TRANSFORMATION OF THE CIVIL ENGINEERING SECTOR: A REVIEW OF THE RESPONSE OF ESTABLISHED CIVIL ENGINEERING CONSULTANCIES TO THIS CHALLENGE

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EXECUTIVE SUMMARY

Transformation of the Construction Sector is part of a wider transformation of the social and economic environment of South Africa. Publication of the Broad Based Black Economic Empowerment Act, 2003, Act Number 53 of 2003 (BBBEE) in January 2004, initiated the next phase in transformation (SAACE, 2004b, p1), which required the development and publication of sector specific Transformation Charters.

One of the basic objectives of the BBBEE Act is to increase the number of black people who own, manage and control productive assets and thus lead to empowerment (Motshabi, 2005, p6). Each sector of the economy has its own unique features which impact on the pace of transformation, and so transformation charters have to be developed for each sector to provide the necessary informed background to the weightings, targets, scoring and rating methods needed for the sector scorecard.

The Department of Trade and Industry has created a generic scorecard, which set targets for five different measures. The measures relate to:

- The percentage of the overall equity in the company that is owned by Black people (Equity Ownership Target) and for which the target is 25.1%.
- The percentage of all management positions in the company that are filled by Black people (Management Target) and for which the target is 40%.
- The value of the funds spent on skills development and reported as a percentage of turnover (Skills Development Target), which target is 3%.
- The percentage of all staff would are Black and for which the target is 50% (Employment Equity Target).
- The percentage of turnover to be utilised to assist other emerging companies to become sustainable, for which the target is 5% if a monetary contribution and 10% if the contribution is non monetary) and referred to as the Enterprise Development Target (October, 2005, p3).

The construction industry, with support of Department of Trade and Industry (DTI), has established the Construction Transformation Charter Group (CTCG) whose purpose is to establish a transformation charter specifically for the construction industry.

This research investigates whether the targets set by DTI are achievable for a particular sub-sector, namely the Consulting Civil Engineering sub-sector.

The lack of sufficient numbers of trained and experienced professional engineers was noted as a particular constraint in the charter process (SAACE, 2004a, p1), and this lack in the supply has been examined as part of this investigation. The adequacy in the availability of other engineering professions, being technologists and technicians, was also examined. The Construction CETA has recently completed research into the constraints in infrastructure provision in the construction sector (Lawless, 2005a). This research deals, inter alia, with transformation issues, and this data provided the basis for this research, supplemented by interviews with senior management in the consulting engineering fraternity.

There are currently some 14989 engineering professionals working in the construction sector, of which 6495 are engineers, 1972 are technologists, and 6612 are technicians (Lawless, 2005b). It is a requirement of the consulting engineering industry that all principals be registered as Professional Engineers or Professional Technologists, but not all the engineering professionals numbered above meet this requirement. Those that are, are shown in the table below (SAACE, 2005d, p10).

DESCRIPTION	MALE	FEMALE	TOTAL
Partners, Directors	1046	43	1089
Associates	652	56	707
Pr Eng / Pr Tech Eng	910	46	956
Engineers	544	95	639
Technologists	264	57	321
Totals	**3416**	**297**	**3712**

Adapted from SAACE (2005d, p10)

Meeting the DTI targets of 25,1% black equity will, for the Consulting Civil Engineering sub-sector only, require some 303 black professional engineers and technologists, whilst 818 black engineers and technologists will be required to meet the 40% management target.

Finally, a total number of 1121 qualified black engineers and technologists would be needed to meet the employment equity target.

The shortfalls, assuming all the currently registered engineers and technologists were eligible to become equity partners, and or managers, are as follows:

- 197 professional engineers and technologists as equity partners
- 553 professional engineers and technologists, or candidate engineers as managers
- 2437 black staff to meet employment equity targets.

It is immediately apparent that, on an industry wide basis, the targets are unattainable. It may be possible for some individual companies, because of their current staff profile, or because of aggressive recruitment policies, to meet the equity and management targets. The employment equity targets appear to be more attainable, due to the increased number of graduates from the Universities of Technology. The respondents indicated that many graduates have chosen the soft management options, rather than the hard engineering design options, and they tend to drift to the public sector where they can be employed at a much higher, and more lucrative, levels.

The micro and small companies saw the impact of the lack of skilled staff as a very real obstacle to transforming their companies. Two of the 27 engineers interviewed have indicated their intention to sell their businesses and move out of the industry entirely. Other common challenges were noted and these lead to a general conclusion that the lack of black staff would lead to a contraction of the sub-sector, despite the government's much heralded capital expenditure programmes, and to the disappearance of many of the small and micro practices.

Thus, it is clear from the research that transformation targets cannot be met by established consultancies using traditional ownership models.

The civil engineering industry has the opportunity to contribute immeasurably to the development of the country. This cannot be done if the current engineering professionals who are mainly white are shut out of the industry by a misguided transformation process.

Recommendations include the need to prepare and train black engineers rather than technicians, amending the transformation indicators to promote mentoring, to encourage the long term exposure to real engineering rather than fast tracking into management and control positions. The transformation targets should be modified to support a longer term transformation model that rewards the mentoring of young black professions, rather than a focus on ownership transfer.

The establishment of the concept of a professional engineering mentor as a final stage in a professional engineers career is mooted as a way of ensuring the skills developed are not lost. The transformation indicators should be modified to provide evidence of transformation through the provision of a mentoring service. The costs for this service can be drawn from the skill development levy, in the same way that learnerships are, and thus it is recommended that part of the funds available for skill development be allocated to this role.

Practice management, which retrains technicians to manage engineering practices, could be formally developed. Managers will need an understanding of the basics of civil engineering, and would be drawn from the young technician pool, so as to release experienced engineers to focus on hard engineering issues.

Current changes in the number of black students entering the industry indicate a more representative racial balance, and thus hold out the possibility that these targets could be attained at some time in the future, but the absolute lack of qualified experience black engineers is a constraint that cannot be immediately overcome.

It is finally recommended that the transformation targets be changed to focus on creating experienced and competent black engineers, rather than on meeting generic transformation targets for equity and management, and so provide a longer term view on transformation of this industry.

DECLARATION

The author, Andrew Mark Robertshaw, hereby states that all research work in this dissertation, unless otherwise stated, was initiated by him and that he was solely responsible for the planning, analysis and reporting of the findings and conclusions. This work has not been submitted in part or in whole to any other University.

The research was carried out in South Africa, under the supervision of Mr Bruce Hatcher, Pietermaritzburg.

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GLOSSARY OF TERMS

BUILT ENVIRONMENT : A term used to describe all professions within the construction sector including architecture, building science, civil engineering, construction management and economics, quantity survey, survey and town and regional planning.

B Eng or B Sc (Eng) : Bachelor of Engineering or Bachelor of Science in Engineering. These designated engineering degrees awarded by South African Universities. The length of study is a minimum of 4 years full time.

B Tech : Bachelor of Technology. A technical degree offered by Technikons and Universities of Technology. This is a one year post graduate qualification which may only be commenced after completing a National Diploma and gaining some workplace experience.

BROAD BASED BLACK ECONOMIC EMPOWERMENT : Codes of good practice for Broad Based Black Economic Empowerment have been developed to ensure that transformation takes place at all levels and promotes black economic empowerment countrywide.

EDUCATORS : refer to any person who teaches, educates or trains other people at an education institution. The terms is used in preference tot he more traditional "teacher" to broaden the scope of activities involving people engaged in some form of education of others.

HIGHER EDUCATION : A level of education defined by the National Qualifications Framework (NQF) in South Africa, including all NQF qualifications from level 5 to level 9. Defined differently, higher education includes all education programmes as the post-school, pre-degree level, including certificates, diplomas and higher diplomas (Level 5 programmes), as well as all undergraduate degree and postgraduate degree programmes, from bachelor degrees to the doctoral level (Level 6-8 programmes).

HISTORICALLY ADVANTAGED INSTITUTIONS : This term refers to institutions that, under apartheid, were designated to serve white students, preserving the socio-economic dominations of the white population. These institutions enjoyed relative advantage through preferential resource allocation, and better facilities. Infrastructure and access to developmental opportunities.

HISTORICALLY DISADVANTAGED INSTITUTIONS : This term refers to institutions that, under apartheid were designated to serve the various ethnic groups of the black (African, Indian and Coloured) population through a restricted range of teaching programmes and very limited research, thereby ensuring the socio-economic subservience of the black population. They consequently suffered various disadvantages with regard to funding, location, facilities and developmental opportunities.

LEARNER : The term "learner" is now widely used in South Africa, in Education Department legislation and policy documents, in prefernce to 'student', to reflect a more active, inclusive and lifelong process of learning.

LEARNERSHIPS : Learnerships are aimed at providing workplace learning in a structured and systematic form through the provision of both formalized learning and structured work experience. Learnership contracts are signed in a three-way agreement between the employer, education and training provider, and learner.

NATIONAL DIPLOMA : An engineering diploma offered by Technikons and Universities of Technology. This is a three year under graduate qualification consisting of four semesters (S1, S2, S3 and S4) and one year workplace experience, which should be undertaken after S2, but is often only undertaken after S3 or S4.

NATIONAL SKILLS DEVELOPMENT : The National Skills Development Plan was put in place to:

- Develop a culture of high quality life-long learning
- Foster skills development in the formal economy for productivity and employment growth
- Stimulate and support skills development in small business

- Promote skills development for employability and sustainable livelihoods through social development initiatives
- Assist new entrants into employment

PROFESSIONAL REGISTRATION :

- **Pr Eng** - University trained Civil Engineers who have gained a BSc or BSc Eng degree or higher and/or are registered with the professional accreditation organisation, the Engineering Council of South African (ECSA).
- **Pr Tech Eng** - University of Technology (previously know as Technikons) trained technicians who have gained a B Tech degree or higher followed by registration with ECSA.
- **Pr Techni** - University of Technology trained technicians who have gained a national diploma or higher and have registered as a Pr Techni

RACE : The terms used to designate the racial categories that came to the fore in the apartheid era. The racial clasisification used of African, Coloured, Indian and White has now been widely adopted. The following require further definition:

- African – meaning black African people
- Indian – meaning Indian and other South East Asian groups including Chinese
- Black – includes African, Indian and Coloured.

SETAS : The SETAs were put in place to address training and skills development per sector in a structured manner. Accredited training and learnerships required in each industry are developed through the SETAs and member companies are able to claim for training of their staff.

SMME : Small, micro and medium sized enterprises which combine formal and informal sector activities. According to the Dept of Trade and Industry (DTI) 95% of all enterprises in South Africa are SMMEs accounting for almost 75% of the employment in the country. In 2004 they contributed approximately 56% to the country's GDP.

ABBREVIATIONS

ANC	African National Congress
ASCE	American Society of Civil Engineers
BBBEE	Broad-Based Black Economic Empowerment
BE	Built Environment
CAD	Computer Aided Drawing
CDE	Centre for Development and Enterprise
CEO	Chief Executive Officer
CETA	Construction Education Training Authority
CHE	Council on Higher Education
CIDB	Construction Industry Development Board
CITB	Civil Industry Training Board
CMIP	Consolidated Municipal Infrastructure Programme
CSI	Corporate Social Investment
CSIR	Council for Scientific and Industrial Research
CTCG	Construction Transformation Charter Group
DM	District Municipality
DTI	Department of Trade and Industry
ECSA	Engineering Council of South Africa
EPWP	Expanded Public Works Programme
ETQA	Education and Training Quality Assurance
EU	European Union
FET	Further education and training
FIDIC	EO ask Johan v S
FS	Free State
GDP	Gross Domestic Product
HDI	Historically disadvantaged institution
HDIs	Historically disadvantaged individuals
HEQC	Higher Education Quality Committee
HG	Higher Grade
HIV/AIDS	Human Immuno Deficiency Virus / Acquired Immuno Deficiency Syndrome

HND	Higher National Diploma
HR	Human Resources
HRD	Human Resources Development
IDP	Integrated Development Plan
IT	Information Technology
KZN	KwaZulu Natal
LED	Local Economic Development
LGWSETA	Local Government & Water Sector Education and Training Authority
MBSA	Master Builders of South Africa
MDG	Millennium Development Goals
MIG	Municipal Infrastructure Grant
MIUU	Municipal Infrastructure Investment Unit
NABCAT	National Association of Black Contractors and Allied Trades
NAFBI	National Federation for the Building Industry
ND	National Diploma
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
NHBRC	National Home Builders Registration Council
NQF	National Qualifications Framework
PDI	Previously Disadvantaged Individual
PFMA	Public Finance Management Act
PPP	Public Private Partnership
PR	Public Relations
R & D	Research and Development
RDP	Reconstruction and Development Programme
SA	South Africa
SAACE	South African Association of Consulting Engineers
SABS	South African Bureau of Standards
SABTACO	South African Black Technical and Allied Career Organisation
SACPE	South African Council for Professional Engineers
SADC	Southern African Development Community
SAFCEC	South African Federation of Civil Engineering Contractors
SAICE	South African Institution of Civil Engineering
SAISC	South African Institute of Steel Construction

SALGA	South African Local Government Association
SANRAL	South African National Roads Agency Limited
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
SMMEs	Small, Medium and Micro Enterprises
SOE	State Owned Enterprise
SSP	Sector Skills Plan
STLC	Short Term Labour Contract
WSP	Workplace Skills Plan

CHAPTER ONE: INTRODUCTION

1.1 Background

April 1994 signalled the start of radical change for the people of South Africa. Apartheid policy, with separate development as a keystone, was to be replaced by new legislation reflective of a very different worldview. The African National Congress (ANC) wished to transform the social, economic and political landscape to create a "New South Africa" (ANC, 1996b, p3). This transformation was to be enforced through legal means, with the repeal of old laws, and the drafting of a plethora of new laws.

The newly drafted laws were established to allow the economic transformation of society by actively encouraging participation of previously disadvantaged individuals (PDI) in all aspects of the New South Africa. Transformation of the Construction Sector is then part of a wider transformation of the social and economic environment of South Africa.

Publication of the Broad Based Black Economic Empowerment Act, 2003, Act Number 53 of 2003 (BBBEE) in January 2004 signalled the next phase of transformation. A basic objective of the BBBEE Act was to increase the number of black people who own, manage and control productive assets and thus could lead to empowerment (RSA, 2004a, p2). The next phase in transformation (SAACE, 2004b p4), required the development and publication of sector specific Transformation Charters.

The Department of Trade and Industry (DTI, 2004) developed guidelines for the preparation of transformation charters that included a generic scorecard with targets for the various transformation components.

The components are listed below, together with the generic scorecard percentages:

- The percentage of the overall equity in the company that is owned by black people (Equity Ownership Target) and for which the target is 25.1%.
- The percentage of all management positions in the company that are filled by black people (Management Target) and for which the target is 40%.
- The value of the funds spent on skills development and reported as a percentage of turnover (Skills Development Target), which target is 3%.
- The percentage of all staff would are black and for which the target is 50% (Employment Equity Target).
- The percentage of turnover to be utilised to assist other emerging companies to become sustainable, for which the target is 5% if a monetary contribution and 10% if the contribution is non monetary) and referred to as the Enterprise Development Target (October, 2005, p3).

The construction industry, with support of Department of Trade and Industry (DTI), established the Construction Transformation Charter Group (CTCG) whose purpose was to establish a transformation charter specifically for the construction industry.

A first draft of the Construction Charter was published in April 2005, but this draft did not include any target values. The primary reason for the target values not being published was due to lack of consensus between the CTCG members (SAACE, 2005c, p11). Consensus could not be reached on how practical the targets were, bearing in mind the enormous shortages in the supply of the numbers of black engineering professionals to meet these targets.

1.2 Problem Statement

This thesis seeks to determine the extent to which the generic transformation targets, established by the Department of Trade and Industry, for equity ownership, management and employment equity can be met by established, predominately white owned Consulting Civil Engineering firms, who are members of the SAACE.

The research will then explore the approaches that have been attempted and draw out some conclusions on the lessons learnt.

1.3 Objectives of the Investigation

The objectives of the investigation were to:

- Clarify the definition of transformation, and the development of models for transformation, from the initial industry responses to the early governmental pressures to transform.

- Review the basis for transformation, and the legal framework that supports transformation and the impact on transformation of the Consulting Civil Engineering sub-sector.

- Explore the claim that there is a shortage of trained and experienced engineers and if there is a shortage compare the transformations targets proposed in the Department of Trade and Industry's generic transformation scorecard with the number of black engineering professionals needed by the Consulting Civil Engineering sub-sector to meet the generic targets.

- Examine the responses of the established civil engineering constancy sub-sector of the construction sector, and the constraints they experienced in response to the imperative to transform.

1.4 Scope of the Research

The scope definition of this research is limited to those South African Consulting Civil Engineering firms, who can be described as follows:

- Established firms whose equity is held by predominately white engineering professionals.
- Established firms whose management echelon comprises a majority of white engineering professionals.

- Established firms who wish to be considered for work with government agencies and so are required to transform.

These firms' control then is firmly held by white engineering professionals, and it is these firms who need to encourage black engineering professionals to take additional control through equity and management.

1.5 Approach Used to Conduct the Study

The approach used in the investigation was one of an increasingly focused review of the process of transformation in the South African construction sector. The research was informed by a brief review of the more important legislation that impacts on transformation of the sector.

This review of the legislation was followed by an appraisal of a number of background documents including:

- The 2004/2005 SAICE/ SETA Human Resource Project.
- The Construction Charter.
- The SAACE State of the South African Consulting Engineering Profession in South Africa: July –December 2004 Report.
- Reports of the SAACE Transformation Committee.

An interview with the author of the SAICE sponsored Lawless (2005) report was conducted in Johannesburg, when the author outlined her findings, her data collection methods and her concerns regarding the skills deficit.

The literature review served to provide both the background to, and the basic information of, the status of the Civil Engineering sub sector, together with an analysis of the current employment profile with regard to race and gender, some projects for future demand, and pending concerns. A clearer picture of the numbers of black engineering professionals currently employed or working in the sector was

obtained, as was an understanding of some the constraints to transformation that this lack of sufficient experienced engineering professionals impose on the sub sector.

The results of the national research projects were then verified through qualitative interviews with 27 senior white engineering professionals. The interviewee's understanding of transformation was clarified, as was the question of the lack of experienced black engineering professionals. Additionally and more importantly, the approaches utilised, the results of the different interventions, and the lessons learned by the interviewee's firms in attempting to transform was discussed and collated.

A brief questionnaire was drafted to clarify the response of the consultancies by size of organisation, and a number of interviews, both telephonically, and face to face, with senior members of the Consulting Civil Engineering, were conducted.

The frequency with which certain responses to the query regarding the success of transformation approaches occurred, lead to the assumption that a detailed examination of one company's response to transformation would provide useful insight from which other firms could benefit. With this as a rationale, a formal interview with the ex chairman of a well established Consulting Civil Engineering firm, who was also a past president of the SAACE, was conducted to get a perspective of transformation process since 1990.

These responses were analysed to derive the results of the investigation, and to formulate the recommendations and conclusions.

1.6 Overview of the Chapters

The thesis has been structured as follows. Chapter Two provides a short review of the literature relating to transformation of South Africa's social and economic environment, and of the legislation supporting transformation. The Broad Based Black Economic Empowerment Act (Act 53 of 2003) is examined in some detail, as are the needs for a Charter and a Transformation Scorecard. This Act seeks to promote the constitutional right to equality, and to increase the effective participation of black people in the economy of South Africa. It defines the generic term "**black**" to

mean Africans, Coloureds and Indians, and amongst other issues regulates the establishment of the Black Economic Empowerment Advisory Council, and regulates the issue of codes of good conduct.

Very little formally published information on transformation in the Construction sector is available, which reminds us that the concept of transformation in South Africa is still extremely contemporary.

Chapter Three explores the South African construction sector with particular regard to the challenges facing that sector, and then reviews the Civil Engineering Sub Sector. The chapter explains the major groupings, the distinction between them and the training of civil engineers.

Chapter Four details the research methodology and explains the procedure adopted.

Chapter Five describes the findings of the research, and of the in-depth interviews. The results show the current supply of, and demand for black engineering professionals, highlights the difficulties experienced by the industry in its development of trained and experienced black engineers, and the various responses of established white owned civil engineering consultancies to the transformation process given the wide variety of constraints they faced.

Chapter Six provides some conclusions on the ability of the sub sector to meet the targets proposed, while Chapter Seven proposes a number of recommendations.

The following are considered to be the contribution this research will provide:

- Clarity on the development of the understanding of what transformation is and how it can be measured.

- A determination of the number of trained and experienced black engineers that will be needed by the Consulting Engineering sub sector along to meet the DTI Transformation Charter targets.

- A comparison between the numbers needed in terms of the transformation charter targets and the current supply, showing the extent of the gap.
- Identification of the specific constraints the sub sector faces with transformation.
- A critique of these responses, and explanation of the differing transformation models utilised by the sector, to determine if there are some generally applicable approaches to the transformation of the established white owned civil engineering consultancies.

CHAPTER TWO: REVIEW OF THE LITERATURE AND LEGISLATIVE SUPPORT FOR TRANSFORMATION

2.1 A Review of Transformation

The review first looks at a definition of transformation, then examines topical views of transformation and questions some of the assumptions. The concept of political, social and economic transformation is then explored.

The legal framework supporting transformation is described and the Broad Based Black Economic Empowerment Act explored in some detail. Further detail is given to the Preferential Procurement Policy Framework Act (5 of 2000) and to the individual procurement policies.

The Construction Charter is explored and the interconnecting Codes of Good Practice, and Construction Charter targets explained. Some detail of the professional organisations and learned society's that guide an engineer's development is also given.

Thus, the chapter provides a brief overview of the construction sector, the legal environment in which it operates and some detail of the different role players who work or are employed in the Sector.

2.1.1 Definition of Transformation

The Concise English Dictionary (CNA, 1982, p1192) defines transform as:

"to change the form, shape or appearance of, to metamorphose, to change in disposition, character etc." and thus transformation as "the act of transforming...".

In the New South Africa, transformation has an additional political connotation. The meaning is expressed as a political, social, and economic

change process, with the intention that the historical imbalances can be overcome (ANC, 1996b, p6).

2.1.2 Topical review of concept of transformation

The release of Nelson Mandela from prison in 1990 signalled the beginning of the New South Africa, and provided a focal point for the reintegration of society (Fletcher, 2000, p46). Some civil engineering practices attempted to strategically position their firms, and to show commitment to the new nation began to recruit black engineers and other engineering professionals. These black engineering professionals needed focussed training if empowerment was to be assured (Evans, 2005).

The early transformation processes placed a stress on ownership through equity purchase and gave rise to a new group of black elite (Fletcher, 2000, p59). Perceptions that transformation was a process whereby owners of small white businesses needed to give away half of their companies to survive (Built, 2005, p58; Enslin, 2005, p4) then began to emerge.

It was often difficult to find suitable partners, primarily because the separate development policies resulted in few cross-cultural exchanges. Few white people knew black people, and even fewer were known well enough to establish the trust relationship, so necessary to initiating business partnerships (Sikhakhane, 2005, p3).

Those who could not find a suitable partner considered a number of different approaches, one of which was to establish affiliate firms in the same business area as the parent company. These affiliate firms, whose shareholding often included current black employees from the parent company, allowed for the establishment of a black owned or black influenced company, without the loss of control and equity of the parent company (Naidoo, 2005, p1).

However, if the aim is genuine empowerment, then the new partners, either as equity or as management quotas, must gain experience or undergo training to

develop skills that will enhance the company in the future (Michon, 2005, p58). Preventing or withholding opportunities for real contribution to the success of the new company is in fact dis-empowering, not empowering.

Enslin (2005, p4) indicated that every business in South Africa would transform in the next few years. This transformation would occur primarily because most potential employees would be black, and because those companies who do not employ people of colour would in fact have ceased to exist. It is conceded that as experienced people leave or retire, it is likely that black people will replace them.

However, many small or micro businesses are constituted as sole proprietors, and the business is not big enough to support more than one family. Examples of these businesses could be as diverse as smallholder agriculture, tourism guides, single engineer companies and so on. Here the question of how transformation, in the narrow sense of equity transfer, of such small companies be achieved on a financially sustainable basis?

Other questions that have been raised, include:

- Is it in fact the aim of transformation to racially transform each and every business?
- Is it the aim that all citizens will have equal opportunity to open businesses and thus the new businesses shareholding and management will reflect the demographic profile of the country?

For example, there are many companies that are completely black owned and managed companies, and this due to the nature of business opportunities, such as small retail outlets in the previously black townships, e.g. Spaza shops. On reflection, it does not seem possible that every company should exactly express the racial balance of the country.

A measure of the success of transformation would then be found in the statistical distribution of ownership. If the ownership is not skewed in favour of any one-race group, and if no group has an impact in excess of its demographic weight, then perhaps transformation would have taken place.

A further factor to consider is the tendency of some subsets of the overall community to cluster their economic interest in a few sectors, e.g. the Greek or Indian family owned corner café, and thus the concept of each business reflecting the racial balance in the country is unachievable regardless of the conceptual support for the need to change.

Van Biljon (2005, p2) has raised a concern regarding the apparent lack of a large number of black entrepreneurially minded potential SMME business owners. When large corporations instigate and achieve high value narrow BEE deals, the human resources of the organisation provide the necessary business skills. If the new black business owners do not have these skills themselves, they can buy these skills through the employment of experienced professional managers.

Naidoo (2005, p1) refutes the idea the big business is supportive of empowerment. He contends that real commitment to transformation is needed, if black individuals are to break through the glass ceiling that appears to prevent the upward mobility of recently qualified black individuals. The opportunities for recent graduates to fast track their career was suggested, but as Dlamini and Lawless (2005, p4) point out, ten years of experience takes ten years to obtain.

Well focussed programmes may ensure each individual has a balanced exposure to all parts of a business and this career path development may ensure a more thoroughly experienced manager results. But the opportunity for small business to create this exposure is limited. The transformation model assumes availability of small business entrepreneurs but their limited showing implies to be successful transformation needs to ensure their development.

The necessity of appointing a business coach for experienced managers moving into senior positions has recently been mooted as necessary, as has the need to develop and manage a leadership pipeline (Conger and Fulmer, 2003, p76). Career path development for sustainability is touted as vital for large companies. This concept then should be even more vital for Black emerging leaders, and seems an obvious action to take to ensure a firm's long-term sustainability in the South African environment.

The role of mentors has long being a feature of the development of professional engineers (Dlamini and Lawless, 2005, p2), and remains an important component of the training that graduate engineers and technicians are required to undergo leading to their professional and technical registration. That mentoring is a successful model for professional and technical development is without question. This is after all, precisely what an apprenticeship is. However, Van Biljon was not convincing in his assertion that entrepreneurs can be created though the judicious application of training and mentoring. Thomas Edison, the prodigiously productive inventor, was famously quoted as saying "success is 1% inspiration and 99% perspiration". Without the burning desire to succeed, no long-term success in any endeavour can be achieved (Conger and Fulmer, 2003, p79).

A further question regarding the drive to succeed is the role that self-confidence plays. Sikhakhane (2005, p3) has questioned what would happen when the support structures, erected around black enterprise, fall away. Will black people move on without economic crutches? He concludes that a potential businessman's self confidence and self-belief play a critical role in their eventual success. Will this self-confidence be hindered or supported by a government programme that provides legal support for one race over another? Will the business successful because of innate abilities or because of an overly cosseting environment?

Other concerns raised include the lack of experienced engineers and technicians who can design, construct and operate, the infrastructure needed to allow the government to make good its obligation as defined in the

constitution regarding access to basic services, movement, education, health care and the like.

If the aim is to transform each and every business, then we need a different definition of transformation, one that rewards a variety of responses to allowing black people to share and to grow the wealth of the country. It is clear than the concept of broad based black economic empowerment must be applied to the definition of transformation (Williams, 2005, p9).

2.1.3 Political Transformation

The term political transformation evokes many responses and is loosely used to describe affirmative action, employment equity, black economic empowerment and the like. Duvenhage (2004, p5) has indicated political transformation must embrace the concept of concurrent change in many areas. These include social change, economic change, increased and reduced employment opportunities, skill transfer or merely the replacing of people of one race group with people from another race group (Duvenhage, 2004, p6).

Other more pejorative terms are used with fronting being seen as an insidious method of avoiding the true purpose of transformation (Faniso, 2005b, p13). No clear definition for transformation in the South African political context has yet emerged. Dictionary definitions of transformation include a concept of change of form from one state to another stage, and this concept forms the basis for a consideration of transformation.

Duvenhage (2004) infers there is generally a consensus that transformation is a deliberate action to rectify the injustices of the past with specific reference to increased economic opportunities for targeted groups. Thus, transformation aims to change the economic and social landscape through targeted political means.

Transformation is viewed, from a political science perspective, as being a change mode somewhere on a change continuum from revolutionary change to

evolutionary change. It differs from revolution, evolution, transition and development. The change continuum is defined by consideration of six variables (Duvenhage, 2004, p5). Theses variables are:

- Nature of the change, or the character of change, for example, British incrementalism.
- The tempo of the change, ranging from almost indiscernible to revolutionary.
- The manner the change occurs and level of violence that results.
- The direction of the change either progressive or retrogressive democratisation.
- The extent of change either limited to a single sector to impacting the entire country.
- The implications of the change for the state.

Duvenhage (2004, p7) then uses these criteria to plot the relative position of transformation mode model and concludes that "*...**political transformation is a rapid, progressive, comprehensive, and fundamental change of society in the form of central planning accentuating the managing of political change in general and of conflict management in particular***". Transformation could be seen as a compromise between the previous government's evolutionary approach and the current governments more revolutionary style.

This definition has implications for the understanding of transformation in general, and shows that transformation must include a strongly defined strategic approach to transformation.

2.1.4 Social and Economic Transformation

A number of authors have articulated the need for a clear definition of transformation, and to that end a presidential committee was established. The committee's brief was to produce a clear and widely accepted definition of transformation (Fletcher, 2000, p58).

The ANC, in its document entitled "The state and social transformation" (ANC, 1996c), describes the background to the struggle for economic emancipation and prefaces its discussion with a few statements which are quoted below:

"*The struggle for the social and economic transformation of the South African society is essentially the task of replacing the apartheid state with a democratic one. The establishment of a democratic state is the task, which continues to define the nature and character of the African National Congress (ANC), the Liberation Alliance as well as the broad national democratic movement.*

This broad political front continues to recognise the leading role of the ANC in the struggle for the economic transformation and social emancipation of South Africa. It is the quest to reach this final objective that informs the policies, strategies and tactics of this movement. Over the decades, through its theory and practice, this movement has proved that it is the only vehicle that possesses the capacity to act as the leader of the people in their struggle to establish a truly democratic state.

The struggle to transform the South African society and emancipate the people takes place within a concrete and ever-changing national and international environment. This environment calls upon the forces for democratic transformation to pursue their objective always mindful of the changes as well as the subjective and the objective factors, which characterise this environment".

The policy document indicates a number of objectives, relating to the liberation of the Africans in particular, and black people in general from political and economic bondage, by improvement of the quality of life of all South Africans, the majority of whom are African and female. The Strategy and Tactics (ANC, 1997, p23) therefore states that 'the central aim of transformation is to improve the conditions of the people, especially the poor'.

It was stated that poverty is the single greatest burden of South Africa's people, and reducing poverty and deprivation should be the most urgent priority. This objective could only be sustainable if the constraints holding people in poverty were diminished, and thus the concept of empowering people to pull themselves out of poverty, through employment opportunities that gave the poor control over their lives and to increase their ability to

mobilise sufficient development resource, i.e. empowerment, was developed (ANC, 1997, p4).

That this policy would result in the enrichment of a few rather than the upliftment of many was not envisaged.

The ANC advocated its strategy, known as the Reconstruction and Development Programme (ANC, 1994) for meeting basic needs, which was to rest on four thrusts, being:

- Creating opportunities for all disadvantaged people to improve their economic position.
- Job creation to boost household income. Job creation was to go hand in hand with increases in productivity and efficiency, improving conditions of employment, and to be done for all to sustain themselves.
- Better access to basic physical and social services, health care, education and training for urban and rural communities to improve social standards of living.
- A social security system to provide a safety net for the poor, disabled, elderly and other vulnerable groups.

Social transformation would provide a host of benefits including land, houses, comprehensive health and social security, basic water and sanitation services, human resource and capacity building opportunities, clean and safe environment, food security, and an improvement in the health profile (ANC, 2002, p9).

Social transformation would also ensure the development of a South African identify, which draws from the multiplicity of talent and heritage, to reflect an African nation on the southern tip of the African Continent. Critical to nation building is the de-racialisation of our society (ANC, 2002, p11).

Thus the ANC in its discussion paper on the state and social transformation (ANC, 2002) saw transformation as a strongly focused policy, which needs to change a large number of the current underlying beliefs and traditions. As with all change, a change management process would assist. The impression

given is that unless a new national consciousness was developed in tandem with the transformation process, social transformation would not happen.

2.1.5 Constraints to Transformation

The process of transformation of the South African society since the watershed 1994 elections has been the cause of much and wide debate. The construction sector; which includes traditional building together with associated professions of engineering, architecture, quantity surveying and building management; has engaged in its own debate, which debates were constrained by factors particular to this sector. The constraints include:

- A lack of trained and experienced construction professionals.
- The lack of mathematically literate students.
- The absolute need for technical competence.
- Professional liability.
- The economic climate and investment in infrastructure.
- Perceptions of a lack of opportunity, and the ease with which construction professionals can move globally.
- Relatively low local salaries and reduced local opportunities, leading local companies to seek work outside the borders of South Africa. This exposure to international career opportunities increases the flight of skills to wealth.
- The industry is a highly capital intensive industry (Dlamini and Lawless, 2005).

The lack of a sufficient skills base is not only confined to South Africa, but is true for the western world too. For different reasons, not least the focus many companies had on downsizing in the last decade, the workforce population of workers aged between 35 and 44 years old has been decreasing (Dychtwald, Erickson and Morison, 2004, p49). This lack of skills provides more opportunities for qualified and experienced South African workers, and thus exacerbates the drain of skills from South Africa.

In order to address these challenges, the sector realised the need to create new coordination mechanisms, and sought to develop a focused sectoral view and to canvass government, so as to influence change process. The construction industry is fragmented with thirteen professional and trade associations representing sub-sectors within the industry as a whole (SAICE, 2005, p33).

The Construction Transformation Charter Group (CTCG) was established for this purpose and has provided human resources for the various sub committees, and these people have provided critical input into the numerous drafts of the construction charter itself. The details of this process are given in more detail below.

2.1.6 Conclusions drawn from the Literature Review

The definitions raised above are useful in clarifying understanding of the concept of transformation, but some of the descriptions raise more questions than answers. For example, the end point of transformation is described loosely, and does not make allowance for individual response, which does not take advantage of the opportunities given.

The role of the entrepreneur is acknowledged as a primary role player in sustainable development, but an entrepreneur (etymology is in enterprise) is one who is ready to attempt an undertaking, who is bold or happy to risk a difficult undertaking (C.N.A., 1982, p380), is by definition someone who does not need or want interference. Thus, there is a dichotomy between the basic philosophy of the current government and its attitude to individuals.

The end point of transformation as a society, which does not reflect the injustices of the past, will create new injustices in its quest for a non-racial society. That these are deemed to be sacrifices made for the larger good can be accepted if the path taken is clear and the overall benefit of society is seen. When transformation is seen as the replacement of a white elite with a black elite, it is difficult to rationalise the sacrifices.

The development of legislation in support of transformation is considered next, and show how some of the concerns expressed are accounted for.

2.2 Legislative Support for Transformation

A recent survey of the impact of legislation of the civil engineering sub-sector showed that a business entity operating in the sector would need to adhere to 121 pieces of legislature (Botha, 2005 quoted by Povey, 2005). This is a staggering amount, and supports the view of many business support agencies that South Africa does not have an entrepreneur friendly business environment.

Compliance with legislation is crucial issue for a country committed to open democracy, but the cost of compliance is seen as a threat to the success of established business, and even more so as a threat to small and emerging businesses (CIDB, 2004). The government is constant in its refrain that the success of Small Medium and Micro Enterprises (SMME) are crucially important to sustainable job creation. The Labour Relations Act of 1999 encourages companies to outsource through independent contractors and to establish employees in their own businesses.

Entrepreneurial thinking is encouraged as part of the primary and secondary schools syllabuses, learners are encouraged to start their own businesses, banking institutions advertise a wide variety of products to support for small businesses. Government, through the drafting and legislating the National Small Business Act, Act 102 of 1996, established Ntsika, the National Manufacturers Advisory Centre and other enterprises. The National Small Business Act was replaced by the National Small Business Amendment Act, Act 29 of 2004, which amalgamated a number of small organisations into the Small Enterprise Development Agency (Ntsika, 2000).

This thesis is particularly concerned with transformation, and the some of the major laws and policies impacting this include:

- The Constitution.
- Employment Equity.

- Reconstruction and Construction Programme (RDP).
- White Paper on Creating an Enabling Environment for RDP in the Construction Industry (1999).
- Preferential Procurement Policy Framework Act, (PPPFA).
- Broad Based Black Economic Empowerment Act, Act 53 of 2003 (BBBEE).

Other policies, which influence procurement within the industry, are the plethora of transformation scorecards developed by municipalities, parastatals, provincial government departments and national government departments. The publication of the PPPFA provides the framework for a common procurement policy, and a progressive rollout of the aligned procurement policies detailed.

2.2.1 Employment Equity

The purpose of this Act (Act 55 of 1998) was to redress the imbalances of the past without compromising the ability of business to function effectively and profitably. The Act applies predominately to designated employers, who generally employ more than 50 staff members, but as Schedule Four of the Act indicates, when turnover of a company in the Construction Sector, for example, exceeds R5, 0 million (in 1998), then the company may be deemed a designated employer, and the full provisions of the act apply. Inherent in the Act are two key features, first being Affirmative Action and the second being the Employment Equity Plan.

The Act states that Affirmative Action is one of the two reasons for distinguishing between staff; the second is if the discrimination is based on the inherent requirements of the job. Affirmative Action refers to the specific actions a designated employer takes to achieve employment equity. The measures include:

- Identify and eliminate employment barriers.
- Increasing diversity in the work place.

- Reasonable accommodation for people from Designated Groups (Black, Indian, Coloured) to allow them to enjoy equal opportunities.
- Ensuring equitable representation of suitably qualified people in all occupational categories and levels in the work force.
- Retain and develop people from designated groups, and implement appropriate training measures (RSA, 1999a).

An employment equity plan must be prepared that will enable reasonable progress to be made towards employment equity, with a long term plan showing year on year how equity will be balanced, a time table for implementation, and monitoring and evaluation procedures outlined.

The impact on Consulting Engineering practices will be shown in later chapters, but the lack of a racially balanced number of qualified and experienced engineers preclude an immediate balancing. It takes approximately ten years to train and develop proficient engineers and until the education processes allow more mathematically competent black learners, this inequality will persist for a long time to come.

2.2.2 An Enabling Environment for Transformation of the Construction Industry

It was clear that business ownership in 1994 was, because of the legacy of apartheid not reflective of population demographics, and it was government's wish to urgently address the imbalance. A white paper on a national strategy for the development and promotion of small business (1995) showed that access to markets was a significant constraint to SMME development. The construction industry was aware of these difficulties and so worked with the Department of Public Works to develop its own white paper entitled "Creating an enabling environment for Reconstruction and Development Programme in the Construction Industry (RSA, 1999). The white paper proposed:

- Affirmative Procurement Policy (APP) would introduced and tested by the Department of Public Works, and if successful was to be rolled out systematically within the public sector.
- Establishment of an Emerging Contractor Development Programme (ECDP) to ensure the development of emerging contractors and advance their interests within the sector.

The Affirmative Procurement Policy utilised a Targeted Procurement system to provide access to work opportunities, and to create a demand for the goods and services of black owned companies. This approach would help overcome the access to market problem identified in the small business white paper.

Several impediments to growth were identified by the RDP, being the lack of inter-generational transfer of wealth, continuing discrimination along racial lines, substandard education and limited exposure, and therefore experience with, commercial activities. Thus, interventions were required to provide a supportive institutional framework to overcome the skills gap and to provide access to credit. A number of institutions have been created to support small business and these are briefly discussed below.

2.2.3 Broad Based Black Economic Empowerment Act

In January 2004, the President of the Republic of South Africa assented to the Act Number 53 of 2003: Broad Based Black Economic Empowerment Act, 2003. The purpose of Act 53 of 2003 was "*to establish a legislative framework for the promotion of black economic empowerment; to empower the Minister to issues codes of good practice and to publish transformation charters; to establish a Black Economic Empowerment Advisory Council; and to provide for matters connected therewith*".

One of the objectives of the Broad Based Black Economic Empowerment Act (Act 53 of 2003), is to increase the number of black people who own, manage and control productive assets, and has provided a balanced scorecard approach

as a measure of broad-based black economic empowerment. Each sector of the economy has unique features which impact on the pace of transformation, and transformation charters for these sectors are to be developed to provide the necessary informed background to the weightings, targets, scoring and rating methods needed for the sector scorecard. The construction industry, with support of Department of Trade and Industry (DTI), has established the Construction Transformation Charter Group (CTCG) whose purpose is to establish a transformation charter specifically for the construction industry. A first draft of the Construction Charter was published in April 2005, followed by the Construction Transformation Indaba on 20 and 21 April 2005, to promote sector wide consultation and debate.

Two definitions found in the Act are most germane to this discussion and these are as follows:

- "**black**" - a generic term which means Africans, Coloureds and Indians.

- "**broad based black economic empowerment**" - the economic empowerment of all black people including women, workers, youth, peoples with disabilities and peoples living in rural areas through diverse but integrated socio-economic strategies that include, but are not limited to:
  (a) Increasing the number of black people that manage, own and control enterprise and productive assets.
  (b) Facilitating ownership and management of enterprises and productive assets by communities, workers, cooperatives, and other collective enterprises.
  (c) Human resource and skills development.
  (d) Achieving equitable representation in all occupational categories and levels in the workforce.
  (e) Preferential procurement.
  (f) Investment in enterprises that are owned or managed by black people.

The three components of Broad Based Black Economic Empowerment can be drawn from this definition, being direct empowerment, human resource development and indirect empowerment. These components are described more fully in the section detailing the Codes of Good Practice, but briefly direct empowerment includes ownership and management indicators, human resource development includes employment equity and skills development indicators, and lastly direct empowerment, encompasses preferential procurement, enterprise development and residual elements indicators. At present only the codes describing direct empowerment have been published, and thus no guidance for human resource development nor indirect empowerment has been given.

The Codes apply to all existing and future BBBEE charters, and should form the basis around which new economic empowerment plans are to be developed and established.

2.2.4 Preferential Procurement Policy Framework Act (5 of 2000)

The Preferential Procurement Policy Framework Act (5 of 2000) was enacted to allow preferential procurement to become one of the cornerstones of black economic empowerment. One of the requirements of the Act is the publication of preferential procurement guidelines. Draft regulations were released in October 2004 (Business Report, 25 February, 2005) and these seek to align the numerous preferential procurement process currently established, around the country to standardise, both with the existing schemes and the BBBEE Act (53 of 2003) and so ensure all companies are equitable in their application of procurement policies.

Telkom and Eskom purchased more than R50 billion in goods and services from BEE companies between 1997 and 2004 (Faniso, 2005). Telkom spends 57.8%, or R4.6 billion of its procurement budget through BEE firms, while Eskom spent R5.64 Billion or 39% of its procurement with BEE companies. Thus substantial sums of money are being spent to encourage BEE firms (CIDB, 2004).

A second consequence of the publication of the Codes of Good Practice is the limited lifespan of narrow BEE. Reporting in terms of presently applied narrow BEE mechanism will continue, as this will enable the company doing so to qualify for any BBBEE points against a reduced transformation scorecard (Williams, 2005).

A further implication of the BBBEE Act is the need to restructure many of the previously completed BEE transactions from an ownership equity point of view if additional transformation points are to be gained (Salgado, 2005).

An example of procurement reform as implemented by major clients includes the eThekwini Municipality preferential procurement policy (eThekwini Municipality, 2003), which is discussed below.

eThekwini Preferential Procurement Policy

The eThekwini Municipality has committed itself to improve the targeting of its procurement policies to allow:

- Increased local resource utilisation.
- Use of Black Economic Empowerment to increase black participation within the Municipality.
- Creation of new job opportunities.
- Stimulate knowledge transfer.
- Fast track growth of SMMEs.

The concept of targeted procurement was enlarged to allow the municipality to develop a quantified, verified and measured procurement system that provides employment and business opportunities for marginalized individuals and communities, enables procurement to be used as an instrument of social policy in a fair, equitable, competitive transparent and cost effective manner and permits social objectives (eThekwini Municipality 2003).

The policy includes definitions of various SMMEs organisations, including a qualification on black ownership. A small company, for example, can be considered a **Black influenced enterprise** if its black equity is between 26% and 50% ownership, with corresponding management representation at Board, Executive and operational levels.

Similarly, a **Black Empowered Enterprise** is one where the percentage ownership is between 51% and 74% with corresponding management representation at Board, Executive and Operational levels.

Finally a **Substantially owned Enterprise** is a category of business when Black ownership in that particular category is between 76% and 100%, with corresponding management representation at Board, Executive and Operational levels.

An impact here for consulting engineers belonging to SAACE, is that at least 51% of the equity of the company is held by professionally registered persons, meaning an established engineering practice with demographics reflective of the professional civil engineering industry would be unable to meet neither the Empowered Enterprise nor the Substantially Owned Enterprise status. This presents a major challenge to the financial sustainability of the organisation. Even if a company has long term staff development plans, with black engineering students in the pipeline and some technical staff, it still would be unable to meet these ownership targets. The policy allows for a price adjustment factor, based both on tender price and on enterprise status, to be applied in such a way that equity transformed or Narrow Black Economically Empowered enterprises gain some advantage. (The two forms of the policy are generically known as the 80/ 20 rule and 90/10 rule).

Points awarded for Price

A maximum of either 80 or 90 points (Np) is awarded for the tendered price:

$$Np = 80(\text{or } 90)) \times (1-((P-Pm)/Pm))$$

Where

Np number of tender preference points awarded for price.

P price of responsive tender under consideration adjusted, if applicable, to a common financial base for comparative purposes.

Pm price of the lowest responsive tender adjusted, if applicable, for comparative purposes.

The advantage is awarded in respect of the value of the contract. For contracts with a value of less than R500 000 a maximum of 20 preference points could be obtained.

Points awarded for status of the enterprise

The advantage is awarded in respect of the value of the contract. For contracts with a value of less than R500 000 a maximum of 20 preference points could be awarded. When contract values exceed R500 000, then a maximum of 10 preference points would be awarded. A table indicating how the points No are calculated is included in the policy.

The total number of tender adjudication points awarded is then the sum of the above points, viz. the sum of No and Np.

Tenderers who wish to claim points must have registered their enterprises to obtain a formal status before the price adjustment for status can be considered. A copy of the policy and its application can be found in **Appendix A.**

Under conditions of competitive bidding, the price advantage application of the potentially 10 or 20 points provides a strong incentive for firms to improve their ownership status, and bearing in mind the dearth of professionally qualified staff, creates a difficult challenge.

2.2.5 Construction Charter

The construction industry, as described in Chapter Three, is a very varied sector of the economy, with members ranging from trades and materials supplies, to sophisticated instrumentation, and specialist experts. The

Construction Transformation Charter Group, (CTCG) presented its draft charter on 20 April 2005 (Cokayne, 2005, p1). The CTCG revealed a scorecard, which indicated widely differing views on appropriate target values, which reflects the diversity of options with the sector.

The charter's main objectives are transformation of the sector, growth and competitiveness. The industry is tasked with the delivery of physical and social infrastructure so it is critical that it maximises the potential of its businesses, and professionals by creating an enabling charter for economic growth and empowerment.

It is envisaged that the Construction Charter will apply to enterprises that are involved in the expansion, creation and/or maintenance of fixed assets related to residential or non-residential buildings, infrastructure, or any other form of construction works in South Africa. The Charter addressed some key challenges confronting the sector, including but not limited to:

- Save for a few large equity deals, the sector continues to reflect inequalities in ownership, and requires further transformation to take place.
- Black participation is principally at the micro and small business level. Parties to the charter have acknowledged that the sector is not adequately investing in skills development across all levels.
- The charter highlights the need for skills development and training in the sector, as well as mechanisms for facilitating the growth of small, black owned businesses. The importance of managerial skills and financial skills are highlighted in the charter.
- Due to the skewed skills distribution in the sector, the charter promotes partnering, mentoring, and coaching between small and established enterprises to promote growth, competitiveness and sustainability. Enterprise development is one of the key areas of the charter (SAACE, 2004a).

As an industry relying heavily on trades and specialists skills, the charter demands a clear understanding of all the capacity problems, and has developed the basis for a scorecard that will focus on the challenge of the development of management, leadership and enterprise development within the sector. The CTCG has drawn on the experiences of the other charters, both those that are finalised and those that are still being conceptualised. The first draft contains a synthesis of some of the stakeholders in the Construction Sector, and was published to ensure the widest possible participation and input into the charter. It is the first in a series of drafts that will be released to enable the public to enter the debates until final consensus on a sector-wide charter has been reached. Table 2.1 (summarised from the data in the source document) below provides a comparison of the scorecard values proposed in charters developed for the Liquid Fuels, Mining, Financial Services, ITC and Transport sectors.

Table 2.1 Comparing charter targets proposed by different sectors.

SECTOR	LIQUID FUELS	MINING	FINANCIAL SERVICES	ICT	TRANSPORT
Date of Charter	Nov 2000	Dec 2002	Sept 2003	2004 (draft 3 released)	2004 (being finalised)
Ownership	25%	26%	10%; 25% (7 years)	25%, 51%	25-50% (10-20% women) (5-7 years)
Skills development	No target	1200-5000 learnerships (5 years)	1.5% spend above SD levy, 4.5% of staff learnerships (5 years)	1.3% spend above SD levy	2.5-5% of total payroll (5-7 years)
Management posts	No target	40%	20-50% (5 years)	30-50% (5yrs); 50-80% within 10 years	33-40% (5-7 years)
% of procurement to BEE	Increase - no target	Increase - no target	50%-70%	30-60% (5 yrs); 60-80% (1 yrs)	20-30% (5-7 years)
Enterprise development	No target	No target	Measured i.t.o. procurement spend, investment, skills development and infrastructure	No target yet	10% of NAV investment in black-owned / empowered (5-7 years)
Facilitation of finance for BEE	No	R100bn	75bn	Not stated	Not stated
Community/ social investment	No	Yes	0.5% pa	Yes	Job creation – 5% of permanent jobs. Social development – 5% of workforce

Adapted from SAACE, 2004b

The five-year targets were discussed at the Indaba with the aim of publishing a draft charter with finalised scores by July 2005. This deadline was not met.

Minister of Public Works, Ms Stella Sigcau, in her address to the Indaba, emphasised the need for skills development and warned that monitoring, to ensure the desired end result of the industry's effort is achieved, would be undertaken (Cokayne, 2005, p1).

Equity ownership remains an important pillar of BEE, but a lack of capital required a number of creative approaches to be developed to ensure equity could be transferred. Many of the creative approaches left the new equity owners without a significant say in the running of the business. The use of private equity to overcome this, has been a boon to BEE equity deals. Private equity can be utilised in two distinctly different ways, which are:

- Acquisition Capital borrowed to buy a business where the profits of the business are used to repay the loan.
- Expansion Capital borrowed to allow growth through acquisition, expanding into new markets and generally in building the business.

Acquisition Capital is more commonly utilised for BEE transactions (Salgado 2005, p5).

Codes of Good Practice

The Department of Trade and Industry released the Codes of Good Practice on 8 December 2004. These codes were developed to provide guidelines for the establishment of a consistent company scorecard. As mentioned above, a critical concern is the surfeit of individual scorecards, which made the task of scoring and comparing scores extremely complex. Further, many scorecards awarded points on the basis of black equity only, and thus the concept of core components for scorecards developed.

The scorecards covered direct and indirect empowerment, and added the concept of social responsibility, so that empowerment of an organisation

resulted in the support of other emerging enterprises. The three core concepts were:

- Direct empowerment through ownership and direct management control of the enterprise.
- Human resource development and employment equity.
- Indirect empowerment through preferential procurement and enterprise development.

TABLE 2.2 Classification of the size of a company in the construction sector

TYPE OF BUSINESS	**CONTRACTING**	**PROFESSIONAL SERVICE PROVIDERS**	**CONTRACTING**	**PROFESSIONAL SERVICE PROVIDERS**
CRITERIA	Average Annual Turnover	Average Annual Turnover	Number of Employees	Number of Employees
MICRO	Below R600 000	Below R300 000	5	2
SMALL	R600 000- 12m	R300 000-R3m	6-60	3-9
MEDIUM	R12m – R60m	R3m – R36m	61-300	10-100
LARGE	R 60M and R600M	R36M and Up	300 and Up	100 and Up
EXTRA LARGE	R600m and Up			

Source: DTI, 2004, p21

Table 2.2, which distinguishes between contracting companies and professional service providers, viz. consulting practices, indicates that consulting practices and construction companies are classified differently. This is due, in part, to the fact that consulting companies sell knowledge and expertise, whilst contracting companies are traditional builders who make a living constructing infrastructure and thus have a very different skills base, cash flow requirements and profitability basis.

The rating of a company has a bearing on the support given to the company, both from a weighting and a support basis. Thus, it is strategically important to determine a company's size, and to establish the procurement support the company could expect to obtain.

Scorecard Associated with Draft One

The scorecard will provide an objective and broad-based set of measurement indicators for purposes of measuring BEE progress in and between construction companies, in different sub-sectors and in the construction sector as a whole. The criteria measured in the scorecard should be the following:

1. Ownership.
2. Control.
3. Enterprise Development.
4. Procurement.
5. Skills Development.
6. Employment Equity.

Current Progress with the Charter

Pirie (2006) reported current progress with the charter. Draft Five of the Construction Charter has been prepared and discussed with the Minister whose has responded favourably to the Code. A change to the interim targets for employment equity (management) was that 30% target applies for the first 3 years increasing to a 40% target for the remaining 4 years. However, the existing PPPFA Regulations apply until the DTI Codes are concluded and gazetted in terms of Section 9 of the BEE legislation. The amended PPPFA Regulations that harmonise all the legislation relating to Black Economic Empowerment procurement then apply. Additionally, a 12 month transitional period using the formula (Ownership + Control) x 1,92 will be utilised. An industry funded, fully independent audit of the Charter then has to take place. Only once all the above have been achieved will the Construction Charter have the same status as the DTI codes.

2.2.6 Supply Chain Management

New regulations supporting the supply chain management processes for all municipalities, were tabled on 31 May 2005, and formally promulgated at the end of June 2005 (National Treasury, 2005).

The regulations provide for significant reform for the process of procurement of goods and services by municipalities. The purpose is to overhaul the current practices:

- To improve accountability and transparency in the award of municipal bids.
- To minimise fraud and corruption.
- To minimise potential conflicts of interest.

The regulations differentiate between big tenders in excess of R200 000, and quotations for work less than R200 000, while formal written price quotations are required for work with a value of between R10 000 and R200 000, and written or verbal quotations are needed for projects with a value of between R2 000 and R10 000 and petty cash refers to projects with a value of less than R2 000.

2.2.7 Organizations Supportive of Transformation Initiatives

Many small emerging engineering practices have been established and many of them started by technically qualified people with little or no business skills (SAACE, 2003, p8). The organizations below were established to provide some of the support needed. The support ranges, from developing a business plan, funding, access to markets, training, and tendering.

The Department of Trade and Industry (DTI) is the government department primarily responsible for helping SMMEs and has established a number of NGO's to help these small businesses.

The National Small Business Act (Act 102 of 1996) published a schedule that was to be used to determine whether a business could be classified as an SMME and thus gain some advantage from the legislation. The final page of Appendix A lists the qualification in terms of size of organisation, number of full time employees, annual turnover, and total gross asset value. The Act (Act 102 of 1996) also required the establishment of a number of organisations that help small businesses, and these are listed below.

- Khula Enterprise Finance Ltd (Khula).
- Ntsika Enterprise Promotion Agency (Ntsika).
- Local Business Service Centres (LBSCs).
- Tender Advice Centres.
- National Small Business Council.

The Impumelelo publications, which are sponsored by the Department of Trade and Industry (DTI), form an invaluable record of the successes and achievements of South African business, industry and government across a range of 150 business sectors, with particular emphasis on Black Economic Empowerment (BEE) in Impumelelo and on gender equality (Top Women in Business and Government). Impumelelo can then be used as business tool and guide to genuine and established empowerment companies.

2.2.8 Duration of intervention and support

Most interventions have a sunset clause, but the RDP White Paper (ANC, 1994) argued that the legacy of apartheid was so insidious that its effects cannot be eradicated across the full spectrum of South African society, within a short prescribed time period.

The Emerging Contractor Development Programme (ECDP) was created to enable the development of contractors in all aspects of construction and to ensure their development supported by the affirmative procurement process (RSA, 1999, p5). Unless the twin processes of development and support are rationalised, both are likely to fail. The ECDP primary focus was to ensure black owned business succeeded and thus interventions in the areas of business and management training, to ensure emerging companies link with established companies, mentorship programmes, and financial help were established and implemented (RSA, 1999, p6).

Chapter Two explored the concept of transformation and more particularly the broader definition of transformation. Duvenhage (2004, p7) in his discussion of the concept of transformation in South Africa, distinguished political transformation from other political change mechanisms. He concluded that a general understanding of transformation as a rapid, progressive, comprehensive and fundamental change to society is correct. Transformation could be seen as a compromise between the previous government's evolutionary approach and the current governments more revolutionary style

Social and economic transformation was also considered and the ANC's policy document on social transformation (ANC, 1996c) indicated the overall purpose was to liberation black people from economic bondage by improving the quality of life. To this end a raft of legislative support was created, and a review of some of the major legislation impacting upon the civil engineering industry was undertaken. The review was of necessity very brief, but covered the BBBEE Act 53 of 2003, preferential procurement, and the Construction Charter.

Having considered the political, social, economic and legal imperative to transformation, a review of the South African Construction Sector is required to add context to the research. This review follows in Chapter Three.

CHAPTER THREE: REVIEW OF THE SOUTH AFRICAN CONSTRUCTION SECTOR

This chapter explores the South African construction sector with particular regard to the challenges facing that sector, and then reviews the Civil Engineering Sub Sector.

The chapter explains the major groupings, the distinction between them and the training of civil engineers.

3.1 The Challenges Facing the Construction Sector

Over the past two decades the sector has experienced declining investment and demand volatility, combined with an unstable employment environment. The sector growth trajectory is currently on an upward trend with expansion closely linked to new investment (SAFCEC, 2004b, p4), which investment will require the services of consulting engineering practices, and when the infrastructure is funded through government fiscus, will particularly require the services of transforming, or transformed companies. It can therefore be a stimulus for development and job creation in the economy. These prospects present a considerable challenge to the construction sector to increase capacity and to double output over the next ten years.

The private sector has not adequately addressed BEE imperatives, generally implementing limited aspects in response to government tender requirements (Enslin, 2005, p4). At the same time the subjective interpretation of the Preferential Procurement Policy by client bodies has led to increased levels of legal uncertainty in companies and an overt focus on equity ownership. This has detracted from the desired outcome of growing sustainable black enterprises and opened the door to the malpractice of fronting (Michon, 2005, p58).

The public sector is a major client, whose lack of capacity and consequent inability to spend budgets has a profound impact on the sector. Save for a few large equity deals the private sector continues to reflect vast inequalities in ownership, with little transformation having taken place (Bridge-David, 2005, p3). Black participation is

principally at the micro and small business level where there are also low levels of sustainability. There is little penetration of black companies in those sectors that are more capital and knowledge intensive. This situation is exacerbated by the absence of adequate financial and other support mechanisms for SMMEs and the sector's inbuilt bias towards urban centres of development (SAFCEC, 1999). Working conditions on some construction sites are unacceptably low, including factors such as extended periods away from home, long hours, safety factors and inadequate housing arrangements.

There is a proliferation of labour-only sub-contractors and whilst these are an important part of the sector, many are non-compliant with labour and health and safety regulations. There are limited numbers of black people in controlling positions, managerial positions and in the specialised professions in the sector (SAFCEC, 1999).

There is a depleted skills base due in part to the sector's lack of appeal as a career choice. In addition, despite sufficient funding available from CETA, the sector is not adequately investing in skills development across all levels (SAFCEC, 2004b,p1). Specific deficiencies include workplace training, mentorship's, and recognition of prior learning.

There is a increase in the number of construction sector associations, creating inefficiencies and limiting the private sector's ability to communicate amongst themselves, with government and other stakeholders (SAACE, 2003, p23). This hampers the development of effective partnerships (SAACE, 2003, p25).

The next section examines first the civil engineering sector, the role of the consulting civil engineering sub sector and then the response of an established consulting engineering practice to the transformation imperative, tracing development from the earliest stages to current practice.

3.2 A Brief Overview Of The South African Civil Engineering Industry

BJ Middleton, in his 1998 presidential address to the South African Institution of Civil Engineering, proposed a definition of civil engineering professionals, being

people who conceive, design, manage, build and maintain the infrastructure in society (Botha, 2004, p36). Inherent in this definition is an understanding that civil engineers are to be found throughout the process of infrastructure development, and so one finds civil engineers who specialize in planning and design, in construction and specialist material supply, in the operation and management of infrastructure, in research and development and as teachers. Growth in the industry, changes to the social, political and economic environment, have resulted in the development of focused interest groups and from those into organisations as diverse as:

The South African Institution of Consulting Engineers (SAICE).
South African Black Technical and Allied Careers Organisation (SABTACO).
South Africa Association of Consulting Engineers (SAACE).
South African Federation of Civil Engineering Contractors (SAFCEC).
Institute of Architects (SAIA).
Building Industry Federation of South Africa (BIFSA).
Association of South African Quantity Surveyors (ASAQS).
Black Contractors Forum (BCF).
South African Black Contractors and Allied Trade (NABCAT).
South African Institute of Steel Contractors (SAISC).
National Federation for the Building Industry (NAFBI).
South African Women in Construction (SAWIC).

Thus, it can be seen that the industry is both diverse in its interests and fractured in its unity, and the result is that the civil engineering industry is not able to represent itself as a coherent body to government (SAFCEC, 1999, p2). The result of this fragmentation is a reduced bargaining influence with other critical role players, including government departments as clients and government departments as regulators. No one party can claim to represent the entire sector, as no uniform strategy for advancing the role of engineers can be sensibly developed (SAACE, 2003, p23).

The South African Government, in its endeavours to escalate transformation of the construction work place, and to attempt to unify the fractured organisational groupings has bracketed together these sub-groups and identified them using the term

"Construction Sector". A Construction SETA has been established to assist in the transformation of the industry, through training and development of black engineering professionals.

This research focuses on the first sub-grouping, as represented by South African Institution of Civil Engineers (SAICE) and by the South African Association of Consulting Engineers (SAACE) and regulated by Engineering Council of South Africa (ECSA).

3.2.1 South African Institution of Civil Engineering

The basic information presented here is derived from the Institute's web site, **www.saice.co.za**. The South African Institution of Civil Engineering was established in 1903 as a "learned society" to help develop technology, and to share knowledge for the development of the day (Botha, 2004, p25), and is thus the oldest South African engineering organisation. It is a voluntary body with approximately 8 000 individual members. Membership includes engineers, technologists, technicians, consulting engineers, contractors, engineers in government, municipal and parastatal service, academics, students and suppliers. Twenty branches, distributed nationally, and nine Technical Divisions are active in the field of technology, develop and deliver courses, codes of practice, guidelines, specifications and standards. SAICE plays an important role in the quality of Civil Engineering education through participation in regular statutory accreditation reviews, of facilities and curricula at tertiary institutions.

SAICE has initiated an enhanced and internationally recognized engineer-in-training program implemented by ECSA. SAICE members with the necessary expertise manage the process and act as Reviewers for ECSA. The number of engineers in government service has reduced dramatically. SAICE plays facilitating role regarding input on

strategic issues relating to Civil Engineering, and is involved in regular contacts and personal visits to the relevant ministries.

SAICE serves the public interest by offering unbiased technical and professional input on policy and legislative issues. Since 1994 SAICE has contributed to legislation including transformation, education, environment, water, waste management, labour and construction. SAICE members subscribe to a code of ethics, which spells out the standards of integrity and responsibility of the individual member towards the public, colleagues, employers and society at large, and promotes the safety and health of the public and workers in all aspects of Civil Engineering.

3.2.2 South African Association of Consulting Engineers

The South African Association of Consulting Engineers (SAACE) is a voluntary association of firms of consulting engineers and allied professionals in the built environment field. The Association, which was founded in 1952, has some 420 member firms, which together employ some 11000 staff and whose fee income in 2003 was R 4.5 billion. The Association is committed to:

- Enhancing the professional and business interests of its members.
- Improving the quality of life of all South Africans by the promotion of engineering excellence.
- Serving clients with professionalism, integrity and independence of judgement (SAACE website).

The Association has membership by firm, represented by Principals of the firms. A Principal is a person so designated by the member firm as a Principal. 51% of the directors need to be Registered Principals, i.e. a Principal professionally registered with a statutory body recognised by the SAACE Council. The association has approximately 390 members,

employing some 3000 professionally registered persons, with a total staff complement of 11 000 staff (SAACE, 2005b).

The firms vary in size from the small to the large with 55% of firms employing 10 staff or less, and only 5% employing more than 95 staff, The large firms, however, employ 48% of all staff. A comparison with the overall findings of Lawless (2005b, p65) report, shows using the targeted procurement size classification, that 28% of all firms are small or micro sized (between 1 and 10 staff), 40% are medium sized firms (between 10 and 100 staff), and 22 % are large firms (more than 100 staff). Not all the respondents to the Lawless (2005b) report were SAACE members, but what is clear is that a large minority of civil engineering firms (whether SAACE members or not) are small businesses.

3.2.3 SACPE and ECSA

As the impact of civil engineering on society was felt, and people realised the deadly implications that engineering failure could have on society, so there developed a need to regulate the industry. The South African Council of Professional Engineers (SACPE) was established by parliamentary decree in 1969, and the purpose of the Council was to control and regulate the industry. The council was given the authority to licence the practice of engineering to those deemed qualified to do so. Only those engineers who were trained and experienced within specific fields could perform certain engineering works. During the 1980's the registration procedure was amended to allow the registration of technologists, certified engineers and engineering technicians each category under a separate Board of Control. A Central Registration Committee, with separate Registration Committees being established by the four Boards of Control, controlled the overall registration process.

The Engineering Profession of South Africa Act, (Act 114 of 1990) was promulgated, and this Act combined the four Boards of Control under the umbrella of Engineering Council of South Africa (ECSA). Thus, the industry was regulated with ECSA providing the legal authority under which engineers' practice, and the institutions playing the role of a "learned society".

In November 2000, the new Engineering Profession Act (Act 46 of 2000) was promulgated. The Act empowers ECSA to register persons in certain prescribed categories, being:

- Professionals (Engineers, Engineering Technologists, Certificated Engineers, Engineering Technicians).
- Candidates (academically staff who have not yet been registered and are undergoing professional development).
- Specified categories (persons who can not register for the above categories, but who perform critically important work of an engineering nature).

Engineering professionals

University trained Civil Engineers who have gained a BSc or BSc Eng degree or higher and/or are registered with the professional accreditation organisation, the Engineering Council of South African (ECSA), gaining the **Pr Eng** registration. Registration with ECSA is crucial for consulting engineers as no engineer can practice on Public funded projects without this registration. A **Pr Eng** registration required that the candidate had followed a recognised training programme. This allowed engineers-in-training to be fully briefed on many aspects of the industry both on site and in the design office; to be placed on site to learn the art of checking quality. The minimum period from graduation to **Pr Eng** graduation would be three years, with a carefully structured and designed application, although the average is five years (Civil Engineering, 2005c, p5).

University of Technology (previously know as Technikons) trained technicians who have gained a B Tech degree or higher followed by registration with ECSA, as a **Pr Tech Eng.** Registration with ECSA is similarly crucial for consulting engineers as no engineering professional can practice on Public funded projects without this registration.

Technicians, who previously would have attended a Technikon for at least three semesters, followed by a minimum of thee semester work experience would be considered as technicians (S3). It has become more common for students to complete four semesters at Universities of Technology and on completion of four semesters work experience to obtain a S4 technical diploma. Registration as **Pr Tech Eng** requires up to ten years post graduate experience, and like the **Pr Eng** registration process, requires graduates to have work experience in all aspects of the engineering project cycle, from conceptual design to hand over to the operator. Again a mentor is needed to ensure that the designs produced are to the necessary standards required, and to guide the graduates in the design process.

A recent change to the qualification of technical staff has been a change in the registration of technicians. These are now University of Technology trained technicians who have gained a national diploma or higher and have registered as a **Pr Techni** (Lawless, 2005b). This recently accredited registration is as yet not well understood, either by the students, or the engineering fraternity generally.

Long training period

From the above, it can be seen that it takes many years of both study and application of that knowledge under a knowledgeable tutor or mentor, before a civil engineering professional reaches the level of competence needed to contribute positively in the industry.

3.2.4 The Professional Practice Profile and Staff Mix

> Increasing use of technology has changed the profile of professional practices. Twenty years ago, a large number of semi-skilled and certificated production staff were utilised for the preparation of the technical drawings. Technical drawings represent the culmination of the conceptual process that engineers follow in deriving a solution to a technical problem. Draughtsmen, who transform the sketch drawings produced by engineers into working drawings, and tracers, who produce the repetitive details, have in the main disappeared from the drawing offices. Staff conversant with Computer Aided Design (CAD) has replaced them, and these staff are increasingly technically qualified engineers and technicians (SAACE, 2004, p13).
>
> The impact of technology then has been to reduce the numbers of staff needed to produce the type of output needed, and to increase the speed with which designs can be accomplished. However, it has also reduced the number of skilled drafting and detailing staff, who through their thorough grounding play a vital role in the quality assurance processes. This quality assurance role has become more vital as the pace of work output has increased (Unstead, 2005).
>
> Engineering professionals are now utilised in different processes. Historically, engineers provided the conceptual framework to problem resolution, planned the design process, provided the specialist design, led the design team, provided the client liaison, marketed the companies' skills and provided the general management of the firm (SAACE, 2004b, p9).

Technologists and technicians were used for basic design and production work, whilst, as indicated above, technicians also took on a technical CAD role. However, as the number of registered experienced staff reduced, so the need to supplement their skills increased. Technologists are now (SAACE, 2004b,p15) used in specialist fields as designers and because of the sophisticated software programmes draft the design as

part of the design process. The wide acceptance of the **Pr Tech Eng** registration has allowed staff, which previously played a supporting role, to undertake projects on their own.

This chapter has provided a background to the construction industry and more particularly has explained how civil engineering consultancies fit into that sector. Chapter Four examines the research methodology followed in the study and concludes with some research limitations.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Background to the Problem Statement

Transformation of the Construction Sector is part of a wider transformation of the social and economic environment of South Africa. Publication of the Broad Based Black Economic Empowerment Act, 2003, Act Number 53 of 2003 (BBBEE) in January 2004, initiated the next phase in transformation (SAACE, 2004b). This phase was characterised by a requirement for the development and publication of sector specific Transformation Charters.

One of the basic objectives of the BBBEE Act is to increase the number of black people who own, manage and control productive assets and thus lead to empowerment.

Each sector of the economy has its own unique features which impact on the pace of transformation, and so transformation charters have to be developed for each sector to provide the necessary informed background to the weightings, targets, scoring and rating methods needed for the sector scorecard.

The Department of Trade and Industry (DTI) has created a generic scorecard, which set targets for the various components, being:

- 25.1% equity ownership.
- 40% management.
- 3% skill development.
- 50% employment equity.
- 5% monetary (and 10% non-monetary) enterprise development (October, 2005).

The construction industry, with support of the Department of Trade and Industry (DTI), has established the Construction Transformation Charter Group (CTCG) whose purpose is to establish a transformation charter specifically for the construction industry.

One of the primary tasks of the CTCG was to evaluate the indicators of transformation, and to propose new or different indicators. Having decided these, the CTCG was to examine the generic targets and to determine whether the targets proposed would be realistic. That achieving consensus on these aspects was difficult, was shown in the first draft of the Construction charter as published in April 2005. This draft of the Construction Charter did not contain any figures for the indicators, and the minutes of the transformation committee meetings (SAACE, 2004a), (SAACE, 2004b) show the level of the debate.

4.2 Problem Statement

This thesis seeks to determine the extent to which the generic transformation targets, established by the Department of Trade and Industry, for equity ownership, management and employment equity, can be met by established, predominately white owned Consulting Civil Engineering firms, who are members of the SAACE.

The lack of sufficient numbers of trained and experienced professional engineers (Pr Eng) was noted as a particular constraint in the charter process (SAACE, 2004a), and this lack in the supply has been examined as part of this investigation. The adequacy in the availability of other engineering professions, being technologists and technicians, was also examined.

4.3 Research Objectives

The objectives of the investigation were to:

- Clarify the definition of transformation, and the development of models for transformation, from the initial industry responses to the early governmental pressures to transform.

- Review the basis for transformation, and the legal framework that supports transformation and the impact on transformation of the Consulting Civil Engineering sub-sector.

- Explore the claim that there is a shortage of trained and experienced engineers and if there is a shortage compare the transformations targets proposed in the Department of Trade and Industry's generic transformation scorecard with the number of black engineering professionals needed by the Consulting Civil Engineering sub-sector to meet the generic targets.

- Examine the responses of the established civil engineering constancy sub-sector of the construction sector, and the constraints they experienced in response to the imperative to transform.

4.4 Procedure Adopted

The procedure utilised was as follows:

- Relevant literature, considering both the legal environment and some popular responses to transformation, was reviewed. The literature particularly focused on the government's transformation initiatives, the background of the Consulting Civil Engineering industry and the DTI Transformation Charter Targets.

- Reports on the current state of the Civil Engineering industry with specific reference to the number of Black engineers were studied.

- A questionnaire was compiled for completion during telephonic interviews with 27 senior managers and partners in established Consulting Civil Engineering practice.

- Data collected during these interviews was analysed.

- Documents containing background information on the different approaches initiated by Ingerop African and all its previous guises, an established Consulting Civil Engineering practice, were collected and reviewed. A brief summary of the history of the development of the company and the progress towards transformation was inferred.

- An in depth interview with Mr I Evans (past President of SAACE and ex Chairman of BS Bergman, Bergman Ingerop and Ingerop), was conducted.

4.5 Data Accumulation and Sample

The SAICE and SAACE reports listed below contain some of the data needed for this investigation.

- SAICE report titled *"Interventions, capacity and skills development required to address the shortage of civil engineering professionals and bottlenecks in infrastructure delivery."* (Lawless, 2005a).

- *"Reports of the Transformation Committee."* of the South African Association of Consulting Engineers, (SAACE, 2003), (SAACE 2004a), (SAACE, 2004b).

- "*State of the South African Consulting Engineering Profession in South Africa: July –December 2004.*" (SAACE, 2005).

These reviews served to provide, both the background to and the initial information of, the status of the Civil Engineering sub-sector, together with further analysis of the current employment profile (with regard to race and gender), some projections for future demand, and pending concerns.

Contact was made with Mrs Lawless, author of the May 2005 SAICE report. An interview was conducted in Johannesburg, when the author outlined her findings, her

data collection methods and her concerns regarding the skills deficit. The review revealed a wide range of responses and showed that small practices had very different responses to transformation than big consultancies.

An interview guide, to clarify the response of the consultancies by size of organisation, was then drafted. The interview guide, a copy of which is attached as **Appendix B**, was used as a framework to aid in data collection. 27 interviews, both telephonically, and face to face, were conducted with senior members of the Consulting Civil Engineering profession. A summary of the data collected provides information on the profile of the sample, including the age, qualification and professional registration of the engineers, details on the size and empowerment status of the companies. Then their individual comments were collected, through questions, which attempted to determine the interviewee's:

- Understanding of transformation.
- Their (company's) approach to transformation.
- Some of the problems experienced.
- Lessons learnt.

The results of the data collection were reviewed to determine whether the concerns, difficulties and challenges noted by the white professional engineers in practice in KwaZulu-Natal were similar to those raised nationally and/ or highlighted in the SAACE and SAICE reports. The lessons learnt were also captured.

Finally, a formal interview with the ex chairman of Ingerop Africa, and a previous past president of the SAACE was conducted to get a longer term perspective of transformation process. Mr Evans was chosen because he had initiated the initial Affirmative Action policies, and had led the strategic response of the company to transformation.

4.6 Data Analysis

Data contained in the SAICE (Lawless, 2005a), SAACE (2004a), SAACE (2004b), SAACE (2005a) reports were analysed to determine the potential supply of and demand for experienced engineering professionals.

The SAICE report primarily addresses itself to its members, who are all civil engineering professionals, not only in the consulting sub-sector, but in other sub-sectors such as local, provincial and national government, in parastatals, specialist contractors and suppliers while the building sub-sector is addressed through SAFCEC. Both organisations were previously white dominated, and thus were keen to transform.

The SAACE report does not only consider Consulting Civil Engineering practices but included for all other disciplines, including agricultural, electrical, mechanical and so on. Civil engineering is the dominant sub-discipline with almost 50% of the fee income, and thus it was assumed that the SAACE figure could be used as a proxy for the civil engineering consulting industry.

The estimates of numbers of engineering professionals, and more specifically of black engineering professionals, were made from the data presented, and are subject to the limitations outlined below.

4.7 Research Limitations

The investigation was confined to the construction sector, as defined in Chapter Two, and more specifically to the sub-sector, which is the Consulting Civil Engineering industry.

The investigation focuses on Established Consulting Civil Engineering practices; which are predominantly white owned and managed; and who have to transform in order to meet at least the minimum transformation targets values to be considered for work from government clients.

The research did not consider Emerging Consulting Civil Engineering practices, as these in the main, are owned and managed by black engineering professionals (SAACE, 2005). The researches primary source of information was obtained from reviews of:

- The recently completed Lawless (2005a) report on capacity and skill shortages in the Consulting Civil Engineering industry.

- The SAACE report on the state of the Consulting Engineering Profession (SAACE, 2005).

- Interviews with concerned engineering professionals in the Consulting Civil Engineering professionals.

- A final interview with Mr I Evans, past president of SAACE, and ex Chairman of an established white owned international Consulting Civil Engineering practice.

The research focused on only the direct empowerment component of the Broad Based Black Economic Empowerment Act. This component can only be addressed through the availability of a minimum number of qualified and experienced black engineering professionals, and it is these resources that are critically scarce. The other two components, namely human resource development and indirect empowerment can be achieved with access to qualified but not experienced black engineering professionals.

The research assumed that the Consulting Civil Engineering industry would be able attract all the black experienced engineering professionals currently available. This is unlikely to be the case as the SAICE/ CETA HR Review (SAICE, 2004) indicated that, in fact, only 56% of engineering professionals enter the Consulting Civil Engineering industry. The estimate of the demand for black engineers reported for the consulting sub-sector is only half of the demand for black engineers needed in the construction industry as a whole. Estimations for the numbers of black engineering professionals needed for the Civil Consulting Engineering sub sector (of the construction sector), assumed that:

- All experienced black engineering professionals would be legally capable to take equity in practices within the Consulting Civil Engineering sub-sector, that is, they meet the ethical and legal criteria necessary to assume a directors role.

- All experienced black engineering professionals would be either interested or capable of performing a management function in addition to the technical leadership role.

- The South African Association of Consulting Engineers State of the Consulting Engineering Profession 2005 Report indicates that at least one third of all engineering professions in the consulting industry would not be involved in management (SAACE 2005b). This may result in an underestimation of the numbers of experienced engineering professionals.

4.8 Conclusion

The research considers the legal and political imperative to transform and contrasts this with the efforts of the construction sectors efforts to transform. The background research to identify the demand for trained and experienced engineering professionals, was supported by the detailed investigations of SAICE and of SAACE to estimate the number of engineering professionals currently practicing in the country. The supply and demand was explored further in the interviews and some approaches to detailing with the shortfall where identified. Finally the research is sub-sector specific and does not attempt to determine the demand for experienced engineering professionals from other sub-sectors of the Construction sector.

Having discussed the research methodology, its limitations and the data analysis conducted, results of the different findings of this research are considered next, in Chapter Five.

CHAPTER FIVE: FINDINGS ON TRANSFORMATION

The findings of the research are reported in the following order:

- The Lawless (2005a) report into current status of the skills base of the Construction sector.
- The SAACE (2005D) report of the state of the Consulting Engineering profession.
- The interviews with the 27 engineers.
- The interview with Mr Evans together with a detailed examination of the transformation process undertaken by Ingerop Africa (Pty) Ltd.
- A summary of the comments made during the interviews.

The chapter closes with an estimate of the demand for black engineering professionals, assuming all the established companies wish to meet the DTI transformation targets.

Each of these is discussed in turn below.

5.1 General Observations

It was clear that from the data sources examined, there is no one organisation responsible for the collection and maintenance of a database of all South African civil engineering professionals who are working in the country. An implication can be drawn that there is no single source from which accurate data can be drawn. For the purposes of this research then, an assumption that any figures quoted below are approximate, has been made.

This study is, however, a comparative assessment of the number of engineers differentiated by race. The research has also assumed that although the numbers are not exact, what is more important is the relative proportions, and it is these proportions that are used to draw conclusions regarding the DTI targets.

5.2 Lawless Report

Whilst it is true that there is no one single database, there are many databases containing some information on the numbers of civil engineers. The Lawless (2005a) report examined many of these databases and conducted its own data collection and verification processes. These sources are listed below:

- SAICE / SETA built environment survey, 2004.
- SAICE / SETA Human Resources research project, 2004 / 2005.
- Construction Charter research project, 2004 /2005.
- Eight additional surveys on special interest topics, 2004/ 2005, which drew 4450 responses from 17 308 requests.
- Datasets from 13 organisations, and government departments.

The study reveals that there:

- Approximately 15 000 engineering professionals currently practicing in South Africa.
- 56% are to be found in the civil engineering consulting sub-sector.
- 32% in the contracting field.
- 7% work with manufacturing and supplier companies.
- 2 % work in the industrial field.
- 1% in mining.
- 2% in widely diverse fields.

Thus, the consulting engineering practices provide over half of all the engineering opportunities within South Africa. Tables 105 to 107 of the Lawless (2005a, p47) report have been summarised by race and age, and these results tabulated below.

Table 5.2.1 Engineers and Technologists by age and race

Age Cohort	White Engineer	Black Engineer	White Technologist	Black Technologist	Total Engineer	Total Technologist
Below 35	1317	442	358	400	1750	758
35 to 49	1735	302	503	144	2037	647
Above 50	2160	63	403	33	2223	436
All ages	5213	807	1264	577	6020	1840

Source: (Lawless, 2005a, p47)

Table 5.2.2 Technicians and all engineering professionals by age and race

ge ohort	White Technician	Black Technician	Total Technician	White professional	Black professional	Total professional
Below 35	1153	1527	2680	2828	2369	5198
35 to 49	1332	495	1827	3570	941	4512
Above 50	965	179	1144	3528	274	3802
All ages	3450	2201	5651	9927	3585	13512

Source: (Lawless, 2005a, p48)

Table 5.2.1 and Table 5.2.2 show that, from the construction charter survey, there are 13512 civil engineering professionals currently employed in South Africa. This total differs from the approximately 15 000 engineering professionals reported above. The totals in Table 5.2.1 and Table 5.2.2 reflect the actual number of staff employed by members of the construction charter and make no allowance for those working in other sectors or with sub-sectors not included in the constructor charter groupings.

Considering firstly the number of engineers, one can see that of the 6020 engineers in the survey, 5213 are white, and only 807 are black. Further, when considering the numbers broken into the age cohorts of less than 35 years old, between 35 years old and 50 years old, and older than 50 years old, it is clear that there are many more

white engineers than black engineers in every cohort. What is interesting, from a transformation view is the increasing number of black engineers in the younger cohorts, as these are the engineers who will carry the profession forward.

It was noticed that there were significantly more old (more than 50 years old) white engineers than in any other age cohort or race. Some 41.4% of all engineers fall into this bracket, while the percentage drops to 33% for the mid age cohort, and to 25.2% for the youngest cohort. The implications for transformation are that over the next eight years all of the engineers in the oldest cohort would be older than 63 years old, and thus opportunities for equity ownership are enormous. The loss of these skills presents other difficulties, which are beyond the scope of this investigation.

Considering secondly the number of technologists, one can again see that of the 1840 engineering technologists in the survey, 1264 are white, and 577 are black. Further, when considering the numbers broken into the age cohorts of less than 35 years old, between 35 years old and 50 years old, and older than 50 years old, it is clear that there are more white technologists than black technologists in the two older cohorts. It is pleasing to note that in the below 35 years old cohort, black technologists exceed the number of white technologists.

The trend in Pr Tech Eng registrations is exactly opposite of that shown by the white engineers of declining registration. Twelve times as many black technologists are registered in the youngest age cohort than are black technologists in the oldest age cohort. This is promising from a transformation viewpoint, but the absolute number remains a problem. The tables show that industry will need to replace 2659 engineers and technologists of all races over then next eight years. The pipeline shows there are 2684 engineering professionals in the mid age cohort who could move into the older age cohort, and that there are 2508 in the youngest age cohort, who would move into the mid age cohort. Significantly, however, only 446 and 882 from the mid cohort and youngest cohort respectively, are black.

Considering thirdly the number of technicians, one can see that, as with the technologists, of the 5651 technicians in the survey, 3450 are white, and 2201 are black. Further, when considering the numbers broken into the age cohorts of less than

35 years old, between 35 years old and 50 years old, and older than 50 years old, it is clear that there are more white technicians than black technicians in the two older cohorts. It is similarly encouraging to note that in the below 35 years old cohort, black technicians exceed the number of white technicians, which is promising from a transformation point of view.

What is clear is that there are an increasing, although still small, number of black engineering professionals in the industry. Of the 13 512 engineering professionals 3585 are black, but only 807, or 6% of these are black engineers, while white engineers make up almost 39% of all engineering professionals.

Comparison of these results with the 2005 ECSA registration data for registered engineering professionals is interesting. Table 5.2.3 below summarises the analysis into the numbers of registered and unregistered engineering professionals as at May 2004.

Table 5.2.3 ECSA Registration status of civil engineering professionals, May 2004

REGISTRATION	MALE	FEMALE	WHITE	BLACK
Pr Eng	6246	120	6134	232
Pr Tech Eng	1153	18	1023	148
Total registered	**7399**	**138**	**7257**	**380**
Candidate Pr Eng	664	127	574	217
Candidate Pr Tech Eng	317	30	168	179
Total registered	**981**	**157**	**742**	**398**

Adapted from ECSA (2005, p12)

It must be noted that the ECSA membership is not age restricted, and some 26% of Pr Eng in the database are over 63 years old. Some of these may have retired, but some continue to work actively (Evans, 2005).

The Pr Eng and Candidate Registration reflects the findings from Table 5.2.1, being that only 3.8% of all Pr Eng are black, and worst, from an employment equity point of view, only 1.8% of all registrations are female.

This is the pool from which directors and partners were traditionally drawn, and the very small number of black and female Pr Eng makes significant and immediate progress in meeting transformation targets unlikely.

The Pr Tech Eng qualification has, since 1986, allowed technicians to be considered for senior leadership positions in Consulting Civil Engineering practices. Adding these registrations to those of the Pr Eng registrations increases the pool by some 166 people, and increases the percentage black percentage to 5%, whilst women registration increases to 2%. This is not a significant increase.

If the candidates are considered, the number again increases and gives overall percentages, for potential black senior management and ownership, of 8.9%. The numbers of women who could be considered for ownership as a percentage of all potential owners is 3.3%.

Table 5.2.4 below shows the number of registered and unregistered engineering professionals in 2004. The most significant difference between these results and the results shown in Table 5.2.1 is the total number of engineering professionals.

Table 5.2.4 Registered versus unregistered civil engineering professionals practicing in South Africa

	REGISTERED	**UNREGISTERED**	**TOTAL**
Engineers	3886	2577	6463
Technologists	935	971	1906
Technicians	514	6103	6617
	5335	**9651**	**14986**

Source: ECSA (2005, p3)

The numbers in this research have been adjusted to consider:

- All those engineers who work within the industry but not registered through ECSA, nor captured on the SAICE or SAFCEC databases, and assumed by Dlamini and Lawless (2005, p3) to be 10% of the total registration.
- Those working in diverse sectors, churches, NGO's, etc., assumed by Dlamini and Lawless (2005, p4) to be 160.
- Those working outside the Construction sector, assumed by Dlamini and Lawless (2005, p3) to be 96.

5.3 SAACE State of the Profession Report

The association has approximately 390 South African member firms, employing some 3000 professionally registered persons, with a total staff complement of 10200 as at December 2004. The firms vary in size from micro (less than five staff members), through small (ten or less staff) to large (more than 100 staff). 55% of all Consulting Engineering practices are small or micro enterprises (SAACE, 2005d, p11).

A comparison with the overall findings of Lawless (2005a) report shows that 38% of all firms in the construction sector are small or micro sized (between 1 and 10 staff), 40% are medium sized firms (between 10 and 100 staff), and 22 % are large firms (more than 100 staff). The overall Construction sector then has a different size profile to that of the SAACE firms. Not all the respondents were SAACE members, but what is clear is that a large minority of civil engineering firms (whether SAACE members or not) are small businesses.

The construction sector is the fourth largest contributor of work opportunities within the South African economy (Botha, 2004), and thus any changes to the health of this sector will impact on the overall economy. Consulting practices employ some 56% of all private sector civil engineering professionals in South Africa.

There has been a reduction in the absolute number of engineering professionals in the sector since the peak employment of some 25000 staff in the 1980's. This is due in

part to reduced volume of work and in part due to the increased use of personal computers and more advanced software (SAACE 2005a).

Table 5.3.1 shows the reduction in staff employed in consulting engineering practices since 1998.

Table 5.3.1 Employment by SAACE firms from 1998 to 2004

PERIOD	1998	1999	2000	2001	2002	2003	2004
Employment	11512	10382	11006	10686	10863	10115	10163

Source: SAACE (2005d, p9)

Of the respondents to the 2004 figure, 40% reported an increase in employment, and 29% reported a decrease. The overall drop of 1.6% was due to large firms reducing employment and not from the small firms. The employment levels are at an all time low, despite the continuing strengthening of the economy, but cost of employment is rising rapidly, with labour costs increasing 29% year on year in 2004 (SAACE 2005a) the SAACE confidence Index increased from 77.2% in June 2004 to 86.3% in December 2004, and 66% of all firms responding to the poll expected to employ more engineering and technical staff in the short to medium term.

5.3.1 Employment Profile

The employment profile of the sub sector in December 2004 was as follows:

Partners and directors	11.3%
Associates	6.9%
Non equity holding engineers	8%
Technical staff	47.4%
Non technical support staff	26.4%

These are shown in Table 5.3.2. The SAACE figures are for all engineering professionals, not only civil engineering professionals. Civil engineers comprise 57%

of all SAACE staff, and the research assumes the percentages for all engineers provide a reasonable model for indicating the percentage staff profile for Consulting Civil Engineering practices.

Table 5.3.2 Distribution of professional staff in the consulting sub sector

DESCRIPTION	MALE	FEMALE	TOTAL
Partners, Directors	1046	43	1089
Associates	652	56	707
Pr Eng / Pr Tech Eng	910	46	956
Engineers	544	95	639
Technologists	264	57	321
Totals	**3416**	**297**	**3712**

Adapted from SAACE (2005d, p10)

5.3.2 Employment Equity

Black representation in the industry is indicated in Table 5.3.3, and total black representation in the sub sector is 26.2%. This has increased from 23.7% in 2001 or a 2,5 % increase in three years.

Table 5.3.3 Distribution of black professional staff in the consulting sub-sector

POSITIONS HELD	REPRESENTATION 2004	BLACK REPRESENTAGE – CHANGE 2001 TO 2004
Partners directors & Associates	6.3	2.4
Professional engineers	13	7.1
Technologists and technicians	31.2	9.9
Support staff	57.5	3.5

Adapted from SAACE (2005d, p11)

Black representation has increased across all types of employment from top senior level to administrative and site staff, and whilst the number of black partners, directors and associates has increased by 2.4% of the total people employed in the industry to 6.3%, they still remain in the minority and only comprise 15.6% of equity ownership. The merging of several established and emerging firms, which has the effect of diluting percentage ownership in the new organisation, has impacted this figure (SAACE, 2005d). Despite this, there has been a real increase in black equity ownership. However, comparing these levels with the DTI targets shows the industry is unable to currently meet these targets from internal resources alone.

The number of black engineers has increased from by 7.1% to 13% of all engineers in the period 2001 to 2004. This number is of concern as it is form these staff that future equity ownership and leadership of the profession will be drawn.

There has been a substantial increase (9.9%) in the number of technologists and technicians, but the bulk of the increase has come from the ranks of the technicians, and while these staff will contribute to the employment equity target, they generally are not considered for senior positions.

Non-technical black support staff have only increased by 3.5% since 2001, but they do comprise 57.5% of all support staff. Support staff comprise 26.4% of total number of people in the sub sector. The employment equity target of 50 % has been reached for this segment of employment, but the support staff only represent about a quarter of all staff employed, and thus black support staff comprise about 13% of the overall number of staff employed.

5.4 Results Of Interviews With Established Consultancies

The interview questionnaire first examined the age and qualifications of the interviewees, and some details of the organisations they represented. By comparing the results with the profile of the established SAACE organisations, one could determine whether the sample was indeed representative of the target of this research.

The second part of the questionnaire sought to explore the approaches these organisations had tried to achieve transformation (as they understood it), to determine the relative difficulty of achieving component parts of the broader understanding of transformation as detailed in the BBBEE Act, and finally to collect their responses regarding the lessons learnt. The results of the questionnaire are described in some detail below.

5.4.1 Sample Profile

5.4.1.1 Company size

The results indicate 19% of firms represented in the research sample are micro sized (between 1 and 4 staff), 44% are small sized (5 to 10 Staff), 26% are medium sized firms (between 11 and 100 staff), and 11 % are large firms (more than 100 staff). This is similar to the results reflected in SAACE (2005a) report on the status of the industry, which results are shown in section 5.3 above. Table 5.4.1 tabulates the result of both this research and those from the SAACE (2005a) report.

Table 5.4.1 Practice size distribution comparison

SIZE OF PRACTICE	MICRO	SMALL	MEDUIM	LARGE
SAACE	23%	32%	23%	22%
Sample	19%	44%	26%	11%

5.4.1.2 Age distribution

The results indicate that 33% of senior engineers interviewed were between 35 and 49 years old, and of these engineers all were more than 40 years old. 63% of the engineers interviewed were between the ages of 50 and 65 years old and 4% or one member of the sample was 69 years old. Table 5.4.2 tabulates these results.

Table 5.4.2 Age distribution

AGE OF ENGINEER	35 TO 49	50 PLUS
SAACE	34%	37%
Sample	33%	67%

5.4.1.3 Professional registration and qualifications

All the respondents were registered with ECSA, 25 of whom were registered as professional engineers and two were registered as professional engineering technologists. 24 of the 27 practices they represented were registered with SAACE. Of the interviewee's, two held a B Tech qualification, 17 held a BSc Eng degree and eight hand postgraduate technical qualifications, MSc Eng or similar. Table 5.4.3 tabulates these results.

Table 5.4.3 Qualifications of Interviewee's

QUALIFICATION	B TECH	BSC ENG	MSC ENG
Number	2	17	8
Percentage	7%	63%	30%

5.4.1.4 Equity Profile

The equity profile of the sample showed that 44% were partners and/or directors of small, medium or large companies, 30% were associate partners in these companies whilst 26% were the owners of single partner practices. The results are shown in Table 5.4.4.

Table 5.4.4 Distribution of professional staff interviewed

DESCRIPTION	MALE	FEMALE	TOTAL
Partners, Directors	12	0	12
Associates	8	0	8
Engineering Professionals	6	1	7
Totals	**26**	**1**	**27**

The research has distinguished between partners and directors of single owner practices and those of larger companies, because of the difficulty of single and micro companies of meeting black ownership targets. It should be noted that an equity target of anything between 1% and 50% is, for single practice companies, de facto

equivalent to 50% equity, as for a single partner company to add equity would mean the formation of a two partner company.

5.4.5 Summary of sample profile

Consideration of the results above shows that the majority of those interviewed were equity owners in micro or small businesses, all of who were professionally registered. Further 93% had a bachelor level (BSc Eng) qualification and of these engineers, 47% had additional technical qualifications. Of the companies, 24 or 89% companies were members of the SAACE.

From this, one can reasonably make the assumption that the interviewee's were a fair representation of the target profile for Established Consulting Civil Engineering practices.

5.4.6 An Understanding of Transformation

Each interviewee was asked to clarify their own understanding of transformation. They were more particularly asked to indicate whether they understood transformation to include the following topics:

- Black equity
- Black management
- Employment equity
- Procurement
- Enterprise development.

It was not surprising that all the interviewee's indicated that an increased black ownership of their practices would constitute, at least in part, transformation. Seven of the 27 interviewed indicated that it was the primary mechanism for transformation whilst a further one engineer added the need for a practice to increase opportunities for black management, and another believed an increase in both employment equity combined with black ownership equity would constitute effective transformation. A

further seven indicated transformation could be successful if equity ownership, management and employment equity issues were addressed.

Of the sample 11 or 41% of the sampled engineers indicated that all five areas noted in the BBBEE Act (Act 53 of 2003), would need to be addressed if change is considered to be sustainable transformation. Generally, these engineers were either intimately involved with the SAACE and SAICE transformation process or have been widely involved in tendering for work from a wide variety of clients.

Many of the firms indicated that some measure of transformation had already occurred within their companies. A very broad question was asked, requesting the interviewee's to assess their progress in percentage terms, towards their own understanding of transformation. Some 37% indicated that they had made no progress towards transformation, 37% indicated they had started initiatives resulting in up to 25% transformed, a further 15% indicated they believed they were up to 50% transformed and a final 11% indicated they were substantially transformed.

Exploring the nil and less than 25% cohort, one can see these are only single partner, or micro and small enterprises, and thus are the least able to accommodate equity transfer.

5.4.7 Approaches tried

The interviewee's statements concerning the approaches tried in the past included:

- Employment of non technical competent staff, either in the marketing, or communications departments to be able to claim an increase in the number of black people in senior positions, or as directors of the companies.
- Payment of full time training at a University or Technikon and the use of "golden handcuffs" to attempt to retain these students once qualified.
- Transferring all black staff to a new company that then has formal relationships with the parent company to provide specialist technical expertise, administration and management.

- Employment of non South African black engineers
- Joint ventures with emerging black consulting companies.
- Joint ventures with emerging black consulting companies with a view to later integration.
- Reverse takeover by black firms of parent companies.
- Acquisitions and mergers to obtain access to key skilled black staff.
- Upgrading of internal staff skills and offering low cost entrance into equity ownership to reduce exposure to liability.
- Use of the potential opportunity (by international companies, or those with links to other overseas companies) for South African staff to gain international project experience, in an attempt to attract and retain black staff
- Accelerated responsibility programmes for junior black technical staff.
- Extensive recruitment

5.4.8 Findings from the Second Section of the Interview

The interviews showed that, despite significant exposure to BEE and transformation processes, a number of senior engineers within the organisations interviewed, were not aware that the BBBEE Act (Act 53 of 2003) has provided an overriding framework for the measurement of transformation of an business organisation.

Many well meaning attempts had been made to increase black ownership of the companies, but single member/partner/director companies indicated they did not have sufficient resources to fund the process.

Some of these single member/partner/director engineers indicated that they did not know any black engineers, neither had they been able to develop a sufficiently close trust relationship with such black engineering professionals. This then precluded them from opportunities to find a black engineering professional with whom they would be comfortable to partner.

The medium and large companies generally indicated that the transformation costs were not insurmountable, and were affordable, but the small companies were unsure

that they would be able to sustain the apparently large costs incurred in transforming. Three of the micro companies indicated that the cost of their transformation was exorbitant.

The issue of the debt load that new partners would have to shoulder was raised by several of the respondents. One of the single owner directors indicated that an opportunity to sell a promising young partner a meaningful share in the company was prevented by the high debt load the young engineer already carried, and by his lack of collateral. A number of commercial banks were approached and all required that the current owner stand surety for the loan to the junior partner, or required a percentage shareholding in the practice, under conditions the partner deemed unacceptable.

This problem was noted and raised with other interviewee's, one of whom indicated he had overcome this by providing the loan himself directly out of company reserves, as he felt the risk of non-repayment was overcome by the return of the shareholding on default.

Two practices indicated they had no problems with equity transformation, as they did not want any partners, regardless of race. They wished to remain as organisations with only one member, and to obtain their work through direct appointments by private individuals who only wished to deal with professionals they knew well. This rationale skewed the results of the question regarding the difficulty of finding a black equity partner. The lack of desire for any partner created an impression that it was relatively more easy to find a black partner. If the results were adjusted to remove these two results the values would show a more representative answer to the question of the relative difficult that those small and micro practices who wanted a black partner had in finding a suitable match.

Joint ventures were mentioned by six of the engineers as a way to meet the equity requirement of some tenders, and by one engineer as a transitional step to transform his practice. Some to the difficulties with JV's were:

- How equitably to share the workload and the fees.

- Lack of commitment to others programmes.
- Impact of one party's failure to perform.
- Transfer of experienced companies commercial secrets in the form of efficient processes, design shortcuts, specialist software and the like.

In many cases the Clients had expectations that as a result of working together on one JV project, the junior partner in the JV would have absorbed sufficient experience to either head, or conduct a similar project unaided. When this was shown not to be the case, the onus was on the senior partner to explain why it had not upheld the requirement to transfer skills. This lack of appreciation of the time and application needed to become a skilled practitioner indicated the inexperience found in the client body too.

5.5 Detailed Examination of the Transformation Process undertaken by Ingerop Africa.

Information on the company was obtained from a number of sources, including:

- The company library.
- Company and discipline profiles.
- Policy documents.

The numerous profiles and policy documents are listed in the references and are not individually referenced in the text below unless some specific statement is to be collaborated.

5.5.1 Background To Ingerop Africa (Pty) Ltd

Ingerop Africa (Pty) Ltd. was established in 1957 as BS Bergman and Partners, by Dr B S Bergman. The company's initial area of expertise was in the field of wastewater treatment, but as the firm grew, it developed multi-disciplinary capacity and by 1990 had staff with skills and experience to conduct engineering assignments in the many

other engineering fields. The organic nature of the growth of the firm was dictated mainly by the changing needs of the client bodies the firm supplied services to.

The 1980's were more focussed on municipal services, as the emphasis of the then government was on the creation of urban infrastructure. As work opportunities in urban infrastructure developed, the firm expanded its capacity. The company employed staff with wider municipal experience, including several ex town engineers, and formed associations with professional practices with complementary skills (Evans, 2005).

The construction industry is characterised by cycles of "boom and bust", which is significantly influenced by changes in the national economy (Blaauw, 2005, p3). The late 1980's and early 1990's were bust years, which lead to contraction in the staffing levels, pay reductions and shortened working weeks. Work was more urgently sought and engineers had to adjust to working on much smaller schemes, or on projects with reduced scope, to which the boom years had accustomed them.

Some of the engineers employed by the company, believed this type of work was demeaning, or lacking in excitement, and as a consequence left the country or the sector (Evans, 2005). This view was supported by the comments raised by Unstead during the earlier interviews. This flight of younger engineers either to other sectors, or to other countries, resulted in their skills no longer being available to the company (Evans, 2005). The depth of experience that the 50 year old plus engineers had gained in working on significant infrastructure projects was not replicated in the experience the younger engineers had gained in working on smaller (and less profitable) projects that characterised work in the late 1980's and 1990's.

An unforeseen impact of the bust cycle and the loss of young engineering talent, which became evident at the end of the 1990's was the current dearth of experienced engineers in the 35 to 45 age group, who could under natural succession take over the leadership of smaller established companies (Evans, 2005).

Thus, the pool of competent engineers, able to take over the management of the company from the now larger group of older engineers (55 years and older) who

wanted to retire, was smaller and the engineers themselves less experienced although they had had exposure to a wider range of projects. This view was echoed by Botha (2005) during an earlier interview.

The Company developed niche areas of expertise in the fields of solid waste management, and in by the end of the decade in the labour intensive maintenance of municipal infrastructure. The company's involvement with these projects required an in depth understanding, both of the new importance of environment protection and of the social impact of the provision of engineering (Gates, 2005).

The change in government, and the new government's different priorities, impacted on the firm focus, with the engineering skills needing to be adapted to provide of engineering services to previously disadvantaged communities (Ware, 2004).

This was particularly evident in the application of the RDP to rural water provision and to the labour intensive construction (LIC) of rural road (Jonsson, 2004). Thus, the focus changed from large complex, capital intensive projects to small labour intensive projects with less complex engineering skills and more sophisticated social skills (Evans, 2005).

Reintroduction into the mainstream global economy provided considerable opportunities for South African engineering firms to expand their markets and small cautious forays into Africa were undertaken from 1992 onwards (Evans, 2005). Initially, these were into areas in which the company had previously operated, such as Namibia, Swaziland and Lesotho, with Botswana, Zimbabwe and Mozambique being added. These approaches required specific skills and whilst the engineering abilities of the firm was not questioned, the very different business environment required new expertise to ensure success.

The firm also faced significant competition from the international companies already operating in these companies, and a strategy of cooperation with established multi-nationals was chosen (Campos de Carvalho, 2005). The result of the cooperation strategy was the acquisition of BS Bergman by Ingerop of France in 1995 (Evans, 2005).

5.5.2 Background to Ingerop Group

The information for this section was gleaned from a number of Ingerop Africa capability profiles references. Ingerop was the result of a merging, in 1992, of a group of international consulting firms with complimentary skills and resources. The parent firms were SEEE, Inter G, and Petrotechna, and together they form an independent group of consulting engineers. The firm is 75% owned by the professionals working for the group, with Credit Lyonnais holding the remaining 25%.

The group is represented in Western Europe (head office in Paris), Eastern Europe, South America (head office in Rio de Janeiro) Africa (head office in Johannesburg), and the Far East ((head office in Tokyo). The group has clustered its multi-disciplinary skills under Infrastructure Development, Industrial Engineering and Specialist Buildings and Equipment. The Ingerop Group is then a considerable organisation, employing some 1200 personnel, whilst Ingerop African is a considerably smaller organisation employing some 130 staff (Ingerop Africa, 2004).

5.5.3 Impact of company ownership on Transformation

Belonging to such a large group has obvious benefits, but reduces the local company's independence in responding to transformation of equity ownership. In 2002, for example, Ingerop France held 75% of the shares in Ingerop Africa, with the remaining 26% held locally. The share holding by the parent company increased in 2003, with a further 13.5 % of the shares, or 87,5% of the total share holding now being held by Ingerop France (Campos de Carvalho, 2005).

Of the 12.5% locally held shares, Previously Disadvantaged Individuals (PDI) held 7.8%. While this amounted to 58% local equity, little opportunity existed for further equity transfer, and even if all local shareholding were to be transferred to the PDI's employed within the group, the resulting 12.5% shareholding was deemed to be too little to indicate meaningful transformation (Campos de Carvalho, 2005)

The importance of transformation through equity was initially not well understood by the foreign directors, who viewed transfer of ownership on the basis of race, as invidious as any previous racially divisive system, and indicated that from their point of view, preference of "black" people over "white" as unfair. The initial lack of a cultural sensitivity to transformation was a major impediment to the success of the transformation process South African directors was trying to implement (Campos de Carvalho, 2005).

Table 5.5.1 Transformation Target comparison for Ingerop Africa 2003

INDICATOR	DTI TARGET %	INGEROP AFRICA %
Equity ownership	25.1	7.8
Management	40	18.9
Employment equity	50	33

(Ingerop Africa, 2003c)

Thus Ingerop Africa was unable in 2003 to neither meet the DTI targets, nor claim to have exceeded equity targets and thus would score few points on the transformation scorecard for these three indicators. These figures indicated a need for a different approach (Campos de Carvalho, 2005).

5.5.4 Precursors To Transformation

Early attempts at transformation focussed on skills development and training. The Paterson Staff Grading System as implemented by BS Bergman included references to the registered mentoring programme, which was a pre-requisite for registration of the professional staff (Evans, 2005).

The skill development programme distinguished between those staff or learners seeking a technical qualification, and those staff seeking to qualify at University level.

Technikon students were required to under take either three semesters or four semesters of academic study interspersed with practical work experience. A common practice was for technicians to attend one semester of academic training a year, and to

spend the other semester working in the industry. Ten staff members were trained under this scheme from 1978 to 1995 (Evans, 2005).

The company would bear the cost of full time fees for those staff able to attend university, and this would usually only be offered to students in their third or fourth year of study. The reasons given was the high drop out rate in year one, together with the perceived difficulty in adjusting to a higher academic standard required for success in the second year and beyond (Dlamini and Lawless, 2005).
On graduating, the engineer registered as an Engineer-in-Training and undertook to work for the company for the same period he/she had been sponsored.

5.5.5 Engineer Training Scheme

Additionally, the Engineer-in-Training would participate in the Company's Engineer Training Scheme, a three-year programme specifically devised to provide varied and intensive experience to enable the engineer to be granted registration as a Professional Engineer (Bergman Ingerop, 2001).

This programme had, by 1995, provided eight engineers with this career development assistance of three were black staff. In 1992 it was recognised that unless a concerted effort was made to train black engineers and technicians, the company would be unable to adequately prepare itself for the social transformation ahead. Thus the training programme was refocused as an Affirmative Action Programme, and emphasised the advancement of black staff as a priority.

5.5.6 Accelerated Development Programme

In 1995, the Affirmative Action programme was expanded to enable the company to respond to the challenge of meeting the country's needs in its Reconstruction and Development Programme (RDP). The Affirmative Action Policy became a more comprehensive means of ensuring capacity building, professional development and empowerment of people involved in and with the company (Bergman Ingerop policy, 2001, p3). The expanded Affirmative Action policy was renamed as the Accelerated Development programme. The company policy was to be an equal opportunity

employer, with no discrimination "on the basis or race, sex, colour or creed" and to affirm that advancement was solely on merit (Evans, 2005).

5.5.6 Senior staff

The company experienced the loss of 15 qualified and experienced engineers in the 34 to 49 years old age cohort between 1990 and 2004. Of the 15, three left to work in Europe and the Middle East, two immigrated to Australia, four left the industry, two started their own practices, while the remainder joined other firms in South Africa either for better prospects or more interesting work. This loss was influenced by:

- The acquisition of the company by Ingerop in 1995, and change in company structure.
- The purchase of a subsidiary company in 1998.
- The affirmative action process.

The company experienced difficulty in replacing these engineers and even more difficulty in replacing the senior staff. Many attempts where made to find senior black staff for the KwaZulu-Natal office. Letters from recruitment agents, indicating their complete lack of success in attracting black engineers for a senior position for the KwaZulu-Natal regional office testify to the scarcity, and show that the scarcity of experienced professionally qualified black engineers, expressed by Dlamini and Lawless (2005) is not a recent problem.

5.5.7 Anathi

In an attempt to overcome the equity problem, Ingerop Africa purchased a separate engineering company, in which the non-PDI ownership was limited. Initially known as Ingerop Africa South Africa, the company was 40% owned by Ingerop Africa and 60% owned by black professional staff working within the company.

A black woman headed the company, with a black male engineer and black male financial officer being the other PDI's. A white male engineer represented the Ingerop Africa interest.

The purpose of the creation of an affiliate company was to maximise the benefit of the owner's equity, management structure and employment equity. The majority of the black engineers, technicians and support staff within the firm were transferred to Anathi. The impact of this is shown in Table 5.5.2

Table 5.5.2 Anathi Employment Profile March 2005

OCCUPATIONAL CATEGORIES	MALE				FEMALE				TOTAL
	African	Col.	Indian	White	African	Col.	Indian	White	
Professionals	3		1	1	1				6
Technicians and associate principals	2			5					7
Clerks							1	1	2
Elementary Occupations					2				2
Totals	**5**		**1**	**6**	**3**		**1**	**1**	**17**

(Ingerop, 2005, p3)

The table above shows that seven of the 13 (54%) of the management echelon are black staff, while 10 of the 17 (59%) staff are black. A comparison with the DTI transformation charter values is shown in Table 5.5.3 below.

Table 5.5.3 Transformation Target comparison for Anathi

INDICATOR	DTI TARGET %	ANATHI %
Equity ownership	25.1	60
Management	40	54
Employment equity	50	59

(Ingerop, 2005, p3)

Thus Anathi can claim to have more than exceeded equity targets and thus would score full points on the transformation scorecard for these three indicators.

5.5.8 Recurrent Themes

A number of themes surfaced during the interview, and these themes were echoed in the responses recorded during the earlier 27 interviews with white engineering professions engineers. These themes have been summarised and are listed below:

- Lack of experienced technical staff to support the design process.
- Moving targets for transformation, with different clients having different targets.
- Concerns that no clear definition of transformation exists and thus how can one know when it has been achieved.
- Interpretation of the various indicators that different clients have established makes cross comparisons difficult. For example what does management mean, and can junior technicians managing a small project be considered as junior managers?
- The role that non-technical professionals should be allowed to play, particularly with regard to holding equity in professional practices was questioned.
- Small practice owners who were single member firms could not see a way forward, as the firms could not support two member salaries, and 25.1% equity means 50 % equity. These considered selling or closing their business and leaving the industry.
- The debt load that new equity owners have to service to buy into the firms means they are highly geared, and thus less able to access more debt.
- The cost to the firm of allowing junior staff access to sufficient varied exposure in design and construction, usually by secondment, is difficult to afford.
- Small firms cannot afford the cost of more senior non technical support, i.e. human resource managers, financial managers and the like, and thus cannot obtain points on the management target.

- The transformation targets cannot be met by established consultancies using traditional ownership models.

These themes indicate that despite much work within the industry, the plethora of differing transformation and empowerment measures has not resulted in a clear and transparent approach to transformation in the industry.

5.6 Demand and Ability to Meet Demand

There are approximately 15000 engineering professionals currently working in the South Africa construction sector, and of these, only 56% work for consulting civil engineering firms. This implies some 8400 engineering professionals work in the consulting field. There are between 900 and 1000 black civil engineering professionals working in South Africa at present, of which 600 graduated from South African universities. Further, 450 black civil engineers work in the consulting (Lawless, 2005b).

The SAACE figures are slightly different. These figures show some 10200 staff work for consulting practices, 6250 of these are technical staff, and only 159 of these are black Partners, Directors or Associates. If 67% of all SAACE staff work in civil engineering firms, and if the percentage breakdown of all the SAACE firms is used for the sub set of civil engineering firms, then this is 18.2% of 67% of 10200 staff or 1244 are associates, partners or directors.

Table 5.6.1 Demand for senior black professionals

INDICATOR	DTI TARGET %	CURRENT BLACK %	ADDITIONAL DEMAND
Owner equity	25.1	6.3	18.8
Management	40.0	13.0	27.0

Adapted from SAACE (2004b)

Considering the demands estimated in Table 5.6.1, one can see that for the equity ownership target to be met, three times more black engineers than currently hold

equity will needed to take equity. More than two times more black engineers than currently hold senior management positions will be needed to move into managerial positions to meet the management target.

Again if 25.1 % of equity ownership is the equity target, this implies 25.1% of 1244 or 313 experienced, registered black civil engineers are needed. There are, at present, 159 black partners, directors and associates, of whom only 106 work in the civil discipline. This implies an additional 207 black civil engineers will be needed.

Continuing this calculation to estimate the number of professional engineers and technologist the 40% management target required gives the following. 29.9% of all employees are graduate engineers and technologists, both registered and un registered, and these staff could be suitable to meet the management target. Assuming 67% of 29.9% of 10200 gives 2044 actual and potential managers, but only 13% or 265 managers are black. The target of 40% will require 818 or 553 more black engineering professionals.

Finally considering the employment equity target of 50% of all staff, this implies 5010 black staff would need to be employed, and the current figure is 26.2 %

From the above it would seem that demand would outstrip supply and that for the transformation targets to be reached, 553 addition black engineers and technologists would be needed and a further 207 experienced black civil engineering professionals needed for leadership and equity positions. Thus an additional 760 black civil engineering professional will be required.

The calculation method above assumed the following:

- All directors, partners and associates are engineers or technologists.
- All engineers are managers at some level.
- All the black engineers in the construction sector are potentially employable in the Consulting Civil Engineering sub sector.
- All the black engineers and technologists are legally competent to contract.

5.7 Summary

The above analysis of the results of the industry research provides answers to the question posed in objective three, viz. the shortage of professional engineers and provides a quantum of the size of the problem the industry faces. The claim that there are insufficient experienced black professionals is clearly demonstrated to be true, and the quantum is such that the shortage cannot be immediately overcome. This shortage is therefore not a counterfeit shortage created by the established companies in an attempt to hide their failure to support transformation, but is a genuine shortage, which needs an urgent and immediate response.

The interviews have provided background and some understanding of the constraints faced by the Established Consulting Civil Engineering sub-sector of the Construction industry in its attempts to transform. It identified that the lack of a single clear definition of the final transformed state of the industry resulted in the development of a number of widely diverging measures of transformation. Different clients then developed different targets, and many of the targets developed included simple equity measures which, bearing in mind the supply of black professionals, could not be achieved. The looseness of some of the definitions resulted in many interpretations, and led to suspicion, to claims that the transformation claimed was cosmetic or worse, implied fronting (Faniso, 2005b). Again the lack of definition made such charges difficult to prove or refute.

The clarity of the DTI transformation targets was welcome, but again the lack understanding of the genuine shortages in the supply of experienced black civil engineering professionals meant the targets proposed were unrealistic. It is clear that the lack of those professionals needed to provide leadership into the future is a major constraint to the continued existence of the sub-sector.

Having considered the research findings, conclusions regarding the different research objectives are provided next in Chapter Six.

CHAPTER SIX: CONCLUSIONS

The research sets out to examine transformation in the construction sector and more specifically the problem statement was to:

Determine the extent to which the generic transformation targets, established by the Department of Trade and Industry, for equity ownership, management and employment equity can be met by established, predominately white owned Consulting Civil Engineering firms, who are members of the SAACE.

The conclusions of the research have been reviewed by objective and are grouped under each individual objective for clarity below.

The first set of conclusions are drawn from the examination of the definition of transformation and from examination of some of the early approaches made by industry in attempting to respond to these definitions.

The second group of conclusions are those regarding the legal basis for transformation, and of the process change from the early simple transformation models based on black equity and or ownership, leading to the current transformation model envisioned in the Broad Based Black Economic Empowerment Act (2003) and the generic DTI transformation targets.

The third group of conclusions resulted from the exploration, which centred on the supply of and demand for engineering professionals and more specifically on the number of black professionals needed to reach the generic DTI transformation targets for the civil engineering consulting sub-sector as it is currently constituted.

The fourth group of conclusions were those drawn from the interviews with the 27 senior white engineering professionals, firstly considering the representativeness of the sample and secondly highlighting the problems experienced in pursuing transformation within the context of a limited pool of black engineering professionals, and of meeting widely divergent transformation requirements.

These conclusions were compared with the conclusions of the interview with Mr Evans and finally some conclusions regarding an improved transformation model that recognises the above constraints, are provided.

6.1 Conclusions from Objective One

Objective One was to "Clarify the definition of transformation, and the development of models for transformation, from the initial industry responses to the early governmental pressures to transform".

The review began with a dictionary definition of transformation, and looked at topical views of transformation as published in the popular press, in journal articles and in concept papers published on the ANC website. The concept of transformation was found to be widely understood as some sort of change in the social, economic and political structure of the South African society (ANC, 1996b, p35), but as Fletcher (2000, p59) has pointed out, "*no-one seems quite able to put their finger on what transformation is.*"

The need for a strategic approach to transformation that was identified by Duvenhage (2004, p3) has been answered in part by the establishment of the transformation charter and it is this model, which defines transformation by the amount of progress that has been made in meeting a number of very specific criteria, that provides the latest description of what transformation is (SAACE, 2005c, p2).

The model is based on direct empowerment through equity and control, adds a human resource development component and further requires indirect empowerment; hence the term broad based (RSA, 2004a,p5); has been proposed to overcome some of the shortcomings identified in examination of past models of transformation.

6.2 Conclusions from Objective Two

Objective Two was to " Review the basis for transformation, and the legal framework that supports transformation and the impact on transformation of the Consulting Civil Engineering sub-sector".

The Constitution of South Africa provides the underlying base for equal opportunities for all South African citizens, and to achieve this it was thought that by providing support to small businesses, through legislature such as the National Small Business Act, Act 102 of 1996 economic transformation could be initiated.

The legal framework for transformation was developed further through laws such as the Employment Equity Act, Act 55 of 1998 which provided a legal basis for discrimination by race, and the Preferential Procurement Act, Act 5 of 2000, which was to provide further opportunities for black economic empowerment, skills development and transfer, and thus encourage the growth of SMMEs (eThekwini Municipality, 2003).

Early models for transformation focused on ownership through black equity purchase and later on black management (Fletcher, 2000, p57), but the practical application of such practices where the pool of potential investors with sufficient funds and of black managers lead to a few prominent black business people appearing to become the black economically enriched.

Additionally, allegations of fronting and of tokenism; which although difficult to prove as no clear definition existed, were continually made (Faniso, 2005b, p13) and hence the call for a wider definition of empowerment was made (Motshabi, 2005, p6).

A Black Economic Empowerment Commission was to be formed in 1999 (Fletcher, 2000, p51) to firstly define empowerment and then to make practical recommendations on how it could best be achieved. The definition would then provide a benchmark against which the success of BEE could be measured.

A long delay occurred before the establishment of policies that ultimately lead to the publication of the Broad Based Black Economic Empowerment Act, Act 53 of 2003, the establishment of the Commission and of the Empowerment Charters. It is this delay that lead to the proliferation of the widely divergent procurement policies and of the confusion in many companies of the best way to ensure transformation (Evans, 2005). The construction sector was aware of the impact of transformation and realised

the need to create new coordination mechanisms, to develop a focused sectoral view and to canvass government, so as to influence change process. The Construction Transformation Charter Group (CTCG) was established for this purpose and provided critical input for construction charter.

The starting point for all charters was the generic DTI scorecard, which indicated that the achievement of its targets would imply transformation. The targets were for black equity ownership, black management, and contributions to skills development, employment equity and support of SMME development. These targets them provided the first generally applicable transformation targets and began the process of standardisation of the definition of transformation.

The process of full implementation is, however, far from complete. Pirie (2006, p1) has noted that the existing PPPFA Regulations apply until Phases 1 and 2 of the DTI Codes are concluded and gazetted. The amended PPPFA Regulations which harmonise all the legislation relating to procurement will then be enforced and following a transitional phase the targets in the Charter will apply (Pirie, 2006, p2).

6.3 Conclusions from Objective Three

Objective Three was to "Explore the claim that there is a shortage of trained and experienced engineers and if there is a shortage compare the transformations targets proposed in the Department of Trade and Industry's generic transformation scorecard with the number of black engineering professionals needed by the Consulting Civil Engineering sub-sector to meet the generic targets".

The following are the conclusions with regard to the claim that at present there exists a critical shortage in the supply and demand of engineering professionals.

The conclusions are provided in point form for clarity and are drawn from a synthesis of the Lawless (2005) report, the SAACE (2004b), SAACE (2005b), SAACE (2005d), and the SAFCEC (2004a) and SAFCEC (2004b) reports. These are as follows:

Professionals in the construction sector

The following points summarise the results of the SAICE investigation in the South African Construction sector, which are:

- There are 15000 civil engineering professionals working in South Africa.
- Of these approximately 13500 engineering professionals work in the construction sector.
- 6860 of the engineering professionals are engineers or technologists, and it is this pool of professionals from whom owner equity and management is drawn.
- 3585 of these engineering professionals are black, but only 807 or 6% are engineers.
- Registered white engineers make up 39% of all registered engineering professionals, but black registered engineers comprise only 3.8% of all engineering professionals.

Professionals within the Civil Engineering Consulting Sub-sector

The following conclusions have been draw for the Consulting Civil Engineering sub-sector of the South African Construction sector, and are:

- There are 10200 people employed in the South African consulting engineering industry.
- Engineering professionals make up 61.3% of the people employed, amounting to 6250 people.
- 2673 of all the staff employed in the sub-sector are black, or stated as a percentage 26.2% of all positions are filled by black people.
- Black representation has increased by 10.5% from 23.7% to 26.2% in the last three years.
- Approximately two thirds of all consulting engineers belong to the civil engineering discipline.

Conclusions from consideration of the transformation targets are reported below.

Staff numbers needed to meet employment equity targets

Black staff currently comprise 26.2% of all staff employed. To fulfil the employment equity transformation target of 50% of all staff, implies the black staff complement should increase to 5100 staff out of a total number of 10200 staff.

The current staff complement is 2673, which implies that 2437 positions currently occupied by white staff would need to be replaced and filled by black people.

Staff numbers needed to meet management transformation targets

To fulfil the management transformation target that 40% of all managerial staff are black, implies that 818 black managers would need to be employed. However, black staff currently comprise 265 of all the managerial staff, thus, there is a current demand for 553 black civil engineers to be employed in managerial positions in civil engineering consultancies.

Staff numbers needed to meet equity transformation targets

1207 civil engineering professionals currently hold equity in the established civil engineering practices belonging to SAACE, and of these 106 are black. To fulfil the equity ownership transformation target of 25.1% of managerial staff, 303 experienced black civil engineers would be needed. Thus, to meet the equity transformation target, some 197 more black engineers would be needed.

Total civil engineering professionals needed to meet equity and management transformation targets

750 civil engineering professionals are needed to meet the demand generated by the DTI transformation targets.

The civil engineering industry currently employs approximately 872 black engineering professionals, but only 450 of these are black civil engineering professionals, and of the 450 professionals, 106 are equity shareholders.

Currently there are between 900 and 1000 black civil engineers employed in all sectors of the economy and thus the demand for one sub-sector is more than the total available supply for the entire country.

In addition, there currently is a demand for black engineers from all sub sectors of the construction industry, and thus not all available civil engineers will be available to the consulting civil engineering industry, reducing further the supply.

It is clear that the DTI targets did not account sufficiently for the constraint that the pool of available black engineering resources imposes on this model.

6.4 Conclusions from Objective Four

Objective Four was to " Examine the responses of the established civil engineering constancy sub-sector of the construction sector, and the constraints they experienced in response to the imperative to transform ".

Interviews were conducted with 27 white professionally registered engineering professionals, who were either part owners of their own practices, or members/ partners / directors in larger practices.

The first section of the interview was structured to check that the interviewee's were in fact representative of the larger group as constrained by the scope of the study, and the results of this are discussed below.

Representation of the sample

The findings of the first section of the interview showed that:

- The majority (63%) of those interviewed were equity owners in micro or small businesses.
- They were all were professionally registered, 25 as professional engineers and two as professional engineering technologists.
- 25 of the 27 interviewed had a bachelor level (BSc Eng) qualification and almost half of these engineers had additional technical qualifications.
- 24 of the 27 companies that they represent were members of the SAACE.

From this, one can reasonably make the assumption that the interviewee's were a fair representation of the target profile for Established Consulting Civil Engineering practices.

The second section of the study sought to explore the interviewees understanding of transformation, particularly in regard to the BBBEE Act and the Codes of Good Practice. The difficulties each experienced with transformation was also examined and some lessons learnt identified.

A follow up interview with a senior member of the SAACE executive was used to explore in more depth the reaction of a large established company to transformation.

Problems relating to transformation

The following problems were noted during the interviews:

- The high cost of implementing transformation (Jonsson, 2005).
- A lack of experienced technical staff to support the design process (Gates (2005), Unstead (2005), Ware (2005).
- Moving targets for transformation, with different clients having different targets (Botha (2005), Campos de Carvalho (2005)).
- Interpretation of the individual transformation indicators (Botha (2005), Campos de Carvalho (2005), Lawless (2005b)). For example, what does management mean, and can junior technicians managing a small project be considered as junior managers?

- Should non-technical professionals be allowed to have equity in professional practices just to increase equity ownership levels?

Small practice owners, who were single member firms, expressed the view that there was no way for them to meet the equity ownership targets (Jonsson, 2005). Their firms could not support two member salaries, and one more member implies 50 % equity. These two have considered selling or closing their business and leaving the industry.

Most new equity owners have not has the opportunity to build up sufficient financial resources to fund the equity ownership from their own capital (Ware, 2005). They usually require access to additional debt facilities to buy into their firms. The initial impact is that they either become highly geared, and a second impact is that they are less able to access further debt for, for example, operating capital (Ware, 2005).

The cost to the firm of providing a career development programme that will maximize the employee's experiential exposure by enabling junior staff access to sufficient varied exposure in design and construction, usually by secondment, is difficult to afford (Evans, 2005).

Small firms cannot afford the cost of more senior non-technical support, i.e. human resource managers, financial managers and the like, which the larger firms have used as a strategy to obtain points towards the management target (Jonsson, 2005).

Finally, it was clear that the transformation targets, as proposed by the generic transformation targets, cannot be met by established consulting engineering companies using traditional ownership models.

6.5 Implications of Conclusions

South Africa is experiencing a shortage of skilled and experienced civil engineering professionals (Dlamini and Lawless (2005, p1), Lawless (2005a, p1), Povey (2005)). The shortage of engineers is not only a South African problem but is a global

problem, shared by many countries of the developed and developing world (Civil Engineering, 2005b, p24).

Western countries are also experiencing a shortage of experienced engineers and thus there is competition for these human resources (Civil Engineering, 2005b, p24). Further, there is an extreme shortage of experienced black engineering professionals, especially registered and experienced black civil engineers (Civil Engineering (2005c, p5), SAACE (2005d), SAICE (2005, p1))

All consulting engineering companies have expressed the need for black engineers, more especially the established or previously white owned companies (Evans (2005), Gates (2005), Jonsson (2005), Unstead (2005)).

The demand for black civil engineers in the consulting industry exceeds the total number of black engineers working in the construction sector; with the shortfall estimated to be that 750 black engineers and technologists are needed (SAACE, 2005d).

The demand created by reference to the transformation targets cannot be met with the current resources and it is considered unlike that the transformation targets for equity ownership and management could be met in the near future.

CHAPTER SEVEN: RECOMMENDATIONS

The primary thrust of this research has been that transformation has been constrained as there are insufficient experienced black engineers available to the construction industry and more specifically, to the Consulting Civil Engineering sub-sector. The demand for experienced black engineers far exceeds supply.

Application of the generic DTI transformation targets to the current status of the established civil engineering consulting industry implies that for transformation to occur approximately 1121 black engineering professionals will be needed to allow all members of the sub sector to meet these targets. This figure exceeds the total number of engineering professionals currently employed in any sector in the country, and thus transformation is unrealistic. It is therefore recommended that the Consulting Civil Engineering organizations review the current targets as presented in the DTI Transformation Charter, based on the reality of the current human resource availability.

This does not imply the consulting engineering industry rejects transformation, as the evidence presented in this thesis shows the industry has made significant progress in effecting real transformation at an individual level. Numerous bursaries, support for further studies and in-service training, engineering development programmes and the like, as indicated from the Ingerop Africa research, have been established, and through these efforts many more engineering professionals have been added to the industry. Not all these engineering professionals have remained in the sub-sector. The interviewees noted that many of their staff moved into the Public Service once they were qualified which has the effect of diluting these transformation efforts.

What is recommended in support of transformation is as follows:

Reliable data

There is no one reliable and maintainable database of all engineering professionals and this lack of a single reliable source creates confusion regarding the precise definition of the problem of how many engineering professionals there are, how many are black, and so on.

The detailed analysis conducted by Lawless (2005a) to generate a reasonable quantification of the number has been discussed in Chapter Five, and showed how fragmented the databases of engineering professionals are. The individual databases are maintained by the special interest groups for their own purposes, and therefore by definition cannot be expanded to cater for all the civil engineering professionals. It is therefore recommended that a single database of all engineering professionals be established and to be maintained through the construction SETA.

Adequate preparation

The lack of adequate preparation of learners in basic skills needed for engineering, plus a number of logistical support problems were identified by Blaauw (2005), Dlamini and Lawless (2005) and SAICE (2005) as a restraint to engineering skill development. This restraint acerbates the lack of black potential engineers and it is recommended that a focused programme of encouraging black learners to select civil engineering as a career should become a national priority (Lawless, 2005b).

Training of black professionals not technicians

The research indicated an oversupply of civil engineering technician at the same time as there is a large undersupply in the number of civil engineers. The reasons for young black South Africans choosing the technician qualification are many and complex (Lawless, 2005b), but some of these students could be rerouted into the university qualification with the right level of support. There is then an urgent need to train more black engineers, rather than technicians. It is recommended that the spending priorities for tertiary training be allocated where the most urgent need is, which is training of black engineers.

Formal development programmes for professionals

For real transformation to occur, black engineering professionals should be developed in a manner that enhances their exposure to all aspects of the civil engineering, and this exposure takes time. It has been estimated that an engineer should have approximately ten years experience before moving into senior leadership roles in the industry (Dlamini and Lawless, 2005, p3).

Experience can only be gained with time and exposure to a wide range of projects that allow the development and application of the different skills an experienced engineer will need. It is considered that the transformation targets should be amended to encourage the creation of a pipeline of work experience, and that experience together with a skills development programme be the overriding criteria when appointing a professional engineer.

Further, to encourage young engineers to broaden their work experience, it is recommended that the Public Service recreate the engineer development programmes that saw the development of so many of the experienced engineering in the seventies and eighties.

Remuneration

It is recommended that the basis on which engineers are rewarded be examined. The recent increase rise in competitive tendering for work brought on by the unthinking application of recent procurement practices (SAICE, 2005) that results in fee discounting, has the knock-on effect of reducing the profitability of a consulting industry. This means that work efficiency is at a premium and in turn requires that only the most experienced professionals are used to deliver the final product. There is then no time or money to allow the level of rework that would occur if inexperienced staff were to be used (Unstead, 2005), and so impedes their growth.

The industry should be rewarded for its contribution to the country's infrastructure in such a manner that the young engineers can develop the skill base the country so desperately needs. The principal of saving a few percent on the consultant's fee, whilst at the same time losing the opportunity to develop a skills base (as was able to be done in the past), which would then be available for further infrastructure development, is short term view.

Optimise the utilisation of existing skills

The civil engineering industry has the opportunity to contribute immeasurably to the development of the country. This cannot be done if the current engineering professionals who are mainly white are shut out of the industry by a misguided transformation process (SAACE, 2005b, p15). It is recommended that the current emphasis on filling all technical positions by inexperienced black managers be halted, that white professionals be employed specifically to

mentor young black professionals for a minimum period to enable the young professionals to gain the requisite experience under specific guidance, and that the employment be tied to formalised training programmes. These SACPE professional mentoring programmes required for Pr Eng registration should be reviewed and modified, where necessary, for this purpose.

Longer term view

The transformation targets should be skewed in favour of a longer term transformation model that rewards the mentoring of young black professions, rather than a focus on ownership transfer.

Mentoring

The establishment of the concept of a professional engineering mentor as a final stage in a professional engineer's career is mooted as a way of ensuring the skills developed are not lost. Often mentoring is considered as a charity work and not as a paid profession. The mentor could provide mentoring services to one or more engineering professionals as time or energy allow, and the transformation indicators modified to provide evidence of transformation through the provision of a mentoring service.

The costs for this service can be drawn from the skill development levy, in the same way that learnerships are, and thus it is recommended that part of the funds available for skill development be allocated to this role.

Mentoring should be built into the skills development programmes of all consulting civil engineering practices.

Management of Practices

Engineers are not trained as managers, and given the shortage of black engineering professionals, and the surplus of inexperienced black technicians, it is considered that an alternative management approach, which trains technicians in a new discipline of engineering practice management be considered. Engineering managers will need an understanding of the basics of civil engineering, but do not need to be experienced engineers.

There are many management-training programmes and these could be adapted to provide an engineering practice management qualification, which requires as a pre-requisite a technical engineering qualification. Thus the surfeit of technicians could be channelled into the industry and the time and resources spent on their technical training would be retained in the industry, not lost. Most managers in engineering practices have been drawn from the skilled engineer base and could more profitably be utilised as engineers not managers. It is recommended that the development of a programme for professional engineering practice managers be considered.

Conclusions

Transformation in the civil engineering industry has been slower that the government would like (October, 2005, p1). This lack of progress was seen to be as a result of the lack of application by the established companies to the transformation agenda, but as shown above, the lack of progress can be attributed tom ore tan any other reason the lack of sufficient black engineering professionals. The initial transformation processes aimed to maximize the opportunities for black engineering professionals, particularly in the Public Sector, and the process was applied without sufficient consideration to the need to ensure that these black engineering professionals be empowered to play the role into which they were placed. A secondary effect was the migration of relatively inexperienced engineering professionals from industry to the Public Sector

The consequence of the displacement process was the loss of experienced engineering skills, the effect of which with regard to service delivery is now starting to be appreciated (Civil Engineering, 2005c, p5). A second and more insidious problem is the unintended consequence that these inexperienced engineering professionals will themselves be unable to provide the leadership needed to mentor the young engineers who in years to come will replace them.

Transformation is now at a more critical stage in South Africa's development than at any other stage and needs to be undertaken with long term view to develop the engineers for the demands of the countries progress. It is hoped the recommendations provided for in this research aid in the development of this new approach to Transformation.

REFERENCES

Anathi Consulting Engineers (2005). *Company Profile*. Gauteng, February 2005, internal publication.

ANC (1994). *RDP discussion document*.
Available: http://www.ancorg.za/ancdocs/policy/white.html

ANC (1996a). *Affirmative Action and the new constitution*.
Available: http://www.anc.org.za

ANC (1996b). *Economic Transformation*.
Available: http://www.ancorg.za/ancdocs/policy/s&st.html

ANC (1996c). *The State And Social Transformation*.
Available: http://www.ancorg.za/ancdocs/policy/s&st.html

ANC (1997). *Draft strategy and tactics of the ANC*.
Available: http://www.anc.org.za/ancdocs/pubs/umrabulo/umrabulo4.html#MOTIVE

ANC (2002). *The State and Social Transformation*.
Available: http://www.anc.org.za/pubs/umrabulo/umrabulo16/social.html

Bergman Ingerop (2001). *Company Profile*. Sunninghill, internal publication.

Blaauw, P. (2005). State of Civil Engineering Industry Report. *SAFCEC Monthly Newsletter*, Bedfordview, July 2005,p5-7.

Botha, A. (2005). Personal Communication. Director, Anathi, Sunninghill, 2005.

Botha, D.B. (2004). *Foundation for the future. Civil engineering in South Africa*. Johannesburg, Chris Van Rensburg Publications.

Bridge-David, S. (2005). *FirstRand nails SA's biggest BEE deal*. Business Report, February 25 2005, p3.

Campos de Carvalho, A. (2004). Personal Communication. Chairman, Ingerop Africa, Sunninghill, 2005.

Central News Agency, (1982). *Concise English Dictionary*. England, Omega Books.

CIDB (2004). *Procurement reform*.
Available: http://www. cidb.org.za

Civil Engineering. (2005a). Construction charter provides opportunity for unification. *Civil Engineer*, Vol. 13, No 3, March 2005, p.24.

Civil Engineering. (2005b). Bullish outlook for civil industry. *Civil Engineer*, Vol. 13, No.7, July 2005, p.33.

Civil Engineering. (2005c) Civil Engineering Skills in Local Government. *Civil Engineer*, Vol.13, No. 8, August 2005, p.5.

Cokayne, R. (2005). *Draft construction charter sets five year target*. Business Report, April 21 2005, p.1.

Conger, J. and Fulmer, R. (2003). Developing your leadership pipeline. *Harvard Business Review*, December 2003, p.76-84.

Democritus (1998). *Housing and Contractor Development.* Sunninghill, internal publication.

Dlamini, T. and Lawless, A. (2005). *Human resources in the construction sector*. Construction Charter Indaba, Gauteng, April 2005.

DTI (2004). *Department of Trade and Industry Codes of good practice*. Pretoria, 2004.

Duvenhage, A. (2004). *Political Transformation: a conceptual orientation and South African Application*. Paper presented at SASA Conference, Bloemfontein. May 31 2005

Dychtwald, K., Erickson, T. and Morison, B. (2004). It's time to retire retirement. *Harvard Business Review*, March 2004, p.49-57.

ECSA (2005). Registration status at May 2004. Internal document , Midrand, 2005.

Encyclopedia Britannica (1964). *A New Survey of Universal Knowledge*. London, William Benton Publisher.

Enslin, S. (2005).Companies urged to empower or lose out. *Business Report*, March 10 2005, p.4.

eThekwini Municipality (2003). *Targeted procurement*. Durban, internal policy document, October 2003.

Evans, I. (2005). Personal communication. Ex-Chairman, BS Bergman, Durban, 2005.

Faniso, M. (2005a). State-owned firms silent on de facto BEE. *Business Report*, February 25 2005, p7.

Faniso, M. (2005b). Parastatals faced with reality of fronting. *Business Report*, April 18 2005. p.13.

Fletcher, D., Publisher. (2000). *South Africa's Top 300 Black Economic Empowerment Companies*. Cape Town, South Africa, Impumelelo.

Gates, A. (2005). Personal Communication. Senior Engineer, Anathi, Johannesburg, 2005.

Ingerop Africa. (2003a). *Capability profile; Contractor Development and Labour Based Construction.* Sunninghill, internal publication.

Ingerop Africa. (2003b). *Capability profile; Dam engineering.* Sunninghill, internal publication.

Ingerop Africa. (2003c). *Ingerop Africa's Employment Equity Plan.* Sunninghill, internal publication.

Ingerop Africa. (2003d). *Capability profile; Project Management.* Sunninghill, internal publication.

Ingerop Africa. (2003e). *Capability profile; Solid Waste Management.* Sunninghill, internal publication.

Ingerop Africa. (2003f). *Capability profile; Structural Engineering.* Sunninghill, internal publication.

Ingerop Africa. (2003g). *Capability profile; Water and Wastewater.* Sunninghill, internal publication.

Ingerop Africa. (2004a). *Capability profile; Roads and Transportation.* Sunninghill, internal publication

Ingerop Africa. (2004b). *Township Services profile.* Sunninghill, internal publication.

Ingerop Africa. (2005). *Ingerop Africa- Transformation and Social Responsibility.* Sunninghill, internal publication.

Jonsson, C. (2005). Personal Communication. Member, C P Jonsson and Associates, Westville, 2005.

Khuzwayo, W. (2005a). Many BEE deals may not score code points. *Business Report*, April 20 2005.

Khuzwayo, W. (2005b). New empowerment codes welcomed. *Business Report*, April 27 2005.

Lawless, A. (2005a). *Interventions, capacity and skills development required to address the shortage of civil engineering professionals and bottlenecks in infrastructure delivery*. SAICE, Midrand, South Africa, unpublished internal report, May 2005.

Lawless, A. (2005b). Personal Communication. Member, Lawless and Associates, Randburg 2005.

Michon, M. (2005). Get with the programme. *Built*, January/ February 2005, p.58.

Motshabi, K. B. (2005). *Business Map – Business Report BEE Awards*: 1999 to 2005. Business Report, April 01 2005, p.6.

Naidoo, S. (2005). *Few companies are committed to real transformation*? The Mercury Network, May 18 2005, p1.

National Treasury (2005). *Municipal Supply Chain Management Regulations*.
Available: http://www.treasury.gov/mfma.(31 May 2005)

Ntsika, (2000). *Ntsika Enterprise Promotion Agency*
Available : http://www.ntsika.org.za

Nxumalo, C. (2005). A piece of the lucrative BEE business cake. *Business Report*, February 28 2005.

October, L. (2005). *Construction Charter and its alignment with the codes*. The Construction Charter Indaba, April 20 2005.

Pirie, G. (2006). Current review of Charter progress. *SAACE News*, January 2006 Midrand.

Povey, A. (2005). *Presidential address to SAACE KwaZulu-Natal Branch*. Durban, 2005.

RSA (1996a). *Constitution of the Republic of SA, Act No. 108 of 1996.*
Available: http://www.info.gov.za/documents/constitution/1996/96preamble.htm

RSA (1996b). *National Small Business Act, Act 102 of 1996.* Government Gazette No. 24628. Pretoria, Government Printer.

RSA (1998). *Employment Equity Act 1998.* Government Gazette No. 19370. Pretoria, Government Printer.

RSA (1999). *Creating an enabling environment for the Reconstruction and Development Programme.* Government Gazette No. 20095, May 1999. Pretoria, Government Printer.

RSA (2004a). *Broad Based Black Economic Empowerment Act, Act 53 of 2003.* Government Gazette No 25899. Pretoria, Government Printer.

RSA (2004b). *National Small Business Amendment Act, Act 29 of 2004.* Government Gazette No. 24628. Pretoria, Government Printer.

SAACE (2003). *Transformation Policy Debate.* South African Association Consulting Engineers, Minutes of Annual General Meeting, Drakensburg, October 18, 2003.

SAACE (2004a). *Report by Transformation Committee.* South African Association Consulting Engineers, Annual General Meeting, Port Elizabeth October 19, 2004.

SAACE (2004b). *Transformation Committee.* South African Association Consulting Engineers, Minutes of Annual General Meeting, Port Elizabeth October 19, 2004.

SAACE (2005a). Website
Available: http://www.saace.org

SAACE (2005b). *Report by Transformation Committee*, South African Association Consulting Engineers, Bryanston, October 11, 2005.

SAACE (2005c). Report on two day Transformation Indaba held on 20 and 21 April 2005. *SAACE News*, South African Association Consulting Engineers, Bryanston, April 29, 2005.

SAACE (2005d) *State of the South African Consulting Engineering profession in South Africa 2005*. South African Association Consulting Engineers, Bryanston, March, 2005.

SAFCEC (1999) *An enabling environment for transformation of the construction industry*. South African Federation of Civil Engineering Contractors, Monthly Newsletter, Bedfordview, June 2004.

SAFCEC (2004a). *Constructions Industry Charter*. South African Federation of Civil Engineering Contractors, Monthly Newsletter, Bedfordview, December 2004.

SAFCEC (2004b). *Empowerment charter/scorecard and summit sector processes*. South African Federation of Civil Engineering Contractors, Monthly Newsletter, Bedfordview, June 2004.

SAFCEC (2004c). *Transformation Charter objectives*. South African Federation of Civil Engineering Contractors, Monthly Newsletter, Bedfordview, April/May 2004.

SAICE (2005). *Shortage of civil engineering professionals*. South African Institution of Civil Engineers, Midrand, South Africa, unpublished internal report, May 2005.

Salgado, I. (2005). Funder fatigue could slow BEE deals, analysts warn. *Business Report*, February 22 2005, p.5.

Sikhakhane, J. (2005). *When do we throw away the BEE crutches and run*? *Business Report*, April 20 2005, p3.

Umgeni Water (2004). *Black economic empowerment policy*. Internal policy document, Pietermaritzburg.

Unstead, P. (2005). Personal Communication. Director, Bergman, Pietermaritzburg, 2005.

Van Biljon, G. (2005). *More Black Entrepreneurs- who is responsible*? The Mercury Network, June 2005, p2.

Ware, C. (2005) Personal Communication. Member, Ware and Associates, Westville, 2005.

Wray, Q. (2005) Revised empowerment codes out, now let's take the debate forward. *Business Report*, June 27 2005.

Williams, B. (2005) Narrow BEE has reached its sell-by date. *Business Report*, February 25 2005, p.9.

APPENDIX A

TARGETED PROCUREMENT

Targeted Procurement

Contents

- Policy on Code of Conduct;
- Participation by Targeted Enterprises and Conditions pertaining to procurement by way of;
- Application for Registration to engage in procurement (Part A); - *To be completed by companies wishing to trade with this Municipality*
- Application for Targeted Enterprise Status (Part B). - *To be completed by all Companies wishing to claim enterprise status*

Subcontractor: One who contracts to a Contractor to assist the latter in the execution of his/her contract by supplying certain goods, services, or works.

Representative: A political, or other, representative of the public, or of the private sector, who serves on the Procurement and Tenders Sub-committee responsible for policy, oversight of the appointment process or approving any aspect of procurement by eThekwini Municipality.

3. UNACCEPTABLE ACTIONS AND ESSENTIAL PRACTICES

Examples of actions which are unacceptable and essential practices, which would constitute unacceptable defaults if not observed, are given below. The schedules are not exhaustive, but serve to highlight unacceptable actions and defaults which are more commonly encountered.

3.1 The Employer

The Employer should, himself, or through his officials, or agents :-

3.1.1 Not invite tenders without having a firm intention to proceed with the procurement.

3.1.2 Ensure that the basis on which tenders will be adjudicated is clearly set out in the tender documents and that tenders are adjudicated and awarded accordingly.

3.1.3 Ensure that the tender documents are clear and comprehensive and set out the rights and obligation of all parties.

3.1.4 Not breach the confidentiality of information, particularly intellectual property, provided by Tenderers in support of their tenders.

3.1.5 Not attempt to "trade off" Tenderers against each other in an attempt to obtain better offers.

3.1.6 Ensure that all Tenderers are fairly treated and that tenders are adjudicated without bias.

3.1.7 Ensure that, except when extra ordinary circumstances dictate otherwise, transparency is maintained in the tendering process. This implies, *inter alia,* inviting tenders as widely and publicly as possible, opening tenders in public and reading out/ making available key information, such as tender prices, basic award criteria and times required for completion, and, in due course, making known to unsuccessful Tenderers the outcome of the adjudication process.

3.1.8 Ensure that his/her obligations in terms of contracts with Contractors and Consultants are scrupulously and timeously met, particularly in regard to making payments and giving decisions.

3.2 Officials

An Official should:-

3.2.1 Strictly observe all code of conduct laid down by the Employer.

3.2.2 Ensure that he is not responsible for an unacceptable action, or default, being attributed to the Employer.

3.2.3 Not allow himself/herself to be influenced in the execution of his/her duties by any consideration other than the legitimate and reasonable interests of the Employer.

3.2.4 Not accept any gifts, favours or other considerations, of anything more than token value from any other party to the procurement process.

3.2.5 Administer contracts in an evenhanded manner.

3.2.6 Disclose any circumstance which may possibly be construed as constituting a conflict of interest and excuse himself/herself from deliberations in such matters.

3.3 Agents

An Agent should, insofar as is relevant, act in the same way as the Official is expected to act in terms of Section 3.2.

3.4 Consultants

A Consultant should:-

3.4.1 Strictly observe the code of conduct laid down by the body governing his/her profession.
3.4.2 Act in an impartial manner towards all other parties in the procurement process and take account of the legitimate and reasonable interests of them all.
3.4.3 Not accept gifts, favours or other considerations, of anything more than token value from any other party to the procurement process.
3.4.4 Not undermine the development objectives of the Employer through tokenism, fronting or any other misrepresentation.
3.4.5 Disclose any circumstance which may possibly be construed as constituting a conflict of interest and excuse himself/herself from deliberations in such matters.

3.5 Tenderers

A Tenderer should:-

3.5.1 Not, except for the purpose of joint venture formation, become involved in collusion with other Tenderers, or potential Tenderers.
3.5.2 Not exchange information regarding tenders with any other Tenderer prior to the closing date for tenders.
3.5.3 Not knowingly price his/her tender in such a way as to gain an unfair advantage from an obvious error, or oversight, in the tender documents.
3.5.4 Not attempt, in any way, to influence the tender adjudication process.
3.5.5 Not approach any Representative or Official directly in connection with a tender, subsequent to the closing of *all* tenders.
3.5.6 Tenders only on projects for which they are capable of executing with the resources they are able to marshal in accordance with the terms and conditions of contracts

3.6 The Contractor

The Contractor should:-

3.6.1 Undertake the contract with the objective of fulfilling it in accordance with the needs of and in the best interests of the Employer and, in pursuit of this objective, co-operate with *all* other parties in the procurement process.
3.6.2 Aim to meet all statutory and contractual obligations fully and timeously in regard to, inter alia, conditions of employment, occupational safety, training, employment of subcontractors and fiscal matters.
3.6.3 Not attempt to influence the judgement, or actions, of Consultants, Officials/Agents, or Representatives by inducements of any sort.
3.6.4 Employ Subcontractors only on the basis of fair, unbiased, written subcontracts.
3.6.5 Not engage in unfair, or unethical, practices in order to drive subcontract prices down.
3.6.6 Not make unwarranted claims for additional payment, or time, in the belief that "nothing venture, nothing gain".
3.6.7 Not approach any Representative directly in connection with a contract.
3.6.8 Not undermine the development objectives of the Employer through tokenism, fronting or any other misrepresentation.

3.7 Subcontractors

A Subcontractor should, insofar as is relevant, act in the same way as the Contractor is expected to act in terms of Section 3.6.

3.8 Representatives

A Representative should:-

3.8.1 Perform his duties in an unbiased and conscientious manner, bearing in mind the legitimate interest of all parties to the procurement process and the public.

3.8.2 Not entertain representations, except through the Employer or such person as may be delegated by the Employer, from any Consultant, Tenderer, Contractor, or Subcontractor, in regard to a tender, or contract.

3.8 3 Not allow himself to be unduly influenced by, or accept any gifts, favours or other considerations from any party which might have an interest in the procurement process.

3.8.4 Disclose any circumstance which may possibly be construed as constituting a conflict of interest and excuse himself/herself from deliberations in such matters.

3.9 Penalties

Where there is non-compliance with this code of conduct, sanctions and/penalties will be applied as follows:

3.9.1 Officials and Representatives

Reference to the Multi Disciplinary Team in the first instance and thereafter, appropriate action by Management, if applicable.

3.9.2 Contractors/suppliers

Depending on the severity of the non-compliance, a contractor/supplier may be disqualified as a registered contractor/supplier for a period of not less than six months. Over and above that financial penalties may be imposed in terms of the Conditions of Contract.

PARTICIPATION AND CONDITIONS PERTAINING TO TARGETED PROCUREMENT

The eThekwini Municipality has committed itself to the following key priorities with respect to all procurement dealings.

- Increased usage of local resources
- Redressing of skewed employment and ownership patterns through black economic empowerment
- Creation of Opportunities for job creation and poverty alleviation (Community participation)
- Stimulation of Skills Development and Transfer
- Fast tracking the Growth and ensuring sustainability of SMME's

For the purposes of determining the degree of preference to be accorded, tenderers are required to complete the declaration affidavit for targeted enterprises.

DEFINITIONS

Historically Disadvantaged Individual (HDI): The definition includes Black, Women, and Disabled Individuals and preference has been given to all these target groups who, due to the apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act no 110 of 1983) or the Constitution of the Republic of South Africa, 1993 (Act No 200 of 1993) (the Interim Constitution). Provided that a person who obtained South African citizenship on or after the coming to effect of the Interim Constitution, is deemed not to be an HDI.

Priority Population Group (PPG): Black Individuals who fall into population groups that were not offered a franchise in the national elections before or after the introduction of the 1984 tri-cameral parliamentary system and only received a franchise during 1994.

Black Business Enterprise (BBE): At least 26% Black Owned in terms of equity and voting rights/powers, with a corresponding management representation at all levels.

Priority Business Enterprise (PBE): At least 26% Owned by individuals which are from the Priority Population Group in terms of equity and voting rights/powers, with a corresponding management representation at all levels.

Women Business Enterprise (WBE): At least 26% Women Owned in terms of equity and voting rights/powers, with a corresponding management representation at all levels.

Disabled Persons Business Enterprise (DPBE): At least 26% Disabled Owned in terms of equity and voting rights/powers, with a corresponding management representation at all levels.

Disabled Person : An individual who has a Disability and as a result suffers from loss, or limitation, of opportunity to take part equally with others in the context of any activity relating to the execution of a Contract.

Disablity : A permanent, or prolonged impairment of a physical, intellectual, or sensory structure , or function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.

SMMEs: Small, Medium and Micro Enterprises.

Influenced Enterprise: 'Influenced' in a category is when ownership in that particular category is between **26 and 50 percent**, with corresponding management representation at Board, Executive and Operational levels.

Empowered Enterprise: 'Empowered' in a category is when ownership in that particular category is between **51 and 75 percent**, with corresponding management representation at Board, Executive and Operational levels.

Substantially Owned Enterprise: 'Substantially owned' in a category is when ownership in that particular category is between **76 and 100 percent**, with corresponding management representation at Board, Executive and Operational levels.

Local Content/Resources: Preference points shall be allocated in terms of the location of the enterprise where applicable in the following order of preference: eThekwini Municipality Area (EMA); Kwa Zulu Natal (KZN); South Africa (SA)

Commercially Useful Function: The possession and exercise of legal authority and power to manage the assets goodwill and daily operations of a business and the active and continuous exercise of appropriate managerial authority and power in determining the policies and directing the operations of the business.

Contract: A legally binding agreement between the Employer and the Contractor for the latter to provide Goods, Services, Engineering and Construction Works, or Professional Services in return payment by the former.

Contractor: Any person, body, or legal entity who is under contract to the Employer for the performance of the Contract. A Tenderer whose tender has been accepted becomes a Contractor.

Control: The performance of real and actual work, or the provision of services, in the discharge of any contractual obligation, which shall include but not be limited to the performance of a distinct element of work which the business has the skill and expertise to undertake, and the responsibility for management and supervision.

Direct Preference: A preference points system which awards tenders on the basis of points for price and/or the procurement developmental objectives of the eThekwini Municipality.

Employer: The person or body entering into a Contract for the supply of Goods, Services, Engineering and Construction Works, or Professional Services.

Executive Director: A partner in a partnership, a director of a company established *in* terms of the Companies Act, 1973 (Act 61 of 1973) or a member of a close corporation registered *in* terms of the Close Corporation Act, who, jointly and severally with their other partners, co-directors or co-members, as the case may be, bears the risk of business and takes responsibility for the management and liabilities of the partnership, company, or close corporation.

Manufacturer: A firm that operates or maintains a factory or establishment that produces on its premises materials or supplies required by the Prime Contractor for the performance of the Contract.

Owned: Having all the customary incidents of ownership, including the right of disposition, and sharing all the risks and profits. Commensurate with the degree of ownership interest's as demonstrated by an examination of the substance, rather than the form of ownership arrangements.

Preferential Procurement Policy: A procurement policy which uses procurement as an instrument of social policy in South Africa to affirm the changed environment, government's socio-economic objectives and the principals of the Preferential Procurement Policy Framework Act (2001).

Prime Contractor: A contractor who contracts with an employer as the principal or main contractor or as a joint venture partner to such contractors, to provide goods, services and works.

Supplier: A firm that :

- owns, operates or maintains a store, warehouse or other establishment in which materials or supplies are bought, kept in stock and regularly sold to the public in the usual course of business

and

- engages as its principal business, and in its own name, in the purchase and sale of the products.

Targeted Procurement: A system of procurement which provides employment and business opportunities for marginalised individuals and communities, enables procurement to be used as an instrument of social policy in a fair, equitable, competitive, transparent and cost-effective manner and permits and social objectives to be quantified, measured, verified and audited.

PART A

APPLICATION FOR REGISTRATION ON THE ETHEKWINI MUNICIPALITY PROCUREMENT DIRECTORY (SUPPLIER / CONTRACTOR / SERVICE PROVIDER)

Name of Enterprise: .....

Trading name: .....

a) Postal Address : .....

.....

.....Postal Code : .....

b) Physical Address : .....

.....

.....Postal Code : .....

c) Telephone no.: Area code (.....) .....

d) Fax. : Area code (.....) .....(Purchase Orders) (.....).....(Remittance advice)

e) Cell Phone No.: .....

f) E-mail Address : .....

g) Website Address : .....

h) Contact Person : .....

i) Enterprise registration number :# .....

j) Enterprise income tax reference number : * .....

k) VAT registration number : .....

l) Unemployment Insurance Fund no. : .....

m) Workmen Compensation registration no. : .....

n) Discount and Payment Terms : ..... % [30] / [60] days from [statement] / [invoice] / [other]

(Tick applicable box)

If other, state : .....

NB: A COPY OF THE COMPANY LETTERHEAD AND VAT REGISTRATION CERTIFICATE IS TO BE ATTACHED.

---

* If a one man business insert personal income tax number and if a partnership insert personal income tax numbers of all partners.
≠ Insert CC number, business licence no, companies act number etc.

1. Type of Enterprise (tick appropriate box)

- ☐ Partnership
- ☐ One person business/sole trader
- ☐ Close Corporation
- ☐ Company
- ☐ Pty Limited
- ☐ Trust
- ☐ Other

2. Principal business activities (Briefly describe) .....

.....

.....

.....

3. Location of Enterprise (tick appropriate box)

1.	eThekwini Municipality area	☐
2.	KwaZulu Natal	☐
3.	South Africa	☐
4.	Other	☐

4. Street address of all facilities used by the enterprise

Address	**Facility**
Head Office	
4.1	.....
.....	
Branches	
4.2	.....
.....	
4.3	.....
.....	

(continue on separate page if required)

Do you share facilities? ☐ Yes ☐ No (tick one box)

If yes; which facilities are shared? .....

With whom do you share facilities (name of firm/individuals)? .....

.....

.....

What are the other firm's principal business activities ? .....

.....

5. List all partners, proprietors and shareholders.

NAME	IDENTITY NUMBER	HDI STATUS YES/NO	DISABLED YES/NO (IF YES, STATE DISABILITY)	CITIZENSHIP	DATE OF OWNERSHIP	PROFESSIONAL REGISTRATION NUMBER (where applicable)	OWNED %	VOTING %	HOME ADDRESS
Total to equal to 100%							**100**	**100**	

NOTE: where owners are themselves a company or partnership, identify the ownership of the holding firm.

if the sum of the percentage of HDI ownership is ≥26%, Part B must be completed.

7. Is the enterprise registered or does it have a business license(s) ? (tick one box)

☐ Yes ☐ No

If yes, detail and quote relevant reference numbers and dates.

.....

.....

8. Detail all trade associations/professional bodies in which you have membership :

.....

.....

.....

9. Did the enterprise exist under a previous name ? (tick one box)

☐ Yes ☐ No

If yes:

- what was its previous name ? .....
- why did it change name ? .....

List the previous owners/partners/directors .....

.....

.....

10. How many full time (FT) and part time (PT) **staff members** are employed by the enterprise :

	Historically Disadvantaged Individuals				**OTHER**	
	PRIORITY		**NON PRIORITY**			
	FT	**PT**	**FT**	**PT**	**FT**	**PT**
Male						
Female						

11. How many full time (FT) and part time (PT) **Disabled members** are employed by the enterprise :

	Historically Disadvantaged Individuals				**OTHER**	
	PRIORITY		**NON PRIORITY**			
	FT	**PT**	**FT**	**PT**	**FT**	**PT**
Male						
Female						

12. How many staff members have joined the enterprise in the last 6 months :

Full time : .....

Part time : .....

13. What is the enterprise's average annual turnover (excluding VAT) during the lesser of the period for which the business has been operating or the previous three Financial Years.

R.....

14. Banking Details

I/We, the undersigned, hereby authorise and instruct eThekwini Municipality to pay all amounts that may hereinafter, from time to time, become due and payable to me/us by eThekwini Municipality by electronically transferring the same to the bank mentioned below for the credit of my/our account detailed below.

I/We, the undersigned, understand and agree that :

- Any such transfer shall constitute a full and final discharge of eThekwini Municipality's obligations to make such payments to me/us. eThekwini Municipality shall not be liable to make good any loss which I/We may suffer consequent upon such transfers pursuant to this authority and instruction.
- This payment authorisation and instruction will be applied to both goods purchased and services rendered.
- This authority and instruction will remain valid unless cancelled by either party upon thirty (30) days written notice. The said notice will only be effective in writing, delivered to the other party at the addresses stated herein and bearing an acknowledgement of receipt by the other party.
- Should any transfer attempted in respect of this authorisation be unsuccessful due to incorrect information supplied by me/us, I/We agree to pay all bank charges for this transfer attempt.

In the event that the details set out herein change. I/We agree to notify eThekwini Municipality forthwith.

14.1 Name of Banking Institute: .....

.....

14.2 Branch: .....

Code: .....

14.3 Town /City: .....

14.4 Banking Account Number: .....

.....

14.5 Name under which account is operated: .....

.....

***IMPORTANT*: Please attach an original cancelled cheque or bank statement.**

14.6 ***BEFORE RETURNING, THIS SECTION MUST BE COMPLETED BY YOUR BANK***

I/We confirm that the above information on the client's account at this bank/building society is correct.

..... Bank Stamp :-

Signed on behalf of Bank

.....

Name

.....

Capacity

NOTE: This information will supercede any previous authorisation and instruction lodged with the eThekwini Municipality. Where the application has been submitted electronically the original completed form must be returned. Photocopies or faxed copies will not be accepted.

CERTIFICATION OF CORRECTNESS OF INFORMATION AS PROVIDED

I/WE, THE UNDERSIGNED, WARRANTS THAT I AM/WE ARE DULY AUTHORISED TO DO SO ON BEHALF OF THE ENTERPRISE, CERTIFIES THAT THE ENTERPRISE COMPLIES WITH ALL STATUTORY AND MUNICIPAL REQUIREMENTS AND THAT THE INFORMATION SUPPLIED IN TERMS OF THIS DOCUMENT WITH ADDITIONAL INFORMATION IS CORRECT AND ACCURATE AND ACKNOWLEDGES THAT

If the information supplied is found to be incorrect then the eThekwini Municipality in addition to any remedies, it may have; may

i Recover from the Enterprise all costs, losses or damages incurred or sustained by the Municipality as a result of the award of the contract, and/or

ii Cancel the contract and claim any damages which the Municipality may suffer by having to make favourable arrangements after such cancellations, and/or

iii Impose a penalty on the Enterprise as provided in the Tender Documents, and/or

iv Take any other action as may be deemed necessary.

Signature .....

Name .....

I.D Number .....

Duly Authorised to sign on behalf of : .....

Address .....

.....

.....

Telephone .....

Signed and sworn to before me at .....

n this the .....day of .....by the Deponent, who has acknowledged that
ne/she knows and understands the contents of this document, that it is true and correct to the best of his/her
nowledge and that he/she has no objection to taking the prescribed oath, and that the prescribed oath will be
nding on his/her conscience.

ommissioner of Oaths .....

'OTE: All pages of this Affidavit must be initialed by both the Deponent and the Commissioner of Oath

Points Awarded for Price (Np)

The following formula must be used to calculate the points for price. A maximum of 80/90 points is allocated to Price on the following basis;

$$Np = 80/90 \left(1 - \frac{(P-Pm)}{Pm}\right)$$

Where

Np = the number of tender adjudication points awarded for price.

Pm = the price of the lowest responsive tender adjusted to a common financial base for comparative purposes, if applicable

P = the price of the responsive tender under consideration adjusted to a common financial base for comparative purposes, if applicable.

Points Awarded in respect of the Status of the Enterprise (No)

A maximum of 20 (twenty) points in respect of contracts less than R500 000, and 10 (ten) points in respect of contracts more than R500 000 may be awarded to businesses which comply with the criteria set out below, are legal entities registered with the South African Revenue Service, are continuing and Independent Enterprises for profit which perform Commercially Useful Functions and have been operating as such for at least 3 months prior to the closing date for tenders; provided, however, that they undertake to execute a substantial portion of the Contract with their own resources and not to subcontract any portions of the Contract for which they, in the opinion of the Employer, have the in-house competence and expertise to perform.

Tender adjudication points relating to an enterprise's status will be granted only if the Employer is fully satisfied that the enterprise meets the relevant criteria; such credits will be granted at the Employer's sole discretion and will be based on the information presented.

80/20 (<R500 000)						
Ownership						
% Ownership		**Black**	**PPG**	**Women**	**Disabled**	**Total**
26 to 50	Influenced	0.50	1.00	0.75	0.50	
51 to 75	Empowered	1.50	3.00	1.50	1.25	
76 to 100	Substantial	2.50	5.00	2.50	2.00	
Status/Size						
	SMME					**Total**
General		2.00				
BBE	At least Empowered (>50%)	1.00				
PBE	At least Empowered (>50%)	1.00				
WBE	At least Empowered (>50%)	1.00				
DPBE	At least Empowered (>50%)	1.00				
Sub Total		6.00				
Location						
		Local Content				**Total**
SA		0.50				
KZN		1.00				
EMA		2.00				

90/10 (>R500 000)						
Ownership						
% Ownership		**Black**	**PPG**	**Women**	**Disabled**	**Total**
26 to 50	Influenced	0.25	0.50	0.38	0.25	
51 to 75	Empowered	0.75	1.50	0.75	0.68	
76 to 100	Substantial	1.25	2.50	1.25	1.00	
Status/Size						
		SMME				**Total**
General		1.00				
BBE	At least Empowered (>50%)	0.50				
PBE	At least Empowered (>50%)	0.50				
WBE	At least Empowered (>50%)	0.50				
DPBE	At least Empowered (>50%)	0.50				
	Sub Total	3.00				
Location						
		Local Content				**Total**
SA		0.25				
KZN		0.50				
EMA		1.00				

Total Tender Adjudication Points

The total number of tender adjudication points awarded (N), is the sum of :

Np + No (not to exceed 100)

Process to be confidential

The following notes pertain to process confidentiality

- Information supplied by Tenderers and information relating to the clarification, evaluation and adjudication of tenders and the award of a contract will not be disclosed to Tenderers or any other person not officially concerned with such process.
- Any effort by a Tenderer to influence the Employer's processing of tenders or the award of the Contract may result in the rejection of his tender.

Documentation to be Submitted in support of tender:

he following documents must be submitted in support of tender

enderers who wish to claim points in respect of their enterprise status must complete an Application orm for the Award of Points in respect of the Status of an Enterprise (bound in this document), and shall, s relevant, include in their tender submissions the following duly completed forms:

Application for Targeted Enterprise Status

ADJUDICATION OF TENDERS ON A POINTS SYSTEM

The following shall be the system of Adjudicating tenders on a preference point allocation system.

Examination of Tenders and Determination of Responsiveness

Prior to the detailed evaluation of tenders, the Employer shall determine whether each tender:

- meets the requirements of these Conditions of Tender
  has been properly signed;
- is responsive to the requirements of the procurement documents;
- provides any clarification and/or substantiation that the Employer may require;
- complies with the tender submission requirements in all other respects.

A responsive tender is one which conforms to all the terms, conditions and Specifications of the Contract without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion:

- could detrimentally affect the scope, quality , or performance of the Works;
  changes the Employer's or the Contractor's risks and responsibilities under the Contract; or
- would affect the competitive position of other Tenderers presenting responsive tenders, if it were to be rectified.

If the tender does not meet the requirements or is not responsive, it will be rejected by the Employer, and may not subsequently be made acceptable to the Employer by correction or withdrawal of the non-conforming deviation or reservation.

Adjudication Using a Points System

Responsive tenders will be adjudicated by the Employer using a system which awards points on the basis of :

- the tendered price (Np)
- the status of the enterprise in terms of ownership. (No)

The Employer will normally award the Contract to the Tenderer obtaining the highest number of points, but will not bind itself to do so.

The preference points in the adjudication methods used, shall be :

- For contracts with a Rand value below (<) R500 000 a maximum of 20 points may be allocated for specific goals provided that the lowest acceptable tender scores 80 points for price. (Minor contract class)
  For contracts with a Rand value above (>) R500 000 a maximum of 10 points may be allocated for specific goals provided that the lowest acceptable tender scores 90 points for price.
  (Major contract class)

Participation goals and preferences will be set for companies who meet the minimum requirements in terms of a Balanced Score Card as stipulated in the Department of Trade and Industry's Broad Based Black Economic Empowerment Strategy. This will apply mainly to major contracts and/or engagements.

No preference points, in respect of equity ownership, will be allocated to public companies and tertiary institutions.

Preference points may not be claimed in respect of individuals who are not actively involved in the management of an enterprise or business and who do not exercise control over an enterprise or business commensurate with their degree of ownership.

A person awarded a contract as a result of preference for contracting with, or providing equity ownership to, an HDI, may not subcontract more than 25% of the value of the contract to a person who is not an HDI or does not qualify for such preference.

Failure to submit completed forms and / or the submission of incomplete forms referred to above shall be deemed to imply that the Tenderer is not claiming points in respect of his enterprise status, in which case points will be awarded only on the basis of the tendered price

Failure on the part of the tenderer to fill in and/or sign the declaration will be construed to mean that the preference points are not claimable. Preference points will not be awarded in that case.

Documentation to be submitted by the successful tenderer or tenderers under consideration

Tenderers shall submit any other document (s) that may be required by the client which is / are relevant to the tender and which may be required for tender adjudication purposes.

Penalties for Falsifying the Tender Declaration Affidavit

The following shall be the method of calculating penalties for falsifying the tender declaration Affidavit or change in enterprise status after award of tender without written consent from the Employer.

Where the Contractor was awarded tender adjudication points in respect of enterprise parameters and the information given in the Tender Declaration Affidavit is found to be false, the Contractor shall pay the Employer penalties in an amount equal to one and half times (1,5) the number of points claimed and awarded under false pretences, expressed as a percentage of the contract amount exclusive of V A T and all allowances for contingencies, provisional sums and escalation, at the time of the award of the Contract.

In addition the tenderer will be liable to prosecution and disqualification from future Council tenders.

Validity of Declaration Affidavits for Targeted Enterprises

- Should a tenderer claim HDI status, whether incorrectly and/ or fraudulently on any tender, such tenderer shall immediately be disqualified from tendering.
- Should a tender be found to be fraudulent, the tenderer shall be disqualified from all future tenders for a minimum period of 24 months, or as otherwise decided by the eThekwini Municipality.
- **IT IS PRIMARILY THE RESPONSIBILITY OF THE TENDERER TO UNDERSTAND THE RELEVANT CRITERIA, DEFINITIONS AND INTERPRETATIONS THAT ARE NECESSARY TO COMPLY IN CLAIMING SUCH STATUS.**
- **IT IS THE RESPONSIBILITY OF THE TENDERER TO NOTIFY THE PROCUREMENT DEPARTMENT OF ANY CHANGES I.E OWNERSHIP, SMME STATUS, LOCATION ETC. WHICH ARE NECESSARY TO COMPLY IN CLAIMING HDI STATUS.**
- **IT SHOULD BE NOTED THAT THE FINAL DECISION TO ACCREDIT ANY BUSINESS FOR PREFERENCE POINT AWARD RESTS WITH THE PROCUREMENT DEPARTMENT.**

Notwithstanding the preference points system to be followed in terms of this policy, the Municipality may, on the recommendation of the Municipal Manager, acting in terms of section 2(1)(f) of the Preferential Procurement Policy Framework Act 5 of 2000 read with regulation 9 of the regulations made in terms thereof, on grounds with are reasonable and justifiable in order to achieve and/or maximize the procurement priorities/objectives outlined in this policy document, award the tender to the tenderer other than the tenderer that scored the highest points.

DECLARATION AFFIDAVIT FOR TARGETED ENTERPRISE STATUS

I/WE, THE UNDERSIGNED, WARRANTS THAT I AM/WE ARE DULY AUTHORISED TO DO SO ON BEHALF OF THE ENTERPRISE, CERTIFIES THAT THE INFORMATION SUPPLIED IN TERMS OF THIS DOCUMENT WITH ADDITIONAL INFORMATION IS CORRECT AND ACCURATE AND ACKNOWLEDGES THAT

1. The enterprise complies with all requirements for recognition as a Black / Priority Population Group / Black Business Enterprise / Priority Business Enterprise / Woman Business Enterprise / Disabled Person Enterprise / SMME (Delete as applicable) as defined, and

2. The contents of this Affidavit are within my personal knowledge, and save where stated otherwise are to the best of my belief both true and correct.

3. The enterprise will be required to furnish documentary proof if requested to do so.

4. If the information supplied is found to be incorrect then the eThekwini Municipality in addition to any remedies, it may have; may

   i Recover from the Enterprise all costs, losses or damages incurred or sustained by the Municipality as a result of the award of the contract, and/or
   ii Cancel the contract and claim any damages which the Municipality may suffer by having to make favourable arrangements after such cancellations, and/or
   iii Impose a penalty on the Enterprise as provided in the Tender Documents, and/or
   iv Take any other action as may be deemed necessary.

Signature .....

Name .....

I.D Number .....

Duly Authorised to sign on behalf of : .....

Address .....

.....

.....

Telephone .....

Signed and sworn to before me at .....

on this the .....day of .....by the Deponent, who has acknowledged that he/she knows and understands the contents of this document, that it is true and correct to the best of his/her knowledge and that he/she has no objection to taking the prescribed oath, and that the prescribed oath will be binding on his/her conscience.

Commissioner of Oaths .....

NOTE: All pages of this Affidavit must be initialed by both the Deponent and the Commissioner of Oaths

SMME Information

The following table must be completed in order to establish whether a business can be classified as an SMME in terms of the National Small Business Act 102 of 1996. Indicate the Sector by ticking the appropriate block in column 1 and then mark the corresponding information blocks in columns 2, 3, 4 and 5.

COLUMN 1		COLUMN 2		COLUMN 3		COLUMN 4		COLUMN 5	
Sector or sub-sectors in accordance with the Standard Industrial Council		Size of class		Total full time equivalent of paid employees < & =		Total annual turnover < & =		Total gross asset value(fixed property excluded) < & =	
	X		X		X		X		X
Agriculture		Medium		100		R5m		R5m	
		Small		50		R3m		R3m	
		Very Small		10		R0.50m		R0.50m	
		Micro		5		R0.20m		R0.10m	
Mining and Quarrying		Medium		200		R39m		R23m	
		Small		50		R10m		R6m	
		Very Small		20		R4m		R2m	
		Micro		5		R0.20m		R0.10m	
Manufacturing		Medium		200		R51m		R19m	
		Small		50		R13m		R5m	
		Very Small		20		R5m		R2m	
		Micro		5		R0.20m		R0.10m	
Electricity, Gas and Water		Medium		200		R51m		R19m	
		Small		50		R13m		R5m	
		Very Small		20		R5.10		R1.90m	
		Micro		5		R0.20m		R0.10m	
Construction		Medium		200		R26m		R5m	
		Small		50		R6m		R1m	
		Very Small		20		R3m		R0.50m	
		Micro		5		R0.20m		R0.10m	
Retail and Motor Trade and Repair Service		Medium		200		R39m		R6m	
		Small		50		R19m		R3m	
		Very Small		20		R4m		R0.60m	
		Micro		5		R0.20m		R0.10m	
Wholesale Trade, Commercial Agents and Allied Services		Medium		200		R64m		R10m	
		Small		50		R32m		R5m	
		Very Small		20		R6m		R0.60m	
		Micro		5		R0.20m		R0.10m	
Catering, Accommodation and other Trade		Medium		200		R13m		R3m	
		Small		50		R6m		R1m	
		Very Small		20		R5.10m		R1.90m	
		Micro		5		R0.20m		R0.10m	
Transport, Storage and Communications		Medium		200		R26m		R6m	
		Small		50		R13m		R3m	
		Very Small		20		R3m		R0.60m	
		Micro		5		R0.20m		R0.10m	
Finance and Business Services		Medium		200		R26m		R5m	
		Small		50		R13m		R3m	
		Very Small		20		R3m		R0.50m	
		Micro		5		R0.20m		R0.10m	
Community Social and Personal Services		Medium		200		R13m		R6m	
		Small		50		R6m		R3m	
		Very Small		20		R1m		R0.60m	
		Micro		5		R0.20m		R0.10m	

APPENDIX B

INTERVIEW GUIDE

1	Name						
2	Age	below 35	35 to 49	above 50	retired		
3	Qualification	S4	B Tech	BSc Eng	MSc Eng		
	Professional Registration	Pr Techni	PrTech Eng	Pr Eng			
4	Company size	micro	small	medium	large		
5	No and level of technical staff	Drafting	Technician	Technologist	Engineer		
6	BEE status						
7	SAACE membership						
8	What do you understand by Transformation?	Equity	Management levels	Employment equity	Procurement	Enterprise development	Other comment
9	What approaches, if any. have you tried?						
10	What difficulties did you find?	no problem	moderately difficult	difficult	very difficult	Comments	
	Finding Black engineering professionals						
	Finding Experienced black technical staff						
	Selecting the legal structure						
	Cost of compliance						
	Staff retention						
	Clarity on requirements						
	Is work load able to sustain operation						
	Training programmes						
11	Response to problems						
12	Lessons learnt						