

Chapter 1 Demand of Skills

This chapter of the SSP describes the demand for scarce and critical skills as reported by FP&M sector employers. It also describes the key strategic challenges facing labour and skills in the sector as a basis for possible priority skills interventions.

1.1 Approach to the demand analysis

The approach to the demand analysis involved the following steps:

- Firstly, a literature study was carried out to analyse the industries. This literature study entailed the analysis of both industrial policies and strategies formulated for the different sectors.
- Secondly, interviews were conducted with stakeholder and experts in each sub-sector. The outcomes of these interviews are presented after the demand analysis for each cluster.
- Third, labour market forecasts of both growth demand and replacement demand were undertaken. (“Growth demand” refers to the number of new jobs anticipated as a result of industrial growth; “replacement demand” refers to the number of people currently employed in the sector who are likely to leave for reasons such as retirement, migration, mortality and morbidity, etc.). The labour market forecasts made use of a number of data sources. The analysis was conducted using both Stats SA’s Quarterly Labour Force Survey (QLFS) and the Quantec data. For the Forest sector, lack of reliable data meant that a number of data had to be extrapolated. This extrapolation is explained in the relevant sections of the forest sub-sector analysis.
- Finally, the findings of the literature survey, interviews and forecasts were presented to sub-sector representatives in workshops across four regions. Feedback was incorporated into the SSP. Please note that this is regarded as the “narrow” consultation required for the draft, and that “wide” consultation is scheduled for September – November, when the final version of the SSP is due for submission.

This enabled for skills demand analysis to be conducted for the sector.

1.2 Methodology

The employment forecasting was based on the following steps:

- Firstly, growth demand based on three different growth scenarios: -1%, 2% and 5% growth – was calculated. These scenarios were adopted because average growth among the FP&M SETAs was between 0 and 3.5% on average between 2001 and 2011. Thus the growth scenarios reflect negative and positive, albeit conservative, projections of future growth in the sectors.

For the growth demand, the following the factors were taken into account: capital intensity, productivity, labour elasticity and capacity under-utilisation.

- After projecting growth demand, the next step was calculating occupational employment forecasts. This was done by defining each occupation group as a proportion of total employment and then using that proportion to predict the number of jobs that would be lost in that particular occupation in each growth scenario. While this

is a very crude estimate, it still gives an indication of what could happen in each situation.

- Finally, replacement demand was estimated. There are a number of elements of replacement namely retirement, mortality from HIV/AIDS-related illnesses and other causes such as migration. The age profile is used for both the retirement and the HIV/AIDS-related replacement calculations. For the retirement replacement, it was assumed that people who were 60 years old would retire in the next 5 years and those who were 55 and above would retire in the next 10 years.

The age profile was also used for the calculation of HIV/AIDS-related replacement demand. In the first step the HIV prevalence rates by age and gender as presented in Shisana et. al (2009) were used to calculate approximate HIV prevalence in the leather sector. In the second step the percentage of people who had died from HIV-related causes as shown in a Stats SA survey from 2009 was used to calculate, by age and gender, the number of people who were likely to die within the next 5 years from HIV-related causes within the leather sub-sector. The percentages used were 2.9% for males and 3.3% for females.

To calculate the replacement demand due to other deaths the number of people who had died from causes other than HIV-related illnesses who worked in the manufacturing sub-sector was calculated. The percentage of the aforementioned people out of all who had died from causes other than HIV-related illnesses was calculated and is found in the table below. This was then used to calculate the replacement demand due to death from causes other than HIV-related illnesses.

1.3 Issues and limitations

A number of issues have to be noted. Firstly, the growth demand and consequently the occupational modelling results for clothing and furniture sectors are not presented. In these sectors, the labour elasticity coefficients were so high that even the negative growth demand led to positive employment growth. Because this is not likely, especially in the current economic climate, these results have been left out. Secondly, the minor occupation groups for the footwear sector have not been presented. This is due to what seems to be a coding error in the Stats SA's QLFS dataset that has recorded the highest minor occupational group in the footwear sub-sector as being "millers and bakers". (Statistics South Africa confirmed that there is indeed an error).

1.4 Scarce and Critical Skills in the FP&M Sector

The sector analysis chapter pointed to possible employment loss in most FP&M sub-sectors. In such cases, scarce skills shortages are only likely to arise because of replacement demand. However, many of the key professional and artisan skills in the sector are in short supply both nationally and internationally, and this is a cause of labour mobility and emigration. Also, the aging workforce reported for many sub-sectors is concentrated particularly on these artisan and professional occupations. Despite forecast employment loss, there is therefore still a compelling argument for FP&MSETA to continue investing in a sustainable supply of these scarce skills.

Also, new occupations are emerging as scarce skills due to the changing nature of the industries. For example, design is emerging as a key driver of industrial growth in furniture,

printing and packaging, clothing, textiles, footwear and leather. Design is therefore a key scarce skill for the sector. These “new” scarce skills are therefore also an important focus of FP&M SETA efforts.

Before a discussion on the scarce and critical skills can be undertaken, it is of paramount importance that a thorough understanding of the definitions has been grasped. It is often that companies mistake the two concepts for each other, thus creating a skewed impression of what the actual needs are for each sub-sector. The FP&M SETA have defined the terms as follows:

- **Scarce Skill:** *An absolute or relative demand (current or future); for skilled/qualified and experienced people to fill particular roles/professions, occupations/specialisations in the labour market and is measured in terms of an occupation or specific qualification.*
- **Critical Skill:** *particular capabilities needed within an occupation, e.g. general management skills, communication and customer handling skills, team-work skills, communication technology skills, etc.*

Further to the above definitions, a differentiation should be made between the terms of absolute and relative scarcity of skills. The Department of Higher Education and Training (DHET) defines the terms as follows:

- Absolute scarcity - suitably skilled persons not available in the labour market.
 - Examples where absolute scarcities may arise include:
 - *A new or emerging occupation;*
 - *Firms / Government / national economy are unable to implement planned growth strategies; and*
 - *Replacement demand reflect an absolute scarcity*
- Relative scarcity - suitably skilled people are available in the labour market but do not meet other employment criteria, i.e.:
 - High-level work experience, e.g. project management of large manufacturing sites etc.;
 - Geographical location, e.g. people unwilling to work outside of urban areas; and
 - Equity considerations, e.g. Few/if any candidates with the requisite skills from specific groups available to meet the skills requirements of firms and enterprises (Department of Labour - DoL, 2006c).

1.5 OCCUPATIONS IN THE FP&M SECTOR

A mapping of occupations in the FP&M sector was conducted in order to develop some level of understanding about the key occupations that exists across the sector. The mapping enables for better tracking of scarce skills as well as for identification of critical skills gaps within these occupations. The table below provides a list of occupations prevalent in the sector, including the skills required, minor and major occupational groups applicable.

Table 18: Occupations in the sector

Major Occupational Groups	Sub Major Occupational Groups	Minor	Unit	Skills	Skills level
MANAGERS					
MANAGERS	CHIEF EXECUTIVES/ GENERAL MANAGERS	Chief Executives, General Managers	Managing Directors, General-, Advertising-Marketing-, Services Managers, Corporate (Administrative, Business); Finance, Human Resource, Policy and Planning,	Planning, Leading, People Management, Financial	6 and up
		Health, Safety & Environmental Management	General manager, policy and planning manager, research and development, contract, program, project	Ability to determine, formulate and review the general policy programs and the overall direction of organisations within the framework established by boards of directors and similar governing bodies.	5
		Production Supervisors / Production management	Distribution and Production / Operations Managers	Production scheduling, improving production systems, managing productivity, continuous improvement of production system, defining production processes, style change-over times, reduce manufacturing runs, increase manufacturing output, World Class Manufacturing (WCM), lean manufacturing reliable production, machine maintenance management.	5
		General management	General manager	People management skills, co-ordination of internal value, integration production, design & merchandising, customer requirements. Product costing, Health, Safety & Environmental Management, Negotiating skills, Customer relationships	5

Major Occupational Groups	Sub Major Occupational Groups	Minor	Unit	Skills	Skills level
		Distribution and Production / Operations Managers	Supply and Distribution Managers	Understand value chain reliability: managing productivity and appropriate use of technology, delivery reliability to customers, delivery reliability from suppliers, Market knowledge, research skills, analysis skills	5
		Designers, Planners	Engineering Managers	New product development, new product design: designing, planning, costing	5 and up
		Miscellaneous Specialist Managers	Quality assurance management	Understanding quality, operating a quality system, improving quality, reduce reject rates, integrated quality systems with customers	5 and up
	Chief Executive Officers and Managing Directors	Chief Executives and Managing Directors (Enterprises / Organisations)	Director (Enterprise / Organisation) /Corporate general manager	Strategic planning, leadership and planning	5 and up
				Plan, organise, direct, control and review the day-to-day operations and major functions of commercial and industrial organisations through departmental managers and subordinate executives.	
		Financial management	Financial Services Managers	Financial management: age of capital equipment, cash flow analysis. Financial management, profitability, cash flow management, costing management	5 and up
		Human resource management	Human Resource Professionals	Understanding HR legislation, improving productivity in people and teams, managing performance, managing industrial relations, ensuring highly motivated, high performance people	5
PROFESSIONALS					
Professionals	Business, Human Resource, Marketing and Communication Management Professionals	Human Resource and Training Professionals	Human Resource Professionals	Create visual two- and three-dimensional concepts and forms through painting, drawing, carving, sculpting, modelling, printmaking, video, multimedia, found objects, ephemera, soundscapes and other media to communicate concepts and ideas.	5
		Sales, Marketing and Communication Management Professionals	Advertising and Marketing Professionals	Develop and coordinate advertising strategies and campaigns, determine the market for new goods and services, and identify and develop market opportunities for new and existing goods and services.	5

Major Occupational Groups	Sub Major Occupational Groups	Minor	Unit	Skills	Skills level
		Sales, Marketing and Communication Management Professionals	Advertising and Marketing Professionals	Develop and coordinate advertising strategies and campaigns, determine the market for new goods and services, and identify and develop market opportunities for new and existing goods and services.	5
			Public Relations / Communication Management Professionals	Plan, develop, implement and evaluate information and communication strategies which create an understanding and a favourable view of organisations, their goods and services, and their role in the community.	5
	Arts and Media Professionals	Arts Professionals	Visual Arts and Crafts Professionals	Create visual two- and three-dimensional concepts and forms through painting, drawing, carving, sculpting, modelling, printmaking, video, multimedia, found objects, ephemera, soundscapes and other media to communicate concepts and ideas.	5
	Design, Engineering, Science and Transport Professionals	Engineers and Engineering Technologists	Industrial and Mechanical Engineers and Technologists	Design, organise and oversee the construction, operation and maintenance of mechanical and process plant and installations, establish programs for the coordination of manufacturing activities, analyses and modify new and existing industrial, mechanical and production engineering technologies and ensure usage of resources is cost effective.	5
	Education	Miscellaneous Education and Training Professionals	Miscellaneous Information and Organisation Professionals (Skill Level 5)	Promotes economic growth and renewal in their local area. May be involved in all aspects of economic development work, or may specialise in one area such as attracting inward investment, setting up training schemes, tourism development or bidding for funding.	05-Jun
TECHNICIANS & TRADE WORKERS					
Technicians & trade workers	Other Technicians and Trades Workers	Printing Trades	Printing Trades Workers	Compose and set type prior to printing, set up and operate printing presses, bind and finish printed products, and prepare stencils and operate screen printing equipment	5
		Printing Trades	Binders and finishers	Bind books and other publications, finish printed products by hand and machine.	5
MACHINE OPERATORS & DRIVERS					

Major Occupational Groups	Sub Major Occupational Groups	Minor	Unit	Skills	Skills level
Machine operators & drivers	Machine and Stationary Plant Operators	Printing Trades Workers	Production operator supervisor	Interpreting engineering production drawings. Setting up, operating and adjusting production plant to shape metal stock and castings, and cut sheet metal, Managing production improvement; maintenance	4
			Machine Setters and Minders / Printers / Operational Process Controllers / Other Miscellaneous Technicians and Trades Workers	Adjusting the machinery and settings during the manufacturing operation / Quality assurance, systems & testing	3
			Printing Assistants and Table Workers (Skill Level 2)	Perform routine printing tasks, operate bindery machines and perform manual binding and finishing of books and printed products.	2
		Advertising, Marketing and Sales Managers	Advertising and Marketing Professionals	Marketing and communication: understanding the market concept, Pricing, distribution and promotion, Segmenting and targeting markets	5 and up

1.6 Scarce Skills per Sub-sector

Scarce skills refer to areas within occupations in which there is a shortage of qualified and experienced people due to unavailability of such people or because these people do not meet given employment criteria. Scarcity may arise due to absolute scarcity in which few people hold the necessary skills or qualifications (such as those required in a new or emerging occupation). These skills are either impossible to replace or extremely difficult to replace should they exit the sector. Absolute scarcity results in low growth and productivity of companies in the sector and the sector itself. Relative scarcity of skills pertains to skills that are difficult to attain due to geographic location, equity requirements or the lead time on attaining the necessary skills.

The tables below outline the scarce skills occupations across the sector. The sector has conducted an in-depth forecasting exercise taking into account replacement demand and other factors influencing skills demand. This is provided in the annexure and the next step would be to align these identified scarce skills per sub-sector with the forecasts so that estimated demand data per occupation is fine-tuned.

The **Clothing** sub-sector has the highest proportion of Plant and Machine Operators and Assemblers (47%) followed by elementary occupations with 26%. The following are identified scarce skills:

Table 1: Scarce Skills Clothing Sub-sector

OFO Code	Scarce Skills
• 652204	• Patternmaker
• 715302	• Clothing, Textile and Leather Goods Production Operator / Machinist
• 214908	• Materials Engineering Technologist (not referring to quality advisors)

The **Footwear** sub-sector has the highest proportion of Plant and Machine Operators and Assemblers (40%) followed by elementary occupations with a representivity of 38%. The table below outlines the identified scarce skills occupations.

Table 2: Scarce Skills Footwear Sub-sector

OFO Code	Scarce Skills
• 311904	• Manufacturing Technician / Footwear technician
• 715302	• Clothing, Textile and Leather Goods Production Operator / Machinist
• 653301	• Industrial Machinery Mechanic / Machine mechanic

The **leather** sub-sector employs more Plant and Machine Operators and Assemblers (33%) followed by elementary occupations with a representivity of 24%. Skilled Agricultural, Forestry, Fishery, Craft and Related Trades Workers make up 14% of employees in the sub-sector. These are scarce skills identified in this sub-sector:

Table 3: Scarce Skills Leather Sub-sector

OFO Code	Scarce Skills
• 652204	• Patternmaker
• 715302	• • Clothing, Textile and Leather Goods Production Operator / Production overseer
• 214104	• Production Engineering Technologist / Leather technologist
• 684901	• Clothing, Footwear and Leather Processing Machine Mechanic / Sewing machinist
• 653301	• Industrial Machinery Mechanic / Machine mechanic

Textiles sub-sector employs more people in elementary occupations (37%) followed by Plant and Machine Operators and Assemblers with a representivity of 33%. These are the scarce skills that are applicable in this sub-sector:

Table 4: Scarce Skills Textiles Sub-sector

OFO Code	Scarce Skills
• 715302	• Clothing, Textile and Leather Goods Production Operator / Machinist

Furniture sub-sector employs more people in elementary occupations (34%) followed by Plant and Machine Operators and Assemblers with a representivity of 21%. Skilled Agricultural, Forestry, Fishery, Craft and Related Trades Workers make up 20% of employees in the sub-sector. The following are the scarce skills unverified in the sub-sector:

Table 5: Scarce Skills Furniture Sub-sector

OFO Code	Scarce Skills
• 682303	• Wood machinist
• 721901	• Product Assembler / Wood finisher

The **publishing** sub-sector tends to employ high level skills with professionals at 36%, Clerical Support Workers (20%), Technicians and Associate Professionals (13%) and managers at 12%. The table below outlines the scarce skills in the sub-sector:

Table 6: Scarce Skills Publishing Sub-sector

OFO Code	Scarce Skills
• 264102	• Book or Script Editor / African languages editor
• 264201	• Copywriter / Copy editor

OFO Code	Scarce Skills
• 264302	• Translator
• 134917	• Publisher / Commissioning editor
• 216602	• Illustrator / Book designer

Skilled Agricultural, Forestry, Fishery, Craft and Related Trades Workers has the highest representivity in the **printing** sub-sector at 31% followed by Plant And Machine Operators and Assemblers at 14%. Clerical Support Workers and Elementary Occupations each have a 13% representivity. The scarce skills within this sub-sector are:

Table 7: Scarce Skills Printing Sub-sector

OFO Code	Scarce Skills
• 333903	• Sales Representative (Business Services) / Estimator
• 241102	• Management accountant
• 662303	• Mechanized book binder
• 662101	• Electronic Pre-press Technical Worker / Pre-press operators / technicians
• 432201	• Production Coordinator / Production planner
• 671202	• Millwright / Printers mechanic
• 662208	• Roll Label Machine Technician / Flexographic machine minder

In the **print media** sub-sector, there is a high representivity of Plant and Machine Operators and Assemblers (20%). Clerical Support Workers and professionals feature prominently at 18% and 17% respectively. Areas of scarcity of skills are in the following occupations:

Table 8: Scarce Skills Print Media Sub-sector

OFO Code	Scarce Skills
• 264202	• Newspaper or Periodical Editor / Editor
• 134915	• Operations Manager (Non-Manufacturing) / Operations Manager
• 216603	• Multimedia designer

The **packaging** sub-sector has a high proportion of Plant and Machine Operators and Assemblers (47%) followed by elementary occupations with a representivity of 22%. The table below identifies the scarce skills in the sub-sector:

Table 9: Scarce Skills Packaging Sub-sector

OFO Code	Scarce Skills
• 216302	• Industrial Designer / Structural designer
• 122301	• Research and Development Manager / New product developer
• 121908	• Quality Systems Manager / Quality controller

The **paper and pulp** sub-sector has a high representivity of Plant and Machine Operators and Assemblers (34%) followed by elementary occupations with a representivity of 20%. The scarce skills identified include:

Table 10: Scarce Skills Pulp and Paper Sub-sector

OFO Code	Scarce Skills
• 313913	• Bio-refinery specialist
• 131102	• Production / operations manager
• 313102	• Fossil Power Plant Process Technician
• 325701	• Environmental and Occupational Health Inspector / Environmental Practices Inspector
• 216302	• Industrial Designer / Design and Manufacturing Draftsperson
• 651202	• Coded welders
• 213203	• Wood scientists
• 313301	• Chemical Plant Controller / Plant controller
• 717102	• Paper and Pulp Mill Operator / Mill operator
• 214501	• Chemical engineer
• 214101	• Industrial Engineer / Process engineer

The **wood products** sub-sector employs more people in elementary occupations (46%) followed by Plant and Machine Operators and Assemblers with a representivity of 22%. The following are the scarce skills unverified in the sub-sector:

Table 11: Scarce Skills Wood Products Sub-sector

OFO Code	Scarce Skills
• 652403	• Saw Maker and Repairer / Saw doctor

OFO Code	Scarce Skills
• 214103	• Production Engineer / Wood products engineer
• 717201	• Wood Processing Machine Operator / Grader / analyser

Forestry sub-sector employs more people in elementary occupations (64%) followed by Plant and Machine Operators and Assemblers with a representivity of 14%. These are the scarce skills applicable in the sub-sector:

Table 12: Scarce Skills Forestry Sub-sector

OFO Code	Scarce Skills
• 213203	• Forest scientist / Geneticist (foresters)

General goods sub-sector employs more people in elementary occupations (75%) followed by Plant and Machine Operators and Assemblers with a representivity of 12%. There was not enough participation input to validate information about scarce skills in this sub-sector.

1.7 Critical Skills

Critical skills refer to “top-up” skills within an occupation. These can include cognitive skills, such as problem solving, language and literacy skills. These “top-up” skills can be specific to a particular occupation resulting in skills gaps which might arise because of phenomena such as improved technologies or new forms of work organisation. All FP&MSETA sub-sectors report investments in new technology, and training new staff to use such technology is therefore a key critical skills driver for the sector. Similarly, managers are required to lead the sub-sector in new business directions, to achieve the industrial restructuring required. Managers are therefore also an important focus for critical skills development. Many sub-sectors are competing in a global arena currently, and improved labour productivity is becoming an increasing priority. This too is a major critical skills driver. With regards to the critical skills, the following list was identified:

Table 13: Critical Skill

Sub-Sectors	Critical Skills
Relevant to all sectors	<ul style="list-style-type: none"> • Coaching • Mentoring • Problem solving • Literacy and numeracy skills • Sales and marketing • SMME management skills

Sub-Sectors	Critical Skills
	<ul style="list-style-type: none"> • Information technology expertise • Supervisory / team leadership / junior management skills • Technicians – outcomes aligned to specific industries • Technologists – outcomes aligned to specific industries • Production planning – outcomes aligned to specific industries • Lean manufacturing • Operations management
Clothing	<ul style="list-style-type: none"> • Patternmaking • Supervisory / team leader investigate TRACE
Forestry	<ul style="list-style-type: none"> • Saw doctors – artisan skills • Truck drivers – specialized driving (terrain difficulty)
Furniture	<ul style="list-style-type: none"> • Upholstery skills • Production management • Furniture design • CNC machinery operation
Leather	<ul style="list-style-type: none"> • Leather cutting
Packaging	<ul style="list-style-type: none"> • Trades – outcomes aligned to specific need • Technical machine operator – various outcomes
Printing	<ul style="list-style-type: none"> • Estimating • Supervisory, business process, - 20 keys as background
Print Media	<ul style="list-style-type: none"> • Graphic design– software specific
Publishing	<ul style="list-style-type: none"> • Project management specific to publishing
Textiles	<ul style="list-style-type: none"> • Finishing – but this is different in the future with the changes and the legislation that is changing – future skills • Design and innovation
General Goods	<p><i>Not enough participation input to validate information</i></p>

It has been noted that the larger firms have greater demand in the replacement of management skills. The rationale behind this critical skills demand is that there is a greater structure to populate than in the SMME environment, where it is mostly owner managed. The management skills should also be aligned to world-class manufacturing (WCM) standards, which make the skill sets even more unobtainable.

Skills shortages are typically addressed through the internal promotion and development structures in the larger organisations, which is a great difficulty within the smaller organisations. It is seen as a priority within companies to establish more accurate career-patching to address critical skills shortages within their structure. The career-pathing strategy is again implemented more easily within bigger structures and manager-owned structures struggle to find development paths within their smaller structures.

There is also the issue that the larger companies offer better opportunities for career development and remuneration. This is a concern that is faced by most sub-sectors in South Africa and it is felt that there should be a focus on addressing critical skills for SMME companies. This is however a 'quid pro quo' relationship, with SMMEs also needed to participate in the WSP submission and sub-sector strategies.

It has further been raised by industry stakeholders that Health and Safety compliance is an area of concern, with specific reference being made to the SHEQ officer position. This does however fall outside the scope of the FP&M SETA and is a legislative requirement that needs to be adhered to by each organisation. The grant system does not cover this aspect of training and development.

The trades within each sub-sector were mentioned continuously and it seems that this could be an area of focus for the sector. The focus on trades has been discussed under various SETA's and it is known that this aspect is a concerning factor for multiple industries. It is felt by the sub-sector role-players that if there was a focus on the intake to trades there would be better career-pathing opportunities and skills exchange. Artisans of various trades should be an area where sub-sector and the FP&M SETA focus their efforts in a collaborative approach to skills development and retention in the sub-sector.

