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EXECUTIVE SUMMARY

# The Apparel Global Value Chain

ECONOMIC UPGRADING AND WORKFORCE DEVELOPMENT



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## “Skills for Upgrading: Workforce Development and Global Value Chains in Developing Countries”

This research project examines workforce development strategies in developing countries in the context of the shifting upgrading dynamics of global value chains. Funded by RTI International and carried out by Duke CGGC, this research addresses policymakers, donors and development practitioners to improve our understanding of how workforce development strategies can enhance the upgrading efforts and competitiveness of developing countries in global industries.

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None of the opinions or comments expressed in this study are endorsed by the companies mentioned or individuals interviewed. Errors of fact or interpretation remain exclusively with the authors.

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## Executive Summary

This report uses the global value chain perspective to examine workforce development initiatives in a number of developing countries that are participants in the global apparel industry. Apparel production is considered an important catalyst for national development, and often it is the typical starter industry for countries engaged in export-oriented industrialization due to its low fixed costs and emphasis on labor-intensive manufacturing. The expansion of this sector has played a critical role in the economic development of many low-income countries, which today account for three-quarters of the world clothing exports. Formal employment in the sector totals over 25 million in low- to mid-income economies (ILO, 2005).

While global expansion of the apparel industry historically has been driven by trade policy, by 2005, the Agreement on Textiles and Clothing (ATC) by the World Trade Organization had phased out many of the quotas that had previously regulated the industry. This caused a tremendous flux in the global geography of apparel production and trade, and a restructuring of firm strategies seeking to realign their production and sourcing networks to accommodate new economic and political realities (Gereffi & Frederick, 2010). This change has brought other key factors for country competitiveness to the forefront, including labor costs, productivity, and competencies. Low-cost countries—such as China, India, and Bangladesh—are emerging as leaders in the lower-value assembly segments of the value chain, while smaller countries are being forced to upgrade into higher-value segments, such as branding and design that rely on high-quality human capital to maintain their competitiveness. As a result, workforce skills will become increasingly important elements for developing economies to maintain and upgrade their positions in the global apparel value chain.

This report examines the role that different workforce development initiatives have played in the evolution of the apparel industry in five developing countries: (1) Bangladesh, (2) Lesotho, (3) Nicaragua, (4) Sri Lanka, and (5) Turkey. These nations represent different stages of industry development. Lesotho and Nicaragua are in the lowest stage of the value chain, offering only assembly operations. Bangladesh is one step more advanced because it adds purchasing and distribution capabilities. Sri Lanka has been able to add design capabilities, while Turkey is also selling their own brand products.

Our analysis reveals the following findings with respect to workforce development and upgrading in this sector:

## Economic Upgrading

The main stages of upgrading in the apparel value chain are

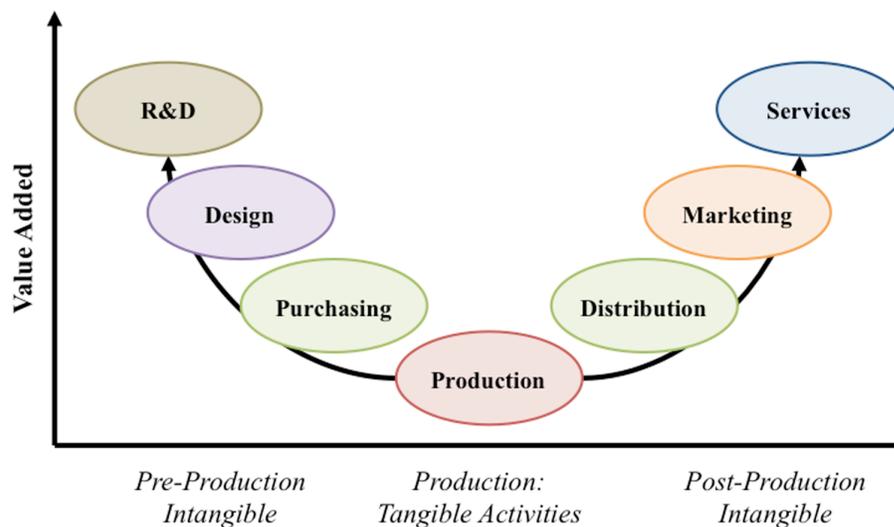
**1. Assembly/Cut, Make, and Trim (CMT):** Apparel manufacturers cut and sew woven or knitted fabric or knit apparel directly from yarn.

**2. Original Equipment Manufacturing (OEM)/Full Package/Free on Board (FOB):** The apparel manufacturer is responsible for all production activities, including the CMT activities, as well as finishing. The firm must have upstream logistics capabilities, including procuring (sourcing and financing) the necessary raw materials, piece goods, and trim needed for production.

**3. Original Design Manufacturing (ODM)/Full Package with Design:** This is a business model that focuses on adding design capabilities to the production of garments.

**4. Original Brand Manufacturing (OBM):** This is a business model that focuses on branding and the sale of own-brand products.

**Figure 1. Curve of Value-Added Stages in the Apparel Global Value Chain**



Source: Frederick, 2010.

- Developing countries enter into the lowest segments of the value chain due to various advantages, including favorable trade agreements, low-cost labor, and proximity to end markets. Four of the five countries studied entered the industry principally because of favorable trade agreements. Bangladesh and Sri Lanka benefited significantly from preferential trade agreements with Europe and the United States, which facilitated their early entry and growth, while, more recently, Lesotho and Nicaragua benefited from the African Growth and Opportunity Act (AGOA), as well as the Dominican

Republic-Central America Free Trade Agreement (CAFTA-DR) and Trade Preference Level (TPL) agreement, respectively.

- To upgrade into higher segments of the value chain, other factors become more relevant. These include the presence of a domestic or regional textile industry; the presence of large textile and apparel manufacturers in the country; and, in the cases of upgrading into design and branding, a strong commitment to industry growth by both the public and private sectors to develop the necessary talent and establish a national brand.

### **Workforce Development**

- The majority of workers are concentrated in the production-related segments of the value chain (CMT or OEM), and, historically, they have mainly been young, female workers with limited education. Only 3%–4% of total factory workers are not involved in assembly line positions, such as production planners, engineers, mechanical technicians, and operations support (Nathan Associates Inc., 2006). However, while the required formal skill level is relatively low in the CMT segment of the value chain, this rises rapidly as countries upgrade into higher value stages, and workers with more advanced skills are needed to support new functions, such as logistics, finance, design, and marketing.
- Despite its potential for increasing productivity and upgrading, workforce development initiatives alone play a secondary role in improving competitiveness. The case studies discussed later in this report provide several key lessons for workforce development in the sector, such as follows:
  - First, in the early stages of the value chain, all of the countries studied maintain a heavy emphasis in on-the-job training carried out by supervisors to address the skills gaps in the apparel labor force, rather than the use of formal training. This preferred method of training is less costly, but it also stems from the limited number of vocational and training institutions (public or private) dedicated to the apparel industry and the mismatch between skills provided by these institutions and private sector needs.
  - Second, there is frequently a shortage of skilled labor, in general, and qualified supervisors and management, in particular, to support industry upgrading in developing countries. Expatriates generally meet this skills gap or, where possible, when existing skills are not present in the local labor market, certain upstream or downstream activities are performed abroad in firm headquarters.
  - Third, new initiatives are emerging from more mature suppliers to professionalize the apparel labor force, including managerial training to deal with growing pressures for lean

manufacturing and compliance with corporate codes of conduct and the creation of national certifications for product and process upgrading in Turkey and Sri Lanka. Initiatives such as these are important precursors to establishing comprehensive workforce standards for upgrading.

### **Institutions**

- In those segments of the value chain focused on manufacturing, the private sector has played the leading role in workforce development, and most firms offer internal training of entry-level employees. There have been a number of efforts by both the public sector and donor agencies to engage technical and vocational training schools in the industry, often with only limited degrees of success.
- In the two countries (Turkey and Sri Lanka) where the industry has upgraded to higher stages of the apparel value chain, we observe superior degrees of stakeholder coordination, along with some public-private partnerships (PPPs) to support workforce development. These alliances include private firms, industry associations, educational institutions, and the private sector to improve the quality of those skills.
- Successful workforce development for ODM and OBM stages in the value chain has leveraged know-how in the developed world by engaging foreign universities in successful apparel countries to help design curriculum for local programs and hiring foreign consultants to help develop in-house talent. Fostering collaboration with successful training institutions in the developed world can speed firm-level learning for upgrading, rather than relying solely on learning through experience.
- The International Labor Organization (ILO) has partnered with International Finance Corporation (IFC), a branch of the World Bank, to establish the Better Work program to raise labor standards in global supply chains. While currently, the Better Work program has been implemented in Cambodia, Haiti, Jordan, Lesotho, Vietnam, and most recently Nicaragua, to date the ILO-IFC partnership has focused primarily on encouraging social dialogue and improving working conditions. Thus far, however, it has been unable to link participation by developing countries in the Better Work program to more favorable contracts or other long-term benefits with global buyers in the apparel value chain.

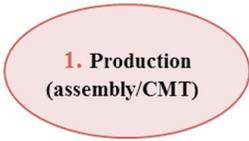
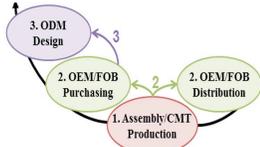
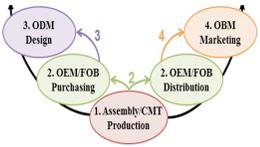
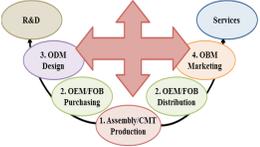
### **New Global-Local Interactions**

- The rationalization of global supply chains in apparel, which has been accelerated by the phase out of the Multi Fibre Arrangement (MFA) quota system after 2005, is leading to concentrations in the market share of the leading apparel exporting countries and an emphasis on fewer, larger, more capable and strategically located suppliers (Gereffi & Frederick, 2010). In 2008, for example, the top two apparel exporters, China and the European Union (EU), accounted for 64.3% of global apparel

exports, and the top five developing countries (China, Bangladesh, India, Turkey, and Vietnam) had 45.5% of the apparel total. In 2000, China and the EU-27 represented 46.6% and the top five developing economies (China, Hong Kong, India, Mexico, and India) 33.9% of apparel exports. This consolidation increases the importance of linking workforce development initiatives to economic upgrading in the apparel value chain, since those countries that cannot meet the demanding requirements of OEM, ODM, and OBM production risk being marginalized in the chain.

- The rapidly increasing labor costs in China, the dominant producer and exporter in the global apparel value chain, as well as a slump in demand by the advanced industrial economies, is leading to a regionalization in apparel value chains, with large emerging economies like China, India, and South Africa becoming significant new markets for nearby developing country producers (Frederick & Gereffi, 2011; Morris et al., 2011). This provides new opportunities for low-income economies like Lesotho and Bangladesh to compete against dominant exporters like China and India, but they can only do so if they can meet the more stringent upgrading and workforce requirements of post-MFA supply chains.
- Lead firms have taken a more active role in facilitating training in two key areas: (1) quality control and (2) improving working conditions. For example, in Turkey global brands—such as Liz Claiborne, Hugo Boss, and Marks and Spencer (M&S)—train, certify, and audit Turkish suppliers on quality control, information systems, and working conditions (Tokatli, 2007).
- The impact of lead firms pushing country upgrading through demand for additional services is affected by the length and capabilities inherent in the supply chain. Our research suggests that global lead firms influence functional upgrading in countries where large integrated suppliers are based and where the domestic pressures for economic upgrading are strong, but they do not promote upgrading in countries where the factories engage only in assembly (CMT) activities.

**Table 1. Upgrading Trajectories in the Apparel Global Value Chain**

	Diagram	Description
Assembly/ CMT (Entry in the value chain)		<ul style="list-style-type: none"> <li>• Assembly (CMT): The focus of the supplier is on production alone; suppliers assemble inputs, following buyers' specifications.</li> <li>• Inputs—such as textiles, accessories, and packaging—may be imported due to limited availability and quality concerns over local inputs.</li> <li>• Product focus may be relatively narrow.</li> </ul>
Full Package/OEM (Functional Upgrading)		<ul style="list-style-type: none"> <li>• Firm takes on a broader range of tangible, manufacturing-related functions, such as sourcing inputs and inbound logistics, as well as production.</li> <li>• The supplier may also take on outbound distribution activities.</li> </ul>
Product Design (ODM) (Functional Upgrading)		<ul style="list-style-type: none"> <li>• Supplier carries out part of the pre-production processes, such as <b>design</b> or product development.</li> <li>• Design may be in collaboration with the buyer, or the buyer may attach its brand to a product designed by the supplier.</li> <li>• In many cases, ODM firms work with designers from the lead firms to develop new products.</li> </ul>
Product Brand (OBM) (Functional Upgrading)		<ul style="list-style-type: none"> <li>• Supplier acquires post-production capabilities and is able to fully develop products under its own <b>brand</b> names. Two options:                      (1) Supplier maintains a relationship with the buyer and develops brand collaboratively.                      (2) Supplier establishes its own distribution channels by establishing a new market channel that is typically more profitable and allows the firm to expand skills. These are often local or regional markets.</li> </ul>
Product Upgrading		<ul style="list-style-type: none"> <li>• Increase unit value by producing more complex products, which requires increasing the capabilities of the firm.</li> <li>• Countries must move from low-cost commodities to higher value-added fashion goods that warrant higher returns as labor rates increase.</li> </ul>
Process Upgrading		<ul style="list-style-type: none"> <li>• Machinery: Improving <i>productivity</i> through new capital investments.</li> <li>• Information and Logistics Technology: Improving the way the firm carries out these activities. Benefits both the firm and the chain because it reduces the total time, cost and increases the flexibility of the supply chain process.</li> </ul>

Source: Duke CGGC.

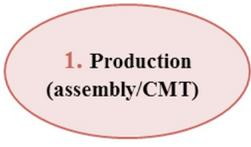
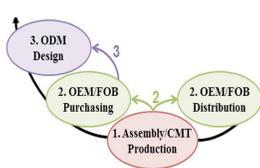
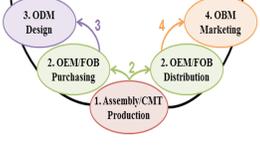
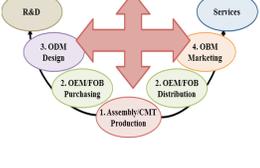
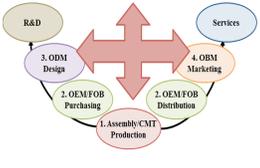
**Table 2. Job Profiles in the Apparel Global Value Chain**

Position	Job Description	Formal Education Requirements	Training/ Experience	Skill Level
<b>CMT/Assembly /Production</b>				
Hand Sewers	Sew, join, reinforce, or finish—usually with needle and thread—a variety of manufactured items. Includes weavers and stitchers.	No formal education required	Required experience	
Sewing Machine Operators	Operate sewing machines to join, reinforce, decorate, or perform related sewing operations in the manufacture of garment or nongarment products.	No formal education required; literacy and numeracy skills	Experience: Need of speed and accuracy skills	
Garment Pressers	Clothing pressers use steam irons and vacuum presses to shape garments and remove creases.	No formal education required	Experience: Need of speed and accuracy skills	
Cutting Machine Operators	In automated facilities, cutters electronically send the layout to a computer-controlled cutting machine.	Technical education	Technical training	
Line Leaders	Supervisory roles; ensure work flows expeditiously along the line.	High school diploma/ technical education	Management skills	
Production Flow Supervisors	Supervisory roles; oversee the pace of the work and ensure stoppages are minimized, monitor production levels, train new workers, and manage constant problem solving.	Technical education/ Bachelor's degree	Management skills	
<b>OEM/ Full Package</b>				
Quality Control	Maintain final quality prior to distribution of product, monitored by buyers	High school diploma/ technical education	Knowledge of quality systems	
Sourcing, Purchasing, and Supply Chain Management	Capabilities related to OEM production: Workers must have financial skills related to purchasing inputs and coordinating production schedules.	Technical education/ Bachelor's degree in finance/management	Industry experience	
<b>ODM</b>				
Fabric and Apparel Patternmakers	Create the blueprint or pattern pieces for a particular apparel design. This often involves grading, or adjusting the pieces for different sized garments	Technical education in apparel	Experience	
Tailors, Dressmakers, Custom Sewers	Design, make, alter, repair, or fit garments.	Technical education in apparel	Experience	
Designers	Workers must have training in the “aesthetics” of product development, some market and consumer knowledge, and technical skills required to translate ideas into samples.	Technical education/ Bachelor's degree in clothing design	Experience	
Senior Designers	Creative talent within the industry that can develop new design lines for production.	Bachelors/Master's degree in clothing design	Experience	
<b>OBM</b>				
General Business Skills	Responsible for financial management supply chain optimization, quality control and/or strategy, and new business development.	Bachelor's/Master's degree in business/engineering	Experience	
Branding and Marketing Capabilities	Responsible for market research, marketing/advertising, networking, and positioning brands in the market.	Bachelor's/Master's degree in business	Marketing specialization and experience	

Source: Duke CGGC.

Skill Level	Low	Low-Medium	Medium	Medium – High	High
					
	No formal education; experience	Literacy and numeracy skills; experience	Technical education/certification	Technical education /undergraduate degree	University degree and higher

**Table 3. Workforce Development and Upgrading in the Apparel Global Value Chain**

	Diagram	Workforce Development Implications	
Assembly (Entry in the value chain)		Reliance on in-house training provided by supervisors to ramp up new machine operators. Technical staff, such as mechanics and engineers, may benefit from additional external training programs.	
		<p><b>Skills Preparation</b></p> <p>On-the-job training in operation of machines, cutting and pressing equipment.</p>	<p><b>Institutions</b></p> <p>Private sector/ Industry associations Donor agencies</p>
OEM/ Full Package (Functional Upgrading)		Firms learn buyer preferences, build relationships with textile suppliers and retail outlets. Recruit experienced employees from the textile industry. New staff hired for financial and logistics functions.	
		<p><b>Skills Preparation</b></p> <p>On the job training in textiles, sourcing, supply chain coordination, and logistics and cost optimization. Secondary and tertiary education</p>	<p><b>Institutions</b></p> <p>Private sector Educational institution</p>
Product Design (ODM) (Functional Upgrading)		In-house designers worked in tandem with designers from the buyers to gain a deeper understanding of preferences. Design functions require innovative skills related to new product development and knowledge of global standards, process and information technology upgrading.	
		<p><b>Skills Preparation</b></p> <p>Technical training in design. Tertiary education</p>	<p><b>Institutions</b></p> <p>Private sector/ industry association Educational institutions Government</p>
Product Brand (OBM) (Functional Upgrading)		The supplier develops know-how related to brand promotion from lead buyers. Firms hire employees with skills related to marketing and consumer research. Developed country consultants can provide important training for the firm.	
		<p><b>Skills Preparation</b></p> <p>Soft skills and managerial skills training Tertiary education</p>	<p><b>Institutions</b></p> <p>Private sector (in-house and external trainers) Educational institutions (universities)</p>
Product Upgrading		Suppliers begin to produce increasingly complex apparel products. These products require numerous details and are typically more complex to produce and require specific inputs.	
		<p><b>Skills Preparation</b></p> <p>On the job training Tertiary education</p>	<p><b>Institutions</b></p> <p>Private sector Educational institutions (technical schools, universities)</p>
Process Upgrading		Improves efficiency and is usually part of a low-cost strategy. Performance improvements from process upgrading: lowers operating costs in the long-run; enhances quality and delivery performance; shortens time to market.	
		<p><b>Skills Preparation</b></p> <p>On-the-job training Training for use of new equipment</p>	<p><b>Institutions</b></p> <p>Private sector (suppliers and lead firms) Government incentives for investment in training Equipment providers</p>

Source: Duke CGGC.