outlined in this report. Results from this report furthermore show that there are several key challenges associated with Chinese government regulation that the fashion brand will struggle to directly or indirectly influence. Further research needs to be conducted on how a fashion brand can best address regulatory challenges, however evidence of best practice suggests working with Chinese NGOs, lobby groups and enforcing high standards can address this challenge. In addition, end consumers and raw material suppliers are key pieces of the supply chain that must play an active part in the move towards sustainability, and also require further research.
Glossary & Terms

**ABCD Tool** – A strategic tool that enables one to utilise backcasting to develop a strategy and steps towards an envisioned goal.

**Backcasting** - Setting a future condition or vision of success, or desirable outcome, and working back from that future to the present and asking, “What do we need to do to get there?”

**Biosphere** – The surface, atmosphere, and hydrosphere of the earth, functioning as a system to provide conditions for life.

**Choice Editing** – Removing unnecessarily damaging unsustainable product choices as options for consumers.

**Cost** – The cost at which the supplier sells the product to the fashion brand.

**End Consumer** – The person who is buying and using the garment from a fashion brand.

**Ethical Trade** – In the context of this paper ethical trade refers to socially responsible labor practices within the supply chain in line with international human rights and labor standards.

**Fast Fashion** – Garments that are made and sent to market as quickly as possible, to allow the consumer to participate in current clothing styles but at a more affordable price than high fashion items.

**First Tier Supplier** – A supplier that delivers products directly to the fashion brand.

**Floor Employee** – Factory employees who work on the factory floor as part of the assembly process or operating machinery, who are not part of management.

**FSSD** – The Framework for Strategic Sustainable Development is a way to understand and organize strategy towards sustainability. Using a whole system perspective and scientific definition of sustainability, it is a generic framework that can be applied to any organization.
Funnel Metaphor – A metaphor that represents the depletion and degradation of natural resources and ecosystem services against a rising global demand.

Lead Time - The time that it takes a supplier to deliver goods after receiving an order.

Living Rights – An individual's most basic need and right to subsistence.

New Style – A clothing retailer operating in several European markets. Operating a total of 192 stores, the company positions itself as marketing fashionable clothing at competitive prices.

Quality – The quality of material and finishing of the product sold by the supplier to the fashion brand.

Supply Chain – A system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer.

Sustainability Principles (SPs) – Four scientifically proven principles that define sustainability from a global perspective.

Systems Thinking – Thinking in the context of the wider environmental and social system and the interconnectedness that exists.

Upstream – In this paper, upstream are the parts of the supply chain on the supply side of the brand; those that provide raw materials, processing, assembly etc.

Value Chain - An organization's set of linked, value-creating activities, ranging from securing basic raw materials and energy to the ultimate delivery of products and services, including marketing, sales, and service.
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1 Introduction

1.1 The Sustainability Challenge

Increasing global population, sharply declining eco-system services, declining biodiversity, lack of accessibility to clean water, societal inequalities, and anthropogenic climate change are just a few of the many complex challenges facing civilisation in the 21st century. These systemic and increasingly urgent problems are becoming more severe and pose a serious threat to our society as we know it if left unaddressed (Lovelock, 2006).

Society’s upstream choices in materials extraction, design, production methods and volume are systematically depleting resources to fuel economic development, while the pollutants and wastes associated with this development systematically increase in the biosphere (Broman et al., 2000). Organizations are feeling the effects of these behaviours from increasing competition in the marketplace, increasing environmental demands from customers, rising resource costs, stricter legislation and a number of other challenges. But how do we solve all of these issues?

A useful way to look at this problem is through the metaphor of a funnel (See Figure 1.1). Unsustainable development drives society, or an organization, deeper and deeper into the funnel. The underlying systematic problems in the way society operates will cause deterioration, as the conditions for social and ecological welfare are undermined, represented by the sloping walls of the funnel (Robèrt, 2004). As the walls close in, options to manoeuvre decrease as natural resources and services are exhausted, competition and demand for those resources increases, and the biosphere’s ability to self-renew diminishes.

Figure 1.1. The Funnel.
Navigating towards the opening of the Funnel as an organization, and as a society, is a way to visualize moving towards sustainability. The most commonly used definition for sustainable development comes from the UN Brundtland report and defines sustainable development as “meeting the needs of the current generation without compromising the ability of future generations to meet their needs” (World Commission, 1987). Any organization finding ways to avoid hitting the walls of the funnel in the short- to mid-term will benefit greatly as competitors fail to do so, while simultaneously helping society move towards sustainability.

For sustainability to become a reality, we must have a greater awareness of how economic and social activities impact the biosphere in which we all live. Sustainability requires thinking and acting with a systems perspective to understand and acknowledge these complex interdependencies between natural, social and economic systems. The Framework for Strategic Sustainable Development (FSSD), which we will introduce, is a unifying framework, designed to analyze the challenges and opportunities within this complexity. By creating a common language and introducing a strategic approach the FSSD allows us to conceive solutions to the sustainability challenge in a wide variety of contexts, and reap the benefits of overcoming those challenges.

One such context is the global garment industry. Though it provides a very necessary product, its environmental and social impacts are high and there are a myriad of stakeholders involved. Attempting to address individual issues results in an overflow of data, as the complexity of this global industry can overwhelm. Using the FSSD to navigate this complexity and analyze the problem, we will explore the challenges faced by fashion brands in moving their supply chain towards sustainability, and what leverage points might exist to overcome them.
1.2 The Framework for Strategic Sustainable Development (FSSD)

1.2.1 What is the FSSD?

When dealing with complex systems, such as the biosphere, the economy, or any such sub-segment, it can be overwhelmingly difficult to form an integrated strategy in the face of seemingly insurmountable detail. To plot a course through this complexity towards sustainability, we use a generic, but robust, Framework for Strategic Sustainable Development (FSSD), that can be used with any group or organization. The FSSD provides a way for us to structure and organize complex situations, so that we may be able to see the challenges and opportunities in the light of the bigger picture (in this case, the biosphere). In doing so, we move away from a reductionist approach and avoid becoming lost in complexity and detail. Only then can we strategically determine specific actions, and see the benefits of operating proactively towards sustainability.

The FSSD also provides us with a common, principle based definition of sustainability, and therefore a common language surrounding these issues. Too often debate over how to plan around complex issues results in disagreement over details, distracting us from the larger goal at hand. By establishing a common definition of sustainability and a framework in which to organize details, the FSSD helps us to handle trade-offs among those details and keep us steered on course towards the bigger goal.

1.2.2 How Does the FSSD Work?

To navigate through the funnel, it is necessary to plan strategically from envisioned goals in the future with a long-term outlook, while earning short-term wins that enhance the organization’s immediate business performance. To accomplish this, the FSSD utilises a backcasting approach in concert with four, principle based, system conditions for sustainability, and strategic guidelines to ensure each decision is the right one, for the biosphere, society, and for the survival of the organization.

This approach is underpinned by a five level framework, where level 1 sets the system boundaries as our global biosphere (See Figure 1.2). In it is contained
our society and its organizations, our economy, natural resources and services, and all other aspects that depend on the biosphere for their existence.

Level 2 sets the conditions for success in this system. These system conditions, or sustainability principles (SPs), describe the system in which we work, the biosphere, and the “rules” by which it operates (See Box 1.1). Supported by a world wide scientific consensus, these principles provide a robust direction in planning towards sustainability and are sufficient enough to achieve sustainability, yet broad enough to be applied to any situation.

Using a principle-based definition of sustainability, combined with an organization’s own internal definition of “winning,” enables us to describe the minimum conditions necessary for a sustainable society and support systematic planning and decision-making within complex systems. These principles provide a common language for stakeholders in order to help handle potential trade-offs (Robèrt, 2002) and

**Box 1.1. The Sustainability Principles (SPs).**

In a sustainable society, nature is not subjected to systematically increasing…

SP I…concentrations of substances extracted from the Earth’s crust,

SP II…concentrations of substances produced by society

SP III…degradation by physical means

And, in that society…

SP IV…people are not subjected to conditions that systematically undermine their capacity to meet their needs.

(Robèrt et al., 2004)
avoid a reductionist approach to planning.

Level 3 allows for creating a strategic plan towards this success, using backcasting from a vision of success, and governed by these principles (See Appendix A for an explanation of the backcasting process). Backcasting involves setting a future condition of success, or desirable outcome, and working back from that future to the present and asking, “What do we need to do to get there?” Answering this question creates possible stepping-stones toward success, which can then be analyzed by three strategic guidelines: Is it in the right direction (towards success)? Is it a flexible platform on which we can further build towards success? Does it provide us with an adequate return on investment (ROI)? By filtering possible actions through these guidelines we can identify which steps provide the best business case for implementation, thereby incorporating an organization’s economic needs into the needs of society in a sustainable future.

Level 4 of the FSSD is any concrete action determined by the strategy. The action taken often utilises tools from level 5 (Robèrt et al, 2004). The FSSD allows for strategic evaluation and selection of specific actions and tools at these levels in order to suit specific situations and actors.

The FSSD helps provide an organization with a description of where it currently sits, where it wants to go, and the benefits associated with moving

1 Backcasting is very effective when dealing with complexity, the need to make a fundamental change, or when dominant trends are part of the problem (Robèrt, 2002). While forecasting techniques unintentionally perpetuate any flaws in the strategy or system forward, as plans are founded on past success or failures, backcasting from principles helps us avoid repeating past mistakes.
towards its goal. Once these criteria are established, its much easier to plan a strategy on how to get there.

### 1.3 The Global Garment Industry Today

Employing over 26 million people world wide, and generating revenues of over one trillion US dollars per year (Allwood, 2007), the garment industry plays a significant role in cross boarder trade, providing key products for people worldwide. Using Manfred Max-Neef’s work on human needs, we can say that the garment industry helps people satisfy three fundamental needs: garments provide protection from the elements, subsistence for those who work in the industry, and offer a possible satisfier for an individual’s need for identity (Max-Neef, 1991). There’s no doubt that the garment industry plays an important role in any sustainable future. But currently, this industry is producing these goods in a way that undermines our ecological and social systems.

#### 1.3.1 The Industry Functions as a System

In the 21st century global supply chains manufacture products for multinational fashion brands to sell to an ever-increasing customer base.

*Figure 1.3. Lifecycle process of an apparel garment and the associated inputs and outputs.* (Adapted from NICE Ethical Fashion Initiative, 2009)
Customers in developed countries benefit from low prices that are primarily the result of globalized production in loosely regulated markets where low labor costs exist. In turn, the globalization of garment supply chains has played a crucial role in the economic development of developing countries. The WTO (2004) for example outlines that garment exports represent 75% of Bangladesh’s total exports and recognizes the industry as crucial to raising living standards and providing living rights in developing countries (Bhattasali, 2004).

However, the current operations of garment supply chains are inherently unsustainable, distributing impacts system-wide. Typically, a fashion brand places an order with its first tier supplier for a specific product; some specify the sourcing of all the materials, others do not. The raw materials are extracted or synthesized, and then transported, processed, and finished through processes such as spinning, weaving, singeing, scouring, or dyeing, depending on the material. They’re then transported to the production facility to be cut and sewn into a finished product. From there they are transported to the retailer to be sold in stores to the end-consumer (See Figure 1.3). The systemic socio-ecological impacts from garment production can affect people and places distant in time and space from the factories or the end-consumer (See Figure 1.4). Through the life cycle, one garment can have substantial resources embedded in its creation. As an example, it takes 2,650 litres of water to make one T-shirt and 10,000 litres for a pair of jeans. In total, the clothing industry annually uses around 40 billion gallons of water in the production process (Cooper, 2009). These water intensive processes contribute to estimates that

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<td>SP3 Phosphates in runoff - Algae blooms</td>
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*Figure 1.4. Sample Violations of the Sustainability Principles of a Typical Garment Value Chain*
by 2025, two-thirds of the world will live in situations of water stress (United Nations, 2009), adding to the already staggering number of water related diseases and deaths each year.

Some of the most recognized impacts of this value chain include:

**Raw Materials**

As an example, cotton production requires significant amounts of nitrogen, phosphates, pesticides and herbicides. Carried away as run-off, the phosphate has the unintended effect of causing algae blooms in the watershed, and combined with the toxicity of pesticides and herbicides, can kill off productive fisheries, affecting those who depend on those fisheries. Meanwhile, the production of synthetic fibers such as polyester consumes fossil fuels and emits toxins into the air (Bofetta, 1997), which can cause irritation of respiratory organs and can cause cancer in those involved in production.

**Processing**

Treating and finishing fabric is highly energy and water intensive. It also uses or produces a number of compounds, such as phthalates, halogenated compounds, and short chain aldehydes, that are weakly degradable, bioaccumulate, and have a high toxicity and carcinogenicity (Wormuth, 2006; Bofetta, 1997). As a whole, the textile industry uses 25% of all the chemicals used worldwide (NICE, 2009). Processing effluent contains heavy metals that accumulate in the biosphere, as well as formaldehyde, organic compounds and other water-soluble substances that leak into surrounding watersheds.

**Production Factory**

Alongside high energy use, the assembly of garments and accessories generates large amounts of waste fabric as patterns are cut. Often times these cuttings are either dumped or burned illegally, or incinerated by the local government, releasing compounds such as dioxins into the air. Unacceptable labor practices have also been a significant challenge as the hyper-competitive retail market, coupled with loose regulatory environments, have created situations where the labor ethics of major fashion brands have been called into question.
**Retail**

The sale of garments for major retail brands often requires stores with very large physical footprints, and may require new buildings when expansion is part of the corporate strategy. These stores use significant amounts of energy for lighting and climate control, while sending large amounts of plastic packaging to landfill. Additionally, the sale of “fast fashion” creates a false need among consumers to consistently purchase new styles each season, turning garments into disposable products.

**Transport**

The transition between every step of the life cycle requires transport of goods and materials. Garment supply chains still rely heavily on fossil fuel based transport for trucking and shipping. For example, one pile of cotton may be grown in the US, shipped to southern China to be processed, then trucked to central China to be sewn, then shipped to the UK for sale in a fashion store. And as new production markets open up, new roads are required to carry materials to and from those markets.

**Use**

It is with the end consumer where the majority of energy embedded in a garment is found. The use and laundering of a garment consumes the most energy per unit than any other stage of the life cycle (Claudio, 2007). As end-consumers purchase more and more apparel, the strains on natural resources and services embedded in that apparel are felt through the whole supply chain.

**End of Life**

Though many people recycle their old clothing through donation groups, if garments are not recycled a significant proportion are sent to land fill. As “fast-fashion” trends have increased over the past several years, this proportion has noticeably increased.
1.3.2 China’s Leads in Global Garment Production and Exports

Though these effects are spread throughout the life cycle, the majority of the world’s garment production now takes place in China. This has had a positive economic effect on many parts of China. In 2006, China produced 17.8 billion apparel items - roughly three items for every person on the planet (Cotton Incorporated, 2007) and 30% of world apparel exports (Claudio, 2007). The WTO estimates that China will attain a 50% market share of the global garment and textile-manufacturing sector towards the final quarter of 2010 (see Figure 1.5). But this scale of production is having a profound effect on China’s ecosystems. Estimates have China’s water table dropping over one meter each year (Yardley, 2007), while its reliance on coal-fueled electricity is systematically increasing CO2 concentrations in the atmosphere (U.S. Energy, 2009). Additionally, China’s waste management infrastructure is not yet established enough to handle many of the by-products of this process in a sustainable manner. More often than not, waste materials from garment manufacturing are incinerated, dumped illegally or burned in illegal garbage fires. As the global market continues to grow, the demands on natural resources and services in China will continue to outstrip their capacity.
But these supply chains across China are expansive and fragmented. To understand where the leverage points are in a fashion retail supply chain, we need to look at how they function as a system.

### 1.3.3 A Typical Fashion Brand’s Influence on the Supply Chain in China

We believe that it is the fashion brand that anchors the supply chain, making decisions based on its own strategy that filter back through the supply chain into first tier factories. This can have a positive impact as we have seen with ethical trade initiatives championed by global fashion brands and widely adopted in developing countries. Some first tier suppliers have begun to demand the same of their own suppliers, bringing the whole supply chain along. The strategy championed by the fashion brand becomes the de facto supply chain strategy (See Figure 1.6).

As a result of the fashion brands leverage over the entire supply chain, harmful

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**Figure 1.6. Brand Strategy Pulls The Supply Chain With It**
effects can occur when the fashion brand requests unsustainable materials that often carry significant socio-ecological impacts from cradle to grave.

Challenges can arise for first tier garment manufacturers if they attempt to move towards sustainability on their own. They have less leverage because of the fundamental interdependence of their position in the supply chain, resulting in little pull on the rest of supply chain. If a first tier garment manufacturer positions its own strategy too far from that of the brand, it risks breaking from the supply chain, only to be replaced by another manufacturer that is more in line with the brand strategy (See Figure 1.7).

1.3.4 The Garment Industry’s Current Sustainability Gap

For the garment industry to become sustainable, it needs to develop where it continues to add value to society, but without undermining the social and ecological systems it depends on. This means that there is a gap between where the industry is today and

Figure 1.7. A Factory Move On Its Own Risks Its Place in the Supply Chain

Figure 1.8. Current Industry View of the System
where it needs to go to get to a sustainable future. The FSSD will help us to describe this gap, looking at a typical fashion brand’s current view against an imagined, ideal sustainable future.

Today a typical fashion brand operates with a narrow perspective, as compared to the wider social and natural systems within which it operates (See Figure 1.8). Despite its demonstrated influence on the entire supply chain, the current focus is upon shareholders, consumers and first tier suppliers (See Figure 1.9). Success in this system is continuous growth in sales and profits, and is pursued by a strategy based on increasing market share while controlling costs, quality, and lead-time of its products. These short-term goals and strategies help keep the brand’s focus narrow.

In a sustainable future, a fashion brand would capitalise on the leverage that it holds over its first-tier suppliers and the entire supply chain. The supply chain would be viewed in the context of the wider economic, sociological and natural system (See Figure 1.10). Success for a fashion brand would be continued profitability, with long term resilience gained from aligning business operations and its own internal definition of success with sustainability (See Figure 1.11). Rather than exploiting natural and social resources upon which it depends, a fashion brand would now operate with enlightened

![Figure 1.9. The Current Reality of Fashion Brands.](image)

![Figure 1.10. Industry View of The System in A Sustainable Future](image)
self-interest, recognizing the benefits of avoiding the funnel walls. Its strategy, aiming towards success in this system, would now be guided by the additional guidelines provided by the FSSD (Is it in the right direction? Is it a flexible platform that can be built upon?) Planning with success in mind, its actions and tools would be prioritized towards a sustainable future.

Having identified this gap between the generic current reality of a fashion brand and its idealised, sustainable future, we can begin to think about how to bridge this gap.

## 1.3.5 How does the garment industry bridge this gap to sustainability?

Within the system of the garment industry there are many pieces to be addressed, including, but not limited to, the supply chain, the role of consumer demand, even China’s regulatory and commercial environments. In this study, we will understand the sustainability gap facing an existing major fashion brand and its first tier suppliers. We’ll then develop strategic guidelines to help the brand move its supply chain towards a sustainable future. We believe that using the influence of decisions made by this brand on its supply chain is a significant leverage point. For the purposes of this report, this brand will be referred to as “New Style Ltd.” or “New Style” going forward.
If New Style wants to avoid the funnel walls and develop a business model that is resilient to legislative changes, greater transparency through social networking, and a market that is becoming increasingly sustainability driven as resources are squeezed, it requires more information on the barriers its supply chain faces in any such move. Developing the guidelines for a strategy for New Style in level 3 of the FSSD requires understanding of the challenges its factories in China face within level 1.

Traditionally, New Style’s approach to working with its first tier suppliers in China is from the top down, as we have seen with initiatives surrounding ethical trade. New Style provides directives to its first tier suppliers, and expects compliance without disrupting the value chain. A more innovative approach involves moving beyond compliance and monitoring (BSR 2007), whereby New Style takes a more proactive approach to understanding what’s needed. This involves understanding the challenges a Chinese garment manufacturer may face, from their perspective in the system. In order to do this, we will study two factories in China, to understand the fundamental challenges they face in a move towards sustainability, and how New Style strategy’s could better help them overcome these challenges.

### 1.4 Research Question

If New Style is committed to a move towards sustainability, the strategy to do so must address the challenges faced throughout the entire supply chain. In this study we focus on the link between the brand and the first tier supplier and ask:

If a fashion brand wants to move its supply chain towards sustainability, what does it need to know about its first tier suppliers in China to help inform its strategy? In order to answer this, we will investigate the following questions:

- What challenges do Chinese garment manufacturers face?
- What strategic guidelines should New Style use to shape a strategy in order to help its first tier suppliers overcome these challenges?
1.5 Scope & Limitations

The purpose of this study is to identify the challenges that first tier garment manufacturers in China will face if New Style chooses to move towards sustainability. Rather than problem solving and focusing on increasing process efficiencies as has been done in the past (Alwood, 2007), we wanted to see what was hindering a strategic approach looking forward to sustainability in individual garment manufacturers. The key components of this study were the two Chinese garment manufacturers, Factory A and Factory B, and one fashion brand (See Box 1.2) that is common to both, “New Style Ltd.”

The two factories were chosen as representatives of differing market segments

Box 1.2 “New Style Ltd.” Summary

<table>
<thead>
<tr>
<th>“New Style Ltd.” Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Stores: 196</td>
</tr>
<tr>
<td>2009 Revenue: £2,314 Million</td>
</tr>
<tr>
<td>2009 Profit: £252 Million</td>
</tr>
<tr>
<td>Main Products: Menswear, Womenswear &amp; Home Fashions</td>
</tr>
<tr>
<td>Market: Primarily UK &amp; Ireland, Spain, Germany</td>
</tr>
</tbody>
</table>

Box 1.3. Factory Profiles

<table>
<thead>
<tr>
<th>Factory A</th>
<th>Factory B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Employees: 3,090</td>
<td>Number of Employees: 435 (Jan. '10)/ less than 300 (Mar. '10)</td>
</tr>
<tr>
<td>Main Products: Women’s Underwear, Swimwear &amp; Nightwear</td>
<td>Main Products: Handbags, Purses, Cosmetic Bags, Men’s Bags</td>
</tr>
<tr>
<td>Monthly Production: 2,500,000 pieces</td>
<td>Monthly Production: 800,000 pieces</td>
</tr>
<tr>
<td>Number of Customers: ~47</td>
<td>Number of Customers: ~32</td>
</tr>
<tr>
<td>Largest Single Customer Share of Business: 15%</td>
<td>Largest Single Customer Share of Business: 29.5%</td>
</tr>
<tr>
<td>Percent Business of Our Partner Brand: 5%</td>
<td>Percent Business of Our Partner Brand: 29.5%</td>
</tr>
<tr>
<td>Processes On Site: Cutting, Sewing, Assembly, Packaging</td>
<td>Processes On Site: Cutting, Sewing, Gluing, Assembly, Packaging</td>
</tr>
</tbody>
</table>
(See Box. 1.3), as well as because of the unique access we were given to their operations and management. Factory A is a very large undergarment producer with a diverse client base, whereas Factory B is a small handbag manufacturer with approximately 1/3 the production capacity of Factory A, and a smaller customer base. It is understood that product development decisions within this factory/brand relationship can influence the full supply chain. Any changes made here with a systems perspective and guided by the success level in the FSSD have the potential to move through the supply chain to the suppliers of raw materials and end consumers. In analyzing these two specific factories we hoped to uncover challenges from the factories’ perspectives that New Style could safely assume were common in its supply chain.

The system boundaries for the study included both Factory A and Factory B and their current internal and external challenges including their relationship with New Style. Using these two pilot factories as case studies, the aim was to identify which challenges are common to both Factory A and Factory B and what approaches New Style could take to assist these factories in the move towards sustainability.

It is acknowledged that the boundaries of this study are narrow, as it did not attempt to address any of the sustainability questions related to consumer demand, or raw material sourcing, of the garment industry. It is anticipated that decisions made at the brand and factory level (Factory A and Factory B) will affect areas outside the scope of this study. We believe many of the challenges and opportunities may be systematic through the supply chain, beginning at the top with the fashion brand and cascading to source suppliers. Any questions concerning raw materials suppliers and consumer demand that are uncovered and connected to this study, are left for future research.

"A shift is needed, from problem-solving away the negative to creating positively.” (Senge, 2001).
2 Methods

2.1 Approach

Our objective for this study centred on identifying specific challenges facing Factory A and Factory B, in order to create strategic guidelines for New Style to move its supply chain towards sustainability. In the initial design of our project we employed Joseph Maxwell’s qualitative research design process in an iterative approach to focus our project scope (Maxwell, 2005) (See Figure 2.1).

![Figure 2.1. Interactive Model for Qualitative Research Design. (Maxwell, 2009)](image)

To argue this approach, we used the FSSD to frame our research and identify the gap between how New Style and how its supply chain currently operates, versus that same system in a sustainable future, focusing on the challenges in the System level, and possible solutions at the Strategic level in our Results. Using the common language generated by the FSSD, and operating with a common definition of “system,” and “success,” as defined in the Introduction, we then aimed to work with the factories and understand what challenges these factories faced. A strategic analysis of one large factory with a significant number of large customers (Factory A), and one small factory,
concentrated in its business (Factory B), was made to gain a more specific understanding of exactly where a typical Chinese garment factory stood compared to a sustainable future and what challenges they face. This information was then used to create strategic guidelines that New Style could employ with its supply chain to help factories overcome these challenges as part of a strategy, rather than dealing with them on a case by case basis. Any potential actions and tools that could be used are addressed in the discussion, as these are informed and determined by the specific strategy guidelines. The methodology presented below was very much an iterative process, with each phase informing the others as we continually scoped and shaped our methods (See Figure 2.2).

Figure 2.2. Project Methodology

2.2 Phase Zero: What systematic problem are we facing and where can we make a difference?

To begin our research, our team identified garment manufacturing and consumption, specifically that of “fast-fashion” brands such as New Style, as a major contributor to violations of the sustainability principles. The industry is full of positive feedback loops: fashion brands promote new styles; end-consumers purchase and demand more cheap, “in-style” clothing; manufacturers produce more apparel using virgin resources, feeding brand and end-consumer demand; brand marketing followed by consumer purchase
renders the latest trends obsolete, increasing consumer demand for the newest fashion styles (See Figure 2.3)

We analyzed where in this cycle we could produce actionable results within a limited time frame. There is no doubt that consumer demand is a key driver in this process and must be addressed through a collective shift towards a reduction in consumption. But we identified New Style’s supply chain strategy, specifically with first-tier production factories in China, as a potent leverage point for beginning to shift this process towards sustainability. We wanted to know, what hurdles these factories would face if New Style decided to move towards sustainability? What strategic approach could New Style take to help move its supply chain in this direction?

![Figure 2.3. Garment Industry Positive Feedback Loops](image)

**2.3 Phase One: Literature Review and Preliminary Exploration**

We undertook an extensive study of academic journals, industry best practice, public media reports, corporate marketing and industry trade publications as part of a broad review of fashion brands, manufacturing and supply chain logistics. Most research focused on industries and supply chains operating in some capacity within China, though articles concerning established supply chains in more economically developed countries (MEDC) were explored as well. Our aim was to understand the Chinese manufacturing landscape in general and then scope in towards garment manufactures and fashion brands, as well as sustainability challenges that may currently affect supply chains.
2.4 Phase Two: Industry Expert Interviews

We recognized that, while literature review is an effective way to gain a general understanding of a topic, it was essential for us to immerse ourselves in the knowledge of industry experts. In order to further understand supply chain logistics and common challenges facing garment manufacturers in China, we conducted both formal and informal interviews with a number of stakeholders. These included:

- New Style management and contracted consultants
- External supply chain consultants including the Chinese NGO Institute of Contemporary Observation (ICO)
- UK based CSR specialists, The Reassurance Network (TRN)
- Business for Social Responsibility (BSR)

Some portions of these interviews were based on questions prepared ahead of time, while other information was garnered through the flow of conversations around these questions. Our questions revolved around several key areas; New Style’s environmental and social strategies, their view of how the supply chain functions, corporate culture within garment manufacturers, the regulatory environment in China and manufacturing processes. We further gathered opinions from each of the experts on the potential for implementing sustainable practices within garment manufacturers and developed an understanding of current best practices within the industry. A full list of interview subjects is found in Appendix B. Additionally, CSR audit reports of both Factory A & B were reviewed, and preliminary questionnaires were submitted to our target factories ahead of our visits (See Appendix C) The goal of these was to gather general quantitative information about each factory, define the management structures, and to explore the factory’s own supply chain and resource use.
2.5 Phase Three: Factory Case Studies and Analysis

To gain a primary understanding of where Factory A and B currently stood in relation to a sustainable future and the challenges they faced in moving in this direction, we visited each factory and utilized numerous research techniques during these visits:

Factory Management & Employee Interviews

Interviews with key staff, management, and other experts were an essential part of understanding the company culture, existing level of sustainability awareness, regulatory environment and relationship with New Style and other fashion brands. Gaining insight from stakeholders who were familiar with the day-to-day operations of apparel manufacturing was necessary to create a detailed and accurate assessment of the factories’ current reality and their perceived challenges in moving towards sustainability. The interviews had an initial set of standardized specific questions (Appendix D) focused upon operations and external relationships. These questions acted as a doorway into understanding each factory’s level of engagement with sustainability and what challenges they face. These interviews often evolved into further conversation that elicited opinions and insights that we may not have anticipated.

In an industry where access to floor employees is often difficult and contentious we were extremely fortunate to interview floor employees at both sites. Through these interviews we were able to gauge their awareness of environmental and social challenges, and learn how they prioritized those challenges when looking for employment.

Workshops

The FSSD and ABCD Tool were used in the process of conducting a workshop in both factories. These workshops with factory management and employees focused on uncovering factory based challenges as well as the level of awareness of environmental and social systems. Our team facilitated the workshop with essential support from the team at ICO. We conducted two presentations and one workshop at each factory, the first an introduction to the FSSD, followed by an interactive presentation to define sustainability, and finally an ABCD workshop. These workshops allowed us to understand the level of collective awareness of environmental and social systems and observe
how engaged the workshop participants were with this subject matter. Furthermore, it gave us the unique opportunity to see the management hierarchy in action, and understand any challenges or opportunities that may exist in that facet of the company culture.

Additionally, we held a workshop with our NGO partner ICO in addition to our work in the factories to gain further insight into cultural and regulatory challenges.

Observation and Floor Walk

Physically walking the factory floor was an important part of the data collection process. This allowed us to understand current environmental impact reduction initiatives already in place (if any), whilst further understanding the whole process of manufacturing garments. Observations provided invaluable familiarization with the various factory processes, and provided us with the knowledge needed to break down communication barriers during the workshops.

Documentation

The records, receipts, invoices, and other documents kept at the factory were used to understand the material and resource flows, as well as the tracking and measurement systems in place. The documentation included ordering and purchasing data, both for materials utilized by the factory as well as orders from customers.

2.6 Phase Four: Data Analysis – Identifying Factory Challenges and Brand Strategic Guidelines

An understanding of the challenges to integrating sustainable business practices into both Factory A and B evolved out of the analysis of data gathered from interviews, workshops, observations and documentation explored during factory site visits. Through identifying these challenges we were able to discover commonality and unearth the systemic root cause of these challenges. We then took each challenge and put ourselves in the position of the factories while asking, “Why is this a challenge for us?”
Repeatedly asking this question we distilled each successive answer to find core strategic guidelines New Style could employ to support their first tier suppliers in the move towards sustainability.
3 Results

3.1 Challenges Facing Chinese Garment Manufacturers in the Current System in Moving Towards Sustainability

If New Style aims to shift its supply chain towards success in a sustainable future, it must develop a greater awareness of the system in which it operates (See figure 3.1). And within this system New Style needs to understand the challenges its first tier suppliers face as it crafts a strategy to move towards sustainability. The challenges identified, common among its first-tier production factories in China, are presumed to be representative of a set of challenges facing most 1st tier suppliers in the garment industry.

Analysing our results we where able to connect these challenges to three distinct systemic causes:

**Brand Directive** – *The challenges faced by the factory as a result of directives provided by New Style.* Though the factories guide their own business decisions, operations are oriented around serving the demands of their customers. The challenges in this category arise directly from decisions and actions initiated by New Style.

**Company Culture** – *The challenges faced by the factory as a result of the organisational culture.* The company culture plays a key role in determining how employees and management overcome challenges and capitalise on new opportunities.
**Regulatory Environment** – The challenges faced by the factory as a result of governmental regulations and inconsistencies in enforcement. Government policy plays a key role in shaping factory behaviour, however inconsistent and unreliable regulatory enforcement creates several challenges for factories.

Due to the complexity and the interconnectedness of many of the challenges, it is difficult to constrain each to a particular category; these challenges are not mutually exclusive (See Figure 3.2).

*Figure 3.2. Though Challenges Can Be Categorized, There Is Significant Overlap*
3.2 Immediate challenges faced by garment manufacturers in China in moving towards sustainability.

3.2.1 Company Culture:

Hierarchical Management Culture

Hierarchical management culture is a very top down, almost suppressive structure that hinders employee participation, right to expression, and ultimately productivity.

- Management culture plays a key role in building awareness and fostering a sense of ownership for initiatives related to sustainability. The challenge is developing a working environment that allows staff to voice their opinions and ideas without fear of reprisal or losing face.

- Without any input or buy-in from the floor workers who will be directly affected by sustainability policies, the chances they will be implemented properly and become successful are lower.

- We found that some workers have high levels of engagement and plentiful ideas to contribute, but they are rarely consulted or empowered to contribute to any decisions about factory policy or operations.
  
  - “Changing the organizational culture will be a big challenge in trying to understand the value in reducing the environmental impact…” (Pang, 2010).

  - “At current stage most Chinese factories are management-dominated, so in the implementation of the project, we need to put our emphasis on the management and especially on the factory owner to get their recognition while to the workers we need to inspire” (Li Huinan, 2010).

  - “Its integral the correct environment is created otherwise employees will not contribute, Chinese organisations have a very hierarchical culture” (Guy, 2010).
Narrow Investment Priorities

A narrow perspective is taken by financial decision makers at both factories when considering capital expenditure projects or investing in future opportunities.

- Owners and management are focused on using available capital to invest in increasing efficiency and output simultaneously. They generally do not consider more long-term investments because of the desire for quick paybacks on any investment.

- Interviews with a number of managers showed that initial investment cost would be the greatest concern when considering environmental or social initiatives.

- Further challenges include reluctance of owners to invest profits in social and environmental initiatives, and lack of awareness as to what sustainable investments are available and what the potential returns actually are.

  - “Cost is the largest concern with reducing environmental impact, the measures should be reasonable and realistic” (Pang, 2010).

  - “Getting approval for factory investment from the [factory] group GM is a big challenge and his full and clear support is essential” (GuoQiang, 2010).

  - “There’s no capital available because of the small size of the business” (Xue, 2010).

  - “We look for a 20%-30% ROI on all capital investment projects with quick returns being number one priority” (Xue, 2010).
Minimal Awareness & Understanding

There appears to be a lack of basic foundational understanding of both social and environmental issues amongst management and employees. In particular there is minimal understanding of environmental issues at the factory and how these relate to wider social and ecological systems.

- Without a foundational understanding of financial, social and natural flows in the context of ecological systems, sustainability is a difficult concept to grasp.

- Not one of the employees interviewed had ever received any formal environment related education, while >75% of employees interviewed had no opinions or understanding of what the environmental impacts of the factories were.

- While some managers understand and want to address sustainability, it is very difficult to share or impart that awareness with other managers and particularly with floor employees.

  o “Workers who are comparatively young and educated are easy to accept fresh things and they are active and easy to get involved in discussion, while the older workers are uneducated and (especially when most are female) the situation can be the opposite” (Li Huinan, 2010).

  o “For this project saving money through efficiency is not the main purpose. The main purpose is our responsibility and the opportunity to build awareness and change business culture. But we can’t do this on our own” (Pang, 2010).

  o “We anticipate and are already seeing an increased environmental interest from our customers including the prospect of environmental audits” (Pang, 2010).

  o “Energy efficiency projects should be shared with the staff as they have no awareness and this is very important” (Yu, 2010).
Recruitment and Retention of Staff

Recruitment and retention of staff reflects the present situation wherein both factories have considerable difficulties in recruiting and retaining staff.

- Factories are facing increasing competition for low-cost labour. Key drivers for this are: development of Western China, upwardly mobile workforce, and international competition.

- These challenges also reflect the factories’ struggle to justify site-specific improvements such as solar power because factory sites and facilities are often rented in order to remain flexible in a volatile labour market.

- High labour turnover also challenges the rationale around training and empowering employees to understand environmental and social systems, as employees often intend factory work to be a short-term endeavour with 50% of staff interviewed stating wage as their predominant driver (Appendix E).

  - “It is possible, in my opinion, to see the direct negative consequences of the recruitment and retention challenges on ethical and environmental issues within the factory, such as increasing over-time” (Zhou, 2010).

  - “Recruitment challenges are creating a very footloose garment manufacturing industry within and around the Shenzhen area of China” (Hwang, 2010).

  - “…worker engagement, recruitment, and retention is ultimately the biggest day to day challenge” (GuoQiang, 2010).

  - “The biggest opportunity from environmental reduction measures is the reputation advantage it can bring Hop Lun which plays a key role in attracting new employees” (Li, 2010).

  - “It really is very hard to recruit workers this year, the workers hold all the cards, there are many more jobs
available than workers” (Yu, 2010).

- “Staff turnover for 2009-2010 has been roughly 70%” (Tsoi, 2010).

- “Because of recruitment issues I think we may need to reconsider our market position as we are really struggling to keep up with the high volume low margin products” (Xue, 2010).

**Reluctance to Hire External Advisors**

The factories have not, and do not, consider hiring external experts with specific technical skills relating to environment, ethics, and sustainability as a whole.

- Tapping into the knowledge and technical skills offered by external experts can be important to understanding in detail the opportunities and approaches in moving towards sustainability.

- Eternal experts offer necessary services in areas such as energy management, waste reuse, product development, and strategic direction, all of which are important considerations when moving towards sustainability.

- Both factories lacked these skills internally; however, a greater challenge exists with the reluctance to source these skills from external sources. Both factories stated that they have not in the past and will not in the future hire consultants.

- "BSR is currently conducting a study into the reluctance of Chinese factories to hire external consultants...This is a big problem in trying to implant new knowledge, skills and techniques within the Chinese manufacturing sector” (Ediger, 2010).

- “We have never hired consultants and I don’t see that changing” (Pang, 2010).
Identifying Relevant Chinese Examples

Factories struggle to find and identify relevant examples of environmental and social best practice within China.

- Relevant examples of factories and processes moving towards sustainability were requested numerous times by management and staff. Examples are crucial for creating initial buy in and building momentum in the move towards sustainability, especially in a setting where there is reluctance to be early adopters and proven methods and models are preferred.

- Roughly 75% of workers interviewed stated that they did not have any ideas of how to reduce environmental impact. Models provide inspiration and awareness of the possibilities for reducing impact and improving performance.

- While still relatively scarce these models do exist, but need to be identified and rewarded for their efforts. This will lead to increased adoption and establishment of best practices in the industry. Our research identified that management are not aware of any current examples of best practice and are unlikely to seek out these examples on their own. Furthermore, factories are equally reluctant to share best practices.

3.2.2 Brand Directive

Lack of clear direction from brands

New Style currently has no sustainability strategy and therefore does not provide direction for the factory to move towards sustainability.

- Factories generally operate in a reactive manner to customer requests. The absence of clear sustainability targets and expectations from New Style hinders the ability of the factories to understand sustainability and subsequently drive through initiatives.

- Factories that do not sell to an engaged brand will ultimately have a lower awareness level and will see less reason for change. This is
evidenced by the rapid adoption of codes of conduct regarding ethical labour standards (See Box 1.4). Once they became required by the brands, these standards were rapidly adopted and internalized by the factories.

- “When auditing factories, the diverse effects of certain brands on a factory are evident in their attitude towards ethical and environmental issues” (Zhou, 2010).

- “When we start relationships with a customer, some ask environmental related questions, but up until recently this has been only to meet government regulation.” (Eda, 2010).

**Box 1.4. Customer influence on factory awareness of sustainability**

<table>
<thead>
<tr>
<th></th>
<th>Factory A</th>
<th>Factory B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of customers</strong></td>
<td>47</td>
<td>32</td>
</tr>
<tr>
<td><strong>% of customers with ethical labor COC.</strong></td>
<td>95%</td>
<td>90%</td>
</tr>
<tr>
<td><strong>% of customers with environmental COC.</strong></td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>% of customers that engage beyond COC.</strong></td>
<td>4%</td>
<td>6%</td>
</tr>
</tbody>
</table>
Lack of Communication with the Brand

Open, two-way communication channels with the brand either don’t exist or are limited to a very narrow perspective.

- The interdependency of the relationship between the factory and New Style means that building effective communication in order to work together in a move towards sustainability is crucial.

- Management repeatedly indicated a lack of communication with customers as being at the heart of many challenges they face. There is at present little room to collaborate and build the relationships required to foster trust.

- Factory management further stated that they would not know which channel to communicate through to forward innovative ideas and even went as far as to say that this sort of communication channel did not exist.
  
  - “There needs to be better transparency and mutual trust build up and exchange of information between both supplier and brand in order to form more of a partnership style relationship” (Lake, 2010).

  - “Some customers think they are always right and this is challenging when trying to share ideas and recommend suggestions... if communication is not good it will effect production and quality” (Eda, 2010).

  - “Lack of communication is at the heart of most of our challenges and it must be improved to understand the challenges both sides face” (Eda, 2010).

  - “Continually pushing back design changes [by New Style] is making it difficult to deliver product on time without overtime or breaking the [New Style] labour code...” (Xue, 2010).
There are many competitors that just do as they’re told, so if we stand up and raise an issue...[our customers] sometimes go to another supplier and we lose business. If we had a more trusting relationship [with customers] we would feel more comfortable in raising issues.” (Eda, 2010).

Lack of Brand Demand

A customer that does not demand or offer incentives for factories to add value through sustainability will hinder any move towards sustainability.

- One of the most significant challenges facing the factories is the absence of clear commitments from their customers around sustainability goals. The result is it becomes very difficult for the factory to add value to their products outside the parameters of cost, lead-time, and quality.

- While raw material choices constitute one of the biggest environmental impacts of garment production, it is difficult for factories to utilize more sustainable materials because New Style is not asking for them. Factories are unable to recoup potential extra costs when considering alternative materials, as New Style is unwilling to consider any attributes outside of cost, quality, and lead-time.

- Likewise, the factory is not incentivized to make investments in any initiative that does not directly make them more competitive on price, quality or lead-time. Without the consideration of the entire environmental and social impact of a product within brand purchasing decisions, it will be difficult for factories to move towards sustainability.

  - “It’s all about delivering other efficiencies and value to the business. For example if investing in environmental initiatives helps them deliver a better product at a lower cost in a shorter timeframe then that would help them differentiate” (Lake, 2010).

  - “No, there is no room for suppliers to differentiate themselves on anything to do with the environment” (Lake, 2010).
“One of our biggest problems with green products is finding buyers for them; there are no major customers that are asking us to produce green products at present” (Eda, 2010).

“We can’t go it alone; we need to see the market so we can actually sell what we would like to produce” (Pang, 2010).

“I could make the same bag using an alternative material at a cheaper cost but with just a slightly different finish, but the brand has never asked for this” (Xue, 2010).

3.2.3 Regulatory Environment

"Approaching the government proactively to discuss any kind of issue is not really an option...” (GuoQiang, 2010).

"Provincial leaders have little concern for the environment as they are only monitored on economic growth. Even if Beijing passes strong environmental laws which it has done, the provinces don’t enforce them because they feel it will harm economic growth, and as such, harm the provincial leaders ability to achieve targets" (Kaming, 2010).

Waste Management Services

There is a lack of integrity and transparency in the waste management companies we investigated, as well as a lack of understanding within factories as to what the waste haulers do with the waste.

• A reliable service infrastructure is essential in aiding the factories’ move towards sustainability. Challenges arise where service infrastructure is insufficient in its capacity, effectiveness, or integrity in providing services.
A clear lack of transparency and understanding exists around what processes are involved, what items are recycled, and what items are disposed of legally or illegally.

Factory managers believed that much of the production waste was recycled but they had varying answers when asked to explain the waste removal process, including what components were recycled. There was a general acceptance by management that the majority of their waste was recycled, which we found to be incorrect after further investigation.

- “The waste removal and disposal industry is still developing and in many cases is unregulated; this leads to inconsistencies in quality and integrity of services” (Liu, 2010).

- “I recycle what I can make money for. I have two ways of disposing the un-recyclable stuff: one is to sell it to a local environmental committee after buying it from Factory A, but this is not common practice because of the cost and the complicated legal procedures involved. So, I more often sell the waste to the places like pig farm in Guangzhou for burning. Sometimes I will pay some money for somebody to burn it” (Zhong, 2010).

- “The waste recycling and disposal industry is dominated by small business and because of lack of demand for recycled products, we are facing difficult financial challenges. This is leading to many illegal waste disposal practices occurring throughout the industry” (Zhong, 2010).

**Lack of Enforcement**

There is an evident lack of government enforcement of environmental laws and legislation within both of the factories.

- A consistent and fair law enforcement process is essential to ensuring the follow through of both environmental and social legislation.
Without enforcement, legislation can often lack substance or in the main become ignored.

- The environmental impact of factories as well as sub-contracted services is not monitored or regularly evaluated. This exacerbated the lack of understanding of environmental legislation and incentives.

- Factories stated that beyond an initial impact assessment when the factory opens there has been no visible enforcement of operations. This statement was supported by the absence of documentation to suggest further assessments as well as discussions with NGO partners.

**Varying Provincial Legislation**

*There are stark differences between provinces in the level of both environmental and social legislation.*

- Varying environmental and social legislation reinforces the challenges facing the Chinese garment manufacturing industry moving towards sustainability. Inconsistent provincial standards results in increasing competition for factory sites in less regulated provinces.

- Discussions with management highlighted the differences in provincial legislation and the effects it has upon competition. Management at Factory B stated that minimum wage increases in their location has decreased competitiveness against other less developed provinces where minimum wage standards are not present.

Our research explored two national government policies:


The national government sets basic guidelines for the provincial authorities, however all responsibility for setting the specific details of the policy including substantive targets and direction is passed on to provincial authorities. As an example:
Article 25, Energy Conservation: Energy-using units shall establish a responsibility system for achieving energy conservation goals and reward the collectives and individuals that achieve successes in energy conservation.

Determining ‘what is responsible’, what is a ‘substantive conservation goal’ and ‘what the rewards should be’ is left open to opinion and subjective decision. This is a typical example.

This method of legislative design with no set national standard leaves details surrounding exact figures, exact techniques and exact level of responsibility open to interpretation resulting in different standards and targets at the provincial level. As different provinces pass through different levels of development and seek to attract different industries they will ultimately interpret this policy to suit their present needs. The effect of this at the factory level is the obvious draw for factories to continually relocate to provinces with weaker legislation in order to keep costs down. As a result, until a reasonable standard across the board is developed, factories will have the opportunity to escape legislation that is aimed at moving them towards sustainability.

### 3.3 Strategic Guidelines for New Style

With an understanding of the challenges at the system level, a strategy can be formulated through backcasting from the definition of success (See Figure 3.3), and use strategic guidelines to analyze potential steps towards sustainability. Though the Strategic Level of the FSSD includes three guiding questions to help New Style move towards success, we
have identified three more strategic guidelines, specific to New Style and its supply chain. Utilizing these guidelines when crafting a step-wise strategy will help New Style avoid a reactive approach and instead address challenges collectively from a strategic vantage point.

It should be noted here that while these guidelines squarely address Brand Directive and Company Culture, the Regulatory Environment is more difficult for New Style to effect directly. They have little leverage to create any change, or access to high levels of government and decision makers. In the discussion we’ll examine these issues further.

3.3.1 Broader Purchasing Perspective

New Style should widen its current purchasing priorities beyond the short term, unsustainable metrics used when ordering from first tier suppliers. At present the brand considers only three criteria when placing an order:

- Product Cost
- Product Quality
- Product Lead Time

These leave no room for the factory to directly add value or differentiate through sustainability initiatives. Therefore we believe it essential for a ‘Sustainability’ metric to be incorporated within broader purchasing priorities. Without being able to see the real immediate business opportunity for sustainability related investments, the factories will struggle to understand the rationale for pursing it. New Style must consider the life cycle costs of the products as well as provide incentives for suppliers that undertake successful projects to reduce their impacts and move towards sustainability.

When evaluating actions, New Style needs to ask the question “Does this broaden our purchasing perspective?”

- “No, there is no room for suppliers to differentiate themselves on anything to do with the environment or ethics at present but I certainly see this as a changing trend” (Lake, 2010).

- “An incentive code for the [factory] in the process of purchasing is needed. E.g. those who do well in environmental
protection would be in a superior position for orders and prices. This code is for shortening the ROI in environmental protection and pushing the environmental policies forward” (Lu Huinan, 2010).

• “Several brands are trying to incorporate ethical and environmental criteria into their purchasing priorities, however, at present I haven’t seen any examples of this translating directly into more sales for the factory. Again this is something I am sure we will see more of over time.” (Lake, 2010).

### 3.3.2 Greater Collaboration

Greater collaboration ultimately means forming a deeper partnership between New Style and its suppliers in order to move together towards sustainability. The interdependence between both parties means that neither can take meaningful steps towards sustainability on their own. Their efforts must be coordinated and mutually beneficial; to do so, three key aspects of collaboration that do not currently exist within the relationship must evolve. These are:

- Building Trust
- Creating Broader Communication Channels
- More Sharing of Information

In evaluating a strategy, New Style needs to ask the question “Does this achieve greater collaboration with our suppliers and support them in moving towards sustainability?”

• “There needs to be better transparency and mutual trust build up and exchange of information between both supplier and brand in order to form more of a partnership style relationship” (Lake, 2010).

• “Lack of communication is at the heart of most of our challenges and it must be improved to understand the challenges both sides face” (Eda, 2010).
“We are working hard to facilitate greater collaboration between brands and suppliers in order to help them work together in tackling challenges in moving together towards sustainability. Ultimately they are dependent upon one-another and as such collaboration should underlie any brand strategy” (Hwang, 2010).

3.3.3 Building Awareness

New Style must be a leader and help create the impetus for factories to move towards sustainability. Suppliers need to have a basic cognitive understanding of the environmental and social challenges facing global society, including how factory operations link with, and impact, the social and ecological systems of which they are a part. This fundamental awareness needs to be embedded to help factories understand not only the need, but also the business case for sustainability.

The level of awareness of environmental and social challenges varied between the two factories. As a result of this, a strategic approach to building awareness must be contextualised to the specific needs of the factory and the current situation. Using Willard’s 5 stage model (Figure 3.4), we can explain where we believe the majority of factories are at present and where they will be with a deeper cognitive understanding of sustainability.

Factory A was at stage 2, and Factory B was in between stages 1 and 2. Both of these stages are re-active, compliance based stages whereby a push is continuously needed to drive change. The level of awareness is not evolved beyond complying to customer or legislative directives.

New Style can assist in the progression of their first tier suppliers to the ‘Beyond Compliance’ stage, shifting their cognitive understanding from a reactive to a proactive state.
Although Factory A is in the early stages of moving beyond compliance, through our research we believe this to be a unique case with the majority of suppliers still between stages 1 and 2. Therefore the immediate focus of a strategic approach should focus upon stimulating awareness of sustainability; “there comes a point where the stimulation becomes real enough to cause the organisation to seek more information and direction” (Worldwatch, 2010). This stimulation of awareness can come in many forms, including compliance with regulation. Again this is contextualised, however once compliance and a sufficient level of awareness has been achieved factories can then begin to empower employees and create ownership around a sustainability strategy.

The focus of empowerment and ownership is to provide individuals with the tools and capacity to instigate change; “Frequently an organization’s whole cannot be changed until the collective is assembled to work together to move towards sustainability. It is essential to tap into the organization’s creative intelligence and its stakeholders through dialogue, collaborative inquiry and
cutting edge methods of change that support new ways of thinking and transforming” (Worldwatch, 2010).

Once a critical mass of awareness has been achieved, employees take ownership for actions creating transformational change towards sustainability. To create real buy-in and ownership in a move from a reactive to proactive mindset is an important transition for factories to make in moving ’Beyond Compliance.’ Factory A, is a strong example of an organisation that is beginning to make this transition through empowering employees and creating ownership, reinforced by a pro-active customer base.

3.4 Addressing Factory challenges with Strategic Guidelines

Rather than assessing and addressing each challenge on an ad-hoc basis, New

![Diagram of Strategic Guidelines](image)

**Figure 3.5. Strategic Guidelines Allow New Style to Address Challenges From Several Angles Rather Than on an “Ad-Hoc” Basis**
Style can use these strategic guidelines to craft an action plan that addresses these challenges as part of a comprehensive sustainability strategy. These guidelines may impact some challenges directly, while helping to overcome others indirectly, in concert with the other strategic guidelines. In Figure 3.5, we can see a sample of how each strategic guideline can help address specific challenges from different angles.

**First Degree** – The strategic guideline addresses the factory challenge directly.

**Second Degree** – The strategic guideline addresses the challenge indirectly by addressing another challenge with a direct link.

**Third Degree** – The strategic guideline can be linked to addressing the challenge but only as a knock on effect through addressing other challenges prior.
4 Discussion

4.1 Potential Actions for a Brand

In order to understand a potential brand strategy in greater detail we have provided several examples of actions that align with the three strategic guidelines we identified: Brand Directive, Greater Collaboration, and Building Awareness. In order to do this we analysed sustainability strategies within the global garment industry. These included:

- **Hennes & Mauritz AB (H&M) – Global Fast Fashion brand**
- **Marks & Spencer’s (M&S) - UK based Fashion brand**
- **Nike – Market Leading Global Sports brand.**

In addition we have added a number of our own thoughts garnered from our experience.

**Broader Purchasing Priorities**

As outlined in the results, a broader set of purchasing priorities are a key component of a brand strategy in assisting first tier suppliers move towards sustainability. There are several examples of brands starting to incorporate sustainability into their purchasing priorities.

*Example Action* – Measuring factory ethical and environmental performance and setting clear benchmarks and goals that translate directly into purchasing priorities. This can include defining, deploying and refining a management system that establishing quantifiable environmental goals and measures performance. Brands should insist that factories publicly disclose results associated with these environmental goals through the use of recognized tools such as GRI or SEDEX exchange.

**M&S Energy Efficiency Benchmark**: M&S has mandated its top 100 strategic suppliers to improve energy efficiency by 10% by 2015. However, the company hasn’t indicated if this will directly translate into broader purchasing priorities.
**H&M Sustainable Cotton Commitment:** H&M has committed to ensure it is using 100% sustainable cotton within its products by 2020. This is a commitment that is being shared with key suppliers initially. H&M is effectively creating the demand needed for suppliers to move towards sustainability. This demand will drive change through gradually integrating sustainable cotton into purchasing priorities.

**H&M Supplier Grading System:** H&M are moving towards a percentage based grading system that includes many variables, including environmental and ethical performance. As a result sustainability will play a key part in determining a supplier’s competitiveness in the purchasing process. In order to measure sustainability H&M are utilising a number of tools such as:

**Management System Scorecard:** To move beyond traditional monitoring, H&M have created a management system scorecard. The scorecard attempts to facilitate the establishment of robust environmental, ethical and financial management systems within factories.

Benchmarking and monitoring actions is an integral part of measuring broader purchasing priorities. After detailed analysis each of the brands analysed appear to be incorporating sustainability performance into purchasing matrices and thus somewhat broadening purchasing priorities. However, it is still unclear how sustainability performance is being weighted vs traditional parameters like cost, quality and lead-time. The ultimate goal would be giving sustainability equal consideration to traditional priorities.

**Greater Collaboration**

Greater collaboration is a key piece in the formulation of strategic guidelines for brands. Actions should focus on deepening relationships and developing trust between suppliers and brands.

*Example Action* - Develop partnerships with key suppliers to build trust, increase communication and generate examples of best practices in order to address environmental and social challenges in moving towards sustainability.

**Nike Manufacturing Leadership Program** – Nike has cultivated a small group of suppliers with which it collaborates regularly to pilot and create environmental best practice in order to generate inspirational real world examples to share with other suppliers.
H&M Best Practice Creation – H&M is working with six strategic suppliers in Bangladesh in order to develop environmental best practice focused upon energy efficiency. H&M is paying a commitment fee to these factories as a reward for their continued collaboration and willingness to help create a best practice tool kit.

H&M Consultant Pool – H&M has created a consultant network within China, aimed at bringing together factories and consultants. The aim is to provide factories with the skills needed to improve environmental efficiency and create best practice programs. H&M is asking for a small commitment fee from factories for these services.

Building Awareness

Awareness creates the ability to understand sustainability and provides the foundation for taking actions. This forms a significant part of a strategic approach to addressing sustainability. Each of the brands analysed have developed programs aimed at developing awareness as part of a strategy.

Example Action - Creating innovative training programs and workshops aimed at building awareness of sustainability. By illustrating the business case for making change and providing support and incentives to factories that engage in the process, brands can empower factory employees and managers to participate in the development of actions and create ownership for programs. Factories must make direct input for sustainability initiatives to be successful in the long run.

H&M Best Practice Workshop – H&M collaborated with a key Indonesian supplier to develop environmental and social best practice. H&M then convinced the supplier to share best practice with others via a workshop held at the factory. H&M sees this as a significant breakthrough in creating an inspirational example and removing traditional secrecy barriers that exist between factories.

Nike Eco Design Workshop – Nike held a workshop with two strategic suppliers in China in an attempt to create a vision for a sustainable factory. Sustainability consultants, architects and local government officials attended the workshop. The aim of this workshop was to inspire factory managers and generate ideas and action plans for the factories to undertake. Nike wanted managers to have personal vested interest and feel compelled to champion their own vision within the company.
Marks & Spencer Supplier Exchange – M&S have created an online supplier exchange aimed at facilitating the sharing of best practice across suppliers. The exchange is an application that builds awareness of best practice and effective, innovative environmental measures.

H&M Awareness Film & Training Modules – H&M, in collaboration with a local Bangladeshi NGO, created five short films on human rights and needs, supplemented by interactive training modules to raise awareness of workers rights in Bangladesh. These were viewed by over 153,000 employees and 15,000 managers.

4.2 Further Research

We have identified the fashion brand as the key point of leverage in the supply chain, and their links with factories as a crucial link to focus on in the move towards sustainability. However, both the end consumer and raw material suppliers must be acknowledged as critical links in the chain as well. How might each of these fit into a sustainable supply chain? Additionally, the role of government policy, regulation, and enforcement has important ramifications on the entire supply chain, but the best way to engage with government entities in the move towards sustainability requires more study.

End Consumer

To a certain degree it is the end consumer that drives the entire garment industry. Without consumers purchasing clothes, no revenue would be fed back into the system. It is often argued that the entire system is designed to service the needs of consumers, and that fashion brands simply provide what the customer is asking for.

However, the challenge of lack of awareness surrounding sustainability that plagues factories and brands is also evident in the end consumer. How many consumers calculate and understand the impacts of the clothes they purchase? How many could do so accurately even if they wanted to? What are the alternative options to fossil fuel based fabrics and chemical dyes? What affect would a more sustainable supply chain have on clothing prices? What would the effects of a more sustainable garment industry have upon raising living rights in developing countries? These are significant questions that we were not able to address in our research. Further study of consumer attitudes, awareness, and buying patterns needs to be undertaken.
Specific to our study, further research is needed on how fashion brand decisions influence consumer buying patterns. How far can fashion brands stretch consumers by choice editing? For example, were New Style to stop selling any handbags made with PVC, would that result in a price change? What would be that change be? Would consumers be willing to pay an extra cost if the reasons and motivations behind the changes and resulting price increase were adequately explained to them?

**Raw Materials**

Many of the most severe impacts from garment production come from raw material extraction and processing. The resource intensive nature of these materials, in addition to the metals and plastics used in accessories, buttons, and zippers, have a myriad of repercussions. Full life cycle analysis of products is rarely performed, and both producers and consumers are generally unaware of the impact the production of raw materials has. More research must be performed on the impacts of specific material choices and the trade offs in over all life cycle impact.

Design and material selection made at the beginning of product development has significant implications for what kinds of materials are in demand, and producers respond in kind. There is a necessity for more studies addressing collaborative design strategies, alternative material choices, and ways in which non-virgin materials might be utilized more effectively.

More data on the options available to raw material suppliers and how they procure and extract resources is also needed. New technologies for reducing or eliminating the impacts of certain materials are constantly being pursued in laboratories around the world. How will these technologies be disseminated to low cost, high volume producers like the ones supplying factories in China? If the economy were able to develop more closed loop, no waste systems, what would happen to the industries and communities that rely on raw material manufacturing?

**Government Regulation**

There are a number of challenges associated with the regulatory environment that brands struggle to influence. Enforcement, policy, and infrastructure are a direct result of decisions by the Chinese government, and are for the most part outside the sphere of influence for New Style. We believe that fashion brands can influence the regulatory environment but only to a certain degree. This can
be achieved through industry coalitions, trade associations and lobby groups aimed at lobbying government towards more progressive policies and actions to encourage moves towards sustainability. New Style would be a supporter of these efforts rather than the initiator.

The Institute of Public and Environmental Affairs (IPE) is an example of an NGO that is highlighting environmental concerns, lobbying government for improved environmental protection measures and encouraging factories to voluntarily disclose environmental impacts. However, the means of government lobbying is limited in China under government law and therefore is an area that must be addressed with care and consideration. Further research is needed into what models have proven successful and where some leverage points might exist to help the government more strongly support industries as they move towards sustainability.

4.3 Validity

Spending a full week in each factory gave our team a unique perspective into the culture and operations of each factory. Through multiple interviews, workshops, and conversations, as well as personal interactions in social settings, we were able to gain a thorough understanding of the various challenges and opportunities facing the factories in their move towards sustainability.

However it must be acknowledged that while our findings are based on robust research and extensive access, they cannot represent an entire industry (See Figure 4.1). We found considerable differences between both Factory A and Factory B in the course of our research and it is logical to assume that it would take a considerable sample size of participant factories before broad conclusions about the industry could be made. Nevertheless, we are certain that the findings offer ample data from which to evaluate factory challenges and explore potential solutions as well.
While five days of close interaction allows for a large amount of data to be collected, it should also be acknowledged that it is still a relatively short time to perform a comprehensive evaluation. We were able to harvest quality data, but with more time we would have explored other areas in more depth such as garment life cycle assessments, more focused and in-depth workshops with management and floor employees and additional factory visits. All of these would help to augment and enrich the data gathered in our condensed timeline.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Limitations</th>
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<tbody>
<tr>
<td><strong>Primary Observations</strong></td>
<td>- We went to the factories to discover what was actually needed, rather than the traditional top down approach of asking/requesting information.</td>
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<tr>
<td><strong>Time &amp; Language</strong></td>
<td>- Given more time, we would have repeated the process at more factories.</td>
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<tr>
<td><strong>On-site Interviews</strong></td>
<td>- As non-Chinese speakers, we were forced to work through a translator/interpreter.</td>
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<td></td>
<td>- This enabled us to dig beyond initial questions, and follow up based on the subject's reactions and the flow of the conversation.</td>
</tr>
<tr>
<td><strong>Perspective is from the factory side only</strong></td>
<td>- We did not have an equivalent, intensive interview process with the Brand, or suppliers further upstream.</td>
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<tr>
<td><strong>On-site Workshops</strong></td>
<td>- Through facilitating, we could observe individual and group interactions.</td>
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<td></td>
<td>- We could witness firsthand hierarchies at work.</td>
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<tr>
<td></td>
<td>- We could feel the room and the activity in it.</td>
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<tr>
<td><strong>Breadth of Interviews</strong></td>
<td>- Although interviews provided a range of perspectives, we did not include as many stakeholders as possible in the process.</td>
</tr>
<tr>
<td><strong>Potential Bias</strong></td>
<td>- We did not intentionally ask the opposite side of questions in interviews (i.e. how might brand collaboration prevent a move towards sustainability?)</td>
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</tbody>
</table>

**Figure 4.1. Validity of This Study**

We also acknowledge that cultural mores and assumptions have had significant influence on the entire project. There are considerable differences between Chinese perspective, mindset, and values, and the western mindset and cultural values informing our conclusions and recommendations. Despite our awareness of these differences it was still impossible to escape them, and there is no doubt that our findings presented in this thesis would be more
robust if combined with a developed and nuanced understanding of Chinese culture.

Separating company culture from national and regional culture is always difficult even for those with great expertise and experience. Our relatively slight exposure to broader Chinese culture and its underpinning values affected our reactions to the culture in both factories. Some recommendations and conclusions that we reached may not be entirely accurate given the complexities involved. We made efforts to ameliorate the unavoidable issues that arise when different cultures, languages, mindsets, and assumptions meet. We included cultural issues in discussions and interviews, and gained several insights and suggestions from our hosts which we incorporated into our work. Nevertheless, we acknowledge that this study could be much improved with a deeper and more informed cultural understanding.
5 Conclusion

We undertook this study because the garment industry plays a necessary role in our society, fulfilling several human needs. But it needs to do so moving towards a sustainable future. With expansive global supply chains, New Style provided an excellent case study to evaluate the challenges and opportunities for creating a sustainable supply chain.

In order for New Style to effectively embrace sustainability it must carry its supply chain with it, and our results confirm that it is the fashion brand that has the most leverage for pushing systemic change in the garment industry. Many of the decisions and processes in place upstream are the direct result of brand directives. Because of the interdependence between both their material suppliers and their brand customers, it is very difficult for the factory to make significant changes independently.

But in order for New Style to create an efficient strategy to work with its supply chain in China, we felt that they needed a greater understanding of the challenges facing factories in moving towards sustainability. By understanding these challenges from the factories’ perspective, we identified strategic guidelines New Style could employ to tackle these challenges as part of a broader strategy, rather than dealing with them on an ad-hoc basis.

Our results showed that while there are numerous challenges, we can connect these challenges to three distinct systemic categories: brand directive, company culture, and regulatory environment. And though they can be categorized as such, the challenges are not mutually exclusive; they are overlapping and interconnected.

Rather than address these challenges case by case, it is much more effective for a brand to develop a strategy that can address these issues as part of a larger holistic plan. To create a strategy that will overcome these hurdles and move both the factories and the brand towards sustainability they need to share a common language and understanding of what the goal is. The FSSD is an effective framework for creating systems awareness and a shared language for sustainability. It is a way for a brand to formulate strategy so that it can work cooperatively and strategically with its supply chain to a mutually agreed upon vision of success.
Since the FSSD is a generic framework, it can be built upon at the strategic level to suit specific situations or industries such as this. Though the three guiding questions already contained in the FSSD help steer a strategy, we’ve contributed specific guidelines needed for a fashion brand working with its supply chain in China. When evaluating steps in any strategy towards sustainability, the brand needs to ask the following questions:

1. Does this action help broaden our purchasing priorities?

2. Does this action increase collaboration with suppliers?

3. Does this action lead to increased awareness among our suppliers?

By incorporating these added guidelines, New Style can avoid focusing on individual challenges and instead solve them as part of a larger strategy moving towards sustainability.
References


“Low Hanging Fruits: Manual for Performance Improvement Options.” Developed for H&M by BECO Group, the Netherlands, Wuppertal Institute, Germany and National Cleaner Production Centre, India. Rev. 3, January 24, 2006.


Appendices

Appendix A – Backcasting

Backcasting was first described as being done from static scenarios (Robinson, 1990). While better than traditional planning methods, backcasting from scenarios has its drawbacks compared to backcasting from principles as described here. First, it is often difficult for a diverse group of individuals with varied values to come to agreement on a specific future scenario, whereas simply asking people to agree on the basic principles governing the system, or the “rules of the game,” can be much easier. Second, having a set scenario leaves little room for creativity in finding solutions or strategies to reach a desired outcome. Third, the scenario described may in fact not be sustainable. It cannot be known without the governing principles of success in the system (Robèrt et al, 2004).

In order to backcast from principles in a systematic way, an ABCD tool (See Figure A.1) has been created to apply those principles to an organization’s strategic planning (Robèrt, 2000).

![Figure A.1. The ABCD Tool.](image-url)
In this method:

A - Share the framework, the funnel and the four sustainability principles in order to create a shared mental model of the system and language for all stakeholders to work with (Robert, 2002).

B – Analyze the organization’s current reality in relation to the four sustainability principles, and the organization’s own internal definition of “winning.” List any current contributions to violations of those principles.

C – Create a list of possible solutions that could help steer the organization towards the funnel opening. There are no restrictions other than the system principles applied to ideas here.

D – Prioritize actions listed in Step C in a strategic manner to form a path towards the vision of future success.

The ABCD Tool deals proactively with upstream strategies and governing system conditions, rather than with second order, downstream effects, aiming to aim to avoid those negative downstream impacts before they happen.

**Appendix B – List of Subjects Interviewed**

Complete list of individuals interviewed throughout the industry, including those at New Style, outside advisors, and factory management.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Name</th>
<th>Role</th>
<th>Company</th>
<th>Date</th>
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<tbody>
<tr>
<td>1</td>
<td>Mr. Forrest Pang</td>
<td>Group Compliance Manager</td>
<td>Hop Lun Ltd</td>
<td>02.03.10</td>
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<td>2</td>
<td>Mr. GuoQiang</td>
<td>Factory General Manager</td>
<td>Hop Lun Ltd Quannan Factory</td>
<td>03.03.10</td>
</tr>
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<td>3</td>
<td>Mr. Li</td>
<td>Administration Manager</td>
<td>Hop Lun Ltd Quannan Factory</td>
<td></td>
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<tr>
<td>4</td>
<td>Mr. Leo Chen</td>
<td>Compliance Manager</td>
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<td>03.03.10</td>
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<td>5</td>
<td>Miss. Eva Ng</td>
<td>Group Sales Manager</td>
<td>Hop Lun Ltd</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Miss. Eda</td>
<td>Group Merchandising</td>
<td>Hop Lun Ltd</td>
<td>08.03.10</td>
</tr>
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<td>Hop Lun Ltd</td>
<td>08.03.10</td>
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<td>7</td>
<td>Dr Liu Kaiming</td>
<td>Managing Director</td>
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<td>Mr. Feng</td>
<td>Administration Manager</td>
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<tr>
<td>12</td>
<td>Mr. Tsoi</td>
<td>Sales Representative</td>
<td>Yokview Ltd</td>
<td>16.03.10</td>
</tr>
<tr>
<td>13</td>
<td>Miss. Yu</td>
<td>Production Manager</td>
<td>Yokview Ltd</td>
<td>16.03.10</td>
</tr>
<tr>
<td>14</td>
<td>Mr. Zhong</td>
<td>Owner / Director</td>
<td>Scrap Recycling Company, Chang’an,</td>
<td>12.03.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dongguan (Material Waste)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Mr. Tang Xuejiang</td>
<td>Owner / Director</td>
<td>Quannan Yongjie Service Co., Ltd</td>
<td>12.03.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Living Waste)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Mr</td>
<td>Owner / Director</td>
<td>Yokview Waste Removal Guy</td>
<td>04.03.10</td>
</tr>
<tr>
<td>17</td>
<td>Malcolm Guy</td>
<td>Managing Director</td>
<td>The Re-Assurance Network</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Dr Henrietta Lake</td>
<td>Director</td>
<td>Sancroft CSR Consultants</td>
<td>19.02.10</td>
</tr>
<tr>
<td>19</td>
<td>Linda Hwang</td>
<td>Manager Environmental Research &amp;</td>
<td>Business for Social Responsibility (BSR)</td>
<td>19.02.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Laura Ediger</td>
<td>Environment Manager</td>
<td>Business for Social Responsibility (BSR)</td>
<td>11.03.10</td>
</tr>
<tr>
<td>21</td>
<td>Factory Employees *6</td>
<td>Various Positions</td>
<td>Hop Lun Quannan Factory</td>
<td>03.03.10</td>
</tr>
<tr>
<td>22</td>
<td>Factory</td>
<td>Various Positions</td>
<td>Yokview Factory</td>
<td>17.03.10</td>
</tr>
</tbody>
</table>
### Appendix C – Preliminary Factory Questionnaire

List of questions sent out to factory management prior to on-site visit, to gather general, quantitative and organizational data on each factory.

<table>
<thead>
<tr>
<th>Question</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many staff do you employ at your factory?</td>
<td>Please explain your factory management structure?</td>
</tr>
<tr>
<td>What is your factory’s monthly productivity (in pieces produced)?</td>
<td>Who makes the key decisions in your factory?</td>
</tr>
<tr>
<td>Is your factory privately owned? If your factory reports to a larger group or organisation please provide details of this?</td>
<td>Please provide details of who has overall responsibility for (HSQE) health, safety, quality and environmental issues within the factory?</td>
</tr>
<tr>
<td>What percentage of your factory’s output is attributed to New Style Ltd?</td>
<td>Please list all the different types of materials and components you use to produce your products (including product packaging), including the name and location of the material / component supplier, the quantity of the material / component ordered on a monthly basis and the cost at which you source the material / component?</td>
</tr>
<tr>
<td>Please list the product/products your factory produces?</td>
<td>Does your factory contain a spinning process?</td>
</tr>
<tr>
<td>What is your factory’s monthly energy consumption in Kwh / RMB?</td>
<td>Does your factory contain a weaving process?</td>
</tr>
<tr>
<td>What is your factory’s monthly water consumption RMB?</td>
<td>Does your factory involve synthetic material processing?</td>
</tr>
<tr>
<td>Please list the different chemicals you use in your production process?</td>
<td>Does your factory include a material washing bleaching and dying process?</td>
</tr>
<tr>
<td>What detergents do you use in your production process?</td>
<td>Does your factory contain a</td>
</tr>
<tr>
<td>What are the waste material / components from your factory process?</td>
<td></td>
</tr>
</tbody>
</table>
• How do you dispose of these waste components?
• If your factory is responsible for the transport & logistics of the end product please provide details of this, including methods of transport used?
• Does your factory contain a material cutting process?
• Does your factory contain a material sewing process?
• Does your factory contain a product assembly process?
• Does your factory contain a packaging process?

### Appendix D – Factory Management One on One Interview Questions

- List of questions asked during one on one interviews with factory management and staff. Interviews were not limited to these questions, as these often led the conversation to new topics and ideas.

<table>
<thead>
<tr>
<th>Water</th>
<th>Energy</th>
<th>Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is your total monthly water consumption?</td>
<td>• Where does your energy come from (the grid, on-site generators? Thermal vs. electric?)</td>
<td>• What components are considered waste from your factory? (What is waste?)</td>
</tr>
<tr>
<td>• Can we get copies of the documentation for water consumption? (Bills etc?)</td>
<td>• If you use grid power, do you know how it's generated/where it's coming from?</td>
<td>• Do you have a process to track individual waste streams and monthly quantity of waste?</td>
</tr>
<tr>
<td>• What is the monthly/annual cost of water use in Yuan?</td>
<td>• What is your monthly energy consumption (Kwh) What is the associated monthly cost? (price structure?)</td>
<td>• If not, what are the predominant waste producing activities in the factory operation?</td>
</tr>
<tr>
<td>• Please describe the pricing structure for water consumption? (Do you pay for specific volumes or pay per use</td>
<td>• Are there any</td>
<td>• We would like to create a detailed...</td>
</tr>
</tbody>
</table>
- Please describe any trends you've noticed or anticipate in water costs, regulations, etc?
- Are there any management procedures, tracking systems, in place to monitor water use?
- Which processes do you think are the most water intensive?
- Where does the water come from (what is the source)?
- Is the water quality tested before/after it enters/leaves the factory?
- Is the waste water treated on site?
- Where does waste water go?
- Can we see the discharge point?
- What are the local/national regulations regarding water use? How are they enforced? Do you handle the compliance yourselves? Do you associated costs around energy besides just the kilowatt hours? Infrastructure costs, taxes, peak use, etc?

<p>| What kind of trends have you seen in energy costs and what do you anticipate? Pricing? Regulations, etc? |
| Are there any local incentives available for increased efficiency, green production, etc? (tax breaks, credits, other incentives)? |
| Do you have any kind of management system or guidelines for energy use and efficiency (Energy Management Plan)? |
| Is energy measured by process? If not, which processes are the most energy intensive? |
| Are there any governmental of factory regulations concerning energy use? Energy conservation policies, etc? How are they enforced? |
| inventory of the solid waste streams produced, their quantity, and how they are disposed of? |
| What factory process generated the primary waste components? |
| Where is the waste stored before disposal? (Waste storage location on factory premises?) |
| How is factory waste disposed of? Are there special facilities? |
| How often is waste removed from the factory? Recycled, Landfill? |
| Please briefly describe the regulatory environment surrounding waste production and disposal? |
| What trends do you anticipate around waste regulation? |</p>
<table>
<thead>
<tr>
<th>outsource compliance? Are the regulations achievable (i.e. are they easy or too strict or expensive to actually meet?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Can we see the industrial effluent licenses and can these be explained in further detail?</td>
</tr>
<tr>
<td>Material Sourcing</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>• We would like to create detailed list/inventory of the materials / components used in the factory and who supplies them?</td>
</tr>
<tr>
<td>• Do you have in house buyers to purchase materials / components or do you have purchasing agents that procure the materials for you?</td>
</tr>
<tr>
<td>• Do you know the source of the materials / components you use?</td>
</tr>
<tr>
<td>• What percentage of total operating costs are the material components?</td>
</tr>
<tr>
<td>• Please provide information regarding the costs for each of your material components?</td>
</tr>
<tr>
<td>• Please talk about your input costs. What trends have you noticed, and what do you anticipate the long term trends will be? Are the materials</td>
</tr>
</tbody>
</table>
you buy predominantly commodities or are there some specialty items as well?

- Please briefly prioritize the considerations that you have when making purchasing decisions. (i.e. costs, quality, lead time, relationship, etc.)

- Does your factory have a formal procurement policy in place? (Procurement guidelines)

- Does the factory know the physical location of the suppliers?

- Please briefly describe the relationship you have with your material/component suppliers.

- Long term/short term: Does the relationships tend to be one off or more engaged and develop over time?

- Substitution/replacement costs: Is it easy to switch material suppliers? Is it easy to substitute suppliers, either for one time orders or more generally?

<table>
<thead>
<tr>
<th>What are some non monetary ways that brands can be more attractive to do business with?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What opportunities do you see in the future for the apparel manufacturing industry? What trends make you most hopeful and excited to pursue?</td>
</tr>
<tr>
<td>• How about threats? What are your pain points now and what do you anticipate being your greatest challenges as time passes?</td>
</tr>
<tr>
<td>• Please briefly discuss automation, its advantages and disadvantages, and do you see the industry in China moving towards more automated operations.</td>
</tr>
<tr>
<td>• Several brands have made labor standards and practices a more prominent issue recently. What is your reaction to this development?</td>
</tr>
<tr>
<td>• How do you feel about increasing environmental scrutiny? Are the brands pressuring you to provide</td>
</tr>
<tr>
<td>Questions</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td><strong>Collaboration/communication:</strong> How much engagement or interaction is normal? Is there a reason or desire for more? Is it feasible?</td>
</tr>
<tr>
<td><strong>What is the level of security/availability (risk) for material/components sourcing?</strong></td>
</tr>
<tr>
<td><strong>How could better relationships guard against shortages, stoppages, late orders, etc. Are there currently problems or risks regarding supplier security?</strong></td>
</tr>
<tr>
<td><strong>Environmental data or document environmental impacts? Do you anticipate this will develop more in the future? Can you foresee a time when brands list environmental concerns as a key driver for interacting with manufacturers?</strong></td>
</tr>
<tr>
<td><strong>How much leverage do brands have in influencing operations and/or policies at the factories? Do larger customers ever attempt to engage on issues like labor or the environment? Would you be interested in engaging more with customers?</strong></td>
</tr>
<tr>
<td><strong>What are your personal views on sustainability? Do you think it is important? Should it be the concern of a factory? What kinds of sustainability initiatives would you like to see happen in Shenzhen, at a more local level, and within the factory?</strong></td>
</tr>
</tbody>
</table>
Appendix E – Factory Floor Worker Survey

Through interviewing 12 floor employees in total across both factories we were able to generate the results below:

Overall Primary Priority In Choosing Work

- Wage 50%
- Context 8%
- Accommodation & Food 17%
- Stability & Security 17%
- Good Working Environment 8%

Overall Secondary Priority In Choosing Work

- Wage 34%
- Context 8%
- Accommodation & Food 8%
- Stability & Security 25%
- Good Working Environment 25%