



# POLICY BRIEF

## Approaches and methods for understanding scarce skills occupations in South Africa

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### Introduction

This policy brief emerges from the report, *Approaches and Methods for Understanding Scarce Skills Occupations in South Africa* (Powell, Reddy & Paterson, 2014)<sup>1</sup> and proposes a methodology for estimating scarce skills occupations.

The issue of skills shortages, scarce skills, and occupations in high demand (OIHD) is discussed extensively in the policy arena and the media. Skills shortages are a constraint on business operations, causing bottlenecks in production and difficulties in service delivery. While we all recognise that there are skills shortages, we must improve our strategic intelligence about the nature and extent of skills shortages, and on how government can work with its partners, especially education and training providers, to respond to these skills needs.

Estimating skills shortages is a complex and sometimes confusing process. Part of the problem relates to the terminology associated with this concept: terms like 'scarce skills occupations', 'skills shortages' and 'occupations in high demand' are used interchangeably (see Powell et al., 2014: 10). The challenge is to provide a credible and appropriate methodology for collecting and analysing data in order to estimate occupations where there are insufficient skilled people to meet labour market demands, that is, scarce skills occupations.

This policy brief will begin by providing the rationale for generating a scarce skills list and by articulating the factors that contribute to these skills shortages. We then review the experiences of a few countries which have undertaken analysis so as to generate and publish a list of scarce skills or occupations in high demand, as well as review the South African experience in estimating scarce skills. We conclude by proposing a systematic approach for identifying the scarce skills occupations for South Africa.

<sup>1</sup> Powell, M., Reddy, V. & Paterson, A. (2014). *Approaches and Methods for Understanding Scarce Skills Occupations in South Africa*. LMIP Report 11. Human Sciences Research Council.

## What are scarce skills, and why do we need a scarce skills list?

A **scarce skill** is defined as a situation in which the demand for a specific occupation outstrips the supply of this occupation at a specified price (or wage). The scarce skill occurs in the external labour market where people search for jobs and employers attempt to recruit the appropriately qualified person for positions which are vacant. There are different levels of scarce skills. An **absolute scarce skill** is that where a suitably qualified or skilled person is not available. Alternatively, a **relative scarce skill** refers to a situation where a suitably skilled or qualified worker is available but does not meet the criteria due to geographical location or other personal factors, such as the need to be near family.

The other definition that we need to take into account is **critical skill**. The demand for this type of skill occurs within the internal labour market of firms and is primarily concerned with the skills or competencies that workers need to perform their job in the light of recent changes in their job descriptions, or requirements or tasks that have been introduced by new technologies, innovative management practices or legislative reforms.

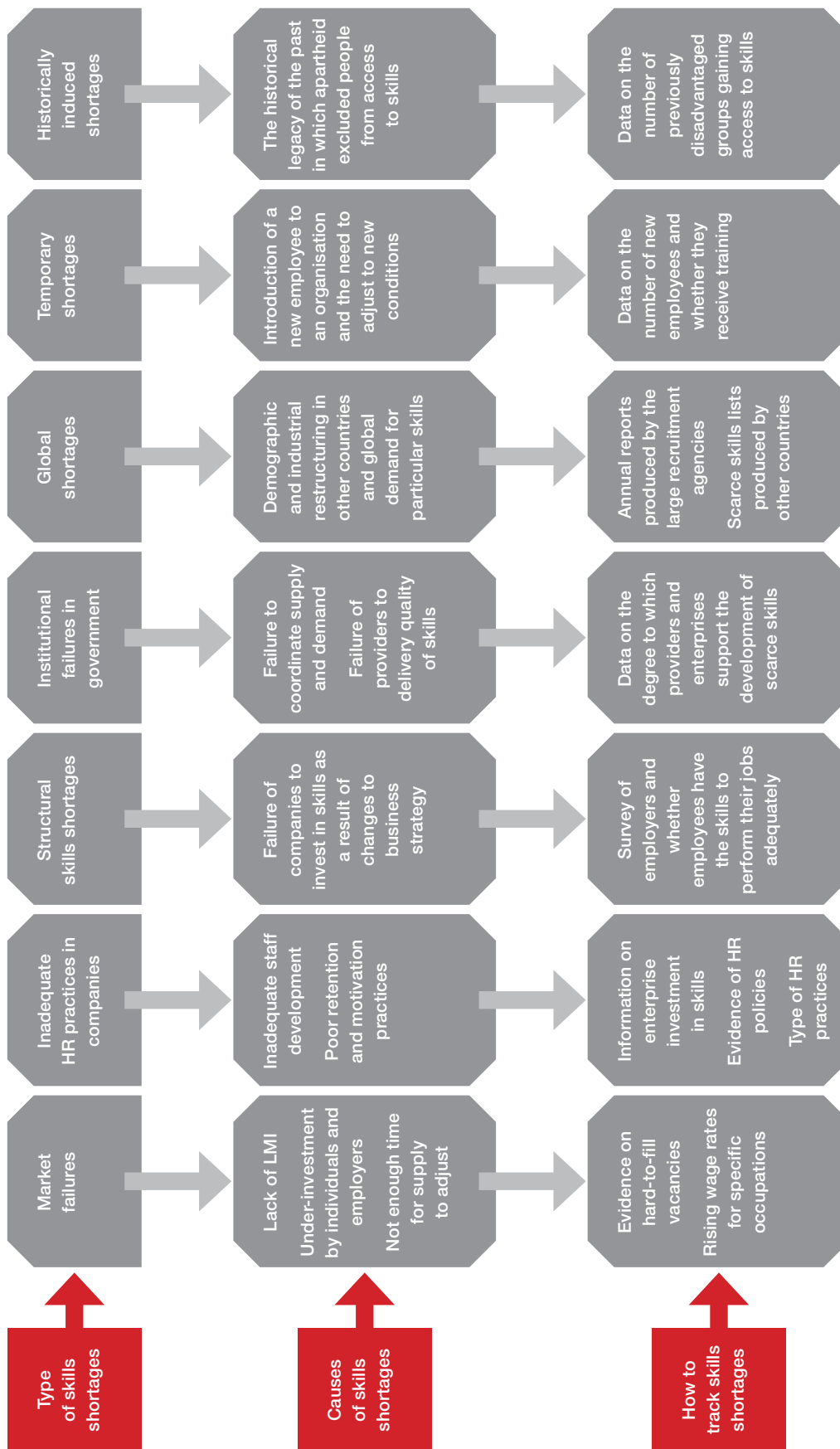
Countries conduct national skill assessments and anticipation studies to inform: (1) education policies including introducing new programmes, informing enrolment targets, updating occupational standards, and designing and revisiting training programmes, and career advisory purposes; and (2) to inform migration policies.

For South Africa, the *primary purpose* of the scarce skills list will be to support the planning processes of the Department of Higher Education and Training (DHET) with respect to the post-school education and training system, particularly in relation to enrolment planning, resource allocations, career advice and qualifications development. The list would be a useful resource for education and training institutions (universities, colleges, community colleges, and education and training providers), employer bodies and professional bodies, trade unions, and other related organisations to inform their decision-making processes (DHET, 2014). It is, however, expected that a number of other stakeholders would want to use the list for various purposes and may have to adapt it as necessary to suit their needs.

## What are the main causes of skills shortages and scarce skills?

Skills shortages stem from various complex factors across the globe. These shortages could be due to, among other reasons: market failure and not enough time for supply to adjust to demand; employer behaviour through inadequate staff development in companies; employer preferences and expectations; under-investment by firms in skills development; structural skills shortages; institutional failures in government to coordinate skills supply and demand; global demands and shortages; temporary shortages as a result of new employees; or the historical legacy of apartheid which induced shortages. Figure 1 provides a summary of the different reasons why skills shortages may occur and the ways in which they can be tracked.

Figure 1: An outline of the main issues surrounding the reasons for, and causes of, scarce skills



Source: This is a modified table. See Schwalje, W. (2012). *How skill gaps are generated by national education and skills formation systems.*

## What can we learn from how other countries identify skills shortages and scarce skills?

A review of the international literature on skills planning reveals that many countries identify skills needs largely in order to inform their immigration strategies rather than their education and training strategies. Consequently, most countries focus their efforts on identifying skills shortages and constructing a scarce skills list.

Table 1 provides a summary of the approaches used by different countries to develop their scarce skills lists (for details, see Powell, Reddy & Paterson, 2014). The countries that have been successful in constructing scarce skills lists generally have high levels of education, developed skills systems, and advanced labour market information systems.

Most countries have a single scarce skills list (except New Zealand, which has two lists, namely one for immediate shortages and another for longer-term skills shortages). Across countries, the data for establishing the scarce skills lists comes largely from labour force surveys, enterprise surveys, and interviews with employers.

## Experience and lessons from how South Africa has approached the scarce skills list

A shortage of skills has long been a feature of South Africa's economic and social landscape. One of the principal causes of persistent skills shortages has been the effects of pre-1994 apartheid government policies and the structural shifts that have occurred in the economy, that is, from being an inwardly focused economy concentrated on minerals and manufacturing to becoming a more diversified and globally oriented economy.

Given the necessity of addressing scarce skills, the government of South Africa, together with partners, has attempted to measure this concept using a number of different approaches. The first example of identifying scarce skills was the Department of Labour's (DoL) list of occupations in short supply in South Africa. Using the original Sector Skills Plans (SSPs) submitted by the sector education and training authorities (SETAs) in 2000, evidence from SSP updates and special research initiatives, the DoL compiled an indicative list of skills needs in the South African labour market. The overwhelming majority of identified skills needed occurred at the managerial, professional, technician and associate professional level. This indicative list of scarce skills was approved by the South African Cabinet as the basis for prioritising investments in skills development and implementing the Immigration Act of 2002.<sup>2</sup>

More formalised attempts to develop the scarce skills list took place under the Accelerated and Shared Growth Initiative for South Africa (ASGISA) in 2007 and its sister programme, the Joint Initiative on Priority Skills Acquisition (JIPSA), which was established to identify the causes of scarce skills and remedy the situation. Among the recommendations, five high-profile priority skills areas were identified for immediate attention:

- High-level, world-class engineering and planning skills for the 'network industries' – transport, communications, water and energy;

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<sup>2</sup> DoL (2003: 29).

Table 1: Approaches used by different countries to develop their scarce skills lists

Issue/Country	Sweden	United Kingdom	New Zealand	Australia	Canada	United States of America	Rwanda <sup>3</sup>
<b>What term is used to define scarce skills?</b>	Labour shortages/recruitment difficulties	Skills shortages and skills gaps	Immediate skills shortages and longer-term skills shortages	Skills gaps and skills shortages (both of which are used for immigration purposes)	Skills shortages and skills gaps	Skills shortages and recruitment difficulties	Occupations in demand list is defined as a list of occupations for which skills are lacking or in short supply in the labour market
<b>How many scarce skills lists exist?</b>	There is a single scarce skills list	There is a single scarce skills list	One for each of the above areas	A skills occupational list and a consolidated list	A skills list based on a points system	Skills shortages are identified	The first list was produced in 2013. There is no evidence of other lists
<b>What are the scarce skills lists used for?</b>	The scarce skills list is used for foreign workers in Sweden who are entitled to apply for jobs	The list should be used to guide how providers invest in skills programmes, but it has mainly been used for immigration visas	Different types of work visas for immigrants	The skills occupational list identifies skills areas likely to contribute to meeting medium- and longer-term goals. The other is based on skills nominated by employers	A point-based list was used for immigration. Now attempts are being made to link the list to areas of high demand	Skills shortages are identified at the national level by the Bureau of Statistics. Individual states produce their own lists and undertake their own planning	Used for foreigners seeking employment in Rwanda
<b>What methods or approaches are used to develop such lists and to track shortages?</b>	Interviews with a large section of employers in the private/public sector	Reliance on quantitative data, particularly the Labour Force Survey (LFS), employer survey and wage survey	The key method involves tracking online job advertisements with other surveys	Use of household survey data and also enterprise survey and employer vacancies	Business payroll survey, records of job vacancies, sector skills plans and various surveys	National household surveys, the LFS and enterprise surveys	Uses information provided by the National Institute of Statistics, as well as immigration and emigration statistics

3 The only information about the Rwanda occupations in demand list is to be found in a document at [http://www.migration.gov.rw/fileadmin/templates/PDF\\_files/permits/INSTRUCTIONS\\_ODL\\_FIN.pdf](http://www.migration.gov.rw/fileadmin/templates/PDF_files/permits/INSTRUCTIONS_ODL_FIN.pdf).

- City, urban and regional planning and engineering skills;
- Artisanal and technical skills, with priority attention devoted to infrastructure development, housing and energy, and in other areas identified as being in high demand in the labour market;
- Management and planning skills in education and health; and
- Mathematics, science and language competence in public schooling.<sup>4</sup>

Arising out of the renewed efforts driven by JIPSA, scarce skills identification was given prominence. The first formal, **National Master Scarce Skills List for South Africa**, produced by the Ministry of Labour, identified a list of skills that impact on economic growth and development.<sup>5</sup>

The National Master Scarce Skills List was prepared by using relevant data from SETA SSPs. Contributions were received from several other government departments, including Home Affairs and the Departments of Trade and Industry, Public Enterprises, and Science and Technology. Additional data obtained from other government departments was used to validate the scarcities identified in the SETA SSPs.

**The Department of Home Affairs has also produced a scarce skills list.** Before 2005, for a skilled immigrant to enter the country, the Department of Home Affairs only required proof that she or he possessed a particular skill set, which could include: '(a) ... an undergraduate degree and several years of experience, (b) a postgraduate degree with fewer years of experience, or (c) an entrepreneur that had demonstrated capacity over a given period of time'.

New legislation was implemented to pave the way for granting immigrants with *particular* occupational qualifications and skills special exemption from normal immigrant requirements in terms of the Immigration Act of 2002 and the Immigration Amendment Act of 2004. The enactment of this legislation provided direct evidence that, in the preceding years, skills shortages had become a matter of concern sufficient to resort to immigration as one means of addressing the shortages. Consequently, the Department of Home Affairs was in a position to publish a list of 'scarce and critical skills' in February 2006 in the *Government Gazette*, including a quota for each occupation included in the list.

In 2010, the DHET (Skills Branch) compiled a list of scarce and critical skills based on the aggregation of information from SSPs. The list was not published owing to problems associated with validity, relevance and data quality. In 2011, a scarce skills list was compiled by the DHET. However, none of the SSPs had been approved, so the list was not regarded as credible. In 2012, the DHET again compiled a scarce skills list. DHET branches had provided inputs to construct this list. The list has been published on the website as a 'demand' list. In the feedback, the DHET branches noted the list needed: (1) greater alignment with government targets, (2) clarity on definitional issues, and (3) greater comprehensiveness.<sup>6</sup>

In February 2014, the DHET gazetted its first **List of Occupations in High Demand**<sup>7</sup> in response to continued requests from social partners once the DoL ceased producing a scarce skills list after 2009. This list was constructed from a number of data sources and stakeholder consultations. The primary purpose of the List of Occupations in High Demand is to support the planning processes of the DHET with respect to the post-school education and training system, particularly in relation to enrolment planning, resource allocations, career advice, and qualifications development.

4 South African–German Development Co-operation. (October 2007). National Skills Authority: Briefing Paper – First Economy. Commissioned by the DoL and the GTZ, p. 9.

5 [www.skillsportal.co.za/download.../NSDS-Scarce\\_Skills\\_List\\_2007.doc](http://www.skillsportal.co.za/download.../NSDS-Scarce_Skills_List_2007.doc).

6 Communication from H. Narsee, DHET.

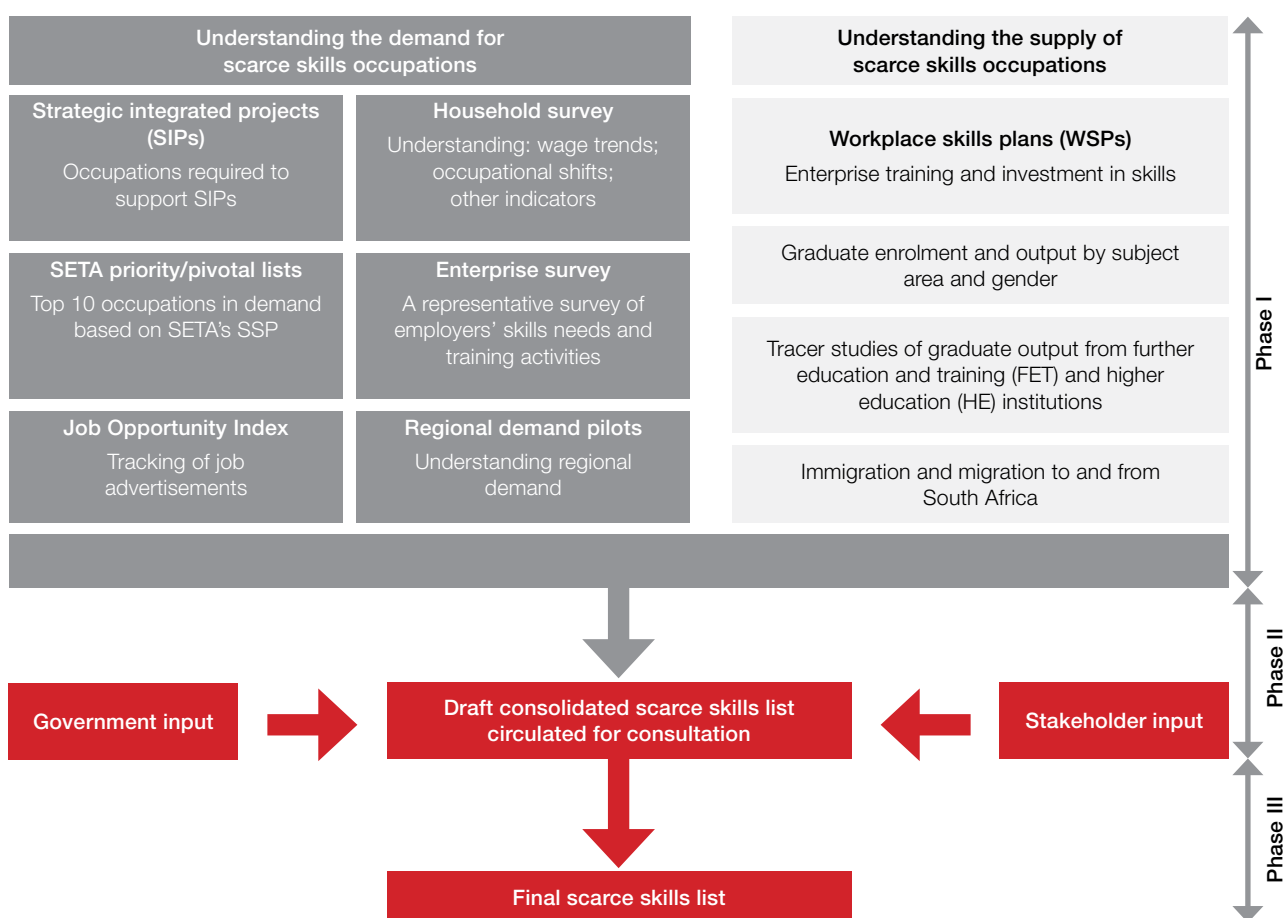
7 List of Occupations in High Demand 2014. No. 38174 Government Gazette, 4 November 2014.

## Developing a more systematic approach for identifying scarce skills occupations

The evidence presented in the preceding sections shows that it will be important for South Africa to build on the lessons of the past as well as the experience of other countries when constructing their scarce skills list. Any new list for guiding education and training investments in scarce skills occupations must be transparent, and employers and stakeholders must play an active role in this process.

The process for developing the scarce skills list involves three interconnected phases. Each of these phases will have a number of specific activities (see Figure 2).

Figure 2: An outline of the main phases in the collection and analysis of data to produce the scarce skills list<sup>8</sup>



**Phase I** involves understanding the nature of the demand for, and supply of, skills, thereby providing the basis for producing the draft scarce skills list. The details of the kinds of information to be collected appear in Table 2. The first column refers to the source or method that will be used to collect the data. The type of data that will be required and the calculation to develop the indicators are shown in the second and third columns. Each of these indicators will provide a measure of the relative demand for skills in South Africa. Once the indicators have been produced, it will be possible to provide signals on the relative skills demand and supply for different occupations. This will serve as the basis for putting together the draft scarce skills list.

<sup>8</sup> Workplace Skills Plans (WSPs) could provide both supply and demand information.

**Table 2: An outline of the data sources and calculations to produce indicators that will form an index to measure scarce skills occupations**

Data sources and collection methods	What data is required?	Calculations required to develop indicators	What will the indicator measure?
<b>Global surveys of scarce skills</b>	Global talent lists or indices produced to indicate what occupations are in demand across the globe	Only broad data will be available on the demand for occupations	The indicator will help understand the global demand for skills
<b>Household or Labour Force Survey</b>	Occupational structure of labour force  Numbers employed and unemployed  Wage levels of people in different occupations	Absolute growth in employment by occupation/ industry over last 5 years  Changes in the relative share of occupations to employment and unemployment  Top 20 fastest-growing occupations in past 5 years  Changes in the wage level by occupation and sector	These measures provide an indicator of the volume of demand for a specific occupation at the national level  The wage indicators help understand where price rises occur due to a perceived increase in demand for an occupation
<b>Employer-based survey</b>	Response to questions about hard-to-fill vacancies and also vacancies, as well as turnover	Analysis of hard-to-fill vacancies  Analysis of hard-to-fill vacancies as a percentage of total employed  Analysis of turnover  Top 20 occupations with highest number of job openings	Provides an indication of imbalances in the labour market at the national level for specific occupations
<b>SETA pivotal list</b>	Data collected from SETA SSPs	Analysis of hard-to-fill vacancies  Analysis of hard-to-fill vacancies as a percentage of total employed	Provides an indication of imbalances in the labour market at the sector level for specific occupations
<b>Job Opportunity Index (JOI)</b>	Data collected on vacancies and also on hard-to-fill vacancies	Analysis of hard-to-fill vacancies	Provides an indication of imbalances in the labour market at the national and sector levels
<b>Regional demand pilots</b>	Data on hard-to-fill vacancies at the regional level	Analysis of hard-to-fill vacancies	Provides an indication of imbalances in the regional labour market
<b>WSPs and Annual Training Reports</b>	Data on training by firms	Analysis of employer commitment to train in specific occupational areas	Provides an indication of the volume of skill formation in the workplace
<b>HE/FET levels (HEMIS)</b>	Data on enrolment levels and graduation by subject area	Analysis of graduate completion rates in specific subject areas	Provides an indication of the volume of skill formation among formal providers
<b>Special government growth strategies</b>  <b>Information from NCAP</b>	Identification of government growth strategies (e.g. SIPs, SKA)  Information on occupations required for each project, and, of these, of occupations that are hard to fill	Occupational breakdown for prototype of each project over time and estimation of which occupations are hard to fill  List of planned projects against which prototypes can be compared and estimation of skills for all projects/plans	Priority occupations for government's growth strategies



Lessons from other countries have illustrated the significance of consultation and the role played by the government in producing the final scarce skills lists. In **Phase II**, the draft scarce skills list will be circulated to employers, SETAs and other stakeholders for consultation. These groups will be provided with the opportunity to propose exclusion or inclusion of an occupation, provided that they have hard evidence to validate their reasons for changing the list.

**Phase III** involves the final confirmation of the scarce skills list, both in the immediate or short term and also over the medium term. The responsibility for the finalisation of this list will rest with the Skills Planning Unit (SPU) in the DHET, which should comprise representatives from employers and professional groups, trade unions, and key government departments.

## Conclusion

Challenges of occupational shortages continue to be pervasive in the country and have negative results on economic growth. It is therefore important that policy-makers have a clear understanding of the extent and nature of skills shortages. This policy brief attempted to unpack the complexities surrounding the methods and approaches that can be used to understand scarce skills occupations, and subsequently developed a systematic approach for moving forward.

A number of lessons can be drawn from implementation experiences of higher-income countries, particularly around how they construct and use scarce skills and OIHD lists for regulating immigration. One key finding is that many of the countries identify skills needs largely in order to inform their immigration strategies rather than their education and training strategies. Secondly, various tools are used for these assessment exercises to signal relative demand and supply for different occupations. It would thus be naïve to assume that models or approaches used in high-income countries can be simply transferred and used in the context of South Africa. The solution for South Africa will have to be built on existing institutional structures and the unique circumstances and constraints facing South Africa.

This policy brief has proposed a methodology for identifying scarce skills occupations, building on existing structures and data-collection methods in South Africa. This is, however, an ambitious methodological approach that involves a number of stages and processes. Key to each of these stages and processes is extensive consultation. There are a number of dilemmas facing policy-makers before moving forward with implementation of the proposed methodology. Firstly, in an attempt to be cohesive and comprehensive, this proposed methodology has encompassed most of the structures and processes involved in labour market analysis in South Africa. With such a cohesive and complex methodology, it is equally important to establish whether it is sustainable and capable of being implemented within the present capacity constraints.

The proposed methodology will be resource-intensive and the government must provide the budget to develop and build the necessary structure and capacity to support effective implementation. The second, and perhaps equally contentious issue, is the importance of consultation and buy-in from stakeholders. Given South Africa's history, the significance of consultation cannot be underestimated. However, this process must be carefully managed.

Finally, it is also important to note that the process of determining a scarce skills list is not a totally scientific process. The experience of other countries highlighted that scarce skills lists were used to inform and support political decision-making processes. Thus government will need to take the lead in this process and prioritise this activity.



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