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Trade, Innovation and Growth: The Case of Sri Lankan Textile and Clothing Industry

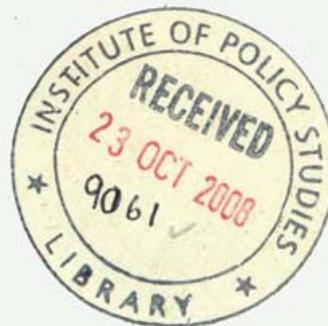


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ORGANISATION
FOR ECONOMIC
CO-OPERATION
AND DEVELOPMENT



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ABSTRACT

This paper is one of five case studies which is a part of a larger project looking at the various effects that trade and investment can have on innovation. This paper studies the effect of the ending of the Multi-Fibre Agreement (MFA) on innovation in the Sri Lankan textile and clothing sector. The ending of the quota system under the MFA led to an increase in the US and EU markets which has motivated a large number of innovations in the Sri Lankan textile and clothing sector. Some large companies have become a total services provider while some are trying to establish their own brands. Product innovations with foreign partners, process innovations such as introduction of CAD/CAM and various marketing and organisational innovations have been implemented.

Keywords: innovation, textiles and clothing, garment, Sri Lanka, Multi-Fibre Agreement, MFA, competition, CSR, Corporate Social Responsibility, marketing, brands, fair-trade, outsourcing, FDI, joint-ventures

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The Working Party of the OECD Trade Committee discussed this report and agreed to make the findings more widely available through declassification on its responsibility. The views expressed in this paper do not necessarily reflect the views of the OECD or of its member governments. This study is available on the OECD website in English and in French: <http://oecd.org/trade>.

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TABLE OF CONTENTS

ABSTRACT	2
ACKNOWLEDGEMENTS	2
EXECUTIVE SUMMARY	4
TRADE, INNOVATION AND GROWTH: THE CASE OF SRI LANKAN TEXTILE AND CLOTHING INDUSTRY	6
1. Introduction	6
2. Development of the Textile and clothing industry in Sri Lanka - Background.....	7
3. Innovations in the Apparel Industry in Sri Lanka.....	12
3.1 Marketing Innovations.....	13
3.2 Product Innovation	16
3.3 Process Innovations	18
3.4 Organisational Methods.....	22
4. Role of FDI and Imports in Technology Transfer	25
5. Conclusion	28
BIBLIOGRAPHY	30

Boxes

Box 1. Innovations in the Textiles and Clothing Industry in Sri Lanka	12
Box 2. Introduction of own brands – case of MAS	16
Box 3. Process innovation - E-fitting.....	21
Box 4. Process Innovation - Green manufacturing plants.....	22
Box 5. Towards a knowledge based industry – Investing in human resources.....	23
Box 6. Technology transfer and growth through joint ventures – case of MAS and Brandix.....	27

EXECUTIVE SUMMARY

The textile and clothing industry has emerged to become an important industry to Sri Lanka largely under the Multi-Fibre Agreement (MFA) which governed international trade in textile and clothing. The gradual phasing out of the MFA in 2005 gave way to intensified competition which triggered numerous innovations in the clothing and textile industry in Sri Lanka, especially in leading companies, in terms of product, process, marketing and organizational structures.

Some companies have aspired to become total service providers (as opposed to simple contract manufacturers) by designing and developing products while some are exploring the establishment of their own brands. Organic cotton and fair trade clothing have recently been introduced in response to market demand for such products. The textile and clothing industry has also introduced innovations in the production side by developing backward linkages, implementing productivity improvement programmes, and adopting lean manufacturing methods. Investments in Computer Aided Design (CAD)/ Computer Aided Manufacturing (CAM) technology as well as green manufacturing plants are amongst the many process innovations the industry has taken up. Marketing innovations such as international and local image building programmes, promotion of Corporate Social Responsibility, and market diversification to countries other than the US and EU have also been introduced. With regard to organisational innovations, the formation of the Joint Apparel Association Forum (JAAF) in 2002 has facilitated intra-industry technology transfers and enabled an industry-wide response to various challenges. Other examples of organisational innovations include implementation of Total Quality Management (TQM) practices, initiatives undertaken to transform the industry towards a knowledge-based industry, introduction of sub contracting arrangements, sourcing of inputs from India and Pakistan, outward foreign direct investment into India, and positioning of Sri Lanka as a one-stop shop for apparel solutions.

While the external competitive environment has been one of the key motivators of innovation, the liberal trade and investment policies pursued by successive governments since the late 1970s has also been a key facilitator of innovation. Foreign direct investment played a significant role in technology transfer, especially by introducing new products, often through joint ventures with the large manufacturers. Access to high quality fabrics and accessories played a key role in the transformation of a relatively domestically oriented garment industry in the 1970s into a vibrant exporting industry, and continue to support international competitiveness of the garment industry. Capital goods imports have been essential for the introduction of process and organisational innovations such as the introduction of Computer Aided Designing (CAD) and Computer Aided Manufacturing (CAM), Enterprise Resource Planning (ERP) Systems and green manufacturing. The integration into the global value chain has provided an opportunity for Sri Lankan manufacturers to innovate and move up the global value chain. Partners in the global value chain such as GAP and Nike have provided extensive support through customer information, technology and other means.

This case study on Sri Lankan clothing shows (1) how changes in the external trade environment can affect domestic incentives for innovation (2) how imports and FDI have been important for technology transfer, and (3) how developing countries can use global value chains and enhance their positions in global value chains to their benefit. While the Sri Lankan clothing sector is a successful story of innovative response, it should be noted that the fact that this success remains relatively limited to the clothing industry points to greater need for diversification of the Sri Lankan economy in general. The country remains highly

dependent on the export of garments which are exported to few markets, namely the US and EU. While the negative effects of the post-MFA environment may not have been as large as initially feared, increased diversification in terms of industries and markets will enhance resilience of the economy and further alleviate concerns over the post-MFA environment.

TRADE, INNOVATION AND GROWTH: THE CASE OF SRI LANKAN TEXTILE AND CLOTHING INDUSTRY¹

1. Introduction

1. This paper is one of a number of case studies which is a part of a broader project to study how trade affects innovation, which is being conducted by the Trade and Agriculture Directorate of the OECD. The paper studies how trade has affected innovation in the textile and clothing sector in Sri Lanka. Trade can promote innovation² through a number of ways, including through technology transfer, increased competition and economies of scale (OECD, 2007). In this paper, we primarily look at how intensified competition in light of the Multi-Fibre Agreement (MFA)³ phase-out has led to a number of innovative measures being undertaken in the textile and clothing⁴ industry in Sri Lanka, in particular amongst some of the leading companies, to face the challenges of a quota free environment.

2. The abolition of the quota system which governed much of the international trade in apparel till 2005 has been the biggest challenge confronting the industry. Despite stiff competition from low cost producers from other countries, Sri Lanka has managed to survive due to a number of innovative initiatives undertaken by industry with support from the Sri Lankan government. Whilst the industry led by some of the large scale⁵ manufacturers have established themselves as credible suppliers to some of the big brand names in the apparel trade, they are striving to remain competitive through innovation.

3. The paper first briefly outlines the development of the garment industry in Sri Lanka in section 2, which is followed in section 3 by a description of some of the innovations (marketing, product, process, organisational) which have come about as a result of external competition in the market place. This is followed by a discussion on the role of technology transfer through FDI and imports in the garment industry in section 4, and section 5 concludes.

¹ This paper was prepared by Janaka Wijayasiri and Jagath Dissanayake under the supervision of Dr. Saman Kelegama in the Institute of Policy Studies of Sri Lanka. Ruwangi Welikala provided research assistance.

² According to the OECD's Oslo Manual, an innovation is defined as 'the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.' Four types of innovations are identified: a) Product innovations; b) Process innovations – new or significantly improved methods for production or delivery; c) Organisational innovations – new or significantly improved methods in a firm's business practices, workplace organisation or external relations (organisational or managerial processes); d) Marketing innovations – new or significantly improved marketing methods.

³ The Multi Fibre Arrangement (MFA) governed world trade in textiles and garments from 1974 through 2004, imposing quotas on the amount developing countries could export to developed countries. The MFA was introduced in 1974 as a short-term measure intended to allow developed countries to adjust to imports from the developing world. The Agreement on Textiles and Clothing (ATC) agreed in the GATT Uruguay Round provided for the gradual phasing out of the quotas that existed under the MFA. This process was completed on 1 January 2005. However, large tariffs remain in place on many textile and garment products.

⁴ The key focus of the paper is on the clothing industry which is much larger. The words garment and clothing are used inter-changeably throughout the paper. The study also focuses on a handful of large companies that dominate the industry and as such the analysis may not necessarily reflect the typical garment factory in the country.

⁵ The size of the manufacturer is classified by the value of garments exported. According to this classification, small scale manufacturers export less than USD1million, medium scale manufacturers export between USD1.1-2.5 million while large scale manufacturers export USD2.51 million and over (JAAF 2002).

2. Development of the Textile and clothing industry in Sri Lanka - Background

4. The garment industry in Sri Lanka has emerged from modest beginnings to become an important driver of the economy in terms of its contribution to industrial production, foreign exchange earnings and employment generation. The industry currently contributes about 40% of the industrial production of the country and is the largest contributor to the economy, accounting for 8% of the GDP⁶. The industry is also the largest earner of foreign exchange to the country, dwarfing other export sectors such as tea, gems and jewellery and tourism, and brought in USD 2.97 billion in 2006 which is about 45% of the country's export revenues⁷. In terms of markets, the US and the EU are the largest destinations for garment exports of the country, with the US accounting for 56% of the exports while the EU holds a share of 39% (Figures 1-4).⁸ The industry also generates direct employment to over 300,000 people (mostly women) which is about 15% of the labour force and supports the livelihoods of another 1.2 million indirectly. Most of the factories are concentrated in the Western province (due to better infrastructure and close proximity to sea- and airport) and the industry is in the hands of a small number of large scale manufacturers.⁹

5. The garment industry took off in the 1970s with the liberalisation of the economy and the relocation of well-established garment manufacturers from East Asia to Sri Lanka and other developing countries due to quota restrictions placed under the Multi-Fibre Agreement (MFA)¹⁰. The generous investment incentives offered by the country coupled with the low cost of production and availability of highly skilled and trainable workforce attracted foreign investors to set up manufacturing factories in Sri Lanka for the purpose of exports¹¹. The influx of foreign investors acted as a catalyst for local entrepreneurs to venture into this sector to exploit lucrative markets which were guaranteed by quotas. The number of factories swelled in the 1990s when there was a drive by the government to attract factories to the rural areas under the 200 Garment Factory Programme¹². The industry recorded double digit growth

⁶ The figures are for both the textile and clothing industry.

⁷ Clothing alone accounts for 90% of textile and clothing exports from the country.

⁸ Though the US remains the single largest export market, its share has fallen over time while that of the EU has increased with greater market access into Europe under the GSP plus scheme since 2005. However, Sri Lanka accounted for a very small proportion of total garment imports in the US and EU in 2005 (2.3% in US and less than 1% in EU).

⁹ In 2001, large scale exporters (106 or 12% of the total number) contributed to 72% of the exports of the industry, while the contribution of small exporters and medium exporters were 5% and 23%, respectively. There were 859 factories in total operating in that year. With the phase-out of the MFA and the subsequent closure of some small-medium scale units, the share of large scale manufacturers has probably increased further.

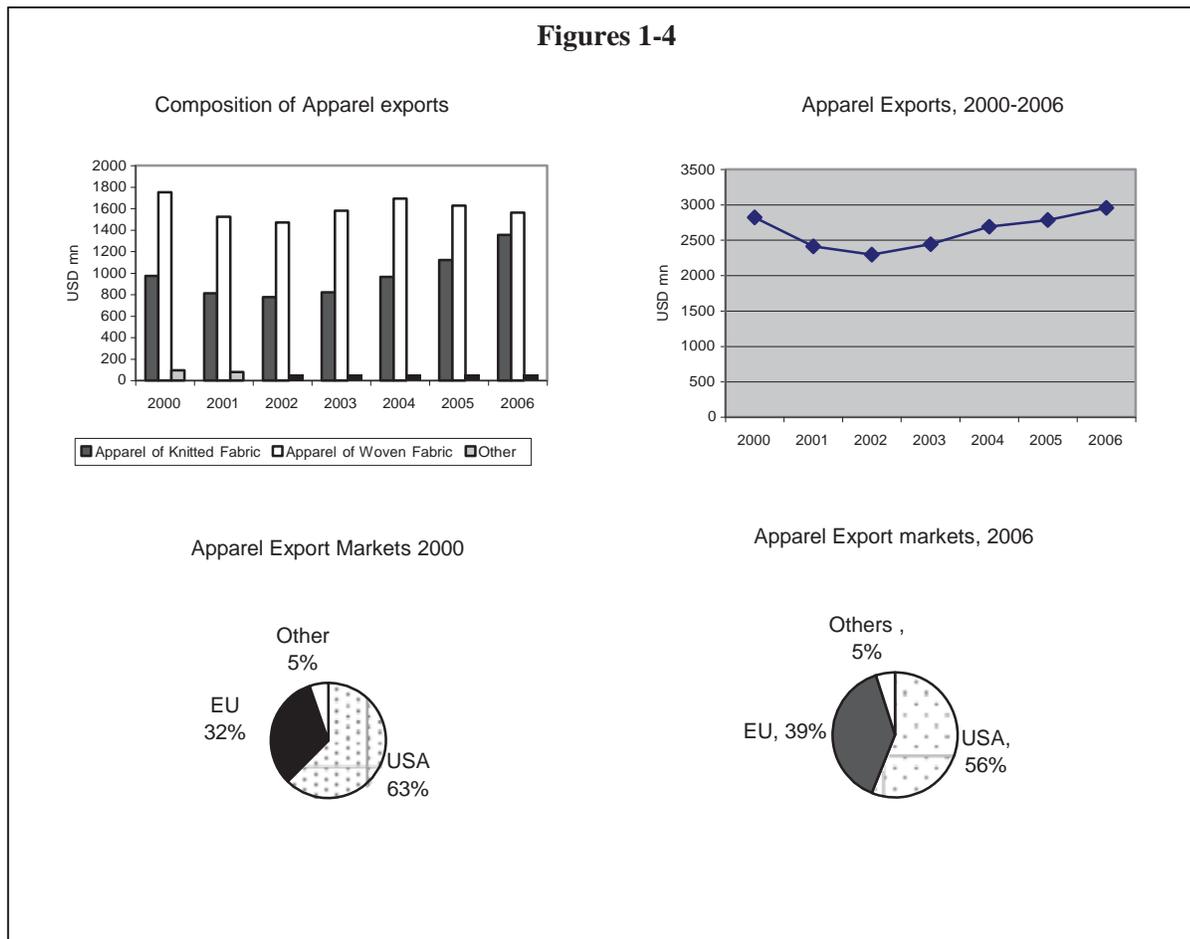
¹⁰ Under the Multi-fibre Agreement, developed countries negotiated bilateral agreements with individual exporting countries to restrict exports with the intention of protecting their domestic industries. The quota restrictions while limiting exports of some large developing countries also provided an opportunity for smaller manufacturing countries to export. In fact it provided a guaranteed market, which encouraged many developing countries some of which were uncompetitive to establish textile and clothing industries to exploit this opportunity.

¹¹ Foreign direct investment has been very significant in the sector. According to the available data from the Board of Investment of Sri Lanka, foreign investments account for about 50% of the total value of the total investments (cumulative) in the garment sector, and these investments are either wholly foreign owned or jointly owned with local enterprises (See Table 1). Whilst FDI played an important role in the establishment of the industry, it appears from discussions with stakeholders in the industry that FDI now plays a lesser role. Also, it should be noted that most of the joint ventures have been with large manufacturers.

¹² Under the *Mahinda Chinthana* programme of the current Government, a similar scheme called *Nipayum* (or the 300 Enterprises Programme) was launched in 2006 with the purpose of taking development to rural areas outside the Western Province.

during the 1980s and 1990s largely due to the economic liberalisation undertaken by the government, increased foreign investment flows to the sector, and quotas which provided guaranteed markets for Sri Lankan-made garments.

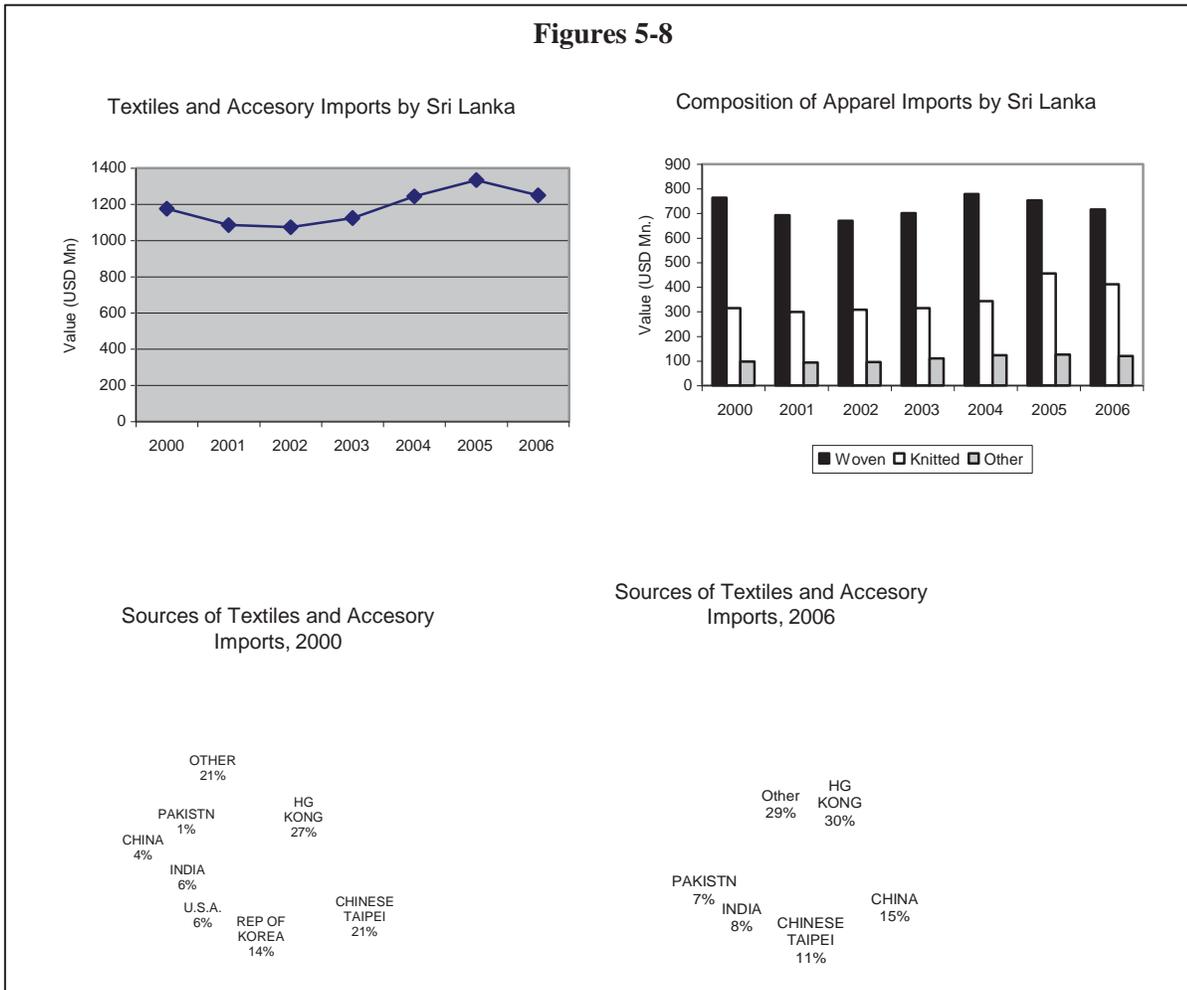
6. The garment industry has come a long way from its humble beginnings and has built up an international reputation for quality and reliability, catering to a wide range of internationally reputed brand names such as Abercrombie and Fitch, GAP, Liz Claiborne, Marks & Spencer, Nike, Ralph Lauren, Tommy Hilfiger and Victoria's Secrets to name a few. Over the years, the industry has shifted to exporting value added garments such as lingerie, and manufacturers like MAS Holdings, and Brandix Lanka, which are the largest garment exporters in the country, have established an international reputation in this field.



Source: Compiled from data from Department of Customs

7. Nevertheless, the industry is heavily dependent on imported material (fabrics as well as accessories) from the Far East given that the local textile industry does not have the capacity to supply the quantity and the quality of textiles required by the export oriented garment industry (Figures 5-8). The high dependence of the industry on inputs from abroad can be gathered from import and export statistics – imports of fabrics and accessories account for almost half of total exports of the industry. Currently, most of the fabric requirements of the clothing industry are being met by imports from abroad, namely from Hong Kong, China, and Chinese Taipei, which together account for over 50% of total fabrics imported to the island. Lack of backward linkages has been identified as the greatest weakness of the garment industry. Sri Lanka however is increasingly sourcing inputs for the apparel industry from within the region such as India and Pakistan.

Figures 5-8



Source: Compiled from data from Department of Customs

8. The production of textiles in the country which was mainly geared to the domestic market suffered a major setback with the liberalisation of the economy in 1977. The removal of import duties on textiles in 1996 left the industry struggling to compete with low priced, high quality imported fabrics. It should be noted however that it was access to such high quality imported fabrics that allowed Sri Lankan garment manufacturers, who were the users of textiles, to produce higher quality, higher value added garments. Despite numerous attempts by successive governments to develop backward linkages in the industry, success has been limited. Nevertheless, a number of joint venture companies have begun to produce textiles, mostly knitted fabrics in recent years to cater to the garment export industry.

9. Following the establishment of the WTO and a new agreement on textiles and clothing after the Uruguay Round, it was agreed that quota restrictions which had been put in place under the MFA would be phased out over a period of ten years (January 1995 to December 2004). This raised concern in the garment industry in Sri Lanka which was protected up till then from competition due to the quotas that guaranteed access to developed country markets. Without quotas, it meant that Sri Lanka had to compete on an equal footing with other countries like China and India which have lower production costs, more productive

workforce and vertically integrated production set ups. These countries were expected to significantly increase their market share at the cost of smaller, less competitive countries like Sri Lanka.¹³

10. In 2002, the government and industry associations under the Joint Apparel Association Forum (JAAF) together formulated a 5 year strategy for the industry to face an uncertain future in a quota free environment. The five year strategic plan was prepared after taking into account various strengths, weaknesses, opportunities and threats (SWOT Analysis) in the garment industry and was developed by a specially appointed task force which included the participation of stakeholders (industry, government and industry associations). Nine committees were established to implement the strategic initiatives under the five year plan, including a secretariat to support the nine committees and oversee the implementation of the strategy. These committees, led by industry pioneers focus on key areas such as backward integration, human resource and technology advancement, trade, labour and SME initiatives, finance, logistics and infrastructure and even marketing and image building both locally and internationally. The strategy spelt out several objectives which included the following:

- increase industry turnover from USD 2.3bn in 2001 to USD 4.5bn by 2007
- transform the industry from a 'contract manufacturer' to provider of a 'fully integrated service' and thereby cover the entire supply value chain.
- focus on value added garments as opposed to manufacturing of low cost garments and cater to premium markets
- develop a reputation for the manufacture of four product categories (active and sportswear, casual wear, children's clothing and intimates)
- consolidate and strengthen the industry

11. As expected, in general, large textile and clothing manufacturing countries such as China and India have significantly increased their exports and market shares at the cost of the least competitive countries which saw their garment exports plummet and industry virtually disappear overnight with end of the quota system. However, contrary to the general opinion that the garment industry in Sri Lanka would fold up with the expiration of the MFA, the industry has shown resilience and continued to grow despite a slowdown in export earnings in 2005. The growth rate of garment and textile exports dropped from 9.8 % in 2004 to 3.8% in 2005 but picked up in 2006, recording a growth rate of 6.0 % growth in 2006 and easing some concerns regarding the ability of industry to meet intense international competition. All in all, Sri Lanka has managed to retain its share in its major markets in the US and EU¹⁴. Nevertheless, many of the small and medium scale players in the industry had to either close down or enter into strategic arrangements with the larger players.

12. Currently there are around 350 factories in operation compared to the 700 plus factories which were in operation before 2005 and the number of workers directly employed in the industry is reported to have dropped although not as much as initially feared¹⁵. The larger manufacturers in the country like MAS

¹³ Sri Lanka's quota dependence gradually declined during the decade prior to the MFA phase out in particular to the EU to which Sri Lanka gained quota free access in March 2005.

¹⁴ In 2006, Sri Lanka accounted for about 2.4 % and 1.2 % of the imports of textiles and apparel by the US and EU markets, respectively despite the fact that China and other competing countries making significant inroads into these markets following the phase-out of quotas. The threat of China is imminent as demonstrated by the surge in Chinese textile and apparel imports by the US and the EU in 2005 before the imposition of safeguards. Chinese imports into the US and EU increased by as much as 57 and 47 % respectively in 2005

¹⁵ With the phasing out of MFA, global competition was expected to have a strong adverse effect especially on small firms and firms in rural areas with many firm closures and job losses estimated to range from 80,000 to 100,000. Although liberalization of quotas has resulted in employment contraction, the amount of job losses in the industry due to firm closures and lay off of workers were far less. According to Yatawara and Handel (2007) projected a loss of

and Brandix were better placed to face the stiff competition as they heavily invested in technology and human resource development, ventured into design and product development amongst other activities to counter the challenges of the post-quota regime. However, it may be that the full brunt of the quota phase-out has not been felt as two developments have cushioned the impact of the phase out.

13. First, Sri Lanka was granted duty free and quota free access to the EU in mid 2005 under the GSP plus scheme¹⁶. Granting of the GSP plus scheme provided some relief following the elimination of the MFA and Sri Lanka has managed to capitalise on the concessions granted with a dramatic increase in garment exports to the EU and a shift in exports from the US to the EU market¹⁷. The GSP + scheme is up for review in 2008 and its extension for another three years (till 2011) would be based on the continued implementation of the 27 international conventions and demonstration of vulnerability of the economy (determined by level of income and export diversification); the extension has become controversial given the accusations of human rights abuses by the government. At present Sri Lanka pays zero duty on garment exports to the EU, but without GSP it will have to pay considerable tariffs (as high as 9.6% with an average tariff of 5.9%).

14. Second, both the EU and US imposed safeguards on a number of textile and apparel imports from China – some of which Sri Lanka produces and exports to the EU and US¹⁸ in 2005. The application of safeguards has restricted subsequent annual growth of textile and apparel imports from China into the US to 10-15% and from China into the EU to 8-12.5%. With nearly one third of its exports to the EU and one-fifth of its exports to the US in categories which are placed under safeguards to be removed by end of 2008, Sri Lanka appears to be the most at risk within the region.¹⁹

49,000, with an upper limit of 66,000 and a lower bound of 31,200 based on a sample survey conducted in 2006. Along with firm closure, new firms were established after quota elimination with opening up of 20 new factories (as of June 2006) with a potential employment creation of 6500.

¹⁶ Under the GSP-plus scheme, special incentives are provided for countries that ratify and implement 16 international conventions with regard to protection of labour and human rights, 7 conventions on environmental protection and good governance or undertake actions to combat drug trafficking and production. The GSP + came into operation on December 31st, 2005 and will apply till December 31st 2008 to 15 countries including eleven South American countries (primarily due to actions combating drug trafficking), Georgia, Mongolia, Moldova and Sri Lanka. The GSP + provides duty free access to over 7200 products in the European market. The fact that this is enjoyed by only 15 countries gives the beneficiaries a significant price advantage over all other developing nations including countries like China and India.

¹⁷ Following the implementation of the GSP-plus scheme, exports to the EU increased substantially in 2006 with a year on year growth of 24.7% over 2005 which was led by exports of garments which grew by 21.2%. In addition, exports to the EU grew faster than that to the US.

¹⁸ As part of China's accession agreement with the WTO, member countries were allowed to impose temporary quotas on imports from China in certain categories, if these imports were deemed to cause market disruption. In November 2005, the United States and China entered a 3 year agreement limiting Chinese imports of 34 categories of textile and apparel products, covering most textile and apparel categories. The main apparel categories falling under quotas include; socks, cotton knit shirts, men's and boy's woven shirts, cotton trousers, sweaters, brassieres, underwear, swimwear, towels, men's and boy's wool suits, men's and boy's wool trousers, man made fibre knit shirts and man made fibre trousers. Some of Sri Lanka's major export items to the US are included in the categories covered under the safeguards. These include sweaters, men's and boy's cotton trousers, men's and boy's shirts, brassieres and swimwear. The European Union entered a similar agreement with China in June 2005 and Chinese textile and apparel imports in 10 categories were limited by quotas. The categories covered were pullovers, men's trousers, blouses, t-shirts, dresses, bras, flax yarn, cotton fabrics, bed linen, table and kitchen linen.

¹⁹ According to the World Bank's Global Economic Prospects 2008 Report, the lifting of European and US restrictions on some categories of Chinese textiles and clothing exports at the end of 2008 poses a serious challenge to Sri Lanka's apparel industry.

15. The possible loss of GSP + together with expiry of the China safeguards would make it harder for Sri Lanka to maintain export markets in the US and the EU after 2008 and this is a cause of concern to the industry. However, the established large scale Sri Lankan producers have built strong links with buyers over the years²⁰ and have secured niche markets that are expected to be less prone to price competition. More importantly, Sri Lankan producers have focused on key issues that will shape demand in coming years. Increased consumer awareness and sensitivity to environmental protection and labour standards will ensure that such issues will play an important role in the sourcing decisions of buyers.

3. Innovations in the Apparel Industry in Sri Lanka

16. Leading companies in the Sri Lankan garment industry have been quite innovative as evidenced in the rapid expansion and transformation of the industry from its initial beginnings. The anticipated and real competition in major markets in the US and EU in light of the MFA quota phase-out in 2005, has provided a renewed focus for innovative effort. Given the rising high cost of production in the country, the industry can no longer compete on cost and needs to differentiate itself from its competitors. In this regard, the industry has undertaken innovations in terms of product, process, marketing and organizational structures, and the following sections highlight some of these innovations, a summary of which are provided in Box 1.²¹ Large manufacturers such as MAS, Brandix and Hidramani have been at the centre of such efforts²².

Box 1. Innovations in the Textiles and Clothing Industry in Sri Lanka

Marketing Innovations:

- International Image Building Programme
- Corporate Social Responsibility
- Independent Marketing
- Market Diversification Programme

Product Innovation:

- Moving Up the Value Chain (Product Design and Development)
- Branding
- Organic and Fair-trade Garments

Process Innovation:

- Total Service Provider
- Development of Backward Linkages
- Productivity Improvement Programmes and Lean Manufacturing
- CAD/CAM Technology
- Enterprise Resource Planning
- Green Manufacturing

Organisational Methods:

- Formation of Joint Apparel Association Forum (JAAF)
- Working Towards TQM
- Towards a Knowledge-based Industry
- Sourcing From India and Pakistan
- Venturing into India
- One-stop Shop for Textiles and Garments

²⁰ For example, MAS is the single largest supplier to Victoria's Secret, 1 of 7 to Nike and 1 of 50 for Gap Inc.

²¹ It should be noted that although we have categorized innovations as one type of innovation for the purposes of writing this paper, some innovations may span more than one type of innovation.

²² While competition has no doubt played an important role in the innovations undertaken in the industry, one cannot at the same time discount the leadership of these companies and their vision of taking the industry to greater heights.

3.1 *Marketing Innovations*

International Image Building Programme

17. One of the most prominent marketing innovations has been the international image building campaign launched in 2006 under the slogan, ‘Garments Without Guilt’ to position Sri Lanka as an ethical clothing producer. As is widely known, the garment industry in developing countries has been the subject of considerable scrutiny and criticism regarding labour and safety conditions under which garments are made. Sri Lanka has been no exception.

18. Sri Lanka, however, has put in place over the years strict labour laws governing factory standards, working conditions and welfare measures for women as well as expectant mothers and strictly prohibits child labour in factories. In addition, the country’s strong legislation requires safe as well as healthy working conditions and reasonable hours of work. In fact, Sri Lanka is the only country in Asia which has signed up to 39 of the International Labour Organization (ILO) Core Conventions covering areas such as prohibition of forced labour, prohibition of child labour, prohibition of discrimination on any grounds and protection of the environment. While enforcement of strict rules and sufficient awareness of worker’s rights remains a challenge²³ as in most developing countries, overall working conditions are good relative to other garment producing countries worldwide, and most contracting manufacturers have been able to answer the increasing demands related to labour and safety conditions required by OEM manufacturers. For example, in recognition of Sri Lanka’s commitment to protection of workers’ rights and environment, Sri Lanka was granted tariff concessions by the European Union under the GSP-plus scheme in 2005. Currently, Sri Lanka has duty free and quota free access to as many as 7,200 products to the vast EU market under this facility. Sri Lanka was amongst the 15 countries from the world which received this concession and the only country in South Asia to do so²⁴.

19. This campaign was launched based on market research in the major export markets in the US and Europe, and attempts to leverage Sri Lanka’s relative good record in this area, while responding to rising international consumer interest on the conditions and environment under which clothes are made. The campaign is a public private partnership with Rs. 50mn (about half a million US dollars) funding coming from the government of Sri Lanka. The industry communicates its new and innovative brand image of ‘Garments without Guilt’ through packing material and corporate communication media such as company letterheads, and hopes also to create a website to interact with buyers and consumers. The industry has already engaged Swiss based SGS Group, the world’s largest organisation in the field of inspection, verification, testing and certification, to monitor the Sri Lanka Apparel Code of Conduct Audits which will provide third party assurance of compliance. So far, approximately 30 factories have been certified, and the target lies at 50 companies to be certified by the end of 2007 and a total of 150 by March 2008.

Local Image Building Programme

20. In conjunction with the ‘Garments Without Guilt’ campaign, the industry is undertaking a local image building programme to improve the image of garment workers²⁵ who in the past have been looked

23 . US DOS (2007), for example, notes some enforcement and compliance of health and safety regulation issues.

²⁴ GSP plus beneficiary countries included: Bolivia, Columbia, Costa Rica, Ecuador, Honduras, Guatemala, Nicaragua, Panama, Peru, El Salvador, Venezuela, Georgia, Sri Lanka, Moldova and Mongolia (UNCTAD, 2005)

25 . More than 80% of workers in the garment sector are female. The industry provides one of the few routes to employment for females other than going abroad on a temporary basis to work as unskilled domestic workers (or housemaids). While work conditions and wages have improved over time, there are prejudices on the part of society which view garment workers as being ‘corrupted’. Noel Priyatilake, Chairman of the Sri Lanka Apparel Exporters Association states “Some of these girls find themselves boyfriends. In our type of culture, this is seen in a bad way.

down upon by the society at large. The general public has failed to acknowledge the industry and garment workers' contribution to the country's economy. The negative perception has deterred women from joining the industry, resulting in thousands of vacancies being open, which has become a cause of concern to the industry²⁶. To address this problem (as well as the scarcity of skilled labour force), the JAAF has initiated a local image building campaign called *Abhimani* (pride) in 2008, to communicate a positive message about the industry and its workers to the public through the media²⁷.

Corporate Social Responsibility

21. Another marketing innovation that is being used by the Sri Lankan garment industry is the strategic use of Corporate Social Responsibility (CSR). CSR is a growing global phenomenon whereby organisations consider the interests of society by taking responsibility for the impact of their activities on customers, employees, communities and the environment in all aspects of their operations, often going above and beyond what is required by law.

22. In this respect, Sri Lanka's garment industry is one of the early adopters of CSR in developing countries, with most garment manufacturers especially the larger ones not only providing transport to work, free meals, medical care for its employees but also funding construction of houses, hospitals, schools and provide scholarships in the rural villages where factories are located. The example of MAS, one of the leading producers, provides a useful illustration of how CSR has evolved. The MAS group has conducted reproductive health workshops, English classes, maternity clinics, vaccinations, AIDS and sexual harassment awareness programmes, and athletics programmes as a part of its CSR activity towards employees and the local community²⁸. In 2003, it launched a programme called "MAS Women go Beyond" in to empower women both at workplace and in their homes and to go beyond by providing skills and training while recognising and rewarding special achievements, which has allowed MAS's CSR activities to gain global recognition. The programme has been hailed by the UN Global Compact as an exemplar of best practice in labour management, receiving the AAFA's (American Apparel and Footwear Association) Excellence in Social Responsibility Award in 2005, and recently has been used as a case study on strategic CSR in the apparel industry by INSEAD, one of the world's leading business schools. After Go Beyond started, all four of its major customers - Victoria's Secret, Gap, Marks & Spencer and Nike – have increased their business with MAS and made it their strategic supplier while GAP joined hands with MAS in 2006 to launch a USD 150,000, three year 'GAP Go Beyond' Programme, which includes classes on sustainable development at 20 schools, university scholarships for local youth and entrepreneurship workshops for local women business owners.

There is no prostitution happening, but since they are unmarried and are having relationships with men, they are called all kinds of names and treated badly". There is also misconception that sexual harassment at workplace is widespread in the industry.

²⁶ Currently, there are estimated to be roughly 150,000 vacancies available in the industry across all skill groups.

²⁷ The Rs. 30mn (USD 300,000) programme was launched in 2008. While working conditions have improved inside factories, living conditions outside them leave much to be desired with workers complaints of cramped, unhealthy boarding houses and exploitative landlords. In this context, JAAF is canvassing with various government authorities to provide accommodation facilities as there is a severe shortage of suitable lodging for garment workers.

²⁸ While CSR activities were initiated much before the MFA expiration, these ad-hoc activities were formalised and promoted as a means of competing internationally on non-price terms in a quota free era. A case in point is the 'Go Beyond' programme of MAS.

Moving up the value chain (Independent Marketing and the use of Brands)

23. During the MFA era garment manufacturers were heavily dependent on various buying offices for export orders and had little or no direct contact with their customers in the main markets²⁹. This was identified by manufacturers as an obstacle to the future progress of the industry especially when the quotas are removed and the international trade in apparel and textile will move away from a seller's market to a buyer's market, forcing Sri Lankan manufactures to market their products directly to the buyer. It was evident that the industry had to develop its marketing capacity in order to understand the ever changing needs of the consumer in the market place. Thus, manufacturers sought to establish direct links with customers and large manufacturers such as Brandix have opened marketing offices in New York and London in addition to sourcing offices for example in Bangalore, India.

24. Another significant development has been the increasing use of brands by leading manufacturers such as Brandix and MAS. Brandix has been making an effort to position its brand as a total solutions provider to leading names in the world wide apparel trade. In 2007, it was accorded the Business Superbrand status in the apparel sector by the Superbrand Organisation, which is an independent body that identifies exceptional brands around the world. MAS, on the other hand, has launched a range of intimates under its own brand (see Box 1).

25. In order to strengthen the marketing competencies of the industry, the JAAF in collaboration with the Chartered Institute of Marketing (UK) initiated an industry specific professional marketing qualification³⁰. As a result, the industry has benefited from approximately 100 professionally qualified apparel marketers with the appropriate knowledge and competencies to cater to the varying and demanding needs of the industry. The postgraduate diploma course continues to be the only one of its kind in the world since its inception in July 2002.

²⁹ It has been estimated at one point that around 65-70% of the garments were exported through buying offices based in Sri Lanka.

³⁰ The programme is jointly conducted by SLIM Business School and Synergy School of Marketing. The programme consists of three stages - the first two stages focus on general marketing aspects while the final stage enables students to specialize in marketing strategies specific to the industry.

Box 2. Introduction of own brands – case of MAS

MAS, a leading manufacturer of intimates in Sri Lanka, recently launched a range of intimate wear under its own brand label of *Amante* in South India in 2007. This is a significant innovation as the industry until then produced for the world's leading brands but did not possess its own brand. The *Amante* brand is developed, designed and made in Sri Lanka, making it a fully Sri Lankan brand. The particular product caters to South Asian women and uses cotton base to suit the South Asian climate as well as incorporates local taste in colours and prints in the garment. It was first introduced in Bangalore, Chennai and Hyderabad and the company hopes to expand across India and to the rest of South Asia with possibility of the Middle East in the longer term. Launched in India to cater to the middle and upper income brackets, the product is positioned as a premium value brand to tap the growing market, competing against international brands such as Triumph, Etam and La Senza. The product was launched after extensive market research which found that there is a gap in the Indian lingerie market, as most lingerie sold in India catered to European women. The lingerie is also manufactured to suit the life style of Indians and will be launched according to the Indian calendar, with four collections to cater to different seasons such as Diwali, summer, bridal season and special festivals. MAS has so far invested USD10 million in the *Amante* line with the intention of making the product a premium brand in the Asian region. This innovation builds on MAS's experience in design as a contract manufacturer.

Market Diversification

26. The garment industry has traditionally relied on the US and EU, in particular the UK, as markets for its exports. The US currently accounts for over 50% while the EU has a share of about 40%. In order to diversify its export markets, the industry represented by the JAAF has undertaken market development programmes in India, France, and Germany, not only to market its product but also to source fabric and accessories required for the garment industry. Both the Indian and EU markets provide duty free access under the Indo-Lanka Free Trade agreement³¹ and the GSP-plus scheme, respectively. This industry initiative has become all the more important in light of the fact that the Export Development Board (EDB), which is the government authority vested with the responsibility of promoting and development of exports from the country, no longer undertakes programmes to promote the exports of the industry.

3.2 *Product Innovation*

Moving up the value chain (Product design and development)

27. At the beginning, the industry was in the business of assembling garments (cutting and sewing), based on designs provided by foreign buyers. However, with the impending phase-out of the quotas, it became necessary for Sri Lanka to build its capabilities in design and product development and offer value added services to its customers. Already some of the large garment manufacturers like MAS and Brandix have established their own design centres with in-house designers focusing on product design and development. The designers work closely with the design teams of brand-owners interpreting their designs, making suggestions and sometimes even giving ideas, thereby speeding up the production process and reducing lead times³².

28. For example, MAS has partnered with Nike, and introduced the world's first bonded bra called the Nike Revolutionary Sports Bra. The bra is an ultra-lightweight sport bra providing optimum support as

³¹ Sri Lanka has been having duty free access to the Indian market since 2003 under the Indo-Lanka Free Trade Agreement, which came into operation in 2000. Although textile and garments are under India's Negative List which are not eligible for tariff concessions, they are subjected to a Tariff Rate Quotas (TRQs)

³² In fact, MAS has opened up design studios in the UK, USA and Hong Kong, offering design solutions to Victoria's Secret, Gap and Speedo

well as comfort. It is produced using no-sew (or bonded) technology, combines stretch and non-stretch zones, and is adjustable three ways to ensure a personalized fit. In addition, the bra is made of moisture-wicking dri-FIT fabric that allows skin to breathe. MAS also collaborated with Speedo to produce Fastskin 11, a hydrodynamic swimsuit, for the 2004 Athens Olympics³³. It was made of a high density, quick drying fabric woven with chlorine-resistant elasthane which was coated with water repellent to reduce water absorption, and it was sewn using an innovative process to enhance speed. The production process spanned 4 countries – designed in the UK, fabric imported from Japan, special application in South Africa, cut, sewn and finished in Sri Lanka. MAS was also involved in the development of Speedo's FS Pro swimsuit for the 2008 Beijing Olympics.³⁴

29. Towards further harnessing the capacity in product design and development in the industry, the JAAF, with the support of the Sri Lankan government, initiated a Fashion Design and Development programme³⁵ which is a four year degree course conducted at the Department of Textile & Clothing Technology, University of Moratuwa in collaboration with the London College of Fashion (LCF). Some eighty students have passed out of the degree course which was started in 2001. JAAF has also entered into an agreement with North Carolina State University (NCSU) College of Textiles³⁶ in 2004 to strengthen the technical capacity of the industry in three key areas (Supply Chain Management and Integration, Technical Product Development and Industrial Engineering) by delivering a NCSU affiliated diploma in collaboration with the Clothing Industry Training Institute (CITI) and Textile Training & Service Centre (TTSC).

Organic and Fair-Trade Garments

30. Garment factories in Sri Lanka have started to produce organic cotton and fair trade clothing made out of organic and fair-trade cotton grown in India and Africa which is imported and then converted into fabric in Sri Lanka. Fair-trade clothing is gaining popularity in the EU especially in the UK, which is Sri Lanka's second largest export market for garments after the US, and Sri Lanka is responding to this demand. In fact most UK high street retailers are increasing their range of fair-trade clothing³⁷. Sri Lanka already supplies organic cotton clothing for brand names such as Marks & Spencer and Katherine Hamnett, a designer known for her political t-shirts and her ethical business philosophy, through the UK clothing retailer Tesco³⁸. UK's Marks & Spencer plans to convert all its t-shirts into fair-trade t-shirts, thereby providing Sri Lanka an opportunity to expand supply in this area. Local fabric companies like Ocean Lanka and Brandix Textiles have obtained fair-trade and organic accreditations from international certification bodies such as FLO-Cert GmbH of Germany and Institute of Marketecology (IMO) of

³³ 83 percent of all medals were worn by swimmers wearing Fastskin while 13 of 15 world records were broken by swimmers wearing the product (MAS, 2008)

³⁴ According to BBC, 30 world records have been broken using this swimsuit in the lead-up to the Beijing Olympics.

³⁵ The course has a very strong industry focus and is not just about designing clothes but also covers business aspects of garments trade with a one-year industry internship for undergraduates to get hands-on experience of the garment manufacturing process.

³⁶ The NCSU College of Textiles is a leading academic and cutting edge research centre for textiles in the world.

³⁷ While fair trade or organic certified garment would cost more to produce, customers such as NEXT, Marks & Spencer, Nike, Woolworth, H&M, Target and Wal-Mart are supporting this global initiative.

³⁸ Sri Lanka's first Katherine Hamnett order was shipped to Tesco stores in May/June 2007.

Switzerland in order to supply this growing niche sector³⁹, and the Sri Lankan fair-trade network is expected to continue to expand with more companies applying for fair trade accreditation.

31. It is important to note that while the incentive for product innovation was largely driven by the export side due to competition in the markets abroad, imports of fabrics and other inputs required by the garment industry have also played a significant role in the product innovation process. For example, the innovative Nike Revolutionary Sports Bra produced by MAS was made out of imported Dri-Fit fabric while the organic and fair trade clothes produced by Brandix were made out of organic and fair trade cotton grown in India and Africa – as there are no organic or fair trade raw material suppliers available in Sri Lanka at the moment⁴⁰. Thus the use of such imported components has enabled Sri Lanka to come up with innovative products outlined above.

3.3 Process Innovations

Total Service Provider

32. The Sri Lankan garment industry has started off as a ‘contract manufacturer’ producing garments according to requirements of its customers. It was in this context, the industry was often referred to as a ‘glorified tailor shop’. In order to survive in the post-MFA environment, the Sri Lankan garment industry has taken a number of steps to become a ‘total service provider’ for many of the internationally reputed retailers – an objective spelt out in the 5 year plan of the industry. As a total service provider, the industry would not only cut and sew garments but would also undertake several additional activities to cover the entire supply chain (from ‘design to delivery’)⁴¹. The main driver for this transformation was intensified global competition. Given that many global players like China and India are delivering basic customer expectations of price, quality and speed, Sri Lankan producers needed to differentiate themselves from the competition by providing better service⁴². Customers are increasingly demanding suppliers to provide integrated services so that they could focus more on consolidating their brand image.

33. The industry led by the large players has undertaken a number of measures to provide an integrated service to its customers. For example, the MAS group through its 3 divisions (MAS Intimates, MAS Active and MAS Fabric) already provides a full range of service to its customers, spanning design, product development, sourcing, manufacturing and delivery. In line with plans to vertically integrate its businesses to ensure speed and flexibility in product delivery, MAS has invested in facilities to manufacture product components such as elastic, fabric and accessories. The Group has also introduced a Design Services Centre that focuses on product design and development providing a value added service to its customers⁴³.

³⁹ Ocean Lanka and Brandix Textiles acquired their fair trade status in late 2006 and 2007, respectively. Ocean Lanka was the first Sri Lankan company to qualify for fair trade accreditation and has expanded production of fair trade fabrics from 2 mn to 2.75mn pounds of fabric during 2007.

⁴⁰ For example, Ocean Lanka is sourcing fair trade yarn from accredited Indian buyers who in turn, source their inputs from fair trade farmers in India and North Africa.

⁴¹ Mahesh Amalean, Chairman of MAS: "We've gone from being a contract manufacturer, where we're given a design, materials and a tech pack, to being able to provide our customer with a fully integrated solution. The retail market is extremely competitive and they need to focus on that and leave the rest to the vendor base."

⁴² Sharad Amalean, CEO of MAS: "These days, it's not just the price. You go to a country because of the service and flexibility."

⁴³ Since 2000, almost 60-70 percent of MAS's investment has been in developing its supply chain while 30-40 percent has been invested in design and product development (Sequiera, 2005)

Development of Backward Linkages

34. While industry has undertaken measures to build front end services such as in marketing and designing, it has also sought to strengthen backward linkages. Despite the growth in garment exports during the last three decades, the development of a raw material base to support the industry has been poor. Sri Lanka currently does not produce fabrics or accessories in sufficient quantities to support the garments industry and as such depends heavily on imports.⁴⁴ Industry depends on nearly US\$ 1.6 billion worth of imported raw material input – US\$ 1.2bn fabrics, US\$ 167mn yarn and US\$ 184mn other non-textile inputs (JAAF website). As a result, lead times after an order has been placed, is quite high when compared to its competitors in the region⁴⁵. The local supply of inputs (as well as from the region), can not only drastically reduce lead times, but also would bring down inventory costs and allow companies to benefit from existing preferential treatment schemes such as the EU's GSP+ scheme⁴⁶.

35. While a concerted effort has been made to attract investment into the country to build backward linkages in the garment industry, the development of textile and accessories industry in Sri Lanka has been slow due to various reasons including high cost of machinery, non-availability of local raw materials, and high cost of electricity (one of the highest in the region). This is despite the fact that the government has extended various attractive fiscal incentives such as 100% foreign ownership, tax holidays, duty free facilities as well as allocating 3 dedicated sites (in Horana, Thulhiriya, Pugoda) for the development of the textile industry in the country.

36. Nevertheless, some factories have been set up in the country to supply woven and knit fabrics to the growing garment industry⁴⁷, often with foreign collaboration⁴⁸. Most recently, MAS set up a USD 30 million warp knit⁴⁹ factory at its MAS Fabric Park (MFP) in Thulhiriya which is a joint venture with global warp knit specialists Dogi International Fabrics of Spain and Elastic Fabrics of America (EFA), which is the first of its kind in the region. Other than fabrics, ancillary industries have been set up in the country to support the garment industry and to supply: hangers, bra moulding, fabric printing, lingerie elastic, zippers, labels, packing materials, threads and buttons. Projects in the pipeline to further develop backward linkages include those in: lamination & mouldings, high quality foam, transfer prints, garment dyeing, fabric printing, and bra components.

⁴⁴ In fact, the textile industry which was there catering largely to the domestic market suffered the liberalization of the economy in the 1970s and the industry virtually collapsed when the government removed import duties on textiles to support the garment industry.

⁴⁵ Lead times are about 90-120 days in Sri Lanka compared to 60 days in the case of more efficient producing countries.

⁴⁶ With locally available warp knitted fabric, Sri Lanka would be able to qualify for duty free access into the EU and make exports from Sri Lanka more competitive which is expected to pull in more European orders.

⁴⁷ Most of these factories manufacture knitted fabrics rather than woven fabrics.

⁴⁸ These factories have been established with foreign collaboration; for example, Ocean Lanka, the largest manufacturer of weft knitted fabrics in the Island, is a joint venture between Hong Kong's Fountain Set Limited, Brandix Lanka Limited and Hirdaramani Group; Hayleys MGT Knitting Mills is a joint venture between the local conglomerate Hayleys Group and MGT Samorr Knitting Mills of Australia while Textured Jersey is a joint venture between two of the largest manufacturing groups in Sri Lanka (MAS and Brandix) and Textured Jersey, UK.

⁴⁹ Warp knitted fabric is a synthetic, stretch fabric, used to make lingerie, swimwear and sportswear. Warp Knitting involves knitting of lengthwise-running rows of interlocking yarn. The fabric produced by this process is less elastic and is flatter. Warp knitting comprises several types of knitted fabrics, including tricot, raschel knits, and milanese knits. All warp-knit fabrics are resistant to runs and relatively easy to sew.

Productivity Improvement Programme and Lean Manufacturing

37. The industry is constantly undertaking measures to increase its productivity levels which are quite low. According to JAAF, Sri Lanka's labour productivity rates average between 35-45% when compared with rates of 65-75 in cost competitive countries like China (JAAF, 2002). The Productivity Improvement Programme (PIP) was launched by JAAF in 2004 with funding from the government in order to address this issue and boost the competitiveness of the industry⁵⁰. The objective of the programme is to provide "leaner" and more "effective" organizations, which would result in higher productivity, lower costs, better quality and on-time delivery. The programme which is to improve overall productivity by at least 20-30% is at present being operated under the purview of the Textile Training & Services Centre (TT&SC) and Clothing Industry Training Institute (CITI). In this context, large manufacturers in Sri Lanka are increasingly engaged in implementing lean manufacturing methods⁵¹ in their production process to reduce wastage and lead times and lower production costs.

38. MAS, for example has developed its own lean model, the MAS Operating System (MOS) which is based on the renowned Toyota Production System and it is the first such initiative undertaken in the garment industry in Sri Lanka. MAS is looking to implement its lean manufacturing model throughout its 39 production facilities by 2008. The eco- manufacturing plant which is situated in MAS Fabric Park, Thulhiriya will be the first to run the MAS Operating System (MOS).

CAD/CAM Technology

39. Technology levels of the garment industries greatly vary, with most of the small-medium scale enterprises possessing low technology compared to that of the large scale enterprises (JAAF, 2002). While many small and medium scale producers have been constrained by the high cost of upgrading their technology, large manufacturers have been investing in latest technologies from production to communication to give customers a better product and service.

40. An example of this is their investment in Computer Aided Designing (CAD) and Computer Aided Manufacturing (CAM). Before implementing the CAD system, designers had to plot a sketch of a garment on paper, and making any changes was costly and time consuming. However, the CAD technology uses computer software to develop a sketch, making changes to a design easier and quicker. Given that designs developed using this system are in electronic form, exchange of designs can be done much faster than before. The designs developed can then be transferred to the CAM system in which the needles and machine movements are controlled electronically. These systems not only make the job of machine operators much easier but also help to make identical garments within a very short period of time. CAD/CAM systems are constantly being upgraded and it is believed that this technology will drive the

⁵⁰ Prior to this, ILO launched the Factory Improvement Programme (FIP) in 2002 with funding from US Department of Labour (USDOL) and Swiss Secretariat For Economic Affairs (SECO). FIP is a training programme, which aims to assist factories in increase their competitiveness, improve working conditions, and strengthen communication and collaboration between managers and workers. So far, four FIP programmes have been conducted, benefiting 29 garment factories in and around Colombo. The Employers' Federation of Ceylon (EFC) together with the ILO have implemented the programme with the Joint Apparel Associations Forum (JAAF) as a collaborating partner. The programme had very positive results in the factories where it was implemented, with improvements in their competitive positions. Subsequently, the Productivity Improvement Programme (PIP) with financial assistance from the government was launched in 2004, posing a major challenge to the continuation of FIP. This is unfortunate given that FIP took a more holistic approach to improve factory performance based on multi-module training programme.

⁵¹ Lean manufacturing refers to the production of goods using less of everything as opposed to mass production. This involves less human effort, less manufacturing space, less investment in tools, and less engineering time to develop a new product. Lean manufacturing is a generic process management philosophy derived mostly from the Toyota Production System.

future of the apparel industry around the world. Another relevant innovation is the early introduction of e-fitting software (See Box 3).

Box 3. Process innovation - E-fitting

Some Sri Lankan garment producers are beginning to use computers not only to design and manufacture but also to 'test the fit of the garment' on a computer, which is a recent innovation called 'e-fitting', which stands for electronic fitting. Just as having a fit-on session for a garment with a model and a design team in real life, the e-fit software used by some Sri Lankan apparel producers such as Hirdaramani Group and Timex/Fergasam takes a digital pattern and turns the pattern into 'virtual cloth' that can be sewn in the computer and tested on a 3D fit model, showing exactly how the garment is going to look like even before sewing a single real sample. This means that one can make design decisions by visualizing the garment digitally.

Hirdaramani group is the first Sri Lankan company to implement the 3D Virtual Sample Development Process as well as the first in the world to convince buyers like Tesco, a UK based international grocery and general merchandising retail chain, to go digital in approving design samples. The 3D e-fit solution used by Hirdaramani group was developed by TUKATECH Inc., which is a leading apparel based software development company from the US. Hirdaramani started using this innovative 3D application for designing Tesco's children's line and performed a series of tests in early 2007. As a result of these tests, Tesco has now decided to eliminate the production of physical samples for their children's line altogether and go with a purely digital process for approvals. Due to this achievement, Tesco awarded Hirdaramani group with an award for "Innovation Excellence". Similarly, Timex/Fergasam which specialises in dress making and intimate apparel has also started using TUKATECH's e-fit software in the production process, and the adoption of this innovative software has put Timex in the forefront of garment industry innovation, helping the company to qualify for the All Star Award in 2007, a prestigious prize awarded in the garment industry to the top 10 high performers from across the world.

Enterprise Resource Planning

41. The efficient management of supply chains are becoming increasingly important for apparel companies which are working towards becoming a total service provider. Some of the larger producers in Sri Lanka in light of the stiff competition have invested in supply chain enabling technologies such as enterprise resource planning (ERP) systems. An ERP system is a computer system that integrates all data and processes of an organization into a unified system. Usually ERP systems will have many components including hardware and software in order to achieve integration. Most ERP systems use a unified database to store data for various functions found throughout the organization. Brandix is one such organisation in Sri Lanka which uses an ERP system to streamline and integrate all of Brandix Group's business processes and increase efficiency levels through the implementation of Lawson's Fashion solution, a sophisticated ERP Platform. The system adopted in 2006, provides an end-to-end fully integrated solution required in the apparel industry⁵². Additionally, the solution would support other vital aspects of the business such as capacity planning, production scheduling and inventory management. MAS Holdings also uses an ERP system provided by SAP and was the first Asian apparel manufacturer to operate the software in 1998 (Watson, 2006). In 2007, it won a top award by SAP for the deployment and use of its technology. It should be noted however that relatively few Sri Lankan apparel exporters have invested in ERP or any other supply chain enabling technologies⁵³.

Green Manufacturing Plants

42. With increasing global concern regarding climate change, the garment industry in Sri Lanka has started investing in so-called green manufacturing plants, which is a method of manufacturing that

⁵² Earlier Brandix had developed a customised in-house ERP system but it was limited and the company faced a number of challenges in integrating key processes and information across its group of companies.

⁵³ The local ERP market is estimated to be worth US\$ 15-20 million and growing at 30% annually.

minimises waste and pollution achieved through product and process design. Consumers, particularly from developed countries who have a higher disposable income, are increasingly interested in environmentally friendly products and production processes. MAS and Hidramani are both planning to build plants that use renewable energy, minimises energy and water use, and sends minimal waste to landfill (Box 4) to tap into this market. The technology needed for these plants such as the solar-electric cells are imported while some are developed domestically. Large scale manufactures like Brandix has won awards such as prestigious International Green Apple environmental Awards, conferred by the Green Organisation in recognition of its innovative efforts to achieve zero disposal of solid waste and sludge by converting effluents to environmentally, economically and socially relevant by-products⁵⁴. The process developed by Brandix can serve as a potential model for many industries which involves disposal of solid waste.

Box 4. Process Innovation - Green manufacturing plants

MAS Holding's subsidiary MAS Intimates will invest USD 6 million to build the first 'eco friendly' manufacturing facility manufacturing lingerie exclusively for Marks & Spencer. MAS is supporting M&S in implementing its Plan A initiative, which is a 5 year, 100-point plan to combat climate change, reduce waste, safeguard natural resources, trade ethically and build a healthier nation⁵⁵. The plan is for the factory to be carbon neutral, use renewable energy (solar-electric, solar thermal and wind), use energy saving equipment including LED based task lights, and send no waste to landfill. Rainwater harvesting is also planned for the roof. M&S is supporting the development of the factory by providing advice on sustainable construction through its store development experience and the creation of its 'green' stores in the UK. It is also sponsoring the architect's design costs. The factory will be operational in 2008 and is expected to operate at full capacity by 2010. The project will be independently certified by the US Green Building Council's Leadership in Energy and Environment Design (LEED) Green Building Rating System.

.Hidramani group too has invested in a green plant to attract customers in this niche market. The Hidramani Group's first 'green' factory will operate in Agalawatta from 2008 at an investment of around US\$ 5 million. Hidramani is also planning on getting LEED certification. Keeping with the principle of minimising environmental impact, the factory will also incorporate a number of measures to reduce energy consumption and water usage. Among other things, the factory will use sky lighting on the roof to tap solar energy instead of using lights to operate during the day time. The factory will not use air conditioning but instead will have an evaporation cooling system. The reduction in energy use by this innovative process is expected to directly benefit the company - Hidramani is hoping to cut energy costs by about 40% compared to a conventional factory. The factory will consume less water by biologically treating and re-using water for sewage conveyance and will also use rainwater harvesting methods to get water for factory use.

3.4 Organisational Methods

Formation of the Joint Apparel Association Forum (JAAF)

43. The Joint Apparel Association Forum (JAAF) was established in 2002 as the apex body for all textile and apparel related associations in the country and brought all the stakeholders in the industry under a single umbrella. Members are SLAEA, the National Apparel Exporters Association, the Sri Lanka Garment Buying Office Association, the Sri Lanka Chamber of Garment Exporters, and the Free Trade Zone Manufacturers Association. The purpose of its establishment was to collaborate with one another in order to face challenges posed by the phasing out of quotas together as a group. Towards achieving this objective, JAAF drafted the five year strategic plan which set out targets designed to ensure the survival and growth of the Sri Lankan apparel industry (as outlined in Section 2 above). The formation of JAAF could be considered an innovation in organisational methods given that it fundamentally changed how

⁵⁴ By products include solid construction bricks made from the sludge generated by garment washing, dyeing and finishing process; bio gas from decomposed biological sludge and canteen food waste. Remaining sludge has been used for the production of organic fertilizer.

⁵⁵ <http://www.marksandspencer.com/gp/node/n/51360031>

firms interacted with one another and became the vehicle through which industry interests are now voiced and promoted.

Working towards TQM

44. In the post MFA era with stiff competition from low cost producers, Sri Lankan garment producers started focusing more on improving quality of the garments they produce compared to reducing costs. As a result, strong players in the industry took initiatives on implementing Total Quality Management (TQM) practices in their respective organisations. TQM is mainly concerned with continuous improvement in all aspects of work, from high level strategic planning and decision-making to detailed execution on the factory floor. It stems from the belief that mistakes can be avoided and defects can be prevented. It leads to continuously improving results, in all aspects of work, as a result of continuously improving capabilities, people, processes, technology and machinery.

45. Large Sri Lankan garment producers like Brandix have taken initiatives to change their organisational structure to ensure the implementation of key principles of TQM which include management commitment, employee empowerment, fact-based decision making, continuous improvement and customer focus. Management commitment is ensured by planning the workflow to achieve quality requirements of the products. Employee empowerment is supported by training programmes they conduct frequently for their employees. Companies also work to ensure that fact based decision making is in place by providing the decision makers with relevant data. Continuous improvement is achieved by systematic measurement and constant improvement of standards. Customer focus has been a key for survival in the industry and producers have established strategic partnerships with brand owners to better understand customer requirements and ultimately the market needs.

Towards a Knowledge-based Industry

46. Apparel industry in Sri Lanka is attempting to move towards a knowledge-based industry where information plays a vital role as the industry believes it is the only sustainable way of competing in the global business environment. In order to transform the industry into a 'knowledge-based' industry, almost all large apparel producers have initiated frequent training programmes for their employees within and outside the organisations while some have set up their own training schools (Box 5). Also noteworthy is the launch of an innovative training publication pioneered by the industry in 2007 to help education providers in the country to align their courses with the needs of the apparel industry. This comprehensive manual ("Competence and Beyond") maps all the key job roles in the industry, articulating the skills, standards and knowledge areas relating to each job role so that job descriptions can be standardized across the entire industry as well as bridge the gap between current and future skill requirements in the industry⁵⁶.

Box 5. Towards a knowledge based industry – Investing in human resources

In 2005, Brandix launched the 'Brandix College of Clothing Technology' (BCCT), which offers training programmes up to degree level in apparel and is the first of its kind in Sri Lanka. The college has been set up in collaboration with the Royal Melbourne Institute of Technology (RMIT), ranked amongst the top ten universities in Australia and renowned for excellence in vocational and technical education. Students who enrol in this three year degree programme are awarded a Bachelor of Applied Science in Textile Technology on successful completion⁵⁷.

⁵⁶ According to JAAF, the manual is first of its kind in the world to map out the key job roles in the textile and apparel industries.

⁵⁷ The programme has been designed to develop critical leadership skills and a thorough knowledge of textile and clothing technology. It is a comprehensive programme covering subjects such as General Science and Mathematics, Textile Technology, Product Development and Pattern Making, Clothing Technology, Supply Chain Management and Garment Manufacturing, Factory Management and Finance, Merchandising and Quality Control.

BCCT is planning on launching a second RMIT programme in Sri Lanka leading to a degree in fashion and merchandising.

MAS has also recently opened a training college, the MAS Institute of Management and Technology (MIMT) within the newly set up Fabric Park in Thulhiriya. The new institute is supposed to work with local and foreign universities to position itself as a knowledge centre for textile & garment technology, lean manufacturing and corporate social responsibility programmes for community development. In addition to investing in people within the respective organisations, the industry as a whole has initiated human resource development programmes - some which have been outlined earlier. In addition, MAS is partnering with the Ministry of Science and Technology to set up a Nano-science Park in Sri Lanka with 4 other private sector companies.

Sub-contracting

47. With the phase out of the MFA, surviving in the garment industry was not easy particularly for small and the medium scale enterprises which were heavily dependent on quotas. Some of the smaller factories, started closing down even before 2005. Moreover, overseas customers started to aggressively restrict their sourcing base and started working with fewer suppliers worldwide. For example Gap, which had over 750 suppliers before 2005, reduced its sourcing to just 50 suppliers while Nike which once had 260 suppliers, reduced it to eight over time. Customers started looking for sufficiently large suppliers who could support all their needs. However, not all smaller players in the industry went out of business nor was there a massive scale of unemployment evident in the industry as a result of the MFA phase-out as it was anticipated. In fact, some of the small and medium scale producers not only managed to stay in business but also expanded their production and employment levels; some entering into sub-contracting arrangements with the large scale producers who have established partnerships with customers while others were simply bought over and absorbed⁵⁸. The large manufacturers too benefited from this arrangement as they could undertake more orders than they would have otherwise been able with their existing production capacity.

Sourcing of inputs from India and Pakistan

48. While most of the inputs required by the garment industry are imported from the Far East, Sri Lanka has been increasingly sourcing fabrics and accessories from the South Asian region given the inability of the domestic industry to provide these inputs to the garment producers in sufficient quantities. In addition, GSP plus scheme has made it attractive for Sri Lanka to source from South Asia due to regional cumulation criteria which allows Sri Lanka to use fabrics and accessories from the region and still qualify for duty free and quota free access to the EU⁵⁹. Currently, the South Asian region (India, Pakistan and Bangladesh) accounts for about 12 percent of total fabric imports to the country – up from 8 percent recorded in 2003 (JAAF, 2007). Most of the fabrics from the region are from India (57%) and Pakistan (42%). Sri Lanka also imports accessories from the region with South Asia accounting for about 6 percent of the total imports of accessories from the world (up from 3 percent recorded in 2003).

⁵⁸ With the contraction of employment opportunities in the garment sector, there has been a corresponding increase in the outflow of women going abroad as housemaids. While it is difficult to establish causal links between the two developments, this argument is supported by a large increase in housemaids in 20-24 age group – the typical age group of a female garment factory worker (Yatawara and Handel, 2006).

⁵⁹ To maximise on the European market opportunity, Sri Lanka has requested that the EU relax its Rules of Origin (RoO) under the GSP-plus scheme. Given the high import dependence of the garment industry Sri Lanka has requested from the EU that the Domestic Value Addition (DVA) requirement be reduced from over 50% to 35%.

Venturing into India

49. Sri Lanka's largest garment manufacturers, MAS holdings and Brandix Lanka have ventured into India to set up textile and apparel parks with a view to positioning Sri Lanka as a regional sourcing hub and India as a production base. Increasingly customers are looking at India as their main sourcing destination and companies like Gap, Nike and Marks & Spencer, which are also customers of MAS and Brandix, are sourcing from India. They are attracted to India not only by its huge retail market but its totally vertically integrated production structure. Moreover, India is the world's second largest producer of textiles and garments after China, accounting for about 3 percent of the world's market. It is also the world's second largest producer and consumer of cotton and has the second largest spinning capacity in the world. In order to capture opportunities at its doorstep, both Brandix and MAS have ventured into India and have set up textile and apparel industrial parks, which would offer one-stop-shop solutions to their customers.

50. The Brandix India Apparel City (BIAC) located in Andhra Pradesh covers 1000 acres, was set up in 2006 with the backing of the State government. It is the first of its kind in India (and perhaps the world) and it is expected to generate a turnover of USD 1.2 billion and employ over 60,000 on site when it comes into full operation in 2008. Brandix will have its own 1600 employees and its manufacturing unit in the park while other companies have already made commitments to locate in the park to supply customers such as Victoria Secrets, Gap, H&M, Hanes, Decathlon and Marks & Spencer. It will be India's largest vertically integrated textile and apparel venture, housing the total supply chain from fibre through spinning, knitting and weaving, trimming and accessories, garment making and embellishment to logistics and store services. Indian operation will complement operations of Brandix in Sri Lanka by positioning Sri Lanka as a regional hub and India as the main production base due to its scale and cost advantages. Similarly, MAS signed an MOU in 2006 to invest USD200mn to set up a 750 acre park in Andhra Pradesh. Neither of the companies is new to establishing overseas ventures but this is on much larger scale than previous initiatives which were mainly driven by availability of quotas in countries such as the Maldives, Madagascar, etc.

One Stop Shop for textiles and garments

51. MAS has also opened up a MAS Fabric Park (MFP) at Thulhiriya in 2007 in Sri Lanka which is the country's first state-of-the-art privately managed industrial park dedicated to fabric and apparel manufacturing. Spanning across 165 acres the MFP will house 10 facilities and is designed to attract textiles, accessories and apparel manufacturers into Sri Lanka and thereby position the country as a *one stop shop* for apparel solutions. According to Mahesh Amalean, the Chairman of MAS, this would enable Sri Lanka to compete with large industrial zones in China, Vietnam and India. Brandix too has ventured in this regard and has established the Brandix Centre of Inspiration, USD15 mn investment which provides centralized services, including marketing, design, product development, centralized cutting and supply-chain management. It is a one-stop point for design to delivery, providing its customers with a complete service.

4. Role of FDI and Imports in Technology Transfer

52. Despite generous incentives offered by successive governments⁶⁰ since the liberalization of the economy in 1977 to attract foreign direct investment into the country, the record of FDI flows to date has

⁶⁰ The Government of Sri Lanka has offered generous investment incentives through the Board of Investments of Sri Lanka (BOI) which is the governmental body responsible for promoting industrial investments within the country. BOI approval for a company can be obtained by fulfilling minimum export and investment criteria. BOI approved companies are eligible for import duty exemption on capital goods as well as raw materials including fabrics and

been relatively poor, failing to surpass no more than USD600mn – the highest figure to date recorded in 2006. This has been due to a number of factors including the small size of the domestic market, high labour costs and low productivity compared to its neighbours, political instability and the lack of well developed infrastructure. Nevertheless, FDI has played an important role in the establishment of textile and clothing industry as well as in the transfer of technology to the country in the sector. Foreign capital has had a significant stake in Sri Lanka's garment industry either through foreign ownership or joint ventures, accounting for 40 and 28 percent, respectively in terms of value of investments (Table 1).⁶¹

Table 1 – FDI stock in the Sri Lankan textile and clothing sector

Realized Investment as at end 2006 - Garment Sector (Approved under sec.17 of the BOI Law)				
Owner Ship*	No Of Projects	Investment (Rs Mn) (Cumulative as at end 2006)		
		Local	Foreign	Total
100% Foreign Owned Enterprise	102	1,241.14	16,040.20	17,281.34
Joint Venture Enterprise	74	3,912.64	8,405.90	12,318.54
100% Local Enterprise	243	10,165.24	4,515.85	14,681.09
Total	419	15,319.02	28,961.95	44,280.97
Source :MIS(BOI)				
* based on country of investment				

53. Garment manufacturing, particularly intimate apparel requires special expertise and infrastructure and the country did not have an established manufacturing base with the capacity to export production until quota hopping East Asian garment producers set up factories in Sri Lanka in the late 1970s. Therefore, FDI was the initial driver of the industry, providing the required technology and know-how in producing garments for the export market. While FDI played an important role in the establishment of the industry, it was the local entrepreneurs who subsequently took the lead and brought up the industry to its current standing. For example, MAS which is now one of the largest and most admired manufacturers in South Asia, started off as a small manufacturer of casual wear for exports. It subsequently entered into a joint venture with MAST (USA) with which it has a long partnership of more than 2 decades and a number of joint ventures in and beyond Sri Lanka, supplying intimate apparel and sportswear to global brands. MAS has thereafter grown through joint ventures with other global technology leaders in the industry (Box 6). Where there was no suitable technical partner, the required technology and process were entirely learned and implemented by MAS.⁶²

accessories. Additionally, goods including machinery imported by these companies are not subjected to VAT. Such concessions together with a liberal trade policy have encouraged importation of new machinery at lower cost.

⁶¹ Although the cumulative figures do not take into account garment factories that have shut down in the past, it gives a rough idea of the important role FDI has played in the development of the Sri Lankan garment industry. In recent years, there has been an incremental flow of foreign investments into the country especially into the textile industry.

⁶² The establishment of Silueta by MAS to meet the rising demand for padded bras in the industry is an example of an instance where the company ventured out on its own.

54. FDI has often been the driver of product innovation in Sri Lanka. For example, value added garments, or garments with buttons, sequences, ribbons etc. requiring special expertise were not produced in Sri Lanka until Sterling Lanka which is wholly owned by Sterling Products Ltd, Hong Kong started producing it locally for the export market. Bonded garments were not produced in Sri Lanka until Bodyline, a joint venture between MAS Holdings, Mast Industries, USA and Triumph International, Germany was set up.

Box 6. Technology transfer and growth through joint ventures – case of MAS and Brandix

MAS holdings provides an excellent example of the use of joint ventures with technological leaders in their areas of business in order to obtain the required technology and expertise for the production of fabrics, accessories and components such as bra cups, lace and elastics required as inputs for the production of intimates and casual/sports wear. Through a number of joint ventures, MAS has formed partnerships in Sri Lanka that supply elastic (Stretchline, UK a leader in elastic manufacturing with a global presence), weft knit fabric and dyeing (Pacific Textiles, the second largest weft-knit fabric manufacturer in China), lace (Noyon Dentelles de Calais, France a leader in lace manufacturing), and shoulder straps, hook and eye tape, and underwires (Prym Newey, Germany, a global business with a strong product portfolio in permanent safe fastenings). Most recently, MAS started the production of warp knit fabric through a joint venture with Dogi International, Spain, a leading manufacturer of warp knitted fabrics and Elastic Fabrics of America (EFA), a leading US-based manufacturer of elastomeric warp knits and circular knits. It has also set up a new facility in the country with the Spanish company, Textprint which is Europe's leading company with expertise on printing on synthetic fabrics.

Similarly, Brandix Lanka has set up a number of joint ventures with both local and foreign investors across its 3 divisions: apparel manufacturing, fabrics and accessories. For example, under apparel manufacturing, Comfortwear Limited is a joint venture between Brandix Lanka and Lanka Equities Ventures Limited while Linea Clothing Limited is a joint venture between Brandix Lanka and the MAS group. Also Stevensons Lanka Limited is a three way joint-venture between Quantum Clothing Group UK, Brandix Lanka and Lanka Equities Limited. Under Fabrics, Quenby Lanka Prints (PVT) Limited is a 50-50 joint venture between Brandix Lanka and Brandot International (USA) while Ocean Lanka Limited is a three- way joint venture between Brandix Lanka, Fountain Set (Hong Kong) and the Hidramani Group while Brandix Lanka has an indirect holding of Textured Jersey Limited. Under the Accessories division, A&E Lanka Limited, A&E Brandix hangers Limited as well as T&S Buttons Limited are all joint ventures between Brandix Lanka and other foreign partners.

55. It appears that FDI flows into the apparel sector in Sri Lanka have been accompanied by high technology flows to country. Textured Jersey for example has installed one of the world's most modern automated dye dispensing systems at an investment of about USD1mn. Similarly, French based Intissel has established a subsidiary in Sri Lanka (Intissel Lanka) which specializes in the manufacturing of non-woven fabrics to produce interlinings for ladies' and men's wear, which require advance technology for production.

56. Technology transfer has come about not only in terms of import of the most advanced technology through FDI but also in the form of technical assistance and know-how through training. For example, importation of machines has usually been accompanied with training for local employees by machine manufacturers or technical assistance provided by the foreign partner with years of experience in the industry.⁶³ Technical assistance has taken place through a combination of short term experts/specialists coming from abroad and working with the local employees as well as medium term training abroad for a selected few. For example, Stretchline, which manufactures elastic and has now established itself as a

⁶³ The importation of machineries has been mostly done through local representatives of foreign manufacturers. For example, DMS Garment technologies Pvt Ltd. acts as an agent for Gerber technologies (USA), ZSK (Germany) and GSD (UK) which are global leaders in garment technologies such as in CAD/CAM. Such companies provide the Sri Lankan garment industry with the latest technologies available in the world.

serious competitor in the elastic industry, obtained technical assistance during its formative years from its British partners, Charmwood Elastics who have years of experience in the elastic industry. Consequently the industry has been able to build a large pool of skilled people with hands-on experience in the latest technology available in the world. It was not too long before locals adopted the imported technologies and mastered the newly acquired skills. In fact they have demonstrated their own ingenuity in using machinery in way the manufacturers have never thought!

57. Transfer of technology has also been facilitated by liberal investment and trade policies pursued by the government since the late 1970s with the extension of duty free facility to the importation of machinery for projects approved under the BOI for the purpose of exports. The textile and the garment industry in the country has benefited from these duty concessions in obtaining the latest technologies in the business⁶⁴. As described above, various pieces of capital equipment and cutting edge technology such as CAD/CAM technology and ERP systems have been key to the uptake of innovation in the Sri Lankan clothing industry.

58. The industry has also benefited from the Apparel Industry Suppliers Exhibition (AISEX) which is held every other year in Sri Lanka. This exhibition has also played an important role in facilitating the transfer of technology into the industry. AISEX is purely an apparel technology and machinery exhibition which showcases the latest technology developments in the world ready-made garment industry. One of the important benefits of the exhibition is that it has exposed the local apparel producers not only to the European and American machine manufacturers but also to the Asian technology providers which do not have agents in the country. Fabric and Accessory Sourcing Exhibition (FASE) is another exhibition held in Sri Lanka, showcasing new technology developments in the fabric and textiles around the world and improving the awareness of the local textiles manufacturers about global trends.

5. Conclusion

59. As was examined above, a number of innovations were undertaken by the garment industry in Sri Lanka in order to face the challenges of a post-MFA, quota-free environment. These innovations in products, production processes, marketing and even organisation structure were mainly introduced by large makers as a means of remaining competitive. Of these innovations, the initiation of an international marketing programme under the 'Garments Without Guilt' slogan, undertaking of product design and development, efforts to provide a total 'design to delivery' solutions to customers, formation of JAAF are some of the noteworthy innovative activities.

60. While competition in the export market has acted as a catalyst to innovate, trade and FDI have both been important as sources of innovation. Import of better quality textiles and accessories have allowed Sri Lankan garment manufacturers to explore new products, while cutting edge technology such as CAD/CAM technology, ERP systems as well as other capital equipment which are only available as imports have allowed the industry to keep pace with global advances in technology and compete in the global market. FDI too has been important not only in terms of establishing the export oriented industry in the beginning but also in terms of technology transfer to the industry which has enabled the country to cater to an increasingly competitive markets. While the industry has been at the fore-front of these innovations, largely driven by the large scale manufacturers, these efforts were well supported by the government which has played an important role in the development of the industry through offering

⁶⁴ The industry has also benefited from other governmental assistance over the years. For example, the 2007 Budget included the following concessions to the garment industry: reduction in industrial tariffs to around USD 0.07 cents, reduction of the Economic Service Charge (ESC), reduction of Port and Airport Development Levy (PAL) on capital goods to 2%, local sale of garments on payment of Rs.25 per piece, allocation of funds for the Productivity Improvement Programme (PIP) and the international image building campaign, 'Garments without Guilt'.

various fiscal incentives and tariff concessions to sustain the growth of sector. The key lessons that can be learnt from the case study are that (1) a liberal investment and trade environment facilitates flows of FDI and technology transfer to the country and provides the right incentives for technology adoption, (2) efforts on an industry basis such as industry associations can be important (as evidenced in the activities of JAAF), and (3) government does have a role to play in supporting industry's innovation efforts.

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