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Skills for Trade and Economic Diversification (STED)

Sector Skills strategy for the Garment Sector in Ethiopia

This strategy document is prepared within the framework of the STED-based intervention under the “SKILL-UP” project, and under the guidance of the ILO, Geneva

SKILLUP
Upgrading skills for the changing world of work

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[1] "Skills for Trade and Economic Diversification in Ethiopia: A background paper for the drafting of a sector skills strategy for the garment sector in Ethiopia", Girum Abebe, Tsegay Gebrekidan Tekleselassie and Jibril Haji.

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Introduction

Background

The garment industry has been present in Ethiopia for nearly a century. Large tracts of land suitable for cotton growing, an abundant labour force and a growing population all give the country the comparative advantage essential for specialization in garment-making. The high level of labour intensity, a limited requirement for domestic skills and technology and the mobility of international investment in garment manufacture make the sector particularly suitable for mass job creation, with the potential to lift many people out of poverty. Not surprisingly, therefore, the textile and garment industry features as the number-one manufacturing priority in all Government strategy documents and development plans.

Despite this close attention to the sector, however, its actual growth has been slower than was hoped, characterized by low value addition and low productivity. It has lagged behind the Government's employment and export targets, as well as the performance of competitor countries in generating foreign exchange earnings.[1] Although a multitude of business challenges have constrained the sector's performance, skills shortages and deficiencies, in both hard technical skills and soft employability skills, have been a key factor.

Skills are vital for the upgrading and structural transformation of any industry, irrespective of the country's current income level. Skills development is fundamentally important for decent work, productivity, employment growth and, hence, overall development. A lack of essential skills results in a vicious circle, perpetuating a cycle of inadequate education and training, in turn reinforcing low productivity, poor-quality jobs and low wages. Furthermore, workers without relevant skills are excluded from economic participation, which again fuels income inequality and poverty. Another factor is that skills needs change over time, so ongoing learning is vital to the success of businesses and the continuing employability of their workers. To underpin the productivity and competitiveness of any economic sector, therefore, a healthy, skilled and adaptable workforce is required.

While the textile and garment industry has created gainful employment opportunities over the last two decades, especially for young, less-educated and female jobseekers, the skills shortage remains a major challenge, increasingly identified by managers in the industry. This applies to both existing workers and new recruits. Demand for skilled labour is high and is expected to grow. However, the wages paid to production workers in the industry are low, which is at least partly a consequence of the impact of skills deficiencies on labour productivity.

[1] We use the terms "industry" and "sector" interchangeably throughout the document.

As Ethiopia's effort to industrialize gathers pace, ensuring an adequate supply of skills is imperative for all targeted sectors, including garments and textiles. Consequently, understanding what skills are in short supply but in high demand in the industry is crucial if measures are to be taken to balance supply and demand. Skills upgrading enhances overall efficiency, thereby improving workers' productivity and earnings. A coordinated strategy for investment in skills by the various stakeholders in the sector is thus essential for improving both productivity and the quality of employment.

Need for a sector skills strategy

In Ethiopia, investment in formal education programmes has substantially improved educational attainment and completion rates in the past two decades. However, while sector-focused skills interventions are common,[2] targeted skills policies and strategies are rare. There is therefore a crying need for a sector skills strategy for the garment sector, in particular to bridge the skills gaps observed in various occupational categories.

Sector definition and scope

This sector skills strategy is intended mainly for the garment-manufacturing sector. However, certain skills issues relating to the whole value chain, extending to the textile sector upstream and garment distribution and marketing downstream, are also covered. The key activities in the overall textile and garment sector comprise ginning, spinning, weaving/knitting, dying/finishing, garment production, and distribution.

While in recent years the garment sector has successfully attracted large foreign-owned manufacturers and key global buyers, especially to industrial parks, there is also a large and long-established domestically owned industry, consisting of both traditional and modern operations, which is much more strongly integrated into the local economy and has the potential to grow its exports. The participation of local capital is crucial for the sustainability of the industry and its linkages with the local economy. The strategy thus targets both domestically owned enterprises (traditional and modern establishments) and foreign-owned enterprises in and outside the industrial parks.

[2] For example, the HIPSTER programme in Hawassa that provides soft-skills training for the garment sector.

Aims and scope of the sector skills strategy

The objective of the sector skills strategy for the garment industry is to set out an agenda for action.

To this end, the strategy document aims to provide guidance on areas where the skills gaps are most evident and further investment is required to bridge gaps and boost productivity. As the textile and garment industry continues to be a priority sector, addressing the skills gaps will go a long way to improving its productivity and competitiveness in the global market. By ensuring a better matching of supply and demand for skills, the strategy will also help to improve the welfare of workers.

Structure of this document

The document is organized in the following manner. The following section presents a short profile and situational analysis of the garment industry. Section 3 focuses on the key occupational categories and discusses the skills gaps in each. Sections 4 and 5 consider the supply of skills and the related challenges and constraints. Section 6 outlines a vision for the future of the sector that the strategy is intended to support and enable. Section 7 discusses the capabilities needed to achieve the vision set out in the previous section. Sections 8 and 9 make recommendations for meeting the priority skills needs and addressing system-level priorities. The final section proposes action plans for the various stakeholders.

1. Short profile and situational analysis

1.1. Economic and workforce profile

1.1.1. Economic profile

Ethiopia has undergone rapid economic growth since 2003, with GDP growth averaging 10 per cent per annum, double that of much of the rest of Africa. While the garment sector has always made an important contribution to output and employment, until recently it was not especially dynamic, steadily accounting for roughly one tenth of manufacturing output between 2000 and 2015.

In recent years, an increased policy emphasis on the sector has been reflected in a range of measures to grow and strengthen it, in particular a major effort to attract foreign investment. Almost all of the industrial parks established in recent years, or now under development, have garment manufacturing among their main target sectors. There is also complementary investment under way in the cotton value chain, spanning cotton farming, ginning and textile production, with the aim of embedding a competitive fibre-to-garment value chain in the local economy.

Success in growing the sector is apparent from the statistics, which show Ethiopian garment exports (excluding traditional Ethiopian clothing) growing from US$ 6 million in 2009/10 to US$ 81 million in 2017/18. The sector's contribution to total manufacturing added value increased from about 1.5 per cent in 2012/13 to almost 12 per cent in 2016/17. Employment in the textile and garment sector also grew over this period, from 31,000 in 2009/10 to 51,000 in 2014/15 and 96,000 in 2017/18, with the increase concentrated in garment manufacture.

Recent estimates show that industrial parks have directly created more than 65,000 new jobs in the last few years, mostly in garment manufacturing, together with numerous indirect jobs in related sectors.

For the moment, the sector is highly reliant on imported inputs, such as fabrics, yarns and accessories. The national policy is to redress this by investing in cotton-ginning capacity, thus enabling an expansion of cotton growing and the production of cotton textiles.

1.1.2. Workforce profile

Growth in garment manufacturing activity is mainly concentrated in foreign direct investment (FDI) operations in the industrial parks. The vast majority of these jobs provide income-earning opportunities for first-time entrants to the labour market. For example,

more than 80 per cent of them are taken by young female workers with no previous formal employment experience. More jobs are expected to be created as capacity in existing industrial parks is taken up and newly built industrial parks become fully operational. With rapid employment growth and a high level of labour turnover, most of the stock of workers have not accumulated substantial experience.

Garment operators typically recruit Ethiopian workers with TVET qualifications for technical work in such areas as facilities operation, line set-up and machine maintenance. These qualifications represent a substantial course of study. The operators also recruit Ethiopian university graduates to do engineering, production-management and other types of professional work, often with a substantial induction process to provide additional training and experience. This part of the sector relies heavily on expatriate workers to fill senior managerial and technical roles, and also for many mid-level technical, managerial and professional jobs, including training. Mid-level and senior occupations tend to be male-dominated, in contrast to the mainly female sewing workforce.

Domestically owned garment manufacturers are mostly longer established, with a stock of skills and experience built up over time among their workers, and with lower turnover in machine-operator jobs. They are more reliant for skilled workers on Ethiopia's own TVET and university systems and tend to recruit locally.

1.2. Drivers of change: major trends and their likely impact on employment

1.2.1. Drivers of change and major trends

The Ethiopian garment industry combines a highly export-oriented FDI-dominated sector with a domestically owned sector focused especially on domestic and regional markets. Both operate in a very competitive environment. The sector produces both mass-produced/standardized products and fashionable/branded products that command higher margins. It is a relative latecomer among significant African garment-manufacturing locations. This section examines key drivers of change in the industry and their implications for employment.

1.2.2. International trends in garment-sector investment

Due to rising production costs in Asia, many producers seeking low-cost labour and production opportunities are shifting operations towards low-income countries. Ethiopia has attracted key players in the garment industry, including such global brands as PVH, H&M, The Children's Place and JC Penney, either to set up production facilities or to start outsourcing supply from the country.

1.2.3. Government policy

The sector has been prioritized by national and regional governments. Public investment and public policies are key drivers and enablers of growth and improvement.

1.2.4. Industrial parks

Much of the new investment from Asia is housed in newly built facilities in Bole Lemi, Hawassa, Mekelle, Kombolcha and Eastern industrial parks. By attracting workers and employers, and creating linkages between suppliers and producers, industrial parks generate localization benefits that reduce the cost of production. In the flagship industrial park, in Hawassa, 18 companies are engaged in textile and garment production and the workforce has reached nearly 25,000 at the time of writing. When all the factory units become operational in 2020, Hawassa park is expected to employ nearly 60,000 workers. Hawassa has attracted key global buyers and has mobilized donor funding to set up and operate a labour-sourcing and grading system.

1.2.5. Investment

The number of foreign investors engaged in the sector is increasing, which is attributed to relatively low labour costs, and low energy and water costs. The potential for development of a strong local cotton-value chain to provide a local source of inputs is also attractive. Duty-free exports to the EU and the USA under the strategies known as Everything But Arms (EBA) and the African Growth and Opportunities Act (AGOA) respectively have also boosted the recent surge in garment exports. Ethiopia's trade preference arrangements under the Generalized System of Preferences (GSP) in Australia, Canada, Japan, New Zealand, Norway, and Switzerland, as well as preferential access in China, India, Russia, South Korea, and Turkey, have also helped to attract new investment in the industry.

1.2.6. Foreign markets

The main destinations for Ethiopian garment products are the US and the EU, due mainly to preferential treatment for exported Ethiopian commodities. In particular, Germany (thanks to a large integrated Turkish firm supplying a buyer there) and the US are the main destination markets and together account for some 76 per cent of total garment exports.

1.2.7. Local market

The domestic market remains important for both domestic and foreign firms. The growing importance of the local market can be seen in a rapid rise in the volume and value of imported textile and apparel products, mainly from China. This sharp rise may be explained by rapid economic growth and increased demand for imported goods. The domestic supply of quality garments has hitherto been limited, indicating substantial market potential in this area also.

1.2.8. Moving up the value chain

Garment manufacturing in locations with low labour costs usually starts with CMT (cut-make-trim) or CMP (cut-make-package) operations focused on the most basic labour-intensive manufacturing tasks. These operations are usually low margin, without more complex tasks to add value, and most of the Ethiopian sector operates in this part of the market. In countries where international garment manufacturing is longer established and there is a strong skills base, responsibility for more complex manufacturing tasks often moves from the brand to the manufacturing operation, increasing the value added on site and improving margins, while allowing the brand to focus on its core competencies. In practice, there are endless variations on how responsibilities are split. A key consequence for skills is that policymakers for the garment-manufacturing sector internationally, as well as managers of many garment companies and the branded businesses they serve, aim to move garment-manufacturing operations up the value chain and have a long-term strategic interest in developing the capabilities and skills required to support this.

1.2.9. Challenges and uncertainties

FDI in garment manufacturing in Ethiopia is on a steep upward trend. Investment in new industrial park capacity and other infrastructure makes it likely that this will continue, but there is no guarantee that this will be the case.

Productivity is low. There are challenges with the supply of labour at all occupational levels, relating to the numbers of workers available and to the quality of their technical and soft skills. There are difficulties with the cultural fit between the demands of an efficient and flexible manufacturing industry and a workforce from a non-industrial background. Improvements in transport and electricity supply are in progress but not resolved. It is not clear to investors how long it will be before national strategies for the cotton-value chain sustainably increase the local supply of cotton fabrics and yarns, and improve their quality. With industrial parks prioritizing apparel manufacture in all of Ethiopia's regions, regional differences in security and infrastructure may weigh with investors.

None of these issues are unexpected early in the lifecycle of a major new FDI location. However, investor perceptions of how effectively and quickly they are being addressed will shape how Ethiopia and its regions rank relative to other locations in future FDI decisions.

1.2.10. Likely impact on employment

Employment in garment manufacture is on a steep upward trend, driven chiefly by foreign investment in Ethiopia's industrial parks.

A continuation of the trend established over the period 2015 to 2018 would mean employment in the sector increasing at a rate of 14,000 per year, with total employment in large and medium-sized garment and textile companies (together) reaching approximately 138,000 in 2020/21, up from 51,000 in 2014/15.

If foreign interest in investing in garment production remains strong, employment may increase even faster, through a combination of scaling up existing operations and attracting new investment. Unit capacity in industrial parks is increasing rapidly as more parks come on stream.

Conversely, growth in employment in garment production could slow if foreign interest in investing wanes.

Employment trends in the FDI sector are likely to outweigh changes in employment in the domestically owned part of the industry. However, growth in the domestic market and greater success in exporting could increase employment, while greater competition from imports or a significant increase in labour productivity could reduce it.

In the long run, investment in the cotton-value chain is likely to increase employment in the manufacture of textiles (as opposed to garments).

2. Profile of key occupations, skills and career pathways in the sector

This section provides an overview of the major occupations and the key skills required in the garment sector.

2.1. Operator-level occupations

2.1.1. Occupations and key skills at operator level

The majority of workers in the sector are in operator-level occupations. The following are the principal occupations at this level.

- **Sewing and stitching operators** accounted for 53 per cent of all workers in a sample survey of industrial park garment operations. In addition to operating general purpose sewing machines, there are also specialist machines such as pocket-sewing machines, button machines and lock-stitch machines, each requiring different skills. General purpose sewing machines vary in their capabilities and in the operations for which they are used, and operators may require additional training to learn new tasks or how to operate a new model of machine.
- **Knitting-machine operators** accounted for 4.2 per cent of workers in the sample survey. Knitting is more mechanized than sewing and stitching, with specialized machines for different types of output.
- **Fabric receiving** at operator level involves the physical handling and routine checking of goods received, with more skilled workers employed in checking and documenting quality and conformity. These accounted for 0.4 per cent of jobs in the sample survey.
- There are a number of specialized areas of work relating to cutting fabric, including **relaxing fabrics, spreading, laying, marking, form layout and cutting**. These accounted for 3.3 per cent of workers in the sample survey. Many of the jobs in these areas are at machine-operator level, but some involve more technical skills in laying out patterns for efficient use of fabric and in minimizing waste.
- There are a small number of jobs in **embroidery and screen printing** to embellish garments, accounting for 0.2 per cent of workers in the sample survey.
- **Checking and quality control** jobs involve checking production outputs after stitching. They accounted for 7.4 per cent of jobs in the sample survey. Again, there are also more skilled jobs in quality management.

- **Spot cleaning and laundry** jobs involve any cleaning that is necessary after production, They accounted for 1.3 per cent of jobs in the sample survey.
- **Fusing**[3] **and pressing** jobs involve the use of presses, both in the production of garments and in preparing them for packaging. They accounted for 0.2 per cent of jobs in the sample survey.
- **Operator jobs in packaging and shipping** mostly involve the physical packaging of garments, individually and in outer cases, and attaching labels. Some jobs involve the physical handling of packaged products, both manually and with machinery. Jobs in these areas accounted for 9.2 per cent of jobs in the sample survey.

In total, these occupational areas accounted for 80 per cent of employment in the sample survey of industrial park garment-manufacturing operations. While this number includes some workers in more skilled occupations, the overwhelming majority are at operator level.

In addition to the technical skills needed in these occupations, soft skills (or "core employability skills") are also essential. The minimum at entry level is that workers need an understanding of the workplace and their responsibilities and entitlements, along with a sense of personal responsibility and reliability, the ability to work cooperatively with others and follow instructions, and communication skills. As more productive operations are characterized by greater flexibility and collaboration, and they delegate more control over the details of the working process to the team level, they tend to require stronger core work skills.

2.1.2. Career pathways at operator level

For operator level jobs, the sector overwhelmingly recruits workers without existing vocational training or qualifications. The fast-growing industrial-park-based part of the sector recruits large numbers of mainly female internal migrants who do not have any industrial or other formal employment experience, especially for production-line jobs.

Growing more slowly and with lower labour turnover, the domestically owned part of the sector recruits fewer workers and is less reliant on internal migration within Ethiopia.

Fresh recruits into operator jobs typically undergo a month or so of training before starting work in production. Most large garment-manufacturing operations have training production lines, separate from their regular production lines. Many recruits undergo soft-skills training as part of the recruitment and induction process, often provided with support

[3] Fusing of fabrics in a heated press is a means of joining fabrics. It is often used, for example, to attach interlining positioned between the sewn outer fabric and a sewn inner lining.

from development cooperation programmes. According to employers, even workers who have undertaken an appropriate course at a TVET college need to go through the initial technical training if they are to be productive as operators.

The industrial park at Hawassa operates a labour-sourcing and grading system that assesses recruits and so assists employers in assigning them to the tasks for which they are best suited. This is a recognized good practice, proven internationally to improve the fit between garment workers and jobs, resulting in higher productivity, greater job satisfaction and lower labour turnover.

Initial training following recruitment usually prepares workers to do repetitive operations on a single type of machine, and to change over efficiently between tasks at the end of a production run. Workers can progress to undertaking more complex tasks, and to acquiring skills on multiple machines.

Roles such as line leader and team leader/supervisor, as well as jobs in inspection and quality control, training and production planning, could realistically be filled by upskilling suitably experienced production workers. However, many manufacturing operations in Ethiopia currently lack the mentoring, training, managerial and career-planning systems that would be needed for this to happen systematically. This limits the scope for career progression, prolongs the need for expatriate workers in these jobs and reinforces reliance on the recruitment of inexperienced graduates for some of these roles.

Operator-level jobs in layout and cutting tend to be filled by promotion from other operator-level jobs, rather than by hiring new recruits, because any error can have a high cost in wasted materials.

2.2. Mid-level technical and managerial occupations

2.2.1. Mid-level technical and managerial occupations and the skills involved

Mid-level technical and managerial occupations are grouped together here because the skills requirements tend to overlap, with many mid-level managers needing some technical skills and mid-level technical workers often having managerial responsibilities.

The following are key occupations at this level:

- **Team leaders, supervisors and line leaders in production.** Team leaders and supervisors are managers responsible for groups or teams of workers. Line leaders are junior managers overseeing single-garment production lines. These occupations demand organizational, people-management, and mentoring skills, as well as technical skills in the area of work for which the workers concerned are responsible.

- **Trainers.** Trainers have a key role to play in garment-manufacturing operations, forming the skills of new workers before they join the production line, and upgrading and updating skills as required by the business. The main focus is on developing and improving operator-level skills, but trainers may also be responsible for developing mid-level skills.
- **Machine mechanics or technicians (maintenance and repair).** These are craft and technical jobs involving the maintenance and repair of machinery: different types of sewing machine, presses and cutting machines. They are often also involved in machine set-up and line set-up. In terms of technical skills, they require a combination of mechanical, electronic and specialized digital skills, including automation-related skills in minimizing waste. In the sample survey of industrial park firms, 2.9 per cent of employees were found to work in machine maintenance and repair.
- **Facilities technicians and craft occupations.** The set-up and maintenance of garment-factory facilities requires technical and craft skills in electrics and the physical construction and remodeling of production lines. Skills in building facilities such as HVAC, security systems and IT networks are also needed. In the sample survey of industrial park firms, 1.9 per cent of employees were found to work in facilities management and maintenance.
- **Quality and compliance technicians.** In addition to operations-level quality inspectors and senior staff with overall responsibility for quality and compliance, large garment operations usually have a tier of medium-skilled employees responsible for technical aspects of quality control and assurance, and for keeping compliance documentation.
- **Dyeing technicians.** Dyeing garments requires specialist technical skills in industrial chemistry. Any substantial dyeing operation requires dyeing technicians.
- **Mid-level jobs in spreading, laying, marking, form layout and cutting.** As noted earlier, there are a number of specialized areas of work relating to cutting fabrics, including relaxing, spreading, laying, marking, form layout and cutting. Some of the key jobs in this area require middle-level technical skills, including those concerned with the layout of patterns for efficient use of fabric and minimization of waste, and those requiring a combination of technical and supervisory management skills.
- **Production planning assistants.** In addition to senior staff with overall responsibility for production planning, large garment operations usually have a tier of medium-skilled employees responsible for technical aspects of planning, as well as ongoing coordination and line balancing.

2.2.2. Career pathways for mid-level technical and managerial occupations

Most new-to-the-sector recruitment for mid-level jobs is either from suitably qualified TVET and university graduates or from expatriates. TVET qualifications for mechanical, electrical and electronic technicians are also relevant, even if they are not specific to the garment sector.

TVET and university graduates usually need additional training and experience before they can be productive and, when starting up, several FDI employers in Ethiopia have taken new graduate recruits for several months' practical training at a well-established operation in another country.

The FDI and industrial parks part of the sector is still heavily reliant on expatriates to fill key jobs at this level, and the process of upskilling Ethiopian workers so that they can take on these jobs is a slow one.

In principle, some of the workers recruited at this level could follow a career path to high-skilled jobs in management and engineering if suitable mentoring and training arrangements were in place.

2.3. Other mid-level occupations

2.3.1. Other mid-level occupations and the skills involved

In addition to production-focused jobs, there are also mid-level occupations with a market focus. These account for only a small share of jobs in most FDI and industrial-park operations, which connect to consumer markets via the foreign-owned brands they service. Their role is much more significant in the domestically owned part of the sector, which connects more directly with retailers and wholesalers in the country or region.

The following are key occupations at this level:

Designers (technician level). In FDI operations, designers are concerned principally with adapting and converting the designs provided by brands to the level of design needed to cut-make-trim (CMT) in a range of sizes and styles. As modern garment operations progress from a CMT business model to operating models that add more value, it becomes more important to have strong technical garment-design capacity. In domestically owned operations, technician-level designers also work with creative designers and contribute to adapting the styles seen on the market.

Merchandisers. Merchandisers are most numerous marketing operatives, responsible for the presentation of garments to brand clients in the FDI and industrial-park part of the sector, or for showrooms and working with retail and wholesale clients in local and regional markets in the domestically owned part of the industry.

2.3.2. Career pathways for other mid-level occupations

New recruits to these occupational areas normally require either a substantial TVET qualification or a university qualification in a relevant subject: garment design for technician-level designers or disciplines such as marketing, sales or design for merchandisers. The potential paths for progression are to jobs in the same areas with higher levels of skill, and into management and leadership positions in design and marketing.

2.4. High-level occupations

2.4.1. High-level occupations and the key skills involved

The following are key occupations at this level:

- **Production management and planning.** Production management and production planning are critical to the effectiveness of garment-manufacturing operations. They require very experienced people, whose qualifications are likely to be of university level. In the sample survey of industrial-park firms, 2.4 per cent of employees were found to work in production management, planning and engineering (probably including some mid-level jobs, as well as the high-level occupations described here).
- **Industrial engineering.** Industrial engineers play a key role in designing and optimizing production processes for higher productivity and quality, and for making efficient changes in set-up when production lines switch between styles. These roles require qualified and experienced industrial engineers.
- **Human resource management**. HR managers are responsible for recruitment, managing employment relationships, devising strategies for managing and developing skills, shaping the relationship between managers and workers, and motivating workers at all levels. They have a key impact on the quality of the work environment, as labour relations directly or indirectly determine the performance of a company. HR management skills are important in establishing good labour relations, ensuring effective communication, and motivating workers. Productivity and competitiveness depend on good labour management at plant level.

- **Designing.** As modern garment operations progress from a cut-make-trim business model to operating models that add more value, having strong technical garment-design capacity becomes more important. As noted earlier, the number of designers employed in FDI operations is small – just 0.1 per cent of workers in the sample survey of industrial park operations. In domestically owned operations, creative designers can be expected to play an important role.
- **Sales and marketing management.** Sales and marketing managers are needed principally in the domestically owned part of the industry. A key aspect of sales management is in managing merchandisers.
- **Logistics.** Effective management of the logistics involved in procuring raw materials, often sourced internationally, is important for domestically owned operations, and for FDI operations to the extent that it is managed locally. Effective management of outbound logistics is important for exporters, again to the extent that it is managed locally. Turnaround time between an order being placed and shipped from a port is a key dimension of performance for exporters, including the FDI part of the sector.

2.4.2. Career pathways for high-level occupations

New recruits to these occupational areas normally require either a high level TVET qualification or a university degree in a relevant subject, plus substantial high-quality experience. This considerably limits the number of suitable local candidates. In the FDI and industrial-park part of the sector, many of these roles are filled by expatriates. While it is likely for the foreseeable future that some of the most senior positions will be held by international managers and professionals from the parent business, it should be realistic to develop pathways for local talent to move into these roles over time, subject to better TVET and university provision, high-quality experience in mid-level jobs, and the development of effective mentoring systems.

In the domestically owned part of the sector, these positions are held mostly by Ethiopians.

2.5. Survey information on occupations, training needs and skills shortages at industrial parks

Table 1 summarizes type of occupation, percentages of workers needing need additional training and the extent of skills shortages in the industry. The table is based on a qualitative survey of firms conducted in the Hawassa and Mekelle industrial parks. The skills required in each occupation are discussed in Section 7.

Table 1: Skills by production process in industrial-park garment-manufacturing operations

Production process	Average percentage	Average percentage of workers requiring additional training	Is skill shortage a problem? 1: no problem at all, to 5: a serious problem. (Average response)
Design	0.1	32.0	3.5
Receiving fabrics	0.4	54.0	2.0
Fabric relaxing	0.3	68.6	3.0
Spreading, form layout, and cutting	2.3	47.2	2.5
Laying	0.1	54.6	2.6
Marking	0.0	54.6	2.6
Cutting	0.6	55.5	2.7
Embroidery and screen printing	0.2	20.0	2.3
Sewing/ Stitching	53.0	54.3	2.4
Knitting	4.2	54.7	2.0
Dyeing	0.6	32.5	2.0
Checking/Quality control	7.4	67.9	2.4
Spot cleaning and laundry	1.3	32.5	1.5
Fusing and pressing	0.2	44.3	1.8
Packaging and shipping	9.2	77.3	2.7
Production management, planning and engineering	2.4	80.0	3.0
Machine maintenance and repair	2.9	76.1	3.1
Facility management and maintenance	1.9	74.0	2.7
Other	12.8	-	-
Overall average		54.4	2.5

Source: Enterprise interviews in Hawassa and Mekelle

Table 1 reports the average share of workers employed in each process, the average percentage of workers requiring additional training to be fully productive, and the degree of the skill shortage in each process. Sewing/stitching employees constitute by far the largest share of workers (53%), followed by packing/shipping (9.2%), and checking/quality control (7.4%). Machine-operation work at the sewing/stitching production level is done by workers who are trained in house by the industrial park companies.

The table also shows that there is heterogeneity in terms of the skills gaps (additional training required) in the various processes. On average, the share of workers requiring additional training is highest in production management, planning and engineering (80%), followed by packaging and shipping (77%), machine maintenance and repair (76.3%), and facility management and maintenance (74%). The percentage of workers that requiring additional training is the lowest in embroidery and screen printing (20%), dyeing (32.5%), and spot cleaning/laundry (32.5).[4] Overall, more than half of the worker in the survey (54.4%) required additional training to be productive. The last column of Table 1 shows the degree of the impact of the skills shortages. Processes such as designing, machine maintenance and repair, and production management, planning and engineering suffer from the highest degree of skills shortages.

2.6. Overview on career pathways

The sector provides career pathways for workers, rewarding talent and experience, albeit with limited scope and differing scales. Production workers at machine-operation level can be promoted to quality control, line-leader and team-leader/supervisor positions. However, most of the jobs higher up the organizational pyramid, such as production management and planning, require college-level education and cannot be attained by machine operators through promotion. TVET and university graduates taking up jobs in industrial engineering, human resource management, compliance management, machine maintenance and repair or facility management can expect to progress both horizontally (in terms of salary increases) and vertically (by being promoted to higher positions). Since many new recruits for these positions do not have garment-specific skills, practical training programmes, delivered in house or externally, are often required to upskill and familiarize them with the industry. Poaching experienced workers is another strategy factories employ to secure new talent. Some of the mid-level and high-level jobs, such as factory management, design and pattern-making, may also be out of reach for local graduates, with factories preferring to employ highly paid foreign technicians and experts to fill these positions.

[4] Note that most of the firms employ expatriates as designers or have designs produced elsewhere. This accounts for the low proportion of additional training required in the design category.

3. The supply of skills in the textile and garment industry

3.1. Key institutions, formal programmes and qualifications

The supply of skills for the manufacturing sector in Ethiopia, including the garment industry, is provided by higher education institutions (universities and TVET institutions), NGOs, sector development institutes, e.g. the Ethiopian Textile Industries Development Institute (ETIDI), and through in-house training by enterprises themselves.

In-house training. The vast majority of workers in the industry operate sewing or stitching machines. The workers operating these machines do not have technical skills relevant to the garment industry before joining their companies, nor do they come from communities with a strong industrial culture. Companies therefore have to provide new recruits with comprehensive technical training before they join the production line. The training is typically delivered in a separate section of the factory, where trainees benefit from mentoring and coaching by both local line leaders and expatriate technicians. The training also takes into account the interdependency of production activities and workers are offered cross-skilling training to familiarize them with different machines and tasks. In some contexts, they are also given basic soft-skills training with the aim of improving the general working culture and developing team spirit.

Where in-house technical training is concerned, it takes three to five weeks to train workers in the basics of machine operation and prepare them to join a production line. The high level of worker turnover in the sector puts pressure on companies to be continuously training new workers to replace those who leave. In many factories in industrial parks, training is provided by expatriate technicians, reflecting a lack of local know-how or capacity to deliver training programmes that prepare workers to perform efficiently both during a production run and in the change-over between runs, when fabrics and styles change. After initial training, continuous training to refresh workers' skills is rarely offered in the case of production workers.

Firms, especially those established with FDI, hire expatriates for managerial and advanced technical jobs, because there is an acute shortage of workers with the managerial and advanced technical skills required by the garment sector in Ethiopia. While local managers and professionals benefit from learning-by-doing, formal training to develop their skills on an ongoing basis is not commonly or regularly provided, whether in house, externally or overseas.

Skills supplied by the TVET System. The aim of TVET institutions is to produce skilled manpower, including operators and technicians for the manufacturing sector. There is almost one TVET institution in each *woreda* (district/third-level administrative division) across the country, with varying numbers and specialization of courses provided. In addition to providing this formal training, TVET institutions also assist micro and small manufacturing industries, including those in the garment sector, by offering Industry Extension Services (IES). TVET colleges provide entrepreneurship training, Kaizen training, technical training and technology support for enterprises in their locality. TVET institutions are therefore one of the key actors in developing the skills required in the garment sector, especially the domestically owned parts, through their skills development and outreach services.

TVET institutions provide regular training in disciplines relating to garments and textiles, with a range of sub-specializations.

Courses are delivered in line with occupational standards laid down by the Ministry of Education in 2011, each forming part of the National TVET Framework of Qualifications:

- Basic Apparel Production (Level 1)
- Intermediate Apparel Production (Level 2)
- Advanced Apparel Production (Level 3)
- Textile Technology and Production (Level 4)
- Fashion Designing (Level 4)
- Garment Production Supervision (Level 4)
- Apparel Production and Technology Management (Level 5)
- Basic Textile Operations (Level 1)
- Textile Chemical Processing (Levels 2 and 3)
- Textile Spinning and Ginning Operations (Levels 2 and 3)
- Weaving and Knitting Operations (Levels 2 and 3)

Candidates who have completed Grade 10 of formal schooling are admitted to these programmes at one of five levels (levels 1 to 5, of increasing skill complexity and course duration). However, most training institutions provide training only in the more general qualifications (e.g. textile or garment production), while few deliver the more specialized courses. All of these courses are substantial, ranging from one academic year in duration (Level 1) upwards. They have broadly based curricula and aim to do more than develop skills in the specific tasks that will be required in the workplace.

In addition to their regular training programmes, TVET institutions also provide a number of short-term training schemes intended to fill skills gaps for industry operators and start-up businesses.

The Federal TVET Institute trains TVET teachers. The disciplines taught include electrical/electronic engineering, ICT, civil and mechanical technologies, and garment/apparel fashion.

The Federal TVET Agency is the body that regulates the country's TVET system. It is responsible for building the capacities of TVET institutions and TVET instructors, providing guidance and leadership for TVET institutions, and developing training and technology frameworks.

In addition to public TVET institutions, private TVET colleges and specialized institutes such as the Ethiopian Kaizen Institute are engaged in the provision of training.

Skills supplied by universities. Currently, six out of the 42 public universities in Ethiopia have departments to train students in textile, garment and fashion design disciplines in their degree programmes. These are Bahir Dar University, Hawassa University, Wollo University, Dire Dawa University, Axum University and Wolkitie University. These universities aim to produce graduates who can take up middle to high-level positions in the manufacturing sector, including the textile and garment subsectors. The textile-and-garment-related training programmes delivered by these universities include textile engineering, garment engineering, textile technology, garment technology and fashion design. Except for Bahir Dar University, they lack the equipment that would enable their students to gain practical hands-on experience.

3.2. The state of skills supply: enrolments and completion

Data on enrolment for and completion of relevant qualifications in the textile and garment sector indicates the extent of skills production for the sector. The total number of enrolments in the TVET system is reported by the TVET Agency and Ministry of Education abstracts. Table 4 (below) provides statistics on enrolment in skills programmes for the textile and garment sector. However, enrolment by field of specialization is not reported. The number of students enrolled in formal courses in textile and garment-related fields increased from 9,290 in 2013/4 to 30,046 in 2017/8.

Table 5 shows the total number of graduates from TVET institutions in 2017/8 by region. In 2017/8 almost 5,000 new TVET graduates completed training at Levels 1 to Level 5 in textile and garment disciplines. This represents roughly 5 per cent of the total annual number of TVET students graduating in all fields of study. Note that the data on TVET enrolment and graduations has been computed based on data from various departments of the TVET Agency.

Table 2: Enrolment of TVET students in textile and garment disciplines at all levels (2013/4- 2017/8)

Year	Male	Female	Total
2013/4	4,884	4,406	9,290
2014/5	3,023	5,601	8,624
2015/6	8,713	8,544	17,218
2016/7	7,784	6,012	13,796
2017/8	13,231	16,707	30,046

Source: Compiled from Federal TVET Agency data

Table 3. Graduates in textile and garment disciplines by gender and region

Region	Male	Female	Total
Tigray	447	239	686
Afar	0	0	0
Amhara	237	837	1074
Oromia	856	1089	1945
Somali	-	-	-
Benishangul Gumuz	0	0	0
SNNP	20	40	60
Gambella	0	0	0
Harari	-	-	-
Dire Dawa	-	-	-
Addis Ababa	251	872	1123
Total	1811	3077	4888

Source: Compiled from Federal TVET Agency data[5]

[5] For Afar, Amhara, and Harari, 2016/7 data was used due to the unavailability of data for 2017/8

3.3. The nature and scope of WBL and other informal and non-formal sources of skills

In addition to the TVET system, universities and in-house training by textile and garment firms, various government and non-government actors are also involved in skills development.

Skills supplied by the ETIDI. The Ethiopian Textile Industry Development Institute (ETIDI) was established by the Ministry of Industry to serve as a skills and technology hub for the textile industry, including garment-making. The ETIDI runs demand-driven, programme-based training schemes. Demand-driven training is as requested by the industry itself or by TVET institutions or universities to meet their training needs. The programme-based training is prepared by the ETIDI and advertised in a structured course catalogue, with the course name, code, description, objective, target group and duration of the training for each course. In general, ETIDI training courses are short-term and are intended to fill urgent skills gaps in the textile and garment sector, complementing the formal training provided by TVET institutions and universities.

The ETIDI is currently based in Addis Ababa, hence its training facilities are not much used by enterprises outside the capital. The firms targeted by ETIDI training are typically domestic small and medium-sized enterprises located around Addis Ababa. Firms outside Addis and all FDI firms depend mainly on in-house training for their skills needs. In 2018/9, the ETIDI provided short-term training for 3,276 individuals. According to data obtained from the ETIDI, a total of 19,014 individuals received short-term training in the period 2011- 2019. While this is a substantial number, it is meagre when set against the total demand for short-term training in the textile and garment industry.

Skills supplied by NGOs. several NGOs provide short-term training programmes that complement the formal training provided by the TVET system and universities. For example, the ILO provides a range of training programmes for the sector under the One ILO programme. The GIZ is partially funding centres of excellence in skills development in Mekelle and Hawassa.

4. Supply-side challenges and constraints

Currently, skills production in the garment industry faces several challenges. The multifaceted supply-side constraints on skills production are discussed below, by category.

4.1. National skills policy and strategy

Although Ethiopia does not have a comprehensive national skills policy and strategy, the issue of skills production in relation to job creation has been central to its national development plans since the mid-1990s. To promote the development of the education and training sector, in 1994 the Government of Ethiopia prepared an Education and Training Policy (ETP). The ETP was intended to guide the implementation of various strategies to address the poor performance of the education and training sector.

To implement the ETP, rolling Education Sector Development Programmes (ESDPs) have been implemented in several phases. To date, five ESDPs have been implemented: ESDP-I (1997/8 – 2001/02), ESDP-II (2000/01-2004/05), ESDP-III (2005/06-2009/10), ESDP-IV (2010/11-2014/15), and ESDP-V (2015/06 – 2019/20). The ESDPs were aligned with national development plans. Each recent ESDP has sections on higher education and TVET, setting targets for skills production as measured by enrolments and graduations. As its name suggests, an ESDP is a five-year-plan document with a number of targets, but little explanation is given as to the rationale of each plan and strategy.

The National TVET Strategy (2008) is the key strategy directly related to skills production. It replaced a previous strategy, formulated in 2002. The current strategy emphasizes the need to shift the focus from the quantity of graduates to their quality, and from a curriculum-based approach to a TVET system based on occupational standards. This is complemented by a strategy to establish an occupational assessment system open to graduates and candidates from all formal, non-formal and informal TVET schemes. The reforms proposed in the 2008 strategy were supposed to gear the TVET system towards relevance, demand-orientation and accessibility. In practice, the TVET system has remained largely supply-driven, focused on delivering established curricula with little consideration of the subsequent dynamic changes in skills demand in the economy.

Other polices and strategies that indirectly affect skills supply in the country include the National Employment Policy and Strategy for Ethiopia (2009) and the Science, Technology and Innovations Policy (2012). These affect skills supply to various degrees at macro (national) level, but efforts to anticipate future skills demand at sector level have thus far been limited. For instance, the National Employment Policy and Strategy developed in 2009 clearly indicates the importance of training programmes that link firms with education and a range of training systems. To our knowledge, however, neither the strategy document nor its derivatives go so far as to identify the current and future skills needs essential to meet sectoral growth and employment targets. Hence, there is currently no skills strategy for the garment industry.

4.2. Governance and stakeholder coordination

The Ministry of Science and Higher Education (MoSHE) is responsible for regulating higher education, including TVET. The Ministry oversees curriculum development and implementation throughout the country.

The Federal TVET Agency is the body responsible, among other things, for regulating the TVET system, focusing on building the capacities of TVET institutions and TVET instructors, providing guidance and leadership for TVET institutions, and developing training and technology frameworks.

The involvement of employers' and workers' associations in the TVET system is limited, despite a strategy provision that TVET councils at federal and state levels should include representatives from the business community. Discussion with representatives of the Federal Small and Medium Manufacturing Enterprises Development Agency (FeSMMEDA) indicates that the TVET system rarely engages the FeSMMEDA and firms in TVET curriculum development, and that there is little regular dialogue as to the challenges of TVET.

The TVET strategy emphasizes the need for cooperative training and apprenticeships, whereby the bulk of training (70%) is to be provided within enterprises. This arrangement is intended to improve the quality of training and also to expose candidates to the world of work, thus enhancing their employability. The TVET executive bodies (federal and regional TVET agencies) are mandated to explore possibilities for getting firms (large, medium and MSEs) to cooperate with TVET institutions and to introduce apprenticeships, e.g. through advertising, rewarding participating companies or financial incentives.

The limited engagement of the business community with the TVET agencies and colleges has resulted in a reluctance in the industry to provide apprenticeship and internship opportunities for TVET candidates. Training approaches combining classroom and work-

based learning have therefore not been successful, with the result that the TVET system remains heavily theory-based.[6]

Potential entrants to higher education, including the TVET system,[7] are not adequately informed about fields of study and their labour-market prospects after graduation. The training provided in higher education gives little consideration to the nature and types of skills needed in the economy. This results in skills mismatches between the actual skills supplied and the skills demanded by the economy, including the garment sector.

There is no national coordinating body with a clear mandate to regularly assess skills needs and inform the higher education system, including TVET, private and NGO training providers. Moreover, there is currently no effective institutional platform linking the education and training system with industry.

4.3. Funding

As commonly observed in many low-income economies, a key constraint on the effectiveness of sector-specific skills development strategies is access to finance. In Ethiopia, most of the TVET polytechnic colleges and many of the universities have insufficient funding to run and reform their programmes on a continuous basis. Many of these programmes are delivered with outdated and poor-quality equipment/facilities/materials. The capacities of their training staff are limited and they suffer from high staff turnover. Currently, the bulk of TVET financing comes from government. The share of spending on TVET as a proportion of all public spending on education is about 5 per cent, less than half in per capita terms of spending on higher education (GIZ, 2018).

The participation of NGOs in TVET financing and private TVET provision is limited. For example, in 2015 more than 80 per cent of Level 1 and 2 graduates came from public TVET institutions. The participation of private institutes is stronger for the higher levels of TVET (Levels 3-5).

The TVET strategy advocates for cost-saving mechanisms in public TVET institutions, encouraging private investment in the sector and revenue-generating activities within TVET colleges (for example, sales of items produced by students and the hiring out of facilities). In practice, the involvement of private TVET colleges and NGOS has been limited. The TVET strategy lacks a viable alternative financing system involving incentives. Not only is the supply of skills for the garment industry limited, but there is also a lack of quality in the skills supplied.

[6] The TVET strategy clearly emphasizes the importance of having employers host TVET students by way of apprenticeships in a cooperative training programme model. The purpose is to equip TVET students with practical skills resulting from exposure to the world of work, thus enhancing their employability.

[7] In Ethiopia, the TVET system comes under the responsibility of the Ministry of Science and Higher Education.

This inadequacy can be explained by, among others things, the incompetence of the trainers concerned and a lack of appropriate equipment, all due to limited funding of the system.

Currently, the higher education system in general and the TVET institutions in particular are failing to supply the workforce required by the garment industry, in terms of both quantity and quality. Firms therefore rely on in-house training for low-skill occupations and on expatriates for managerial and advanced technical skills.

4.4. Relevance of curriculum and qualifications

The linkage between TVET institutions and industry is very limited, with little participation in TVET curriculum development on the part of industry representatives. This has contributed to the mismatch between the demand for and supply of skills. There is no mechanism to regularly assess the skills needs of the economy and inform the higher education and TVET system and potential entrants to training. The higher-education and TVET systems remain largely curriculum-based and supply-driven, depending on their resources, the number of applicants in each field and the prevailing regulations (for example, universities are expected to enrol 70 per cent of applicants in natural sciences).

The occupational standards on which TVET provision for the garment sector are based were published in 2011, before current national strategies to develop the sector were established and before a substantial flow of garment-sector FDI began.

Potential applicants to the training system often lack the information they need concerning fields of study and levels, and particularly their labour-market prospects.

There is no functional skills anticipation system as there is no agency dedicated to regularly assessing the skills needs of the economy and informing the higher education system so that the latter can train students in the relevant skills. This is despite the fact that skills-demand assessment should be part of the system, as stipulated in the 2008 TVET strategy.

4.5. Delivery and assessment practices

The current ESDP (2014-2020) focuses on further developing occupational standards (OS) and the assessment of trainees. In fact, certification of occupational qualifications has recently been introduced into the TVET system, whereby persons who have learned their skills informally, as well as students on formal courses and those in traditional apprenticeship schemes, are all subject to occupational skills assessment (Seid et al., 2016).

The aim of the strategy is to create an outcomes-based TVET system that will respond to the dynamics of skills demand by focusing on occupational standards, which thus guide

the provision of training and enable providers to better respond to the skills needs of the economy. The TVET strategy also stipulates that a TVET Qualifications Framework (ETQF) must be established to define the value of qualifications, ensure that different qualifications are comparable, and facilitate horizontal and vertical mobility within the TVET system for workers in employment, as well as for individuals still in the education system.

In practice, however, TVET remains focused on pre-employment training. Opportunities for vertical and horizontal progression are still limited (Krishnan and Shaorshadze, 2013). Hence the ETQF is far from being implemented. Looking at the wider system, there are short courses lasting a few months that aim to equip unskilled individuals with minimum qualifications. However, such short-term training, as provided by the TVET system (in addition to their main programmes) and other private and NGO actors, is limited in its coverage, and in the garment sector very limited indeed.

Currently there is no official data by sector for enrolment in and graduation from public or private TVET institutions. This makes it difficult to make projections of skills supply on a sectoral basis, including for the garment industry.

4.6. Access to training

There is one TVET institution in nearly every *woreda* across the country, though the number and depth of the different courses on offer varies considerably. Access to TVET, measured in terms of enrolment and graduation by gender, is balanced in most regions of the country. In 2017/9, for example, at national level the figures for female enrolment and graduation were 51 and 52 per cent respectively (MoE 2018). TVET is targeted particularly at 16-year-olds leaving school after completing their compulsory education, having decided not to take the academic track.

As seen earlier, TVET provision targeting the garment sector is uneven countrywide. However, it is being ramped up rapidly so as to become more widely available. Training for the sector at university level is also becoming more widely available, with the number of universities offering relevant courses now rising to six.

A comparison of the enrolment and graduation figures suggests that TVET drop-out rates in garment-related courses are likely to be high. The World Bank (2015) has highlighted high TVET drop-out rates as a more general issue, observing that mismatches between students' interests and fields of study can result in a lack of commitment and effort on their part, which in turn contributes to high drop-out rates. The World Bank also notes that students attending TVET programmes are increasingly likely to abandon them if alternative opportunities arise.

Access to continuing education and training for those employed in the sector seems mostly to be limited to the minimum needed by employer, especially in operator-level occupations.

4.7. Industry/training institution linkages and support for workplace learning

The linkage between TVET institutions and industry is poor, in the garment sector and in the wider economy, with participation in TVET curriculum development on the part of industry representatives very limited. For example, Yamada et al., (2016) found limited interaction between TVET institutions and garment factories in Ethiopia.

Although TVET courses are supposed to have a substantial work-based component, enterprises are reluctant to provide internships and apprenticeship opportunities to trainees from TVET institutions, except for some government-run ones. Firms see the supervision of TVET candidates during apprenticeships as a time-consuming and costly exercise. Woldetsadik and Lumadi (2015) found partnerships between TVET institutions and industry to be practically non-existent in their case studies around Addis Ababa.

The weak TVET/industry linkage means that skills provision is supply-driven, focusing on delivering against the curriculum without taking into account current industry needs, and without adapting to the changing skills needs of the economy (see, for example, the EDRI's 2018 BDS survey). This has resulted in a wide gap between TVET output and industry requirements, and many firms in the sector say that they do not regard graduates as technically competent. Moreover, many graduates of TVET institutions and universities do not have the required soft skills in terms of attitude and work discipline, and are not mentally prepared for blue-collar types of work. There is a tendency among graduates to prefer office work, as confirmed in interviews with firms at the Hawassa and Mekelle industrial parks. There is little support given to new employees to help them adapt to the working environment, which contributes to high labour turnover.

5. Vision for the future of the sector

The Government of Ethiopia has set ambitious targets for the textile and garment industry in its five-year plan, the Second Growth and Transformation Plan (GTPII). The industry is one of its priority sectors due to its labour-intensive nature, linkage with the agricultural sector and export potential. In the GTPII, exports from the textile and garment industry were projected to grow from US$ 98.9 million in in 2014/5 (base year) to 778.8 million US$ in 2019/20. The ambitious nature of the plan indicates the importance ascribed to the industry as a source of employment and foreign exchange. Although the industry has not grown as rapidly as was projected when GTPII was prepared, activity as measured by exports and employment is now on a steep upward trend.

The Government continues to envision a highly competitive textile and garment industry in its five-year national plan, creating significant employment opportunities, having a close linkage with the agricultural sector and earning large amounts of foreign exchange. The aim of this skills strategy for the garment sector is to make this vision a reality, in which export growth continues and drives rapid growth in employment, both in the garment sector itself and in the cotton and textile value chains that supply it. It aims to bring about improvements in working practices, productivity and job quality for the benefit of both employers and workers. It also aims to help build the capabilities of the sector, improve its performance, embed it more strongly in the Ethiopian economy, and develop a strong indigenous skills base for mid- and high-level jobs. It further aims to support the industrial parks strategy and so develop the sector across the country, not only in the flagship industrial park at Hawassa, but also in other locations, such as the industrial parks in Kombolcha, Dire Dawa, and Mekelle, which host a large number of firms in the sector, and in other industrial parks under development.

While supporting and enabling growth in exporting by both FDI operations and domestically owned businesses, the strategy also aims to strengthen the position of domestically owned businesses in their home market and in neighbouring countries.

6. Gaps in the capabilities and skills needed to achieve the vision for the future

The capability gaps among garment-industry stakeholders include low quality and productivity, weaknesses in human resource management, poor logistics management, and shortcomings in environmental and social compliance. Skills gaps are an important aspect of the low level of business capability. The skills gaps described in the following paragraphs contribute to the limitations in business capability from which the garment sector suffers, which in turn pose a critical challenge for realization of the vision for the sector.

The main skills gaps can be classified in four major categories: soft skills, management skills, production skills, and logistics/distribution skills. Each can have its own sub-categories, as discussed below.

6.1. Soft skills

Between 70 and 80 per cent of garment workers are female migrants with no previous exposure to industrial or other kinds of formal employment, and who often have not benefited from a sound initial education. High expectations concerning wages and working condition in newly built and modern factories further complicate their initial involvement. Soft skills in the areas of communication, punctuality, teamwork, work discipline and personal hygiene may be weak or lacking. Discussions with firms in Hawassa and Mekelle suggest a need for the provision of soft-skills training by government agencies, NGOs or TVET institutions or universities before these new workers join the workforce. Currently, firms try to provide soft-skills training in house but this is not effective because there is a trade-off with the provision of technical skills training. Ongoing training in soft skills at community and TVET levels is limited in time and coverage. Firms also experience a shortage of in-house soft-skills trainers. It is not certain what soft-skills curricula should comprise or how soft skills should be taught (class-room lectures, on-site coaching, mentoring and so forth). Further work is required to refine a training system that is acceptable to both workers and firms and generates the greatest returns in terms of reduced worker attrition, employee satisfaction and improved productivity.

6.2. Management Skills

6.2.1. Production management and planning

Production management and planning skills are in critically short supply in the sector. Managers and supervisors lack the technical skills required to combine different resources and soft skills (leadership and communication skills) more effectively. Production, management and planning is also often done by expatriate workers, mainly from India, Sri Lanka, Pakistan, Indonesia and China, with very few local workers in high-level management positions in the industrial parks. The absence of domestic investment in industrial parks is partly explained by Ethiopian firms lacking the skill sets crucial to operating a garment business in a globally competitive environment.

6.2.2. Human resources (HR) management

HR management plays a key role in shaping how workers are recruited, managed and developed.

The garment industry employs a great diversity of workers, from 18-year-old female high school drop-outs from rural villages to expatriate managers with years of experience. Despite its importance, HR is one of the occupations beset by serious skills shortages. The problem applies to both local and expatriate HR managers.

Language barriers aside, the tendency of foreign HR managers and other expatriates to transplant management styles that may have worked elsewhere to their factories in Ethiopia seems to create unwarranted clashes. While this may be due partly to lack of knowledge of labour laws, it is mostly ascribed to an inability to understand and appreciate cultural differences.

Local HR managers tend to have more limited managerial roles in industrial-park settings where factories are owned by foreign investors. This is partly due to a lack of technical knowledge of how to manage workers and partly because of their workload.

The environment experienced by HR managers in the garment sector is challenging. The constant pressure to meet production quotas makes long hours and overtime a routine occurrence, which may lead to worker dissatisfaction, compromise workplace safety and have a negative impact on worker effort and productivity. For much of the sector, especially the FDI operations, staff turnover is high. Intense activity in recruitment, induction, training, problem-solving, employee communication and employee departures can make it difficult to focus on longer-term strategic objectives.

6.3. Production skills

Technical skills are vital if garment factories are to deliver products in an agreed time span and to high standards. Improving basic production techniques also help companies make cost savings and expand their markets to premium destinations. In the following paragraphs, we explore the key technical capabilities that the Ethiopian garment industry lacks.

6.3.1. Design

This key technical skill is in short supply in the garment industry. Given the importance of product development and manufacturability, designers need to understand the general characteristics of fabrics (for instance, wool and non-wool fabrics have different characteristics), together with basic design elements that have an impact on the final product, such as colour, line, texture and costing. As such, design is a combination of technical and creative skills. However, this skill set is not well developed in the local garment industry. In the case of FDI operations, design is commonly done abroad by the buyer or headquarters staff and hence there is no scope for the transfer of skills from the company to local designers. At the same time, there is a shortage of people locally with the technical design skills to translate efficiently between creative design work done internationally and the practical requirements of manufacturing operations. This can cause inefficiencies and force brands to undertake detailed technical work in costlier locations – work that could potentially be handled locally in Ethiopia.

This being the case, it is very important to improve workers' skills in relation to the various types of fabrics, and product-line characteristics, shapes and specifications, which in turn requires advanced technology (hard and software) and is a further prompt for skills development.

6.3.2. Industrial engineering

Industrial engineering skills are in high demand but in short supply. Demand for industrial engineers familiar with modern technologies has increased. Firms understand that efficient and reliable production requires capable industrial engineers who understand and can improve the operation of the factory, from optimizing floor layout to incubating ideas for the continuous improvement of production processes to enhance operational efficiency. While there are university graduates with industrial engineering degrees, they seem to be few in number and do not appear to meet the quality expectations of the garment firms. In any case, many appear not to be familiar with the operational software and machine tools used by garment factories, and so are not able to troubleshoot operational difficulties when they arise. Furthermore, some of the basic industrial engineering tasks are performed by expatriate managers, which limits the scope for local engineers to learn by doing. If local

and expatriate engineers could work together, the possibility of knowledge transfer would be significantly increased.

6.3.3. Machine maintenance and repair

These skills are crucial for preventing disruptions to the production process, but they are sorely lacking in the garment industry. Most workers in the sector have only limited skills in machine maintenance, with little experience of operating advanced machinery and modern equipment. The qualitative survey indicated that roughly three quarters of workers in industrial-park operations required additional training in machine maintenance, repair and operation. Currently, firms are recruiting unqualified people for machine maintenance positions with the intention of training them, but it would appear that some of them do not have the capacity to learn to do the work. Even if factories recruit TVET graduates, they still have to provide intensive training in the basics of machine maintenance as TVET graduates often have weak practical skills or have been trained on different machines. Although companies can recruit university graduates with mechanical engineering skills, there is high turnover among such employees due to low salaries and negative attitudes towards what are considered blue-collar factory jobs. The limited availability of skilled workers for the maintenance and operation of advanced machinery forces companies to hire expatriate workers, paid in foreign currency at high cost.

6.3.4. Quality control

Occupations in this area are vital as they involve measuring, inspecting and testing not only the final product but also the production process in order to meet the required standards set by the factories themselves, government and buyers. In general, producing a quality product requires a concerted effort across the board, from top management to production workers. There is a considerable skills gap where quality control is concerned. The qualitative survey result indicated that approximately 68 per cent of workers engaged in quality control/checking require additional training.

The existing education system does not produce quality control specialists who can be reliably employed in the garment sector, as it is highly theoretical and does not equip people with practical skills.

6.3.5. Sewing

Sewing is defined as the process of attaching two pieces of fabric by making stitches with a needle and thread. The sewing line consists of a set of workstations which need to be carefully balanced, with tasks assigned as equally as possible. Most companies offer three to five weeks of in-house training in basic sewing and stitching skills, commonly using foreign expatriate trainers.

While many workers learn quickly and become proficient in garment production at the beginning of the third month, there are problems that hinder them from achieving a high level of efficiency. First, there is high staff turnover as many skilled workers leave in the first three to six months, so companies have to be continuously training new recruits. Second, absenteeism severely affects production planning and therefore a factory's efficiency levels. Third, the strict production targets required by management put stress on new workers who have just completed their training, often leading to tensions with supervisors and managers.[8] Fourth, language/communication problems between trainers and trainees limit the knowledge acquired by new recruits, leading to workers being criticized for substandard performance.

6.3.6. Cutting/Laying/Marking

Skills in pattern cutting and marking are key competencies when it comes to producing high-quality garments, vital in using fabric in the most efficient way. Fabric costs can account for up to 70 per cent of the total cost of producing a garment in the factory environment. Since no graduates with sufficient skills are available on the market, companies usually recruit unqualified people, as well as TVET graduates with some basic understanding of cutting/marking, then train them in the workplace. In some factories, sewing workers are promoted to the cutting department when they become sufficiently experienced. This is particularly true in factories where cutting is mostly manual and more complicated, which means that workers who move to the department have to be very competent. In some garment factories, there is no need for many skilled workers in the cutting department as the process is mostly automated.

6.3.7. Compliance skills

Social and environmental compliance is an issue commonly raised in the garment industry. Social and environmental compliance must take place within the realm of national and international standards. Government commitments to green industrialization mean that enterprises have to conform to environmental standards, while social compliance should make them more competitive internationally as there is an increasing concern among consumers about environmental and labour-related issues.

In this regard, skills and product certification related to the discharge of chemicals from factories are a key issue. Companies do not have workers with the required compliance management skills to properly handle factory waste disposal and the discharge of chemicals.

[8] A company representative, for example, said that "for production workers with no prior experience in garment sector, we offer 21 days training when they first join. They will then directly go to production. When they join the production line, they are first given small targets. One month after they become full workers, they will be considered regular workers. Accordingly, they will be given full production quotas."

Furthermore, facility and machine-management skills are required for both managers and workers to improve workplace safety. To sum up, to ensure social and environmental compliance all the parties concerned will need to work diligently together. Major buyers who source products from Ethiopia may also be able to support garment enterprises in building these capabilities by training their suppliers in social and environmental compliance.

6.4. Logistics/Distribution skills

Skills in logistics and distribution are important in delivering the final product to the end-user. Since the garment industry caters to a market which is sensitive to seasonal factors (fashions and trends), the ability to respond to demand in a timely manner is imperative. We briefly consider sales, marketing-management and logistics skills in this subsection.

6.4.1. Sales and marketing management

Problems relating to sales and marketing can be partly explained by a lack of skilled workers in these areas. Very few local professionals are engaged in marketing research, whether in export or local markets. In the highly dynamic global market, company responsiveness to orders placed by international buyers is also a key area that seems to be affected by skills shortages. Unfortunately, most domestically owned garment enterprises are slow in responding to orders placed by buyers, partly due to a lack of skills in the areas of information, communications and use of software.

6.4.2. Logistics

Logistics has been identified as a key constraint in the garment sector, due mostly to the distance to ports and delays in customs handling and clearing. While such challenges are largely beyond the control of the enterprises concerned, firms can to some extent alleviate the consequences of the logistical challenges by carefully planning for and storing inputs and products (inventory management) and diversifying markets.

7. Recommendations for meeting priority skills needs and filling gaps

Currently, skills supply for the garment industry is quantitatively inadequate, nor is it adequate in terms of relevance and quality. The various skills gaps have been discussed in detail in the previous section. This section makes recommendations about how these gaps can be filled.

A Sector Skills Committee (SSC) is in the process of being formed for the sector (also covering textiles) to ensure that education is demand-driven and industry/education linkages are strengthened. The SSC for textiles and garments is intended to spearhead skills training and encourage industries to offer pre-recruitment skills development and orientation. The skills strategy outlined here is for the use of the SSC and the sector partners that it represents. It is envisaged that thee following recommendations will be implemented with the SSC's guidance.

The agenda set out in these recommendations is extensive, and there may be opportunities for development partners to contribute to its implementation under the guidance of the SSC.

Where numbers are mentioned, these are order-of-magnitude figures, intended to provide an impression of the scale of demand rather than reliable guidance. Given the limitations of the data available and uncertainties about the future pace of the sector's development, they cannot be considered to be precise or accurate. We have made certain assumptions: the workforce in the sector will continue to increase at about 14,000 per annum and there will be a need for additional workers to accommodate this growth; there will continue to be a need to replace significant numbers of workers leaving the sector; and there will be some upgrading of the sector that boosts demand for mid- and high-level skills. The assumed rate of growth in employment is based on existing trends. As noted earlier, this is just one possible scenario. If foreign interest in investing in garment production remains strong, it is possible that employment will increase much faster as more industrial parks come on stream, resulting in much higher demand for new recruits.

7.1. Operator skills

- **Labour-sourcing and grading centres.** The labour-sourcing and grading centre at Hawassa plays an important role in sourcing new recruits and channeling them into the right jobs with garment manufacturers at the industrial park.
  - **Review of grading centres.** The Hawassa centre's operations should be reviewed, with reference to international good practices, with a view to developing a standard model that can be replicated at other industrial parks.
  - **Roll-out of grading centres.** As other industrial parks reach sufficient scale, the Industrial Parks Development Corporation and development partners should consider rolling out the standard model for these other parks. In order-of-magnitude terms, the total throughput per annum could be of the order of 20,000.
- **Pre-employment soft-skills training.** Pre-employment soft-skills training, provided mainly through a range of development partner initiatives, plays an important role in preparing new recruits without a formal employment or industrial background for working in the sector. However, the current results are not as effective as expected in terms of retention and employability, and there is a lack of standardization. A review of soft-skills training is under way with support from the ILO.
  - **Standard soft-skills training curriculum.** The various actors in soft-skills training for the garment sector should work together to review, improve and standardize pre-employment soft-skills training provision for the sector. A standard soft-skills training curriculum should be developed. In order-of-magnitude terms, the total throughput per annum could again be of the order of 20,000, if it embraces all new entrants at operator level.
  - **Soft-skills training linked to the National Qualifications Framework.** The standardized soft-skills training curriculum should be linked to the TVET National Qualifications Framework, for quality assurance purposes and so that participants meeting the required standard can be awarded optional certification at module level.
  - **Soft-skills training linked to occupational standards and mainstream TVET courses.** The standardized soft-skills training curriculum should be integrated into the next version of the occupational standards for TVET qualifications relating to the garment sector. It should be deployed in mainstream courses provided by TVET colleges, as well as in pre-employment soft-skills training.
  - **TVET colleges involved in pre-employment soft skills training.** TVET colleges should become involved in delivering pre-employment soft-skills training, including short courses targeting young and less-educated adults with less formal work experience. The aim would be to better integrate the different parts of the skills-development system, and gradually reduce reliance on development partners. Development

partners should consider contracting with TVET colleges to deliver some of their pre-employment soft-skills training to further progress in this area and to promote sustainability.

- **Employers and soft skills training**. Employers should adopt the standard soft-skills training curriculum and should consider contracting with TVET providers to work together in delivering it.

- **Entry-level training for machine operators.** Entry-level training for machine operators is provided mainly by firms themselves, over a period of 4 to 5 weeks.

  - **Machine-operator initial training at TVET colleges.** TVET colleges located close to garment manufacturing operations should take the initiative in offering employers certified initial short training courses for machine operators, thus creating an alternative to in-company initial training. This would provide an alternative source of initial training for employers, and a degree of public funding could constitute part of the package of services used to attract investors.

  - **Consistency between TVET course units and employers' internal training provision for machine operators.** The design of TVET course units should take into account the content and standards of entry-level training for machine operators provided by leading garment-sector employers. Operators who have attended a high-quality employer-provided training course could possibly be tested at a centre of competency (CoC) and be granted module-level certification on the basis of recognition of prior learning (RPL), or be awarded such certification if the course was delivered by a TVET provider on the employer's behalf.

- **Continuing training for machine operators.** Continuing training for machine operators is limited and, to the extent that it exists, focuses on training operators to undertake more complex operations or to use additional types of machines.

  - **Mentoring of machine operators.** Employers should make mentoring of machine operators part of the job of line leaders and supervisors, so as to facilitate upskilling, broadening of skills and career progression for those most suited to advancement. This should be tracked by HR management and production management.

  - **Continuing education delivered by TVET colleges.** TVET colleges located near garment-manufacturing operations should offer certified courses and modules for machine operators as a way of continuing their education, either on their own premises or in the workplace (subject to the employers' cooperation).

  - **Linking skills development with productivity-improvement strategies.** Employers should build skills development for machine operators into their productivity-improvement strategies, focusing on areas consistent with those strategies, for example use of multiple machines, communication skills, teamworking skills, and use of production-tracking data for process management and improvement.

- **Linking productivity-related training to the National Qualifications Framework.** National institutions and development partners working at scale with groups of employers to improve productivity should consider whether the training provided can include components certifiable under the National Qualifications Framework. Where feasible, they should be assisted in this endeavour.
- **Wider availability of ETIDI courses at operator level.** The ETIDI should aim to roll out its short courses at operator and other levels beyond the Addis Ababa area, targeting large as well as small and medium-sized operations. Where possible, it should offer certification within the National Qualifications Framework.

7.2. Mid-level skills

Supervisory, team leader and line leader skills. The skills of many local recruits are inadequate: TVET and university graduates recruited for these roles are often poorly prepared, especially for the key people-management aspects of the work. At the same time, arrangements for training suitable operatives, line leaders and workers in mid-level technical roles to work as supervisors and team leaders are not well developed. Progress towards developing a sufficient supply of competent local supervisors with a better cultural fit is too slow.

- **Supervisory management training programme for the sector.** High-quality supervisory management training should be made widely available for workers preparing to take up supervisor roles, and for those already in supervisory roles who have not yet received formal training. The training should combine a formal taught component with a structured practical component delivered in the workplace. The taught component should inform the practical component, and the practical component should feed back into the taught component. The training should be substantial, undertaken over a period of months. A number of institutions and development partners, including the One ILO Programme, already cooperate with garment-sector employers in providing such programmes. The need is to: 1) assess which models deployed in Ethiopia are most effective in terms of impact, cost and replicability; 2) agree to a strategy for standardization or convergence between programme models, which could include the creation of a single occupational standard and curriculum for garment-sector supervisors and team leaders; 3) scale up provision with collaboration between employers, cross-ministerial government actors (including the ETIDI), development partners and the most suitable training providers (universities with a garment specialization, TVET providers with a garment specialization, centres of excellence, etc.) to serve each main concentration of garment-manufacturing activity. Total target throughput across all regions could initially be in the order of 2,000 each year.

- **Review TVET occupational standards for line leaders and supervisors.** The Level 1 occupational standard (OS) for Basic Apparel Production, the Level 2 OS for Intermediate Apparel Production, the Level 3 OS for Advanced Apparel Production, the Level 4 OS for Garment Production Supervision and the Level 5 OS for Garment Production Management[9] should be reviewed and revised to take account of the changes that have taken place in the sector since the existing standards were published. There should be strong industry involvement from both the FDI and domestically owned parts of the sector in the revision of occupational standards and curricula. The review and revision should take account of developments in workplace line-leader and supervisory training, and should aim for coherence with the standardized or converged approach to supervisory training outlined in the previous paragraph.

  Initial education courses under these occupational standards should continue to include a substantial work placement component. Formal agreement with suitable employers on delivering this component should be a criterion in decisions on providing and continuing these courses.

- **TVET courses to meet the standards of machine operation and basic maintenance required by employers**. Practical skills in machine operation are a basic requirement for line leaders and front-line supervisors, so it is important that TVET gradates in Basic Apparel Production (Level 1), Intermediate Apparel Production (Level 2) and Advanced Apparel Production (Level 3) should at least meet the standards of machine operation required by typical FDI and domestically owned employers (not only in terms of operations per minute, but also of task complexity, efficient changeover when tasks or styles change, and working as part of a group or team on a production line). As these courses open a career pathway into machine maintenance and servicing, graduates should also be able to meet workplace standards of machine maintenance appropriate to their level of qualification, at least on the machines available to the training provider.

- **Supervisory management component in upper-level TVET garment courses.** Other mainstream TVET courses at Level 3 or higher, as well as substantial university courses serving the sector, should normally have a supervisory management component. Even where the content of the course is primarily technical, career opportunities in the sector are likely to include supervisory jobs, or jobs that include supervisory management responsibilities.

- **Industry trainers.** The FDI part of the sector is over-reliant on expatriate trainers. At the same time, domestically owned businesses would benefit from better training

[9] If an employer recruits a newly qualified graduate at Level 5 for the management track, the job is likely to be at supervisory level, to include supervisory work during and after a period of traineeship, or at least to include working closely with supervisors.

provision in terms of skills development and improvements in productivity. Initiatives to increase garment manufacturers' training capacity could also improve the supply of skilled trainers available to TVET institutions, universities and other education and training providers.

Employer strategies to develop training talent. Employers should adopt strategies to develop local training talent, with a view to building home-grown capacity in this key function.

- **Training of trainers programme for industry.** The ETIDI should work with employers to develop a substantial training-of-trainers (ToT) capacity-building programme targeting firms in the sector. The programme might offer courses at more than one level, so as to cater for skilled workers moving into junior training roles, as well as experienced trainers and more highly skilled workers moving into senior trainer roles and providing training in more advanced skills. Graduates of each course should receive appropriate qualifications or certification, whether at TVET or university level. The courses could also be open to TVET and university teachers who would benefit from them.

Entry-level training for mid-level technical occupations. Arrangements to develop mid-level skills in the sector are also not working well. The skills of many local recruits are inadequate and TVET and university graduates recruited for these roles are often poorly prepared. The FDI part of the sector is over-reliant on expatriate workers to fill some of these roles.

- **Review of occupational standards for TVET courses for mid-level technical occupations.** The occupational standards for mainstream TVET courses designed for mid-level technical occupations should be reviewed and revised to take account of the changes that have taken place in the sector since the existing standards were published. There should be strong industry involvement from both the FDI and the domestically owned parts of the sector in the revision of occupational standards and curricula.

- **TVET courses for mid-level technical occupations to meet the practical skills standards required by employers** The TVET course units concerned with developing practical/technical skills should be designed to ensure that graduates can at least meet the standards required by typical FDI and domestically owned employers in performing a core set of tasks. The task set should be defined for each occupation by groups representative of employers and relevant TVET providers, and revisited annually to keep it up to date and foster ongoing cooperation. Where there are gaps between what is agreed and what TVET providers can deliver to a high standard, the employers involved in the process should arrange factory visits and placements to enable TVET teachers to learn what to teach. Where skill in a task designated as core by employers requires trainees to gain experience on equipment that is not available in the TVET system, employers should offer a practical solution sufficient to meet

their own requirements. This might encompass factory demonstrations, use of the equipment during internships, or on-site classes involving TVET teachers and the employers' own trainers.

- **Work placement in courses for mid-level technical occupations.** Courses for mid-level technical occupations delivered by TVET institutions should continue to include a substantive work placement. In the event of a shortage of work placements, the minimum substitute should be a well-documented simulated work placement overseen by an industry representative with current expertise in practical garment operations. The same requirements should apply to university courses targeting these occupations.
- **Consistency between TVET course units and the in-house training for mid-level technical occupations provided by employers**. Design of course units should take into account the content and standards of training for these occupations provided by leading garment-sector employers. This is to: 1) ensure the relevance of TVET provision; 2) maximize the likelihood of employers being able to source some of their training requirements at this level from TVET providers; and 3) facilitate the possibility of TVET certification for employer-provided training, or alternatively certification based on RPL, where there is demand for this from employers and/or workers.

Continuing training for mid-level technical occupations. There is a need to improve and update the skills of workers in mid-level technical occupations in the sector, but the extent of continuing learning provision for these occupations is limited.

- **Mentoring for mid-level technical occupations.** Employers should make mentoring of workers in mid-level occupations part of the job of their line managers, so as to facilitate the updating, upskilling and broadening of skills, and provide a basis for career progression for those suited to advancement. This should be tracked by HR management and senior managers.
- **Upskilling through blended learning for workers in mid-level technical occupations.** The ETIDI should explore the possibility of creating a blended-learning system based on a centralized e-learning platform with the aim of improving and upgrading the skills of workers employed in mid-level technical occupations. This should be done in cooperation with the TVET institutions and universities most experienced in serving the garment industry close to each main centre of garment production. The ETIDI should also aim to roll out its short courses at this level beyond the Addis Ababa area, focusing on operations of all sizes and, where feasible, offering certification within the National Qualifications Framework.
- **TVET continuing education for mid-level technical occupations.** Where TVET colleges and universities located near garment-manufacturing operations have capacity to do so, they should offer certified courses and modules to workers in mid-level technical occupations on a continuing-education basis.

- **Mid-level skills in design, sales and marketing.** Demand for designers is growing in the sector and a large part of this demand is for technical design skills to bridge the gap between creative design and manufacturing. This is especially true for exporting operations, where designs are provided by the brand. Significant numbers of people work in sales and marketing, particularly as merchandisers, and especially in the domestically owned part of the sector, where skills of this kind are becoming more important.
  - **Review of the occupational standards for mid-level skills in design, sales and marketing.** The occupational standards for mainstream TVET courses in design should be reviewed and revised to take account of the changes that have taken place in the sector since the existing standards were published. There should be strong industry involvement from both FDI and domestically owned parts of the sector in the revision of occupational standards and curricula.
  - **Technical skills in the occupational standard for design.** The standard should include the objective of competence in the technical skills required to bridge the gap between creative design and physical production in a garment manufacturing operation, whether in domestically owned or FDI operations.
  - **Merchandising skills in the occupational standards**: Occupational standards for the sector should include provision for training in merchandising, either as a separate standard or as a component within the design standard.

7.3. High-level skills

- **Systems for education and training in high-level skills.** Occupational areas demanding high-level skills include production management and planning; industrial engineering; human resource management; design; sales and marketing management; and logistics. Internationally, all of these are normally addressed through initial education and training at university level or at the upper end of TVET education. They are also areas in which FDI operations rely heavily on expatriates. Training in these disciplines is being developed at six universities, and in some cases at TVET level. The ETIDI also provides some executive education at this level.
  - **Complementarity of universities and TVET institutions in high-level skills.** Both universities running courses for the sector and TVET providers capable of delivering at Levels 4 and 5 of the National Qualifications Framework should be active in developing high-level skills for the sector, while working together to avoid undue duplication. Dual academic and vocational tracks, with mechanisms for articulation between them, can function well and complement each other at this level.
  - **Benchmarking the development of high-level skills.** Providers should aim for an international standard of qualifications in high-level skills for the sector and should

invest in the teaching capacity, curricula and other resources required to deliver this. A benchmarking exercise should be undertaken to compare provision at this level with that in leading competitor countries, with a view to identifying key areas for improvement and setting performance benchmarks for the future.

- **Partnerships between industry and training providers.** Industry employer groups should establish formal partnerships with providers of education and training at this level for their mutual benefit. These partnerships should cover: curriculum development; training of teaching staff; internships and work placements; continuing education and training; and graduate placement and recruitment. Courses at this level should include a substantial work placement.
- **Graduate experience scheme.** Subject to suitable funding being available, a graduate experience scheme should be established. In many cases, employers with limited experience of hiring higher-education graduates locally are reluctant to recruit because of uncertainty about how such recruits can add value. A scheme to subsidize salaries for a period of one to two years, while also providing mentoring, could help to overcome this barrier. Such schemes work best if they are kept small enough to prevent the graduate recruitment market from becoming reliant on subsidies; target employment situations where the scheme can do most to establish a career path for graduates into mid-level and high-level roles; and recruit competitively from among graduates of appropriate courses. The scheme could start with a pilot involving 20 graduates in the first year, with the aim of ramping up to 100.
- **Executive education.** Executive education – part-time and short courses aimed at managers and professionals – can make a significant contribution to developing and updating the skills of workers in high-skilled occupations. Providers of education and training at this level, including the ETIDI, universities and some TVET providers, should offer executive education courses in line with local assessment of demand. If the ETIDI-led blended-learning system for mid-level technical occupations (described earlier) is deployed successfully, it should later be extended to cover high-level skills.

Target occupations for education and training in high-level skills. High-level occupations requiring education and training interventions include the following:

- **Industrial engineering.** Industrial engineering competence is one of the key factors in raising productivity in the sector. A strong undergraduate programme in industrial engineering for the clothing and textile sectors should be developed and implemented, aiming to meet international standards. It should include a change-management component that takes account of Ethiopian cultural norms. Subject to demand, a master-level programme could also be developed and implemented to enable engineering graduates in related disciplines to convert to industrial engineering.
- **Management and professional occupations.** Training in higher-level production management, production engineering, general management, human resource management, sales and marketing management and logistics, inclusive of specialized

garment management streams, should be provided by universities at bachelor- and master-degree levels, through both initial education and continuing part-time education. The ETIDI should organize short-term on-the-job management training and continuing training programmes.

- **High-level skills in design.** Training in high-level design should be further developed at bachelor and master levels, with the dual purpose of 1) developing enough high-level skills in technical design to supply the needs of FDI and domestically owned garment-manufacturing operations; and 2) meeting the creative-design skills needs of domestically owned businesses and creating a pool of experienced talent that FDI operations can draw on as they move up the value chain. Experience from other countries in some cases points to an over-expansion of skills development in creatively oriented design, so the immediate priorities should be quality and relevance.

7.4. Actions cutting across occupational levels

- **Teaching skills in TVET institutions and universities.** A sector-level initiative is needed to raise and certify the skills od TVET and university teachers, in parallel with the updating of curricula. (Note the earlier recommendations about industry visits and placements for teachers, and possible collaboration between institutional teachers and industry trainers).
  - **Short training-of-trainers (ToT) courses for TVET and university teachers.** TVET providers, universities and the ETIDI should work together to develop and implement a system of short ToT courses for TVET and university teachers of courses serving the sector, coordinated with the updating of occupational standards and curricula.
  - **High-level ToT qualification for TVET and university teachers.** The ETIDI should collaborate an appropriate university to develop, deploy and roll out a part-time diploma or master-level ToT course for teachers of courses serving the sector.
- **Work placements and supporting institutional arrangements.** One of the key challenges for skills development, cutting across all occupational levels in the sector, is to establish systematic collaboration between employers and training institutions in providing substantial, structured work placements.

The Job Creation Commission envisages introducing an industry/training institution partnership cell to liaise in strengthening linkages between industry and various departments of technical institutions and universities.

Establishing group training organizations (GTOs), an approach originating in Australia as a way of addressing these issues, has been tried in a number of other countries. A GTO

hires apprentices and acts as their employer while they are in the workplace, reducing the burden on host employers, ensuring coordination between the workplace and the off-the-job training provider, and providing active quality assurance.

- **Piloting a group training organization.** As part of the process of establishing cooperation between employers and TVET institutions in providing work placements, the industry/training institution partnership cell should consider piloting a GTO for the sector. It would focus on piloting apprenticeships based on the revised TVET occupational standards in one or more mid-level technical occupations.

- **Institutional coordination.** The sector has attracted the participation of various NGOs working in the area of skills development. The ILO, the DfID, the GIZ and others have implemented projects with the aim of extending employment services in industrial parks and developing skills upgrading systems, including support for the establishment of training centres in industrial parks. However, there does not appear to be close coordination between government, industry and development partners. There is currently no proper governance mechanism to ensure that the actions of different labour market actors are coordinated so as to prevent duplication of effort and benefit from synergies in such serious attempts to reform the skills eco-system.

  - **Coordination between industry and education/training institutions.** There needs to be close and productive coordination between industry and education/training institutions (universities, TVET providers, the ETIDI) to develop demand-driven, industry-specific skills.

  - **Institutional capacity of public institutions.** There is a need to develop and implement initiatives to improve the institutional capacity of public institutions engaged in both regulatory activity and service provision, the aim being to empower them to implement the policies and strategies for sector-related skills development.

  - **Integration of the policy and institutional efforts of labour-market actors**. The policy and institutional efforts of the various labour-market actors should be integrated by bringing together a large number of institutional actors and initiatives.

- **A wider range of funding sources and improved efficiency.** Investing in skills generates both public and private economic returns. Governments have a broad responsibility to promote economically beneficial skills development. They have a particular responsibility to ensure that the development of general skills, not the specific needs of any individual employer, is properly funded, as there is a risk of under-investment by employers in this area. In the context of the Ethiopian garment sector, co-financing arrangements are vital for programme sustainability, responsiveness to demand and a sense of ownership of these interventions by private firms.

Existing training capacity is under-utilized in some places. For example, Bahir Dar University (Ethiopian Institute of Textile and Fashion Technology) is well equipped and staffed, but is said to operate far below its potential capacity. We therefore recommend:

- **Leveraging fiscal policies.** The Government could leverage fiscal policy to expand the supply of skills by the private sector. The measures taken might include tax holidays, subsidies and tuition-fee waivers.
- **Efficient use of resources in skills development.** Efficient use of the limited resources for skills development is another area where more work is needed to eliminate skills gaps in the industry. In addition to broadening financing sources, it is also crucial to improve budgetary efficiency.
- **Budget increase for garment TVET provision.** The government budget for TVET in the garment sector should be increased. Currently, there is only limited donor funding that comes via the Ministry of Science and Higher Education or the TVET Agency (Channel two), as most donor funding for training is managed by the donors themselves (Channel three). Increased channel-two funding, with a clear approach to reporting and evaluation, would enhance efficiency and coordination.

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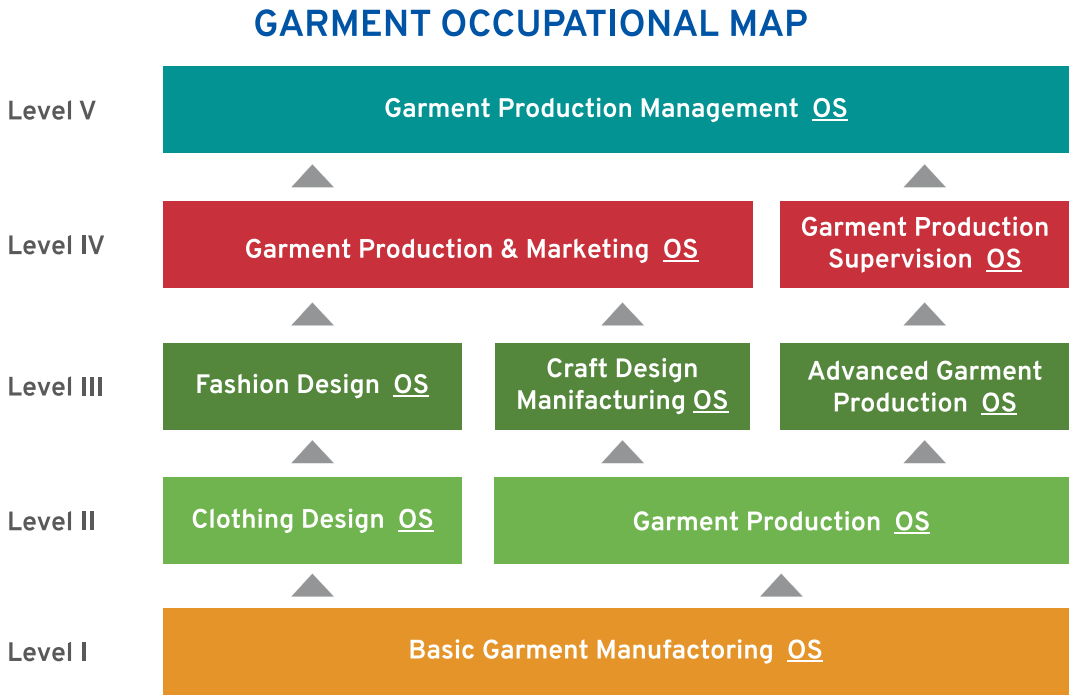
Appendix

Figure A1. Garment occupation map by TVET education level



Source: GIZ STEP (2019)

Table A1. List of specializations offered in TVET institutions

Basic Apparel
Advanced Apparel Production
Apparel Fashion Designing and Technology Supervision
Apparel Production and Technology Management
Basic Apparel Production
Basic Textile Operations
Intermediate Apparel Production
Textile and Garments
Textile and Garments production
Textile Chemical Processing Operations
Textile production
Textile Technology and Production
Textile Technology and Production Management

Source: TVET Agency

Table A2: Export earnings from the textile and garment industry: target and actual

	2014/15 (base year)	2015/16	2016/17	2017/18	2018/19	2019/20
Target (in millions of US$)	98.9	184	270.5	397.9	556.7	778.8
Target growth (%)		86.05	47.01	47.10	39.91	39.90
Actual (in millions of US$)		77.8	89.3	103.8	NA	NA
Performance (%): actual versus target		42.3	33	26		

Source: NPC (2016) and NPC (2018)

Table A3: Demand for versus supply of TVET graduates in the textile and garment industry

	2016	2017	2018
Forecast demand for garment graduates	73,654	138,779	180,374
Forecast demand for textile graduates	39,926	73,478	94,705
Forecast demand for garment and textile graduates	113,580	212,257	275,079
TVET enrolment for G & T	17,218	13,796	30,046
TVET graduates for G & T	NA	NA	4,888

Source: MOI (2015), TVET Agency

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