# INVESTIGATING A TOOL FOR MODELLING THE SUPPLY-SIDE PROFILE OF SOUTH AFRICA'S BUILT ENVIRONMENT PROFESSIONALS (BEPs)

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**Purpose of this paper -** This paper seeks to investigate the supply-side of Built Environment Professionals (BEP) in South Africa and proposes a model for capturing BEP supply-side data.

**Methodology -** A desktop study was carried out to review the status of the supply-side pipeline of the BEPs. In this regard, statistical data on mathematics and science pass-rates; tertiary enrolment and graduation trends of built environment (BE) courses; registration; and graduate output data was requested from the Department of Education (DoE), the Higher Education Institutions(HEI), and the six statutory BE councils, and also retrieved from the Labour Force Survey (LFS). The data, covering a period of five years, was analysed on the basis of race, gender, age, province, profession, qualification type and category of registration to model the entire supply-chain of the BEPs (i.e. from secondary school to the job market).

**Findings -** The study reveals several gaps/conflicting information with regards to the nature of data, namely:

- The statutory councils are inconsistent in capturing time-series and demographic data and also fail to capture data on international and national migration;
- There seems to be little correlation between graduation data provided by the HEI and the numbers of registrations in the candidate categories of each of the statutory councils; and
- The LFS does not explicitly capture data on all six BE professions.

This paper argues that the above- listed problems could be minimised if all data sources were to use the same format to capture quantitative data on South Africa's BEPs.

**Value -** The implementation of the proposed data-capturing model could:

- Help create a database which could be continuously monitored and updated, as well as provide a supply-side profile of each BE profession which may be utilized by stakeholders for a variety of purposes including strategic planning; and
- Provide policy-makers with a better tool to monitor and evaluate the impact of policy interventions in the professions.
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**Keywords:** Data capturing, built environment professions, supply-side profile, South Africa.

## 1. BACKGROUND SUMMARY

The construction and infrastructure sector are generally recognised as the main role players in the South African economy. For example, the deputy-president of South Africa, and head of Joint Initiative on Priority Skills Acquisition (JIPSA,2006) task team, Mrs Phumzile Mlambo-Ngcuka, recently argued that the "massive infrastructure programs of about R400 billion necessitate the use of appropriate skills in order to create jobs and end poverty in South Africa". In other words, adequate skills are required for the successful implementation of high-end technology projects. The JIPSA joint task team further notes that: industry is experiencing skills shortage with regard to managerial, professional, technological and technical fields. Because of this, the JIPSA-joint task team has set a target of 1000 additional graduates' to a total of 2400 of professional engineers per year for the next four years, the majority of these being electrical, mechanical and chemical engineers. The JIPSA task team also suggest an increase of 35% of architects and 65% quantity Surveyors to keep pace with the expected long term construction phase (JIPSA,March 2006). The public release from Council of the Built Environment (CBE, 2006) on 8 June 2007 also confirms the need to increase Gross Domestic Product (GDP) by 6% role of BE profession in meeting SA economic development needs for the targeted period 2004-2009.

The construction industry therefore is obliged to promote, increase professional skills that can deliver high technology projects and meet the targets set out by Accelerative Shared Growth Initiative for South Africa (ASGISA). The need to determine current professional skills trends is required to indicate any progress made to meet the target set for 2009 . The Centre for Development and Enterprise (CDE), when informing the South African policy in regards to proceedings of the workshop in addressing skills; has highlighted that Government programme of action in an attempt to address capacity constraints. The Governance and Administration Cluster in the cabinet has initiated four major sub-programmes aimed at assessing the skills shortage in the public sector piloted by Department of Public Service Administration (DPSA), Department of Justice (DOJ) and Department of Trade and Industry to be implemented through the rest of Government(Amanda Jisting, skills revolution 2007).This background forms the basis for narrowing the focus of the study with the aim to review and develop a comprehensive capturing tool that will assist in analysing correlation between HEI and Industry data base of professional skills development output in South Africa.

## 2. INTRODUCTION

The emphasis on the shortage of BEP's in South Africa requires an understanding how data is captured to quantify and qualify perceived skills shortages. The need to verify whether data capturing methods are accurate, and implementation to develop strategies aimed to improve methods of data capturing. A strategic approach to investigate the professional skills within sources that capture information relating to BEP's was engaged for this paper. The data collection and assessments approach from official sources is expected to determine any shortage and appropriate interventions.

This study mainly focuses on the collection of enrolment information from official sources, such as DoE, HEI and BE Statutory Professional Councils. It has been considered that unregistered BEP's are not captured in the statutory council's data base. However if not registered in terms of the relevant Built Environment Professions Act 43 of 2000 might not perform any kind of work identified for any category of registered persons, but persons are allowed to perform identified work if such work is performed in the service of, or by order of and under the direction, control,

supervision of or in association with a registered peer entitled to perform the work identified and who must assume responsibility for any work so performed.

To ascertain people practising within the sector but not registered with statutory BE councils, review of Statistic SA Labour Force Survey data to investigate on occupation and industry classification.

The BEP's are mandated by law to register within BE statutory professional council to promote legal and competent practise to the public. BE sector in this respect requires to establish a pool for both of registered and unregistered professionals.

**Reviewing establishment and trends in the BE sector.**

The establishment of CBE sector governed by Act No 43 of 2000 in November, reflecting six statutory professional councils, namely:

1. South African Council for the Architectural Profession (SACAP), established by the Architectural Profession Act 44, 2000;
2. South African Council for the Project and Construction Management Professions (SACPCMP), established by the Project and Construction Management Professions Act 48, 2000;
3. Engineering Council of South Africa (ECSA), established by the Engineering Profession Act 46, 2000;
4. South African Council for the Landscape Architectural Profession (SALCAP), established by the Landscape Architectural Profession Act 45, 2000;
5. (South African Council for the Property Values Profession (SACPVP), established by the Property Values Profession Act 47, 2000; and
6. South African Council for the Quantity Surveying Profession(SACQSP), established by the Quantity Surveying Profession Act 49, 2000;

All six statutory councils are mandated by law (Act 19, 27 Gov Gazette) to administer professional registration and promote codes of conducts within the profession in order to assist stakeholders with any concerns or constrains arising within the industry particular to skills shortage and transformation equity issues. The council's data base, therefore, should determine the possibility of meeting targeted ratios and government transformation plans. All data obtained should describe the supply-side of BE professional skills in South Africa by determining the quantity and capacity of professional skills by demographics and migration patterns. A prediction for future skills requirements should be determined by using indicators from data obtained in previous years. When designing the data base for capturing professionals, consideration should be taken in regards to supply, available in the data base and out side the data base.

The primarily focus in investigating the tool for modelling the supply-side was to discover the initial establishment growth potential from secondary schools level using metric results outputs for learners who passed maths and science with at least symbol C. The focus in these particular two subjects was influenced by their requirements in setting-out the criterion for entering University in the Engineering and BE faculties. An assessment to matriculates who did not obtain exemption but passed who may enrol in career preparation programs with HEI was also reviewed from DoE data.

The data base for tertiary institution level from first year of enrolment to the graduation output level was reviewed. This assessment will assist in identifying the number of students who enrol in the BE faculty in each year and the use of graduate out put ratio in each year will reveal any drop outs that occurs in each year. The graduates out put enrolments will assist in determining numbers of graduates who enters the sector or who do not register with statutory council annually.

Data assessment proceeded with statutory BEP councils, investigating the existing capacity and quantity of professionals by demographics and categories of registering. Investigation of professional categories was to determine skills capacity at different levels. Data assessments also review academic registration requirements to investigate any constraints and impediments that may result in graduates not to register with professional councils. Further attempt to map the BEP's movements nationally and internationally was reviewed.

The unobtainable data from official sources on unregistered professionals within the sector was reviewed using bi-annual LFS obtained from Statistics SA reviewing:

- BE Occupational Classification.
- BE Industry classification.

High quality emphasis were implemented for consistency of information, accuracy and expertise of codes of conduct in obtaining the correct information were exercised. Data collection at initial attempt was stimulant and challenging in regards to hypothesis of relevancy for the study requirements as the sources capture their information in their manor. The diverse administrative irrelevance resulted in highlighting the specific data required for this paper.

## 3. DATA REQUEST FROM THE SOURCES

**1.BE Professional Council data requirements:**

- Annual data for each year 2002-2007
- Registration category
- Registration requirement per category
- Race break down
- Gender break down
- Province break down
- Age break down

**2.Higher Education Institution data requirements**

First year enrolment data broken by:

- Annual data for each years 2002-2007
- Institution name
- Faculty name
- Number of first year enrolments broken by
- Built Environment profession
- Built Environment qualification
- Gender breakdown
- Race breakdown

Graduates enrolments broken by:

- Built Environment profession
- Built Environment qualification
- Gender breakdown
- Race breakdown

**3. Secondary Schools Data:**

- Annual Data for each year 2002-2007
- Gender Breakdown
- Race Breakdown
- Provincial Breakdown
- Subjects Wrote
- Number of Passed

There were irregularities and mismatch on data received from some sources therefore a template was design to illustrate the capturing format for the research requirements as to prevent any imperfect match and irregularities that disabled the assessments to review BEP skills pipeline .

The templates issued to the courses are shown in tables 1, 2 and 3 below:

**Template For matriculates in Mathematics and Science from: Year 2002 -2007**

| EXAMINATION DATE | PROVINCE | RACE | GENDER | NO ENTERED EXAMS | ACTUALY WROTE | PASS WITH ENDORSEMENT | TOTAL PASS | PASS PERCENT |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

**Table 1: Template for Data requested from DOE**

**Template for Higher Education Institution enrolment and graduate out put from :2002-2007**

| PROFESION | N.DIP | B.TECH | M.TECH | BACH.DEG | HONOURS | MASTERD | DOCTRATE | OTHERS | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| **Quantity Surveying** | | | | | | | | | |
| **Gender:** | | | | | | | | | |
| **Male** | | | | | | | | | |
| **Female** | | | | | | | | | |
| **Race:** | | | | | | | | | |
| **Black** | | | | | | | | | |
| **White** | | | | | | | | | |
| **Coloured** | | | | | | | | | |
| **Asian** | | | | | | | | | |
| **Architect** | | | | | | | | | |
| **Gender:** | | | | | | | | | |
| **Male** | | | | | | | | | |
| **Female** | | | | | | | | | |
| **Race:** | | | | | | | | | |
| **Black** | | | | | | | | | |
| **White** | | | | | | | | | |
| **Coloured** | | | | | | | | | |
| **Asian** | | | | | | | | | |
| | | | | | | | | | |
| **Landscape** | | | | | | | | | |

| Architect | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Gender: | | | | | | | | | |
| Male | | | | | | | | | |
| Female | | | | | | | | | |

**Table 2:**

**Template for Statutory Built Environment Councils:2002-2007**

| Registration Category | Black | White | Coloured | Asian | Other | GAU | KZN | EC | FS | MPM | NC | WC | NP | NW | Other | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CANDIDATE: | | | | | | | | | | | | | | | | |
| Candidate Arch Technologist | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |
| Female | | | | | | | | | | | | | | | | |
| Candidate Snr Arch Technologist | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |
| Female | | | | | | | | | | | | | | | | |
| NON – PRACTISING: | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |
| Female | | | | | | | | | | | | | | | | |
| PROFESSIONAL: | | | | | | | | | | | | | | | | |
| Pr Arch Technologist | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |
| Female | | | | | | | | | | | | | | | | |
| Pr Arch Draughtperson | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |
| Female | | | | | | | | | | | | | | | | |
| Pr Snr Arch Technologist | | | | | | | | | | | | | | | | |
| Male | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Female** | | | | | | | | | | | | | | | | |
| **Professional Architect** | | | | | | | | | | | | | | | | |

**Table 3: Template from Statutory as applied to: SACAP 2002**

## 4. KEY FINDINGS OF PROGRESS ACTION ON BEP'S DATA ASSESSMENTS

### 4.1 DOE data base

The first attempts on data obtained contained numerical, administrative errors and some sources never forwarded their data. A second attempt was engaged; requesting official sources to submit their data for the study requirements. Data was received and assessments done to all information highlighted from data requirement. There were constrains discovered that might have prevented graduates to register with professional councils. First instance is the diversity criteria in accreditation of degrees by the Higher Education Qualification Council (HEQC) and BE statutory councils evaluated before 2000 in universities and universities of technology by SAQA act of 1995. This means there are courses provided by HEI but do not promote professional development in the sector or either lead to register with professional councils.

Second instance assessments on data received from DoE on Secondary Schools do not specify the names of the subjects wrote by learners. The interest in reviewing maths and science output ratios and trends could not be achieved. Data only identify the matriculates: who failed, pass with endorsements and pass without endorsement. The data received do not have the gender and race break-down to assists analysis of transformation trends. The data provided from DoE for HEI do not have number of students but ratios where the derivatives are not described and determined because of the absence of key legend. Data contains distinctive names for courses not classified according to faculties and therefore impact to match these courses under BE faculties could not be reached. The alternative attempt was to assess and analyse data from the Human Science Research Council (HSRC) to investigating the supply side. HSRC accessible data do not meet all the requirements of the study, data from 2003 to 2007 is not accessible. The data is classified by historical disadvantaged and historically advantaged institution and is not explicitly defined in terms of faculty names only state "engineering faculty" which might not fall under BE sector. These constrains therefore lead to the collection of data direct from all HEI that offer BE courses and Engineering courses.

### 4.2 HEI data collection and assessment

The requisition letter accompanied by designed template was provided to all HEI with BE faculty. There were delays in obtaining data; some HEI never forwarded their data. The data received from most sources meet requirements and other data have gaps meaning there is out standing information from data submitted. The assessment on data collection is as follows:

**Assessment summary of data obtained on both HEI and Professional Councils Data**

**Key Legend**

Green means data meet all requirements.

Blue means data means some requirements.

Red means data does not meet requirements/ Data was not received.

**Assessment summary of data obtained from HEI:**

| Tertiary Institutions data received | Race/Gender | Years | Enroll /Grad | Qualification | BEP discipline | Notes |
|---|---|---|---|---|---|---|
| University of Pretoria | | | | | | Data meets requirements. |
| University of Cape Town | | | | | | Data meets requirements. |
| University of Kwazulu Natal | | | | | | Data meets requirements. |
| Cape Peninsula University of Technology | | | | | | Data meets requirements. |
| Vaal University of Technology | | | | | | Data meets the requirements |
| Central University of Technology. | | | | | | Data meets the requirements. |
| Walter Sisulu University of Technology. | | | | | | B-Tech is not offered in this institution.<br>No further follow up. |
| University of Free State | | | | | | Data received is from 2004-2007.<br>No further follow up. |
| Tshwane University of Technology | | | | | | Data received is for Enrolments and Building studies only.<br>Awaiting for Graduation and Architecture data. |
| University of North West | | | | | | Discussed data request again on 06/11/2007.<br>Awaiting data. |
| University of South Africa | | | | | | Awaiting data.<br>Following up with the institution. |

**Table 4 HEI data**

### 4.3 BE statutory council's data collection and assessment

The data collection and assessment for current available professional skills from statutory council's registrations candidate and professional categories was reviewed. This approach describes the quantity and capacity of professional skills revolution trends in each year. The data focuses in the collection of information with regards to study requirements referred to statutory council data requirements. A narrow focus to analyse predominant aging of skills to assist reviewing mentorship programme implemented by DPW in replacing aging and transfer of skills. Professional councils could not provide age information hence identity numbers are captured when registering.

The attempt to review programmes set to overcome skills shortage such as internship programmes, mentorship programmes could not be reach.

**Below is the assessment summary report for data received from Statutory BE professional Councils:**

| Professional Councils data received | Year | Qualification | Race/Gender | Category | Province | Notes |
|---|---|---|---|---|---|---|
| Architects | | | | | | No data 2002 – 2004;<br>2005/6 is combined (Snapshoot).<br>No race and gender interaction.<br>No provincial breakdown.<br>Following up done with the council |
| Quantity Surveyors | | | | | | Data not available at council:<br>Data dot not break 2002 -2006 data.<br>No race and gender interaction.<br>No provincial breakdown.<br>2007/8 is combined.<br>No further follow up. |
| Property Valuers | | | | | | Data not captured for provincial breakdown.<br>No further follow up. |
| Project and construction managers | | | | | | Data meets all our requirement.<br>No further follow up. |
| Landscape architects | | | | | | Data meets all our requirement.<br>No further follow up. |
| Engineering | | | | | | Data not captured for provincial breakdown.<br>Data not captured for race and gender<br>Interaction at council.<br>No further follow up. |

**Table 5 Council's data**

**SACPCMP:** No indication on qualification requirement in the registration form.
Registration requirements indicate different registration criterions that one may register under.
http://**www.sacpcmp.co.za**/registration.

**SACQSP:** The council has qualification requirements criteria and has highlighted institutions that are legible to register with the council (http://www.sacqsp.org.za/registration/education).

**ECSA:** Qualification requirements and registration criteria is identified in the data base.
(http://www.ecsa.co.za/ registration/legal/ requirements).

**SACLAP:** There is not much information in the accessible data base. The qualification requirements and registration requirements are not assessable; therefore request to clarify with the availability of such information was submitted to the registerer highlighting required data (http:// www.ilasa.co.za).
**SACAP:** The qualification requirement is provided in the registration form and the registration requirements are highlighted (**www.sacapsa.com**/registration,conditions**)**..
**SACPV:** The qualification requirement criteria are set and registration requirements are highlighted (http://www.sacpvp.co.za/registration/requrements).

### 4.4 Data collection and assessments from STATS SA:

Further assessments done for unregistered professionals in STATS SA data base, investigating unregistered BEP's using LFS data of correspondents in South African Standard Classification Occupation (SASCO), International Standard Classification Occupation (ISCO) and International Standard Industry Classification (ISIC) using LFS.

The LFS is a bi-annual survey , first survey conducted in September 2001 and latest done in March 2007 on approximately 30 000 households in each of the nine provinces.
This is done to discover in which extent industrial classification assist to identify BE professionals.Two possible approaches to use this LFS data were to:

- Estimate the employment levels by the qualification and job type of the respondent (occupation);
- Use the respondent's qualification and the classification of the sector in which they work (Industry).

#### 4.4.1. Investigating BE professionals using Stats LFS based on International Standard Classification of Occupation (ISCO) and South African Standard Classification of Occupation SASCO indicates:

In both standards BE professionals are classified under highly skilled occupational groups classification describes Legislative, senior officials and Managers as category 1, 2 for professionals and 3 for technologists. Professional occupation group 2 branches into various sub division, but the narrow focus was to identify BEP's identified in code (214) for Architects, Engineers & Related Profession. This code have sub division branches of (2141),(2142) etc defining the names for each profession that for each code. See occupational classification by names and their codes below:

**BE Professional occupational classification structure:**

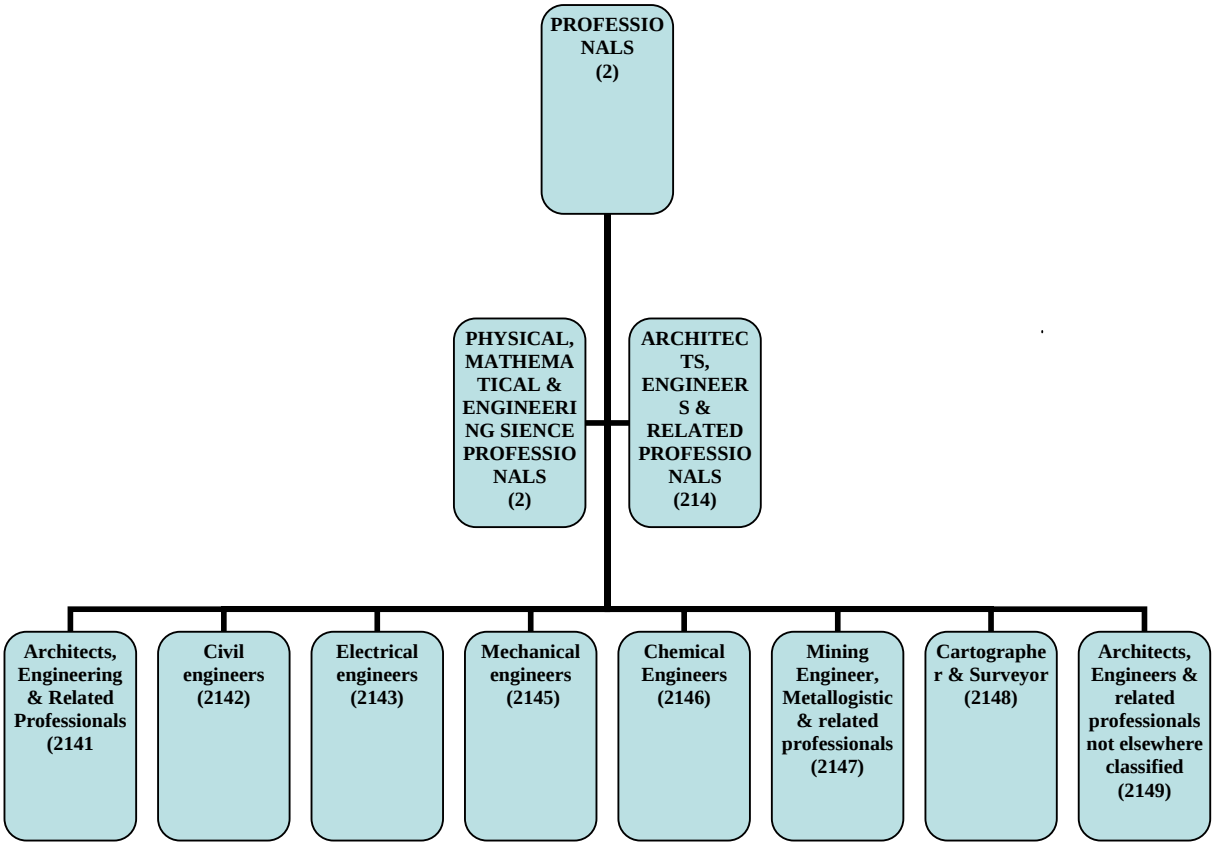



**FIGURE 1**

The professional classification for each code and qualifications indicates:

**List of BE Profession Classification**

| 2141 | 2142 | 2143 | 2145 | 2149 |
|---|---|---|---|---|
| Architect, building | **Engineer, civil** | Engineer, electrical | Engineer, mechanical | **Surveyor, quantity** |
| Architect, interior | Engineer, building structure | Engineer, electrical, high voltage | Engineer, air-conditioning | |
| Architect, landscape | Engineer, civil, building construction | Engineer, electrical, electric power generation | Engineer, mechanical, air-conditioning | |
| Engineer, traffic | Engineer, civil, building structures | Engineer, electrical, electric power distribution | Engineer, mechanical, heating, ventilation and refrigeration | |
| Planner, traffic | Engineer, civil, construction | Engineer, electrical, electric power transmission | Engineer, mechanical, refrigeration | |
| | Engineer, civil, structural | Engineer, transmission, electric power | | |
| | Engineer, civil, highway and | Engineer, electrical systems | | |

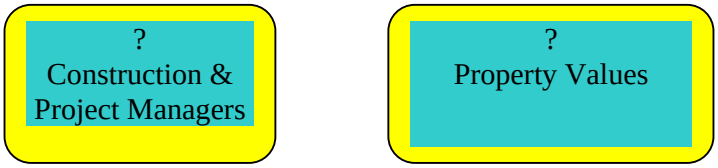
| | | | | |
|---|---|---|---|---|
| | street construction | | | |
| | Engineer, civil, road construction | | | |
| | Engineer, civil, aerodome construction | | | |
| | Engineer, civil, railway construction | | | |
| | Engineer, civil, bridge construction | | | |
| | Engineer, dredging | | | |
| | Engineer, hydrology | | | |

**Table 6**

There are however a number of definitional complexities that make direct comparisons with the statutory council classification and LFS data difficult to be analysed. In first instance grouping of other occupation and associate professionals based on the International Standard Classification of Occupations (ISCO).There are some ISCO categories that have direct counterparts within BE (such as Architects, Quantity Surveyors and Civil Engineers) there are professions within BE that have no direct ISCO counterpart (Property Values and Project and Construction Manager for example). In addition some of the ISCO categories cover professions that would not fall within the BE sector.

**(a)Profession within BE sector but have no direct ISCO counter parts**

Property Values, Construction managers and Project managers have no direct codes and occupational classification. There are categories classified under BE profession e.g. Cost Evaluation Engineer, Engineer Production and Engineer planning that matches the names closely but it is not certain that these professionals category perfume the same work for the mentioned professionals. These estimates of LFS data for Property values, Construction and Project Managers can not be either classified or quantify with other disciples' due to imperfect match of occupational classification.




**Figurer 2**

**(b)Professionals that do not fall under BE sector:**

The are professionals group classified under the sector but do not belong to BEP , for example professions classified under codes 2142, 2143, 2146, 2147 and 2148 contains professionals that poses qualification name in BE but specialization not in the BE sector. These professionals are using their skills in other sectors e.g. Minerals and energy.

| (c) BE Profession | LFS Code | Includes |
|---|---|---|
| Mechanical Engineer | 2142 | Automotive Engineer |
| Electrical Engineer | 2143 | Aerospace Engineer |
| Chemical Engineer | 2146 | Engineer Petroleum and Natural Gas |
| Mining Engineer | 2147 | Metallurgist Radioactive Minerals |
| Cartographer and Surveyor | 2148 | Surveyor Photographic, Topography |

**4.4.2.In the second instance the industry codes based on the International Standard Industrial Classification of Economic Activities (ISIC). The LFS industry classification uses 3 digit responses to:**

- Name of place of work?
- What are the main goods and service produced?
- What are main functions of the place of work?

When assessing this data we can identify BE professionals as those employed in Construction (500-505) and Architectural, Engineering and other technical activities (882) but we have no guarantee that the work being performed is that of a BE professional. Respondents matching the educational and ISIC classification may, for example be working in the financial or human resource departments but in BE departments. LFS data on industry classification gives higher estimates of BE professionals when compared to data obtained from the statutory councils.

When investigating distribution of employment by occupation, since March 2001 only 127 thousand professionals were placed during period 2001 to 2007 but uncertain if only BE professionals are placed in these jobs. Latest results from stats SA describe major contributing industry to new jobs being Community and Personal service up by 127000 jobs, finance up by 126000 jobs and Construction up by 102000 jobs (Stats SA, Media statements 2007). This means growth in employment amongst BE professionals closely matches that of other professions in general of the whole economy. This stimulates concerns pertaining emphasis that "construction sector is regarded as main role player on the economy and possibility to fight poverty in South Africa". It is fairly clear that employability in the sector is not at high rate and contributors' could be other industries.

Below annexure describe resent findings on employment rates per industries and construction sector at 7.5 percent .This place the BE sector at the fifth level of main contributes

**Formal employment figures in LFS, March 2007 (Percentage)**

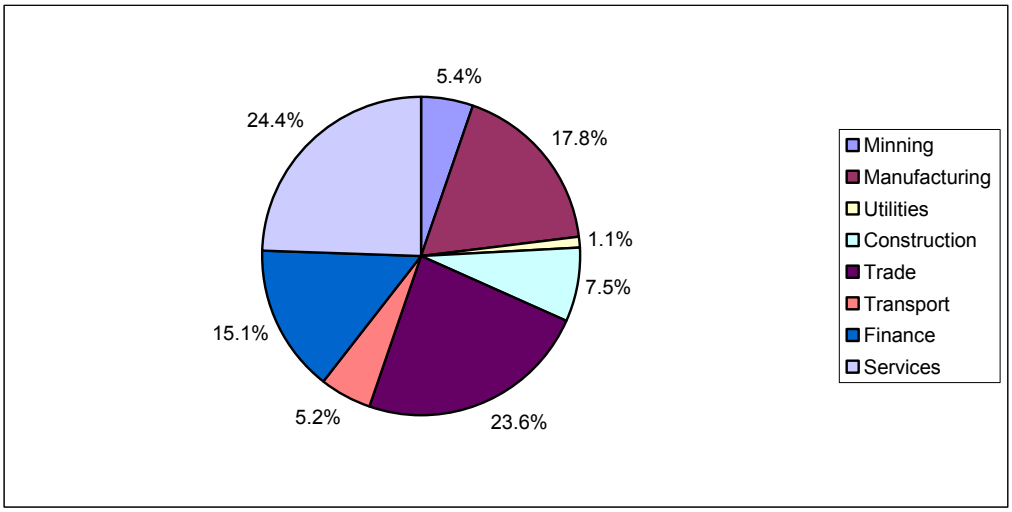



**Figure 3**

## 5. Attempt to Investigate other data base aimed at capturing skills profile

### 5.1. Department of Labour

The review for other sources that initiate the data collection on professional skills where BEP's could be identified. Department of labour Minister on the address on National skills development conference for the route to economic growth 18 October 2007, foreward national skills list for 2007 national master scarcity skills in SA defining the scarce and critical refers to absolute demand of current occupation or specialisation in the labour market .

However absolute or relative demand indicators to declare required skills from public sector do not include private sector. The announcement by Department of labour (Johannesburg, 27 November 2007) initiative in creating a mass employment data base that will allow employees to register their skills and compel employers to register all vacancies and job placements. "This data base is aimed at assisting government to systematically deal with scarcity skills issues and gaps in the South African work force and attempt to hinder skills placement". The minister of labour (M. Mdladlana, 2007, national skills conference, Gauteng) further highlights "the essence of this data base approach in reflecting , identify unemployment and employment trends within a centralised data base and also assist creation of job opportunity.

It is how ever not known that the proposed data bases will corporate equity issues, demographics and discernable match of professionals within industries as highlighted by this paper. Rudi Leibrandt data management practice for Sybase raise a concern with this initiation with regards regard to privacy implication. Threat is that companies do not want to reveal areas where they are short of staff. The Deputy General –Secretary Dirk Hermann Solidarity Trade Union in SA established 1902, also argues that union's data adamant this approach fears practicability as it will hinder international market and companies from hiring( BY CHRISTELLE DU TOIT , ITWEB SENIOR JOURNALIST).

## 6. Conclusion: requirements to implement a new capturing format

This paper has highlighted aims and identify impediments in reviewing the available professional skills in the BE sector data base. The sector lack a well-defined and monitored administration data base which depicts each profession by demography, profession criteria, age , map any movements and correlation in respect to HEI, Councils and LFS to profile the BEP's .

This paper propose a capturing approach with official sources to capture information in a relevant manner and assist stake holders to develop interventions and policies in BE. The LFS data base should consider the creation of a sub sector division for project and construction managers occupations including Industrial classification of BE profession. Identification of aging of professional's skills population and mapping of future movements of the skills within the sector conversion implementations is required.

The proposed data capturing format should ensure consistency with regards to relevance and accuracy of information for professionals in BE sector. The establishment of such database should be highly maintainable and promote an on going capturing of information for demography, patterns, trends of BEP skills supply side, and review contemporary statistical situational analysis for future research.

This data base will gather information for human capacity development of professional skills and facilitate competency in regards to accuracy and high quality analysis of relevant data should any predictions emphasis pertaining the shortage of critical skills need to be reviewed. Influence to the creation of discernable match correspondence in occupation and profession is required for LFS with the need to address the mismatch constrains that could result in irrelevancy that deflects the quantum presentation of the pool.

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