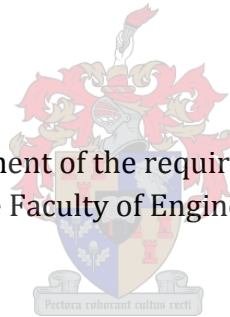


INVESTIGATING CAPACITY SELF-ASSESSMENT AS A CATALYST FOR IMPROVED MUNICIPAL SERVICE DELIVERY

by

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Thesis presented in partial fulfilment of the requirements for the degree of Master of
Engineering Management in the Faculty of Engineering at Stellenbosch University



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Declaration

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Sarel Migael van Baalen

20 February 2014

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Summary

The enactment of the new Constitution of South Africa, 1996, gave prominence to the transformation of local government in South Africa. Rooted in the Constitution, the Municipal Systems Act, 2000, and the Municipal Structures Act, 1998, guide municipalities towards establishing structured performance management practices. As part of a comprehensive legislative framework for local government, these acts moreover state the functions of municipalities that include the delivery of basic municipal services. These services include amongst other, water provision, refuse removal, sanitation, electricity provision, municipal roads as well as stormwater management.

Despite a range of statutory provisions, policy instruments and capacity improvement initiatives with a view to provide a democratic, participative, responsive, effective and efficient local sphere of government, South African municipalities, in general, continue to fail in eradicating service delivery backlogs. This is, at least partially, the result of the policies and practices of the apartheid era. Apart from eradicating backlogs, non-sustaining service delivery to communities has become a noticeable phenomenon. As a result, in 2012 the highest number of service delivery protests over the past decade occurred. The underperformance of municipalities can be linked to insufficient organisational capacity. This multi-dimensional concept consists of individual, institutional and environmental capacity.

This study views capacity building as a key enabler for municipal performance improvement. Relating to this, capacity assessment is the first and foremost component of capacity building. Hence, it can be assumed that a correlation exists between municipalities' service delivery performance and the degree to which municipalities are aware of its capacity to fulfil its service delivery mandate. Municipalities are mandated by the Municipal Systems Act, 2000 to perform internal capacity assessments when a new or reviewed Integrated Development Plan (IDP) is considered, and also when outsourcing of municipal services is considered. Besides this the Municipal Demarcation Board (MDB) is mandated by the Municipal Structures Act, 1998, to perform annual municipal capacity assessments.

Though criticised for its untimeliness, narrow approach and inconsistency, the MDB municipal capacity assessment generates valuable insight. This is widely used by provincial governments, municipalities and private parties for policy formulation, strategic decision-making and capacity building initiatives. This exemplifies that if accurate municipal capacity data can frequently be attained, the effects on service delivery improvement initiatives can be profound. This research study aims to make a contribution in formulating solutions for needs that currently exist in this regard in South Africa.

The focus of this study is the development of both a municipal capacity assessment framework and a subjective municipal capacity self-assessment model (SMCSAM), a software tool built in Microsoft's Visual Basic for Applications (VBA) for engineering services at municipalities. The framework for municipal capacity assessment comprises of fifteen elements of

capacity and eighteen service delivery phases. A third dimension of the framework exists in recognition of the six basic municipal services. This framework accordingly implements the matrix-method.

SMCSAM implements the consolidated framework based on statements to be rated by the municipality according to their reality. SMCSAM allows the municipality to allocate weights to each of the fifteen elements of overall organisational capacity through the use of a Fuzzy Logic Hierarchical Analytical Process. Consequently, ratings of the statements are weighed and illustrated through two interactive user-interfaces which allow the municipality to instantly identify capacity strengths and weaknesses. To achieve this, assessment results are illustrated using colour-coding and related spider-diagrams.

SMCSAM was implemented at Drakenstein Municipality and demonstrated to academics as well as experts in the public and private sector for validation purposes. Its results proved to be accurate and applicably related to the performance of this municipality. Through its implementation and validation, SMCSAM proved to be a valuable, understandable and practical solution to a noteworthy problem at municipalities in South Africa. In doing so, SMCSAM significantly contribute to research in the field of engineering management.

Opsomming

Die aanvaarding van die nuwe Grondwet van Suid-Afrika, 1996 het grootliks aanleiding gegee tot die transformasie van plaaslike regering in Suid-Afrika. Munisipaliteite word deur die Wet op Munisipale Stelsels, 2000, en die Wet op Munisipale Strukture, 1998, begelei in die implementering van gestruktureerde prestasiebestuur praktyke. As deel van 'n omvattende wetgewende raamwerk, definieer hierdie twee wette ook die funksies van munisipaliteite, wat die lewering van basiese dienste insluit. Basiese dienste sluit onder andere watervoorsiening, vullisverwydering, sanitasie, elektrisiteitsvoorsiening, munisipale paaie en stormwaterbestuur in.

Ten spyte van dié statutêre voorsienings, gepaardgaande beleidmaatreëls en inisiatiewe vir kapasiteitsverbetering met die doel om 'n demokratiese, deelnemende, responsiewe, effektiewe en doeltreffende plaaslike sfeer van regering daar te stel, misluk baie munisipaliteite in Suid-Afrika in hul pogings om jarelange diensleweringssagterstande uit te wis. Hierdie agterstande is gedeeltelike die gevolg van die beleide en praktyke van die apartheidsera. Afgesien van die vertraagde uitwissing van agterstande, word munisipaliteite se onvermoë om effektiewe dienslewering aan gemeenskappe vol te hou, ook geïdentifiseer as 'n probleemarea. As 'n gevolg hiervan, het die jaarlikse hoeveelheid diensleweringproteste in 2012 'n nuwe hoogtepunt bereik. Die onvermoë van munisipaliteite om hul diensleweringssagterstande uit te voer kan grootliks toegeskryf word aan onvoldoende organisatoriese kapasiteit. Dié multidimensionele konsep bestaan uit individuele-, institusionele- en omgewingskapasiteit.

Hierdie studie beskou kapasiteitsontwikkeling as 'n fundamentele dryfkrag vir beter munisipale dienslewering, terwyl die assessering van munisipale kapasiteit die eerste en belangrikste fase van kapasiteitsontwikkeling is. Dit kan dus aanvaar word dat daar 'n korrelasie bestaan tussen 'n munisipaliteit se diensleweringssagterstande en die mate waartoe die munisipaliteit bewus is van sy kapasiteit om sy diensleweringssagterstande na te kom. Munisipaliteite word deur die Wet op Munisipale Stelsels, 2000, verplig om 'n interne kapasiteits-assessering te doen wanneer 'n nuwe of hersiende Geïntegreerde Ontwikkelingsplan (GOP) oorweeg word of wanneer daar besluit moet word oor die uitkontraktering van munisipale dienslewering. Terselfdertyd word die Munisipale Afbakeningsraad (MAR) deur die Wet op Munisipale Strukture, 1998, verplig om jaarlikse munisipale kapasiteits-assesserings uit te voer.

Alhoewel die MAR se munisipale kapasiteits-assessering gekritiseer word vir die ontydigheid, inkonsekwentheid en beperkte aanslag daarvan, word die resultate van hierdie assessering aangewend deur provinsiale regerings, munisipaliteite asook ander rolspelers in die publieke- en privaatsektor vir die doel om beleid te formuleer, strategiese besluite te neem

en kapasiteit te bou. Dit dui daarop dat wanneer akkurate data van munisipale kapasiteit gereeld versamel word, dit grootliks dienslewering verbeteringsinisiatiewe kan aanhelp.

Die studie ondersoek 'n innoverende metode vir die self-assessering van munisipale kapasiteit. Die fokus van die studie is die ontwikkeling van 'n gekonsolideerde munisipale kapasiteits-assesseringsraamwerk en 'n geassosieerde subjektiewe munisipale kapasiteit self-assesseringsmodel (SMCSAM), 'n sagteware-pakket wat geprogrammeer is in Microsoft se Visual Basic for Applications (VBA). Die raamwerk bestaan uit vyftien elemente van kapasiteit en agtien diensleweringfasies. 'n Derde dimensie van die raamwerk bestaan in die erkenning van die voorgenoemde ses basiese dienste. Hierdie raamwerk implementeer die matriks-metode dienooreenkomstig.

SMCSAM implementeer die gekonsolideerde raamwerk gebaseer op stellings wat gegradeer moet word deur munisipaliteite binne die konteks van hul eie realiteit. SMCSAM laat munisipaliteite toe om gewigte te koppel aan elkeen van die vyftien elemente van kapasiteit deur middel van 'n Fuzzy Logic Hiërargiese Ontledingsproses. Dit gebruik twee interaktiewe gebruikerskoppelvlakke wat munisipaliteite toelaat om vinnig die sterk- en swakpunte van hul organisatoriese kapasiteit te identifiseer. Hierdie resultate word aangedui deur middel van grafieke en kleur-kodering.

SMCSAM is getoets by die Drakenstein Munisipaliteit en gedemonstreer aan akademici en deskundiges in die privaat en publieke sektor. Die resultate van die assessering dui op 'n realistiese verwantskap tussen die munisipaliteit se organisatoriese kapasiteit en diensleweringprestasie. Deur die implementering en validasie van SMCSAM, is dit bewys dat dié model 'n waardevolle, verstaanbare en 'n praktiese oplossing bied vir 'n werklike probleem by munisipaliteite in Suid-Afrika. Sodoende, maak die model 'n betekenisvolle bydra tot die navorsingsveld van ingenieursbestuur.

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List of Abbreviations

CIDA	Canadian International Development Agency
CoGTA	Department of Cooperative Governance and Traditional Affairs
CSIR	Council for Scientific and Industrial Research
CIDB	Construction Industry Development Board
DEA	Department of Environmental Affairs
DFID	Department for International Development
DPLG	Department of Local Government
ESKOM	Electricity Supply Commission
IDP	Integrated Development Plan
IGRF	Intergovernmental Relations Framework
IMESA	Institute for Municipal Engineering of Southern Africa
JICA	Japan International Cooperation Agency
LED	Local Economic Development
MDB	Municipal Demarcation Board
MEC	Members of Executive Council
MIIF	Municipal Infrastructure Investment Framework
MIG	Municipal Infrastructure Grant
PDG	Palmer Development Group
SDBIP	Service Delivery and Budget Implementation Plan
SAICE	South African Institute for Civil Engineers
SALGA	South African Local Government Association
UNDP	United Nations Development Programme

Chapter One: Introduction

1.1 Introduction

After 1994, the South African government has experienced significant changes in policies regarding service delivery. These changes gave prominence to the entire transformation of local government in South Africa as the Constitution of the Republic of South Africa, 1996, holds a separate chapter for local government.

The Constitution states how the local sphere of government consists of municipalities, how a municipality has the right to govern the local affairs of its community on its own initiative, and that national or provincial governments may not impede or compromise a municipality's ability or right to exercise its powers and perform its functions. Local government is thus no longer regarded as a third tier of government, receiving its mandate from national and provincial government. Today it functions as an equal sphere of government which receives its mandate, powers and functions directly from the Constitution.

With the enactment of the Constitution, local government became an even more essential mechanism for service delivery and today plays a fundamental role in the transformation process of what is generally termed the new South Africa. According to SALGA (2011), it remains one of the key mandates of local government to eliminate the disparities and disadvantages that are a consequence of the policies and practices of Apartheid. Concurrently, local government's most important mandate is to ensure, as rapidly as possible, that at least basic municipal services are provided to all South Africans (SALGA, 2011).

According to the Department of Cooperative Governance and Traditional Affairs (CoGTA) (2009), the history of Apartheid in South Africa indicates how service delivery in specific geographical areas, was deliberately disrupted by limiting the capacity of municipalities. Accordingly, each province today experiences specific challenges and variations in service delivery strengths, weaknesses and opportunities. As such, progress in terms of service delivery has been uneven across South Africa with different municipal capacity and service backlog issues facing different areas. Residents of previous Bantustans¹ are experiencing some of the most notable service delivery challenges (Siddle & Koelble, 2012).

Reports on the performance of the South African local government, with specific reference to the delivery of basic services, show that municipalities are struggling to perform at the required level of efficiency (CoGTA, 2009). Sadly, this occurs despite the provisions of the aforementioned changes to the Constitution and a battery of policy measures and statutes adopted with a view to provide democratic, participative, responsive, effective and efficient government at local level (Siddle & Koelble, 2012).

¹ A Bantustan was a territory set aside for black inhabitants of South Africa as part of the policy of Apartheid; The Limpopo, Eastern Cape, KwaZulu-Natal, North-West, Free State and Mpumalanga provinces included Bantustans.

The inadequate performance of local government continues to have a direct impact on the everyday lives of many South Africans. Exacerbated by service delivery backlogs, this underperformance hampers the right of South Africans to have a dignified life with access to *eight basic municipal services*, including water provision, refuse removal, sanitation, municipal roads, electricity provision, stormwater management as well as fire fighting services and municipal health. In the broader context, it also significantly effects economic growth. Macleod (2007) states that South Africa's economy needs municipalities to fulfil their mandate in ensuring well-constructed and maintained engineering infrastructure by focussing on Local Economic Development (LED) if the economy is to achieve its GDP growth targets.

South African municipalities are mandated by the Constitution to deliver specified services to the community in its area of authorisation (Craythorne, 2006). These services include the eight basic municipal services as mentioned above. The delivery of these services involves the necessary planning, designing, documenting, procurement, financing, construction, maintenance and operations of municipal services infrastructure (Lawless, 2007).

Lawless (2007) explains that the effective fulfilment of these engineering-related functions is necessary to meet South Africa's service delivery needs. The engineering departments of municipalities in South Africa play an important part in rolling out new infrastructure and maintaining standing infrastructure. Municipalities' service delivery performance and the associated achievement of regional and national service delivery objectives, therefore essentially rely on its engineering capacity. In this regard, Lawless (2007) suggests that engineering, and particularly civil engineering, is the "*critical profession for service delivery*" in South Africa. With challenges to rapidly eradicate service delivery backlogs, it can be assumed that municipalities' engineering resources today have an even more significant role to play. Yet, trends suggest that the shortage of municipal engineers is ever-increasing as municipalities struggle to attract suitable candidates (Lawless, 2007).

Studies (CoGTA, 2009) exemplify that the underperformance of many municipalities' technical departments² results from a variety of problems. Among the shortcomings in terms of leadership, management and engineering practices, nationally, municipalities are experiencing a defining lack of organisational capacity (CSIR, 2007). Recent investigations by the MDB in 2012 and the National Treasury in 2011, state that where the lack of organisational capacity cannot be indirectly linked to municipal underperformance, it is typically regarded as the main cause thereof.

Specific individual capacity downfalls relate to vacancies, inadequate work experience and insufficient academic qualifications (MDB, 2012). Craythorne (2006) states that apart from the deliberate disruption of regional municipal capacity in Apartheid, this unfortunate state of affairs has resulted from more recent municipal management practices. Lawless continues by stating that these downfalls are the key causes for the long-standing service delivery

² *Technical departments* and *engineering departments* will be used interchangeably in this research dissertation.

backlogs in South Africa. In a broader context, the lack of municipal engineering resources has had an adverse effect on the eradication of extreme poverty and hunger, public health and education, environmental sustainability and economic growth.

Relating to existing organisational capacity gaps found at the majority of South African municipalities and specifically its technical departments, numerous external governmental capacity building initiatives, of which many were and remain to be focused on municipalities' engineering capacity, have been instigated. The majority of these initiatives however have been ephemeral with having little impact. These downfalls have often been a consequence of the inaccurate identification of capacity needs and the improper preparations of capacity building initiatives (CoGTA, 2012).

The UNDP (2007) remarks that whatever the nature of capacity building initiatives, it remains imperative to perform relevant organisational capacity assessments to obtain truthful and accurate data with regards to municipalities' capacity needs, strengths and weaknesses. Reasonably, the success of any capacity building initiative significantly relies on the accuracy in identifying capacity gaps (UNDP, 2010). In a South African context, a significant need for adequate municipal capacity assessments exists (CoGTA, 2012).

Mandated by law (Municipal Structures Act, 1998, and Municipal Systems Act, 2000,), municipalities are obliged to perform periodical capacity assessments for different reasons of which capacity building is the most important. Though legislated, many of these assessments have been described as inadequate, as it assumes a limited perspective of municipal capacity. These assessments typically focus merely on the number of unfilled posts and the experience and academic history of staff (MDB, 2012). These assessments are typically also only performed once a year after a designated period, while studies (UNDP, 2007) suggest that pre-year and recurrent in-year capacity assessments are necessary to support municipal planning, performance management and decision-making during capacity building.

Relating to municipal capacity assessments, several investigations (Beasley, 2011 and Teo, & Dale, 1997) note major benefits with regards to the usage of self-assessment. Wensley, Mackintosh & Delpont (2011) identifies self-assessment as a fundamental tool for gathering truthful information of capacity gaps that could support the abovementioned municipal planning, performance management and decision-making during capacity building. South Africa, municipal capacity self-assessments are not implemented at municipalities for various reasons of which a lack of organisational capacity, itself, is the most profound.

It can therefore be said that, for a municipality, potential to improve its service delivery performance is apprehended in frequent municipal capacity self-assessment followed by effective and efficient capacity building initiatives. While efforts to uncover this potential are currently enjoying little attention in South Africa, this research study investigates municipal capacity self-assessment as a catalyst for improved service delivery performance.

The objective of this research study is to investigate the needs for municipal capacity improvements and the applications for self-assessment in South Africa. The ultimate objective is to develop a unique municipal capacity self-assessment model for examining the effect of capacity self-assessment on municipalities' internal management decisions. To achieve this objective, the following sections provide an introduction to the three fundamental areas of this study, i.e. municipal service delivery performance and capacity, municipal engineering functions and capacity assessment and performance improvement.

1.2 Municipal Service Delivery Capacity and Performance

1.2.1 Introduction

Municipal service delivery in South Africa is currently characterised by maladministration, general underperformance and major longstanding service delivery backlogs with the consequence of frequent and violent service delivery protests. Recently (2012), the number of service delivery protests has reached a new culmination which now significantly pressures underperforming municipalities (Heese, 2012). As will be further justified in the following chapter, the underperformance of municipalities can partially be attributed to the insufficient organisational capacity of municipalities and specifically its technical department.

This section provides an introduction to municipal service delivery performance in South Africa. While a large collection of indicators can be used for municipality's performance, this study uses the delivery of basic municipal service as a key performance indicator (KPI). This section also discusses the concept of organisational capacity and its relation to municipal performance.

1.2.2 Municipal Service Delivery Mandate

Prior to considering the service delivery mandate of municipalities, it is necessary to distinguish between the terms, *functions* and *services*. As defined by Craythorne (1997), a municipal function is a concept that is linked to the nature of governance. A government must govern and in order to govern it must perform certain functions, such as establishing and implementing laws, levying taxes, employing personnel and allocating resources. In turn, a service is a commodity that is provided by one person or institution, such as a municipality, to another person or group of persons (Beklink, 2006).

The main objective of municipalities, according to the Constitution, is to provide effective and sustainable services to communities. In order to provide such services, a municipality must perform certain functions. The provision of municipal services is therefore dependent on the municipalities' ability to fulfil certain functions (Beklink, 2006). Some of these functions are related to engineering and according to Lawless (2007) include the planning, designing, construction, maintenance and operations of municipal infrastructure³.

³ These functions will from hereon be referred to as the *engineering functions* of a municipality.

Schedules 4B and 5B of the Constitution stipulates the *functions of local government*⁴ which include eight services, termed basic municipal services. Related to this, section 73(1) of the Municipal Systems Act, 2000, stipulates that “*a municipality must give effect to the provision of the Constitution and –*

1. *give priority to the basic needs of the local community;*
2. *promote the development of the local community; and*
3. *ensure that all members of the local community have access to at least the minimum level of basic municipal services.*

Contributing to a municipality’s responsibility, section 73(2) of the Municipal Systems Act, 2000, continues by requiring that municipal services must be -

- a. *equitable and accessible;*
- b. *be provided in a manner that is conducive to –*
 - i. *the prudent, economic, efficient and effective use of available resources; and*
 - ii. *the improvement of standards of quality over time;*
- c. *be financially sustainable*
- d. *be environmentally sustainable;*
- e. *be regularly reviewed with a view to upgrading, extension and improvement.”*

It is the provision of water, sanitation, electricity, refuse removal, municipal roads, storm-water management, fire fighting and municipal health services that qualifies as basic municipal services (CoGTA, 2011). By excluding fire fighting and municipal health, six of these services relate meticulously to engineering⁵. According to the Municipal Systems Act, 2000, basic services are essential to guarantee an acceptable and reasonable quality of life and, if not provided, would either compromise public health and safety or the environment.

For all these engineering services, excluding fire fighting and municipal health, different service levels exist, which are categorised as basic, intermediate and full level (Lawless, 2007). Detailed explanations of the various service levels are included in a collection of acts and policies and will be discussed in Chapter Three.

1.2.3 Municipal Service Delivery Backlogs

Regardless of the provisions made in the Constitution and a battery of policy measures for local government which have been adopted with a view to provide more efficient and effective government at local level, significant service delivery backlogs remain in South Africa (Siddle & Koelble, 2012). The 2011 South African Census indicates that, despite a decrease in service delivery backlogs over the past five years, many South African households have

⁴ The *functions of local government* refer to the services to be delivered by municipalities. It should be noted the use of this term is a contradiction with the definition as provided by Beklink (2006).

⁵ These six services is a key focus area of this study and will from heron be interchangeable referred to as the engineering services of a municipality or the six basic municipal services.

not yet received all six basic municipal services. Table 1, shows backlogs regarding water provision, sanitation, electricity provision and refuse removal.

It should be noted that Table 1 refers to *households receiving below basic levels of services*, suggesting that some households in South Africa have access to municipal services, but not at a level which can be regarded as sufficient. These households obviously also include those which do not have any access to the respective base municipal services. Distinguishing between these two categories is clearly important and requires definitions of what exactly qualifies as basic municipal services. Chapter Two will provide definitions for basic, intermediate and full levels of service, for each basic municipal service.

TABLE 1 - BACKLOGS OF BASIC MUNICIPAL SERVICES IN SOUTH AFRICA
(STATISTICS SOUTH AFRICA, 2012)

Type of Basic Services	Number of South African households	Households receiving below basic levels of services	% Backlogs
Water Backlogs	14 450 133	2 167 520	15.0%
Sanitation Backlogs	14 450 133	3 843 735	26.6%
Electricity Backlogs	14 450 133	3 401 838	26.1%
Refuse Removal Backlogs	14 450 133	4 998 787	37.9%

1.2.4 Municipal Service Delivery Protests

As a consequence of municipal underperformance, frequent service delivery protests occur in South Africa. In recent years, service delivery has been typified by violent and mass protests, demonstrations and petitions. Responses by communities resorting to protests have become a characteristic feature of citizens' response when local government fail to show reaction to community needs (Heese, 2012). Useful insight can be gathered from the vast number of protest which has occurred in South Africa since 2004 (Afesis-Corplan, 2011).

Figure 1 shows how the frequency of community protests has significantly risen from 2004 to 2012. During 2012, more protests had occurred than in any of the preceding eight years.

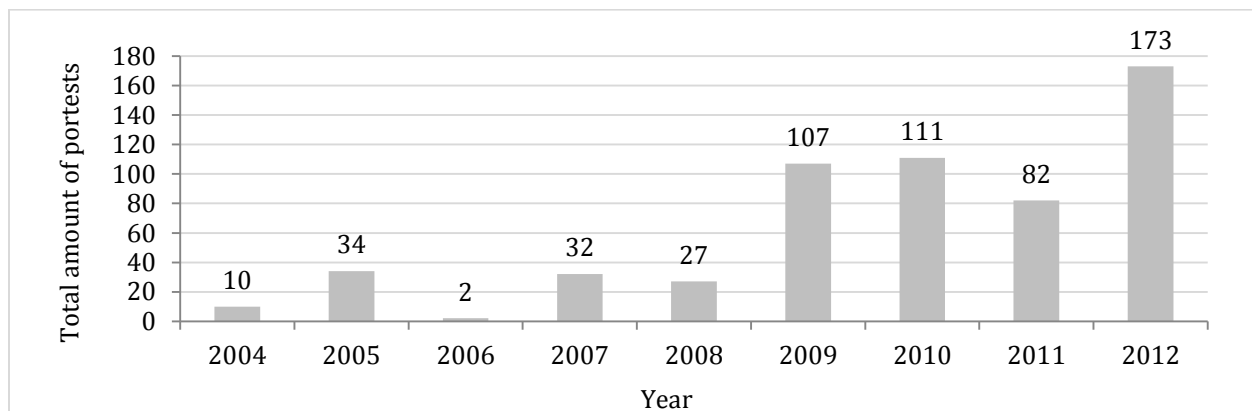


FIGURE 1 - MAJOR SERVICE DELIVERY PROTESTS BY YEAR (2004 - 2012)
(HEESE, 2012)

Heese (2012) notes that while municipal service delivery protests have become extremely violent, these protest generally occur as communities demand better access to basic services, with over 40% of protests demanding better access to water provision services.

1.2.5 Municipal Service Delivery and Organisational Capacity

Based on the previous sections, questions with regards to the state of South African municipalities' organisational capacity as an enabler for the delivery of municipal services can be posed. Assuming that organisational capacity is multi-dimensional, the CSIR (2007) and the National Treasury (2011) suggest that it remains uncertain which aspects of organisational capacity truly drive municipal performance.

However, Lawless (2007) and Macleod (2007) identify the lack of individual capacity, specifically in terms of municipalities' engineering resources as the leading cause of municipal underperformance. Lawless (2007) states that high vacancy levels, lack of strategic leadership, poor management practices and limited budgets have critically hampered municipal service delivery. Moreover, it was found that, within the administrative structure of municipalities, municipal managers, functional managers and support personnel are perceived to be lacking the requisite knowledge and skills for effective management practices.

Another approach to understanding municipal performance is evident in interpretations by the MDB. MDB (2010) believes that municipal performance is not necessarily reliant on a combination of many attributes, but that it rather relies on the less measurable and more ethereal realm of leadership and management. According to MDB (2010), the way municipalities are led and the quality of decisions made by managers have a more patent effect on performance than numbers of staff, expenditure, experience and compliance with qualification requirements.

Combining these insights, Palmer Development Group (PDG) in MDB (2010) indicates a relationship that exists between municipal performance, the organisational capacity of municipalities and the leadership found within the political and administrative structures of a municipality. This relationship is shown in Figure 2 and shows the disproportionate effect which leadership has on municipal performance and the constant effect which organisational capacity has.

According to Cloete (2002) and PDG in MDB (2010) organisational capacity in this regard, is defined as the potential, found within an organisation, which includes resources, strategic leadership, organisational purpose, orientation, institutional memory, powers and functions, partnerships, systems, infrastructure, structures, processes, culture, by-laws, etc. Contrary to many other views, UNDP (2007) suggests that organisational capacity also includes the enabling environment.

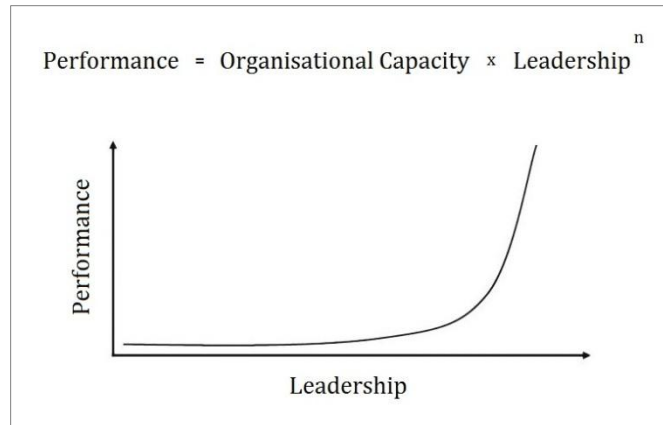


FIGURE 2 - RELATIONSHIP BETWEEN LEADERSHIP AND PERFORMANCE

(MDB, 2010)

With reference to Figure 2 above, MDB (2010) suggests that municipal performance cannot easily be used as a proxy for whether a municipality has the necessary organisational capacity or not. MDB (2010) however further suggests that whenever municipal performance is not ideal, municipalities should consider its organisational capacity for possible capacity-related shortfalls. While there may be several cases of a municipality performing a function adequately with inadequate capacity due to excellent leadership, it is more probable to see cases of municipalities performing poorly with more than satisfactory capacity due to insignificant leadership (MDB, 2010).

Relating to this, Ajam (2012) states that while failure to perform is in some cases related to a sincere lack of capacity, this is often used as an excuse to evade accountability for managerial, leadership or political dysfunction. It is further important to note that Figure 2 suggests that leadership stands separate from organisational capacity. Siddle & Koelble (2012) however suggests that organisational capacity undeniably includes the leadership within the municipality. These different perceptions emphasise the challenges in assessing the organisational capacity of municipalities. Hence, it is important to, when assessing organisational capacity, use a structured and well-defined framework.

It should be noted that the relationship as presented in Figure 2, implies that organisational capacity has a persistent effect on performance. As such, municipal capacity, as perceived by MDB (2010), thus functions as a constant value in the provided equation and so moreover emphasises the value of obtaining its state. As the outcome of the ambiguity that exists around the exact effect leadership has on municipal performance, this study focuses more explicitly on the more quantifiable and constant effect which organisational capacity has on municipal performance.

Without disregarding the aspect of leadership, this study will moreover focus on the development of a structured and well-defined framework to be used in a municipal capacity self-assessment model.

1.2.6 Conclusion

This section set out to provide an overview of municipal service delivery capacity and performance in South Africa. It briefly set out the mandate of municipalities in South Africa, as included in the Constitution and confirmed that many municipalities are not fulfilling their mandate as an effect of a lack of organisational capacity. Municipalities' underperformance was clarified with reference to long-lasting basic municipal services backlogs. This chapter moreover provided substantial proof of the South African population which is becoming increasingly impatient with municipalities' underperformance.

Very importantly, this section provided evidence of a non-linear relationship that exist between municipal performance, the organisational capacity of municipalities and the leadership found within municipalities. Provided the immense need for and challenges regarding basic municipal service delivery, this relationship offers extensive reason for investigating the organisational capacity of municipalities. Closely related to this is the role of the municipalities' technical departments and the fulfilment of its engineering functions.

1.3 Municipal Engineering Functions

1.3.1 Introduction

One of the key findings of the former section is the relationship that is believed to exist between municipal performance, the organisational capacity of municipalities and the leadership found within a municipality. With the intention to investigate methods of achieving ultimate improvements in municipal service delivery performance, it is essential to investigate the aforementioned relationship in the context of municipal engineering. The following sections therefore set out to discuss the relevance of the engineering functions of municipalities and determine how it relates to municipal service delivery performance.

1.3.2 Contextualisation of Municipal Engineering Functions

The functions of local government in South Africa are primarily defined in the Constitution, with the Municipal Systems Act, 2000, providing further refinements. In relation to this, the diagram in Figure 3 shows that municipalities require certain engineering capacities to fulfil their service delivery mandate. These services include the functions of local government which meticulously relate to the science of engineering and can thus be denoted as municipal engineering services. i.e. water provision, refuse removal, sanitation, municipal roads, electricity provision and stormwater management. The two basic municipal services which are excluded include fire fighting services and municipal health.

With reference to Figure 3 the Constitution puts forward a specified service delivery mandate and in accordance, provides guidance, by means of the Municipal Structures Act, 1998 in terms of the structure of a municipality. Municipalities therefore have specific functions to fulfil [purple] through prescribed structures and powers. The following level [dark blue] in the diagram shows the process of strategic planning, which requires municipalities to,

amongst other, identify community needs and identify and prioritise predetermined service delivery objectives.

Enacted by the Municipal Systems Act, 2000, municipalities are mandated to compile and implement a five-year Integrated Development Plan (IDP) and a one-year Service Delivery and Budget Implementation Plan (SDBIP). These documents consist of strategies predominantly related to maintaining existing and constructing new service delivery infrastructure. Based on these strategies, municipalities are permissible to use different forms of service delivery mechanisms, which are grouped into internal and external mechanisms in the Municipal Systems Act, 2000 and will be discussed moreover in Chapter Two.

It is the presumption that, based on the strategies and predetermined objectives, as included in the IDP and SDBIP, the necessary engineering resources (either internal or external) ought to be allocated as an input to a service delivery process. These resources [light blue] include the necessary *engineering resources*, including human, technological physical and (allocated) financial resources to form the *input* of a *service delivery process*. This process can further be described with reference to the *result chain* which involves various *inputs, processes, outputs, outcomes* and *impacts* (CIDA, 2000).

As part of the *result chain*, after the allocation of resources, operations [dark green], which in this case consist of the engineering functions of municipalities are performed. According to Lawless (2007) these functions include the planning, designing, financing, procurement, documenting, construction, operation and maintenance of service delivery infrastructure.

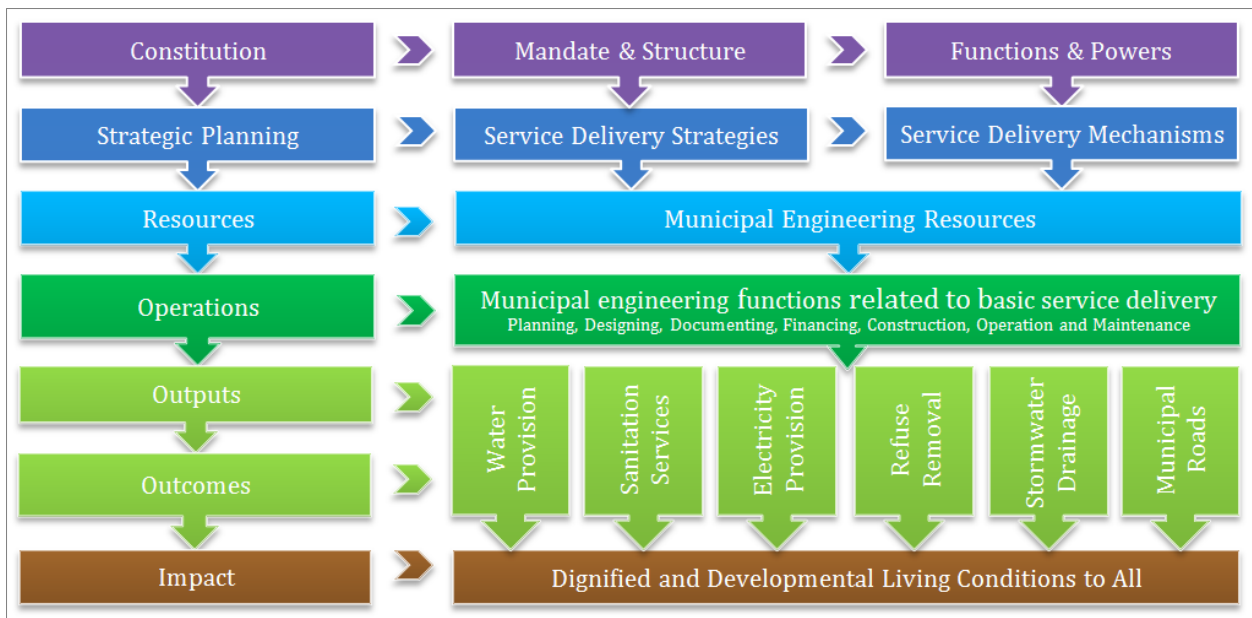


FIGURE 3 - CONTEXTUALISATION OF MUNICIPAL ENGINEERING FUNCTIONS

As shown in Figure 3, these operations ought to result in measurable outputs [light green], short-term development results produced by project and non-project activities including

the number of households receiving the different levels of basic municipal services (UNDP, 2010). In this case, these outputs include the delivery of the six particular basic municipal services, identified as the engineering services, while the less measureable outcomes [light green] include changes related to human behaviour and the development and sustainability of communities in South Africa (UNDP, 2008). It must be noted that, by excluding electricity provision, five of the municipal engineering services relate meticulously to civil engineering. Therefore, the following sections focus solely on municipalities' civil engineering capacity.

The closing phase of the *result chain* includes the desired impacts [brown] in communities, which relate to the intended change in human development as measured by societies' well-being, i.e. living conditions, through improvements in health, income, education, nutrition, the environment, etc. (UNDP, 2008). To achieve these desired impacts, it is imperative that each engineering function [dark green] is performed appropriately.

These *engineering functions* include all phases of the project lifecycle, clustered together as the planning, financing, designing, documenting, construction, operation and maintenance of municipal infrastructure. To orchestrate the various phases of the project lifecycle, it understandably requires municipality's technical departments to also hold insight of the foregoing and following phases of the *result chain*. The result chain includes specific mandates, strategic planning and resources alongside the *outputs*, *outcomes* and *impacts* of municipal service delivery. Hereby the contextualisation of municipal engineering functions generates a *service delivery process* consisting of several phases. This process is formed by the phases, shown in the left part of Figure 3 and can be termed the *municipal service delivery process*.

1.3.3 Deterioration of Municipal Engineering Capacity

According to Lawless (2007), it is important to note that generally, the technical departments of municipalities do not perform all the municipal engineering functions themselves. It however remains the responsibility of this department to ensure that these functions are fulfilled and services are delivered. Municipalities' technical departments typically rather manages or oversees many of these functions as it is habitually outsourced to external service delivery mechanisms (Lawless, 2007). The Municipal Systems Act, 2000 makes provision for this outsourcing as it recognises that municipalities have unique capacity strengths and weaknesses and as a result of this, the outsourcing of the engineering functions is often financially more beneficial.

The former section indicated that five of the six selected basic municipal services relate meticulously to civil engineering. Corresponding to this, Lawless (2007) considers municipalities' civil engineering resources to be the most important in ensuring the effective and cost-efficient delivery of basic municipal services. This notion is exemplified by the involvement of ESKOM in the generation, distribution and in many cases the administration of electricity

in South Africa. As such, municipalities' role in providing electricity to its communities requires fewer resources relative to the five civil engineering-related municipal services.

Relating to this, it should be noted that alongside the transformation of local government, municipalities' civil engineering resources have experienced an increasing capacity shortage from 1989 to 2003. With reference to Figure 4, Lawless (2007) suggests that the shortage of civil engineers at municipalities will last and furthermore intensify if local government do not respond by identifying and overcoming challenges in this regard. In 2005, the South African Institution of Civil Engineering (SAICE) executed a study of local government which confirmed that merely 1534 civil engineering professionals were employed by municipalities in 2004. Of these 1534 professionals, merely 381 were engineers, 369 were technologists and 784 were technicians.

The total of 1534 civil engineering professionals in 2004 is indicated in Figure 4 along with projections for the following eight years until today (2012). As the result of irregular municipal capacity assessments and skills surveys, these projections cannot properly be validated. The most recent MDB municipal capacity assessment in South Africa was performed in 2011. However, this assessment did not distinguish between the various types of engineering professions (i.e. civil, mechanical, electrical, chemical, etc.) and also did not distinguish between professionally registered and non-registered engineering staff.

So, MDB (2012) reports that 983 registered professional engineers (of all fields) and a total of 3312 technicians and technologist (both professionally registered and non-registered) were employed by local government in 2011. Evidently, the insufficiencies of the MDB municipal capacity assessment cause it to be useless in verifying the predictions made by Lawless in 2005 regarding civil engineering staff decreases.

However, Greve (2011), Seggie (2012), Cloete (2012) and Venter (2013) confirm that the number of civil engineering staff at municipalities is progressively worsening. In 2012, the National Planning Commission (NPC) reported that the scarcity of engineering staff in local government has had an adverse impact on the ability of government to engage in long-term planning, coordinate projects across institutions, organise efficient operations, ensure adequate maintenance of infrastructure, establish organisational systems and routines, and manage personnel and industrial relations.

Further areas of concern include information systems, human resource and financial management in addition to technical expertise such as engineering and town planning.

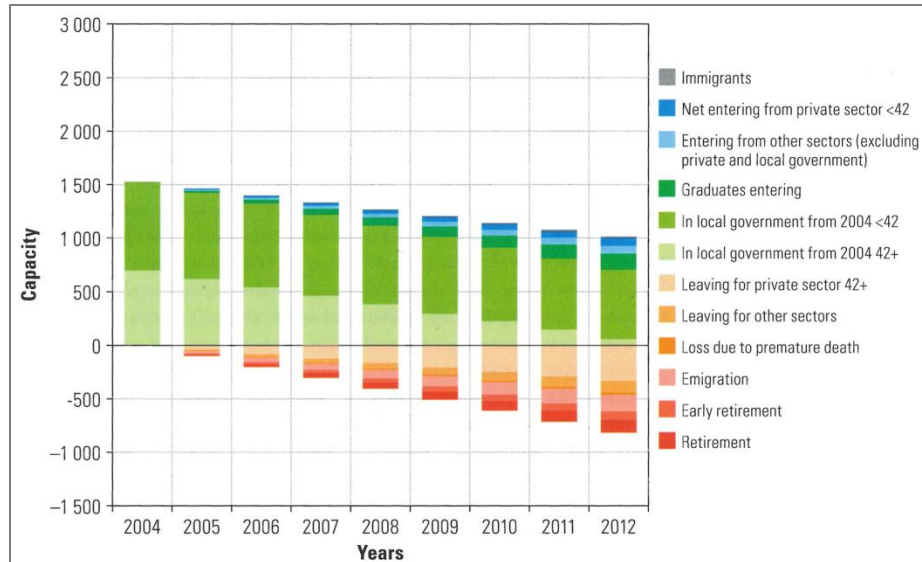


FIGURE 4 - CIVIL ENGINEERING STAFF PROJECTIONS WITH NO REACTION OF LOCAL GOVERNMENT
(LAWLESS, 2007)

Figure 4 shows that in 2004, more or less 600 of the civil engineering professionals were above the age of 42. The projections for the following eight years indicates how the overall number of civil engineering professionals would decrease due to trends in terms of early retirement, expected retirement, emigration, losses due to premature death, the intakes of graduates and the number of engineers entering from and leaving to the private.

According to Lawless, her research on municipal engineering in South Africa has caused a necessary change in the way municipal engineers' capabilities are perceived. Coincidentally, it is also one of the key objectives of this study to contribute to the aforementioned change. This study aims to develop a capacity self-assessment model by which municipalities can identify the key capacity strengths and weaknesses of their technical departments. Based on the results of the proposed model, municipalities would be able to improve its decision-making regarding policy formulation, strategic planning and capacity building initiatives.

1.3.4 Transition of Municipal Engineering Responsibilities

Before the late 1980's, municipalities typically took full responsibility for all municipal engineering functions, i.e. planning, designing, documenting, financing, construction, maintenance and operations of service delivery infrastructure (Lawless, 2007). Lawless alludes that the worldwide trend has been to transfer the majority of the abovementioned responsibilities to the private sector and South Africa has followed suit. As stated, reassigning responsibilities to the private sector holds certain financial benefits, while in South Africa, these transfers typically occur rather as result of a lack of municipal capacity.

The existing split of the abovementioned responsibilities is shown in Figure 5. The diagram in Figure 5 shows how the private sector, from 1980 onwards, has taken over the responsibilities related to planning, engineering, consulting and contracting (Lawless, 2007).

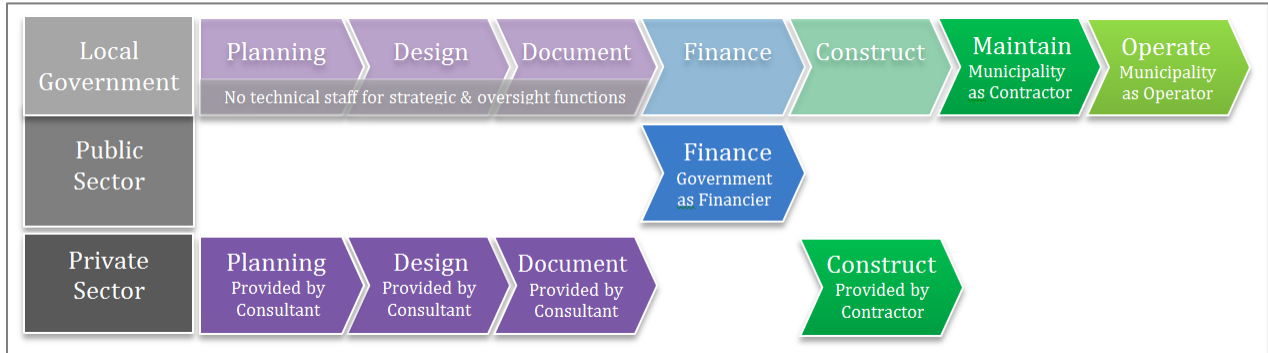


FIGURE 5 - SPLIT OF RESPONSIBILITIES PREVIOUSLY PERFORMED BY LOCAL GOVERNMENT

ADOPTED FROM LAWLESS (2007)

Although the approach as shown above has become the preference for the delivery of municipal services, several other possibilities exist in this regard. Under section 77, the Municipal Systems Act, 2000, authorises the outsourcing of entire service delivery processes, or part thereof to either internal or external service delivery mechanisms. The Municipal Systems Act allows for partnership with other municipalities, private entities and the community (NBI, 2006). The different internal and external service delivery mechanisms, as prescribed by the Municipal Systems Act, 2000, are further discussed in Chapter 3.

It is important to note that in a South African local government context, the transfer of engineering related responsibilities to the private sector is the forceful result of the deterioration of municipalities' engineering capacity. These outsourcing practices have progressively led to less internal engineering capacity requirements than before the late 1980's. However, according to Lawless (2007), it remains imperative that municipalities maintain a certain minimum level of internal capacity. This is necessary as activities related to the outsourcing of engineering functions require certain management or oversight involvement in order for municipalities to ensure the effective fulfilment of its service delivery mandate.

1.3.5 Conclusion

This section provided an introduction to *municipal engineering functions* with specific reference to the delivery of *municipal engineering services*. Accordingly the *result chain* was discussed, while it was accentuated that a municipality's engineering resources must carry insight of each phase of the *result chain*, including the municipality's mandate and strategic planning, the necessary resources as well as the resulting outputs, outcomes and impacts of basic municipal service delivery. However, the focus of municipalities' engineering departments must remain on the *engineering functions* that include the planning, designing, documenting, financing, construction, maintenance and operations of services infrastructure.

In addition, this section provided an awareness of the deterioration of municipal engineering capacity in South Africa. This phenomenon was put into perspective by explaining the transfer of municipal engineering responsibilities to the private sector. Here, emphasis was put on a minimal level of capacity which must be preserved to effectively manage and oversee the outsourcing of municipal service delivery processes.

Establishing the importance of municipal engineering resources, this section simultaneously, highlighted the capacity downfall which the South African local government is currently experiencing in this regard. This section moreover highlighted various aspects to consider during any assessment of organisational capacity. The next section will focus on capacity assessment and how it relates to capacity building and ultimate performance improvement.

1.4 Organisational Capacity and Performance

1.4.1 Introduction

The aim of this section is to provide an introduction to capacity assessments, while moreover indicating its relevance to capacity building and ultimate performance improvement. In doing so, this section purposely investigates the meaning of the terms, capacity, capacity building and capacity assessment in the context of municipalities as organisations.

1.4.2 Organisational Capacity

Various definitions of *capacity* exist as it is a notion used in various contexts. To refine this collection of variations of the term, to a concept which is applicable to the context of municipalities, the term *organisational capacity* can be used. Several definitions of organisational capacity depict it as a multi-dimensional concept. Definitions usually differ in terms of the dimensions which can be regarded as being part of organisational capacity. This phenomenon relates to the previously highlighted instance where, according to the MDB, leadership shown by members of municipalities' administration stands separate from a municipality's organisational capacity opposed to others' views that the opposite is in fact true.

To aid the understanding of organisational capacity, a framework developed in the early 1990s can be considered. This framework was developed by Allan Kaplan and his colleagues at the Community Development Resource Association, a nongovernmental organisation in South Africa and describes organisational capacity as seven interrelated elements in an organisational setting (Kaplan, 1999). These seven elements include the following:

1. A context and conceptual framework that reflects the organisation's understanding of its world and its attitude towards it.
2. A vision which sets out what the organisation will do to respond to its context.
3. A strategy that outlines how the organisation intends to realise its vision and entails the development particular methodologies of practice.
4. A culture which is the norms and values practised in the organisation, including the way of life and how things are done.

5. A structure that outlines and separates, among other things, the roles and functions of staff, lines of communication and accountability and decision-making procedures.
6. Material resources are what an organisation needs to support the work program, such as finances, equipment and office space.
7. Skills which refers to the skills, abilities and competencies of staff.

These elements represents a form of a hierarchy in terms of the importance of aspects to consider during any capacity development⁶ activity. With the conceptual framework at the top and material resources at the bottom of this hierarchy, Kaplan (1999) states that unless an organisation knows what objectives it is working towards, has a well-developed sense of responsibility for itself and is adequately structured, training courses to instil skills in staff are unlikely to have any effect in the medium to long term. The interrelatedness in the form of a hierarchy is important to take note of when considering organisational capacity.

Importantly, Kaplan (1999) highlights the often invisible nature of some elements. While material and financial resources, skills, organisational structures and systems incline to be the more visible within the aforementioned hierarchy, vision, strategy and cultural values are often not seen. Although many organisations have written statements of these values, elements at the top of the hierarchy of organisational life tend to be ephemeral, transitory, not easily assessed or weighed. They are usually visible only through the effects they have. These elements are also significantly invisible to the organisation itself as well as to those practitioners who typically intervene to build organisational capacity (Kaplan, 1999).

Coninciding with the work of Kaplan (1999), detailed research by the UNDP (2007) divides organisational capacity into three inter-related and mutually dependent dimensions, which include individual, institutional and environmental capacity. Definitions for each dimension and the integration thereof are discussed below with reference to the work of Matachi (2006) and the revised National Capacity Building Framework (NCBF) for 2012 -2016.

1.4.2.1 Individual Capacity

According to Matachi (2006), capacity at an individual level is the most fundamental element of capacity. Individual capacity becomes the basis for organisational capacity and refers to the will and ability of an individual to set objectives and to achieve them using one's own knowledge and skills (JICA, 2004).

Two investigations (Matachi, 2006 and CoGTA, 2012) define individual capacity as the potential and competency shown by a person, which is usually reflected through their specific technical, managerial, leadership and generic skills, knowledge, attitude and behaviour accumulated through forms of education, training, experience, networks and values.

⁶ *Capacity development* and *capacity building* will be used interchangeably in this research dissertation.

Individual capacity is consequently directly linked to municipal functions and the selection of suitable candidates to fill vacancies and perform appropriately. Hereby, the significance of individual capacity for local government includes (CoGTA, 2012):

- Municipalities must appoint the correct person within a suitable post where his or her individual capacity can be used to the advantage of the communities served
- A municipality must develop its human resource capacity to a level that enables it to perform its functions and exercise its powers in an economical, effective, efficient and acceptable way (Municipal Systems Act, 2000, Section 68)
- Capacity gaps in an individual can and should be filled through training, mentoring, learning links, etc. For this purpose, municipalities must comply with the Skills Development Act, 1998 (Act 97 of 1998) and the Skills Development Levies Act, 1999.

1.4.2.2 Institutional Capacity

Institutional Capacity determines how individual capacities are utilized and strengthened (Matachi, 2006). According to Cloete (2002), institutional capacity can be defined as the potential and competency, found within an organisation, which includes human resource (combined individual capacities), strategic leadership, organisational purpose, orientation, institutional memory, confidence, partnerships, powers and functions, resources and support systems, infrastructure, structures, processes, culture, and by-laws.

The significance of institutional capacity for local government includes (CoGTA, 2012):

- It is the municipality's responsibility to ensure an optimum institutional context. This includes aspects such as organisational culture, leadership, vision, etc.
- Strategic leadership, orientations, structures, skills, systems and resources all refer to a municipality's internal abilities and its state of readiness that are part of operational capacity and part of institutional capacity.

1.4.2.3 Environmental Capacity

According to JICA (2004), environmental capacity refers to the environment and conditions necessary for establishing capacity at individual and institutional level. The National Capacity Building Framework (NCBF) for 2012-2016 defines environmental capacity as the potential and competency found freestanding of the formal structure of a municipality. This capacity includes systems and frameworks necessary for the implementation of policies and strategies beyond an individual organisation. It further includes administrative, legal, technological, political, social, economic, cultural, etc. factors which impinge on the effectiveness and sustainability of capacity building efforts (Matachi, 2006).

Many environmental capacities are characterised by formal institutions (laws, policies, decrees, ordinances, membership rules, etc.), informal institutions (customs, norms, cultures, etc.), social capital and social infrastructure, and capacities of individuals and organisations in the environment (Lusthaus, Anderson, & Murphy, 1995).

The significance of environmental capacity for local government lies in the opportunity for municipalities to harness environmental capacity for the benefit of the local community. Municipalities also need to respond to gaps in their environmental capacity. While municipalities need to engage with its environmental capacity, it must be noted that the success of municipal strategies is reliant on factors beyond the municipality's control (CoGTA, 2012).

1.4.2.4 Integration of Capacity Dimensions

The NCBF states that the three dimensions of capacity are all related and integrated. CoGTA (2012) works from the premise that environmental capacity can be enhanced by building municipal operating capacity, and by ensuring an integration of capacity building strategies. However, CoGTA also recognises that strategically planned interventions from outside individual municipalities can improve the environment in which the municipality operates, and have a knock-on positive impact on the municipality's institutional capacity.

Relating to the development of the various capacity dimensions, CoGTA (2012) insists that every effort be made to ensure integration and combined capacity building initiatives, as the three dimensions serve to strengthen each other exponentially. Capacity building which targets all three areas, requires that a range of players be involved in capacity-building, as some players are able to act on the environment, while others are positioned to act on the institutional and individual levels. CoGTA (2012) states that, in order to be effective in this regard, capacity building must embrace all three capacity dimensions, respectively through human resource development, institutional development and organisational development.

1.4.3 Organisational Capacity Assessment

UNDP (2007) defines *capacity assessment* as a logical analysis of present capacities against desired future capacities. So it generates an understanding of present capacity strengths and weaknesses and by this means guides the formulation of capacity development strategies. The UNDP Capacity Assessment Framework advises the following three simple steps for the technical process of conducting a capacity assessment:

1. Define desired future capacities
2. Define level of desired future capacities
3. Assess existing capacity level

UNDP (2007) identifies several benefits with regards to the utilisation of organisational capacity assessment which include among other, the systematic approach to identifying future capacity needs and assessing existing capacity assets. Such interventions include focus on a substantial collection of capacity detail. The UNDP (2007) further highlights such capacity assessments as a method for generating both quantitative and qualitative data in specific support of decision making processes during the formulation of capacity development strategies as mentioned above.

Applicable capacity assessment holds the benefit of illustrating very specific capacity areas which hold a need for improvement. As such it contributes to simplifying complex capacity development conditions, when it is not apparent where best to intervene or to promote applicable development (UNDP, 2007).

Relating to the aforementioned relationship between capacity and performance as identified by MDB (2010), UNDP (2005) additionally defines *capacity assessment* as an application for the appraisal of existing capacity of an individual or collective entity to achieve a mandate, perform important functions and deliver anticipated results. It is accordingly intended that capacity assessment link latent capacity with performance.

1.4.4 Capacity Assessment and Capacity Building

As aforementioned, UNDP (2007) defines *capacity assessment* as an application for the generation of both quantitative and qualitative data of future and existing capacity needs in support of the development of capacity building strategies. UNDP (2005) recommends that, subject to the context of capacity challenges and accessible resources, *capacity assessments* should analyse one or more capacity dimensions, including the environmental, institutional and individual capacity of a municipality. Irrespective of the entry point, capacity assessments should constantly take account of the interrelatedness of capacity concerns between the targeted levels and the enabling environment.

Capacity assessments of municipalities therefore fulfil an important function during capacity building initiatives. Based on the Kolb learning cycle, Martinelli & Schnupp (2013) advise the following four-phase approach to capacity building:

1. ***Capacity Assessment:*** This step is largely concerned with the attainment of quantitative and qualitative data regarding relevant strengths and weaknesses of the institutional framework at individual, institutional and environmental levels.
2. ***Strategic Planning:*** This step involves the planning of activities necessary to deliver the program outcomes, i.e. costs, schedules, monitoring and evaluation arrangements, such as organisational mapping and the establishment of a capacity baselines.
3. ***Implementation:*** This section sets out the important roles of the concerned partners in supporting capacity building processes and highlights some examples of action at each of the three capacity levels which can contribute to effective capacity building.
4. ***Monitoring and Evaluation:*** This section focuses on the key principles to be followed in the monitoring and evaluation, as well as some examples of indicators which may be used to judge the effectiveness of the capacity building initiative.

UNDP (2008) advises a comparable process for capacity building by including an additional step to the beginning of the process shown above. This step includes the initial engagement with all the relevant stakeholders. Nevertheless, by combining this four-phase approach of capacity building with earlier insights, Figure 6 shows a *simplified capacity building process*.

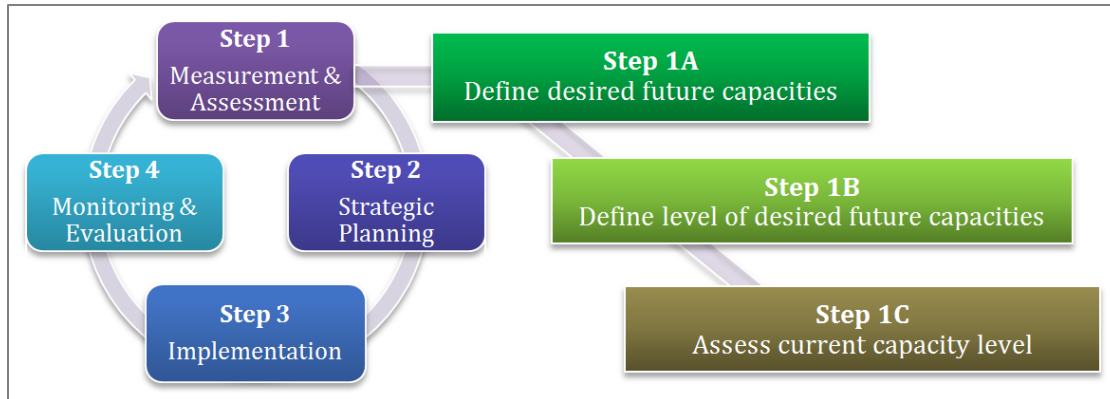


FIGURE 6 - SIMPLIFIED CAPACITY BUILDING PROCESS

ADAPTED FROM (MARTINELLI ET AL., 2013)

1.4.5 Capacity Assessments and Performance Management

The relationship between municipal capacity, capacity building and performance as introduced above, demands the need to consider the role of capacity assessments as part of performance management practices at municipalities.

Enacted by the Municipal Systems Act, 2000, municipalities are obliged to establish a specific and unique performance management system (PMS), which is required to include the performance management tasks of measuring and monitoring (South Africa, 2000). In a South African local government context, the subsequent occurrence of frequent and guided assessments of municipal performance opposed to efforts devoted to sophisticated capacity assessments however, in this regard, contradicts the previously identified relation which is assumed to exist between the organisational performance and capacity of municipalities.

UNDP (2007) indirectly states that opportunities exist with regards to the use of organisational capacity assessment which is not only applied at the end of a municipal performance management process, as is currently the case, but also during various other phases of the performance management process. It is understood that capacity assessments can be used for obtaining valuable data relating future, present and past organisational capacities.

The opportunities, as referred to above, can better be understood with reference to a typical performance management process, as derived from the Municipal Systems Act, 2000, and shown in the top row of Figure 7. Phases of the performance management process include planning, measuring, monitoring, reviewing, analysing and reporting. Based on UNDP (2007), opportunities with regards to the application and focus of organisational capacity assessments are shown in accordance in the bottom row.



FIGURE 7 - PERFORMANCE MANAGEMENT PROCESS & OPPORTUNITIES FOR CAPACITY ASSESSMENT

ADAPTED FROM THE MUNICIPAL SYSTEMS ACT, 2000

Figure 7 shows a direct linkage between municipal capacity assessments and municipal performance management. Clearly during performance management, insights of past, present and future levels of municipal capacity can be useful. Primarily based on the aforesaid assumed relationship between performance and organisational capacity, the role of capacity assessments during capacity building and the associated possibilities in this regard (as shown above), this study investigates municipal capacity assessments as a catalyst for improved municipal service delivery. It can thus be said that capacity assessments can have an effect on municipal service delivery performance either through its role during capacity building or by fitting it directly into the PMS of municipalities.

1.4.6 Capacity Assessment of Municipalities in South Africa

It is widely acknowledged that there remains a gap in municipal-level data and information in South Africa. Reliable data on municipal capacity is particularly important for local government policy and planning (MDB, 2012). As previously identified, capacity related data is also essential to capacity building strategies. This section focuses on existing capacity assessments of municipalities in South Africa, which sees the external MDB municipal capacity assessment at the forefront and the internal capacity assessment, as mandate by the Municipal Systems Act, 2000, overlooked.

Currently in South Africa, the most widely known and published assessment of capacity of any of the three spheres of government, is the one performed by the MDB. This capacity assessment is performed annually and assesses the capacity of municipalities of all categories. This assessment essentially focuses on the number of vacancies and the staffing profile of each municipality with reference to the highest degree obtained and the number of years of relevant work experience of municipal employees. It is suggested that it largely collects qualitative data merely with regards to the individual capacity of municipalities.

This municipal capacity assessment was initiated with the objective of allowing the MDB to fulfil its mandate as required by the Municipal Structures, 1998 in terms of making recommendations to the provincial members of the executive council on the adjustment of relevant functions between district and local municipalities (MDB, 2012). According to MDB (2012), this assessment has progressively become a nationally important strategic information resource on capacity in local government.

The MDB however suggests that they have not yet realised the potential impact which in-depth quantitative and qualitative municipal capacity-related data could have. Conversely, the MDB recognises the need to gather more reliable insight of municipal capacity in South Africa as it has the potential to guide decision-making during capacity building, policy formulation and municipal planning (MDB, 2012).

The MDB further recognises that the foundation of their model relies on a limited and narrow set of capacity-related indicators informed by a self-assessment. This self-assessment is executed by providing municipalities with access to a web-based questionnaire through which capacity related information is submitted online. The MDB recognises that there is major scope to improve the depth and *breadth* of the conceptual understanding and measurement of capacity and the enhancing objectivity of the process of assessing municipal capacity in South Africa.

Furthermore, the desired level of objectivity of this assessment gets lost where municipalities neglect to accurately gather data or deliberately provide inaccurate data. This typically occurs where municipalities do not realise the benefit of self-assessment or do not prefer the public to be aware of possible capacity deficiencies. These phenomena were confirmed by the PDG Director, Nishendra Moodley, in an interview on 8 October 2013 from 10:00 to 11:00 AM at Ubunye House 1st Floor, 70 Rosmead Avenue, Kenilworth, Cape Town.

The second form of municipal capacity assessment in South Africa takes place in the form of a subjective internal service delivery capacity self-assessment. Mandated by the Municipal Systems Act, 2000, in section 78 (1), whenever a municipality has to *“provide a municipal service in the municipality or a part of the municipality or to review a existing mechanism, it must first assess –*

- a) the direct and indirect costs and benefits associated with the project if the service is provided by the municipality through an internal mechanism, including expected effects on the environment and on human health, well-being and safety;*
- b) the municipality’s capacity and potential future capacity to furnish the skills, expertise and resources needed for the provision of the service through an internal mechanism mentioned in section 76 (a);*
- c) the extent to which the re-organisation of its administration and the development of the human resource capacity within that administration could be utilised to provide a service through an internal mechanism.”*

After the assessment as stated in section *b* above, the skills, expertise and resources may be provided by means of a set of aforementioned service delivery mechanisms. A collection of internal and external service delivery mechanisms exist, with each mechanism imposing a different capacity requirement and relief for the municipality. As such challenges in service delivery processes typically ascend from selecting the appropriate service delivery mechanism or combination of service delivery mechanisms.

Through its conclusion of a service delivery agreement, a municipality is “*legally authorised to assign to a service provider the responsibility for a collection of service delivery phases as included in the following list:*

- a) development and implementation of detailed service delivery plans (SDP) within the framework of the municipality’s IDP*
- b) operational planning, management and provision of the municipal service*
- c) undertaking of social and economic development that is directly related to the provision of the service customer management*
- d) management of accounting, financial management, budgeting, investment and borrowing activities within the framework of transparency, accountability, reporting and financial control determined by the municipality, all subject to the MFMA.”*

Although mandated, the execution of these internal municipal capacity assessments is not publically reported and as such creates difficulties in commenting on the practicality thereof. It is important to note that although a capacity assessment is mandated by the Municipal Systems Act, 2000, no further requirements are prescribed in terms of the depth of the capacity assessment or any specific capacity dimension or element to be considered.

Nevertheless, by mandating this internal municipal capacity assessment, the Municipal Systems Act, 2000, acknowledges that capacity assessments form a fundamental part of decision-making regarding capacity building specifically and service delivery performance as a whole. This coincides with the important relationship between municipal capacity, capacity building and municipal performance, as previously identified.

1.4.7 Conclusion

This section focused on establishing a thorough understanding of the organisational capacity of municipalities. It stated that organisation capacity consists of three interrelated and interdependent dimensions including individual, institutional and environmental capacity. This section also focused on the process of capacity assessment and how it relates to capacity building as well as performance management. From this section, it also became known that capacity assessment functions as an essential exercise for any form of decision-making which is related to, among other, capacity building, policy formulation, municipal planning and performance management.

Ultimately, this section provided an overview of existing municipal capacity assessments in South Africa. Both the internal capacity assessment, as mandated by the Municipal Systems Act, 2000, and the annual capacity assessment performed by the MDB were discussed. The outcomes of these discussions were that currently a major need for truthful, accurate and complete municipal capacity data is needed, while existing municipal capacity assessments are extremely limited and few efforts exist to overcome this notable shortfall.

From these discussions, a very important aspect of capacity assessment arose. Capacity assessments, performed by an external entity would naturally be objective while those performed internally would logically be subjective. Here, a distinction should also be made between quantitative and qualitative data acquired through assessments. Where quantitative data is acquired through capacity assessments, internal and external capacity assessments would probably provide exact results, whereas qualitative data is acquired, it could differ. However, where, for example, the number of civil engineers needs to be indicated, municipalities could wrongly do so as they might perceive ineffective civil engineers not as part of this count. Nishendra Moodley of PDG confirmed that this indeed often occurs and significantly affect the accuracy of the MDB municipal capacity assessment.

1.5 Research Methodology

1.5.1 Introduction

The objective of this section is to provide an inclusive understanding of the methodology used for this research study. As such, this section focuses on the research problem, the hypothesis, research objectives, accompanying research questions and the processes followed for the validation of the research and research outputs. Furthermore, this section provides a document roadmap to simplify the understanding of various document sections in relation to the other.

1.5.2 Research Problem

As proven in the preceding sections, existing assessments of municipalities' organisational capacity in South Africa do not have the capability to obtain the necessary quantitative and qualitative data for frequent and precise identification of capacity gaps which is fundamental to the success of both internal and external capacity building initiatives and the ultimate and much needed improvement of municipal service delivery performance.

Today, where municipalities do not perform subjective internal capacity self-assessments as prescribed by the Municipal Systems Act, 2000, external capacity assessments, as mandated by the Municipal Structures Act, 1998 and performed by the MDB, are the only legislated form of municipal capacity assessment applied in South Africa. These assessments are characterised by its untimeliness, collection of merely quantitative data, lack of objectivity and a narrow understanding of multi-dimensional capacity of municipalities as reflected by the use of a limited set of capacity indicators.

Evidence suggests that, while characterised by its inadequacies, the above-mentioned municipal capacity assessments have still contributed to the South African government's insight and understanding of municipal capacity. Simultaneously the MDB itself acknowledges that this annual municipal capacity assessment tool is lacking in various aspects and must be refined to provide more accurate representations of municipalities' capacity. Little progress however has been shown in this regard over the past 10 years.

It is important to recall that the objective of the annual municipal capacity assessment as performed by the MDB is to provide insight into municipalities' capacity for the sole purpose of adjusting municipal boundaries and thereby balance service delivery responsibilities between adjacent municipalities. When critically studied, this can be regarded as a process of *capacity transfer* rather than *capacity building*.

This phenomenon however contradicts the general accepted purpose of capacity assessment and proposes that no official external municipal capacity assessment exists in South Africa with the exclusive objective to aid capacity building activities at municipalities. It should be noted that individual reports on the capacity of municipalities are published annually on the MDB's website. It is therefore possible for municipalities to use these reports in identifying and defining some of their capacity strengths and weaknesses. It though remains uncertain to what extent the MDB municipal capacity assessments and the stated reports have in fact aided municipal capacity building initiatives in recent years.

With regards to the execution of the internal capacity assessments, as required by the Municipal Systems Act, 2000, little writings are obtainable. It, though, should be noted that the Municipal Systems Act, 2000 provides little requirements with regards to the consideration of specific capacity-related dimensions. It can thus be assumed that, whether or not dedicated internal capacity assessments are implemented by municipalities, assessments would vary significantly as each municipality is permissible to adopt its own approach.

Another noteworthy aspect of this capacity assessment is that, while it is performed internally and therefore subjective, the outputs of the assessment are used for the sole purpose of facilitating a decision-making process regarding the selection of a service delivery mechanism for a sure service delivery process. When critically studied, this can be seen as an activity whereby external capacity is rather acquired, as opposed to the development of internal capacity. Again, this phenomenon contradicts the general accepted purpose of capacity assessments and supports previous notions that no official municipal capacity assessment exists in South Africa with the sole purpose of facilitating capacity building activities.

From the arguments in this section, it appears that, while an enormous need for a specific solution exists, few attempts are made to acquire such solution. It is the objective of this research study to make a valued contribution in formulating such a solution and to do so to create a better awareness of both the needs which exist in terms of municipal capacity self-assessment and the opportunities to create viable solutions for improved capacity.

1.5.3 Research Hypothesis

An inclusive municipal capacity self-assessment model which collects, analyses and reports on qualitative inputs can improve municipal engineering management decision-making in terms of policy formulation, strategic planning and capacity building. As such, these capacity assessments can be a catalyst for improved municipal service delivery performance.

1.5.4 Research Objectives

Encouraged by the preceding sections, the key objective of this study is to develop a subjective municipal capacity self-assessment model (SMCSAM) to improve municipalities' decision-making with regards to policy formulation, strategic planning and capacity building initiatives. This model will incorporate all three capacity dimensions to generate accurate, truthful and complete data for the purpose of identifying capacity strengths and weaknesses. In doing so, with focus on municipalities' technical department, this model should support the eventual and much-needed performance improvements with regards to the delivery of the previously identified six municipal engineering services.

A further aim of this study is to, after the implementation of this assessment model, obtain feedback from both public and private sector role-players. In doing so, it can be determined whether or not, and to what extent, municipal capacity self-assessments could improve decision-making regarding policy formulation, strategic planning and capacity building endeavours. Rooted in these key objectives, stand the sub-objectives of this study as outlined in Table 2. These sub-objectives are grouped into secondary and tertiary objectives, with the last column in Table 2 showing the chapter allocation of these clusters.

1.5.5 Research Questions

The main research question of this study reads as follows: *“How can more complete information with regards to the three-dimensional organisational capacity of municipalities be attained and utilized to aid municipalities' decision-making with regards to policy formulation, strategic planning and capacity building endeavours.”*

Closely related to the aforesaid objectives are the primary, secondary and tertiary research questions, as shown Table 3. The secondary and tertiary research objectives, as outlined in Table 2, are converted into research questions and shown in Table 3 alongside the mode of answering and the chapter allocation of answers to each research question.

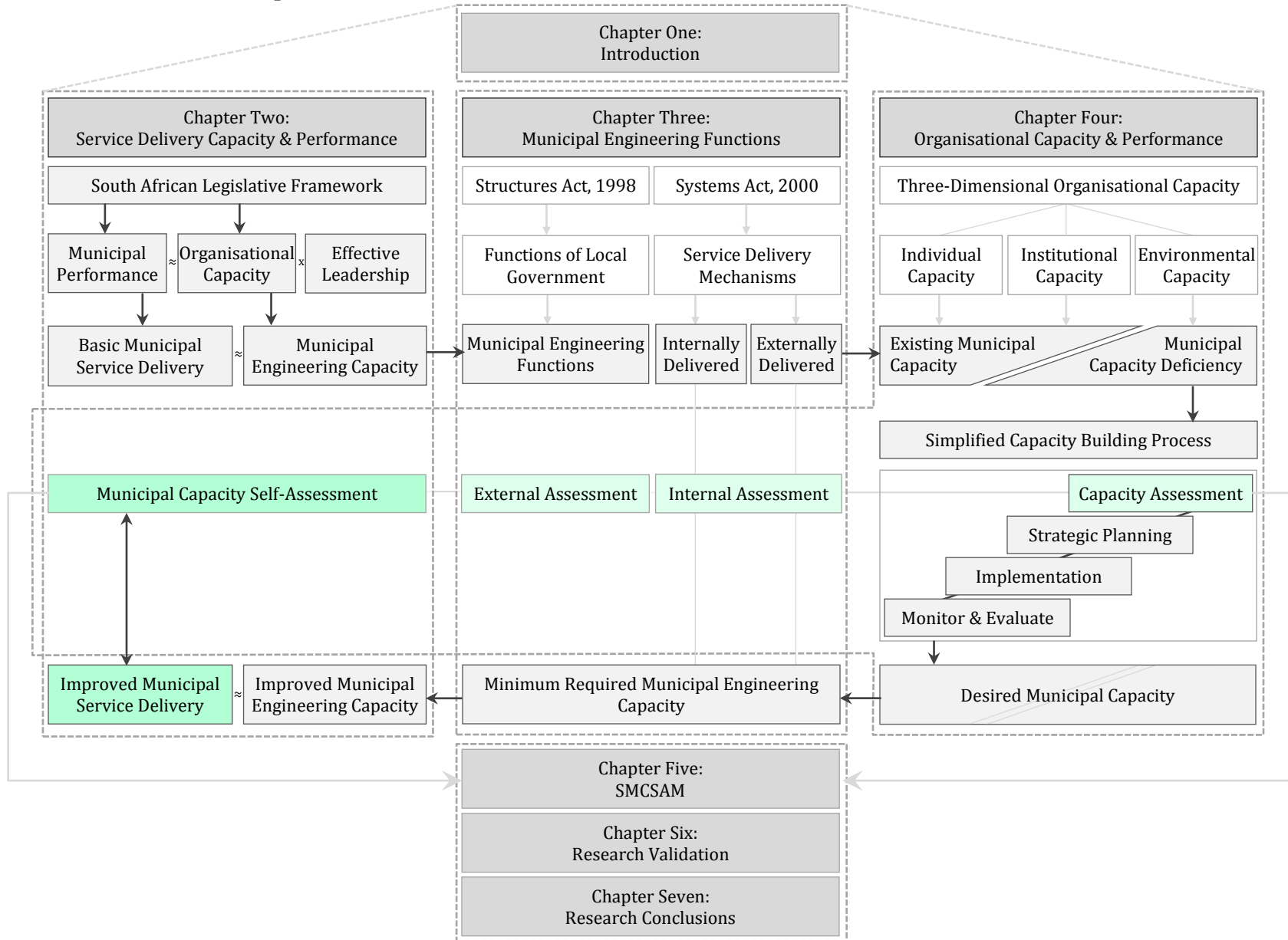
TABLE 2 - PRIMARY, SECONDARY AND TERTIARY RESEARCH OBJECTIVES

Primary Objective	Secondary Objectives	Tertiary Objectives	Section Allocation
Develop SMCSAM for its periodic use by municipalities to enhance its decision-making regarding policy formulation, strategic planning and capacity building.	Identify past and present states of municipal service delivery performance, capacity and capacity building in South Africa.	Identify how the state of current municipal service delivery relates to the past and present states of municipal capacity.	Chapter 2 Municipal Service Delivery and Performance
		Identify which capacity building initiatives have been instigated for the improvement of municipal organisational capacity.	
		Identify which legislation applies to the delivery of basic municipal services and overall municipal performance.	
	Identify role of the municipal technical department during the delivery of the six basic municipal services.	Identify the mandate of municipalities' technical departments with regards to delivery of the six basic municipal services.	Chapter 3 Municipal Engineering Functions
		Identify which strategic planning procedures exist with regards to the fulfilment of the municipal engineering function's mandate.	
		Determine the required resources and legislative framework for the fulfilment of the municipal engineering function's mandate.	
	Identify features of a suitable municipal capacity assessment framework for South Africa.	Identify the legislative requirements with regards to the organisational capacity of the municipal technical department.	Chapter 4 Capacity Assessment and Performance Improvement
		Identify the features of organisational capacity self-assessments which have been applied in the global municipal domain.	
		Identify the requisite decision-making procedures with regards to capacity building initiatives as part of municipal management.	
	Identify features of a suitable municipal capacity self-assessment model for South Africa.	Identify, select and develop the needed features of a self-assessment to acquire accurate and truthful user-inputs.	Chapter 5 Subjective Municipal Capacity Self-Assessment Model
		Identify, select and implement a suitable procedure for the processing of data acquired through the self-assessment.	
		Develop a method to effectively report on the results generated by the proposed municipal capacity self-assessment model.	
Determine applicability of SMCSAM.	Implement the SMCSAM at Drakenstein Municipality and perform an assessment of all six selected basic municipal services.	Chapter 6 Research Validation	
	Compare the SMCSAM results with the findings of the literature study related to the performance of Drakenstein Municipality.		
	Determine the extent of support gained through the SMCSAM results in terms of decision-making related capacity building.		

TABLE 3 - SECONDARY AND TERTIARY RESEARCH QUESTIONS

Secondary Questions	Tertiary Questions	Mode of Answer	Chapter Allocation
What is the state of present municipal service delivery performance, capacity and capacity building in South Africa?	How does the current state of municipal service delivery relate to the current state of municipal capacity?	Literature Study	Chapter 2 Municipal Service Delivery and Performance
	Which capacity building initiatives have been instigated for the improvement of municipal capacity?	Literature Study	
	Which legislation applies to the delivery of basic municipal services and overall municipal performance?	Literature Study	
What is the role of municipalities' technical department in delivering basic municipal services?	What is the legislative mandate municipalities' technical department in terms of basic municipal services delivery?	Literature Study	Chapter 3 Municipal Engineering Functions
	Which strategic planning procedures exist with regards to the fulfilment of municipalities' mandate?	Literature Study	
	What are the required resources and legislative framework for the fulfilment of municipalities' mandate?	Literature Study	
Which features of a capacity assessment framework are suitable for municipal self-assessments in South African?	What are the features of well-known and implemented municipal capacity assessments?	Literature Study	Chapter 4 Capacity Assessment and Performance Improvement
	How can municipal capacity self-assessments be integrated with a municipality's Performance Management System (PMS)?	Literature Study	
	How can municipal capacity self-assessments be integrated with a municipality's PMS?	Literature Study	
Which features of a capacity assessment model are needed for it to be effective in a South African municipal context?	How can a self-assessment be designed to acquire comprehensive and truthful data?	Key Discussion	Chapter 5 Subjective Municipal Capacity Self-Assessment Model
	How can the data acquired through self-assessment be appropriately processed?	Key Discussion	
	How can the results of a self-assessment be structured to highlight areas of concern?	Key Discussion	
Which insights can be gained through the implementation of SMCSAM?	Can SMCSAM be validated by means of a pilot study at Drakenstein Municipality?	Practical Studies	Chapter 6 Research Validation
	Can SMCSAM be validated by means of questionnaires with experts from academia, the private and public sector?	Questionnaires	
	Can SMCSAM be validated by means of interviews with the Technical Services Director of Drakenstein and Stellenbosch Municipality?	Interviews	

1.5.6 Document Roadmap



The diagram shows key arguments for each chapter of the literature study and its relation between each other. It shows how the arguments form the basis for the development of the proposed SMCSAM. Key parts of the arguments are colour-coded with grey and green, with green parts related to capacity assessment and improved municipal service delivery.

1.5.7 Chapter Overviews

The following sections provide an overview for each chapter of this research dissertation.

1.5.7.1 Chapter One: Introduction

Chapter One provides an introduction and a thorough background to each of the following three chapters. This chapter further discusses the research problem, hypothesis, objectives, questions and validation of this dissertation. It also provides a document roadmap.

1.5.7.2 Chapter Two: Municipal Service Delivery Capacity and Performance

Chapter Two discusses on the municipal environment in South Africa with a particular focus on the legislative framework for municipal service delivery. It further considers the recent state of municipal service delivery performance, capacity and capacity building.

1.5.7.3 Chapter Three: Municipal Engineering Functions

Chapter Three discusses the engineering function of municipalities with focus on the municipal engineering mandate, strategic planning and resource requirements. It introduces Lawless's formulae for determining the required number of civil engineering professionals.

1.5.7.4 Chapter Four: Organisational Capacity and Performance

Chapter Four defines concepts related to organisational capacity and performance, including capacity self-assessment. It further discusses these concepts in the context of the municipal environment. It ultimately proposes a consolidated capacity assessment framework.

1.5.7.5 Chapter Five: Subjective Municipal Capacity Self-Assessment Model

Chapter Five, with reference to the proposed consolidated capacity assessment framework, discusses the development of the proposed Subjective Municipal Capacity Self-Assessment (SMCSAM). It refers to the implementation, construction, outputs and aims of SMCSAM.

1.5.7.6 Chapter Six: Research Validation

Chapter Six focuses particularly on the implementation of SMCSAM at Drakenstein Municipality as a pilot study. The chapter also discusses comparative studies and the surveys that were conducted through means of questionnaires and interviews.

1.5.7.7 Chapter Seven: Research Conclusions

Chapter Seven discusses the research conclusions in the context of the research methodology, hypothesis and research questions. It also discusses the research contributions of this research study and includes a critical self-evaluation of the proposed SMCSAM.

1.5.8 Research Validation

Different forms of validation will be used in this research project to allow for transparent and adequate validation. As suggested by the research structure shown in the previous section, the insight gained through Chapter One to Chapter Four, will be used in the formulation of a consolidated municipal capacity assessment framework and the ultimate development of a subjective municipal capacity self-assessment model (SMCSAM). It is the aim to use various methods of validation in order to provide apt confirmation of the usability and applicability of SMCSAM.

Validation measures will primarily be imparted through the implementation of SMCSAM at Drakenstein Municipality in the Western Cape. After gathering the results of this assessment, it will be compared with the results of the most recent (2011) MDB municipal capacity assessment. The SMCSAM results will additionally be compared with the service delivery performance of Drakenstein Municipality to determine whether realistic relationships exist in this regard. The correlations between the municipalities' performance and capacity will be evaluated on the basis of the relationship as shown in Figure 2.

Related to the implementation of the proposed municipal capacity assessment model, is the demonstration of the proposed model to a variety of validators, where after each validator will be asked to provide answers to a questionnaire. This questionnaire seeks to determine whether or not the proposed model is understandable, whether the outputs could provide unique insights of a municipality's capacity and whether these insights could influence future decision-making during municipal capacity building. Additional forms of validation will include an interview with the Technical Services Manager of Stellenbosch Municipality and feedback to the presentation of this research study and its outputs at the 2013 IMESA Conference.

Chapter Two: Municipal Service Delivery Capacity and Performance

The main research question to be answered in Chapter Two is: *“What is the state of current municipal service delivery performance, capacity and capacity building in South Africa”*.

In providing a thorough answer to this main research question, the following research sub-objectives need to be achieved in this chapter:

- Identify how the past and present states of municipal service delivery relate to the past and present states of municipal capacity.
- Identify which capacity building initiatives have been instigated for the improvement of municipal organisational capacity.
- Identify which legislation applies to the delivery of basic municipal services and overall municipal performance.

Through the achievement of these research objectives, Chapter Two will provide the necessary insight to understand the state of current municipal service delivery performance, capacity and capacity building in South Africa. In doing so, this chapter will provide the necessary understanding of how local government is undergoing a transformation and how municipalities today need to function within a very dynamic environment.

2.1 Introduction

In Chapter One it was illustrated how the majority of municipalities in South Africa are struggling to perform at the required level of efficiency to eradicate longstanding municipal service delivery backlogs. Additionally, it was stated that not only is it the mandate of municipalities to eradicate these backlogs, but it should be one of the municipalities' top priorities to do so. This chapter will consider the legislative framework which provides guidance in terms of municipal service delivery. These sections will refer to both the preparation of and changes in legislation, which have directed the transformation of local government in South Africa.

The abovementioned service delivery backlogs have given affected communities significant motivation to protest against underperforming municipalities (Heese, 2012). As previously indicated, the number of service delivery protests in 2012 has surpassed that of any of the previous eight years. These protests have put additional pressure on municipalities to fulfil its mandate and short-term promises made by politicians. This phenomenon is a reminder that municipal service delivery can also significantly be affected by the political environment in a number of ways. To better understand the frequent community protests, this chapter will study existing backlogs in terms of basic municipal services.

With various pressures to drastically eradicate municipal service delivery backlogs, several studies have linked the aforementioned lack of municipal performance to the lack of municipal capacity. Research by Lawless (2007) further indicates that municipalities' abilities to

eradicate service delivery backlogs and maintain existing municipal service delivery infrastructure are largely linked to municipalities' engineering capacity. Proof from Chapter One suggests that municipalities in South Africa are currently experiencing one of the most formidable absences of this fundamental dimension of municipal capacity. Coinciding with the transition of local government, a global movement to outsource service delivery activities to external private sector role-players, has also been adopted in South Africa.

Lawless (2007) suggests that although the aforementioned approach requires less internal capacity, a certain minimum level of engineering capacity should be maintained. Evidence suggests that the current level of engineering capacity of municipalities is well below levels where municipalities' technical departments can efficiently fulfil the responsibilities in terms of the management of outsourcing engineering functions. This chapter will elaborate on the existing level of municipalities' capacity in South Africa, with emphasis on its engineering capacity. Related to earlier revelations about the limitations of current municipal capacity assessments in South Africa, this chapter will, through reporting on these capacities, provide proof thereof.

Several capacity building initiatives have been launched in local government with the purpose of developing the internal engineering capacity of municipalities. Evidence from Chapter One suggests that these capacity building initiatives have had a restricted effect, as it is in the majority of cases, based on incorrectly identified capacity gaps which in turn results from improper capacity assessment mechanisms. This chapter will provide additional insight to capacity building initiatives in South Africa. Reference will be made to the National Capacity Building Framework and a collection of municipal capacity building initiatives.

Fundamental to the understanding of municipal service delivery performance, capacity and capacity building stands the history of municipalities in South Africa, including its establishment and transformation, but also its organisation, structure and responsibilities (Lawless, 2007). The following sections provide in-depth discussions of these facets of municipalities in South Africa. In doing so, the objective of this section is to provide sufficient answers to the primary and secondary research questions of this chapter.

2.2 Municipal Environment in South Africa

2.2.1 Introduction

The objective of this section is to provide the necessary terminology necessary for the understanding of proceeding sections. This section specifically focuses on the definition of a municipality in its various categories, the municipal political structure, municipalities' responsibilities, the permissible service delivery mechanisms and the definition of basic municipal services. These subjects are specifically discussed to provide an understanding of the municipal environment and the aspects which contributes to municipal performance.

2.2.2 Background

Municipal service delivery in South Africa has been significantly reformed during the past two decades, predominantly as the result of various modifications to the legislative framework for local government and a significant decrease in the number of professional registered engineers employed at municipalities. Local government, as we know it today, is the cumulative result of years of change, upheaval and evolution (Lawless, 2007).

Essential to understanding its establishment is the municipality's unique role as a centre of exchange and commerce (Lawless, 2005). History indicates how trading activities required rules of conduct, standards of price and measure, and services which necessitated structures different from the needs of communities who tilled the land and harvested crops. The major centres in South Africa developed for one of three main reasons:

- To serve major trade route - initially ports and later rail and road routes;
- To serve farming communities; and
- To discover minerals and other resources.

In each instance, settlements grew and eventually required the supply of water, forms of sanitation and the development of sufficient transport networks to deliver products to the work force and industry, and to transport completed good to markets elsewhere (Lawless, 2007). Municipalities, as a form of local government ensured the provision of these services at a certain specified remuneration.

Until the early 1990's, municipalities' efforts however were concentrated entirely on income generating residential infrastructure, infrastructure to aid industrial and economic development, tourism and other land uses that earned an income for municipalities by paying a basic rate and service base (Lawless, 2007). With the consequent and continuous flow of income, funds were available for on-going operations and maintenance. Since the end of the 19th century, for more than a hundred years this approach, known as apartheid, has resulted into major inequality, with significant service delivery backlogs still visible today.

Today, a suitable legislative framework provides the essential guidance for South African municipalities to perform at a required level of effectiveness and progressively work towards eradicating these longstanding backlogs (Lawless, 2007). Evidence proposes that municipalities are in fact underperforming, despite the aforementioned legislative provision. Coinciding with this phenomenon, opportunities exist for the implementation of ad-hoc innovations for the improvement of municipal performance. According to Cronjé (2013), these opportunities are often grasped by private sector consultancies and in doing so, the private sector of South Africa indeed fulfil a very significant role in municipal performance.

2.2.3 Definition of Municipality

Referring to the Municipal Systems Act, 2000, Craythorne (2006) defines a municipality as an institutional establishment with the purpose to provide effect to the Constitution and to accordingly: *“give priority to the basic needs of the local community; promote the development of the local community; and ensure that all members of the local community have access to at least the minimum level of municipal services”*.

Relating to the legal nature of a municipality, section 2 of the Municipal Systems Act, 2000 provides the following definition of a municipality:

“A municipality -

- a) is an organ of state within the local sphere of government exercising legislative and executive authority within an area determined in terms of the Local Government: Municipal Demarcation Act, 1998;*
- b) consists of -*
 - (i) the political structures and administration of the municipality; and*
 - (ii) the community of the municipality;*
- c) functions in its area in accordance with the political, statutory and other relationships between its political structures, political office bearers and administration and its community; and*
- d) has a separate legal personality which excludes liability on the part of its community for the actions of the municipality.”*

2.2.4 Municipal Categorization

Closely related to the functions of a municipality, stands the organisation of South African municipalities. Section 155(1) of the Constitution establishes three categories for municipalities, i.e. category A, B and C.

Section 155(2) of the Constitution states that national legislation must define the different types of municipalities that may be established within each of the abovementioned categories. In this regard, the Municipal Structures Act, 1998 provides criteria for the categorization of municipalities, by which the Demarcation Board are directed to establish or re-establish municipal boundaries.

As shown in Table 4, the following municipal categories were developed for the Municipal Fiscal Framework (MFF) and the Municipal Infrastructure Investment Framework (MIFF) projects. According to SALGA (2010), these categories are intended to reflect the variations in settlement type and institutional form between the sub-categories of municipalities. This organisation was executed to have a method for identifying various service delivery challenges that are unique to a specific municipal category.

TABLE 4 - MUNICIPAL CATEGORIES
(SALGA, 2010)

Category	Description of Municipal Category
A	Metropolitan municipalities
B1	Secondary cities, local municipalities with the largest budgets
B2	Local municipalities with a large town as core
B3	Local municipalities with small towns, with relatively small population
B4	Local municipalities which are mainly rural with communal tenure
C1	District municipalities which are not water services authorities
C2	District municipalities which are water services authorities

The sub-organisation of local municipalities from B1 to B4 exists in acknowledgment of the asymmetry in local government across an extensive range of demographic, economic and settlement conditions. In the case of district municipalities (category C municipalities), the two sub-categories are based on whether a municipality holds the authority to provide water services (water supply and sanitation) in terms of the Municipal Structures Act.

Legislative provision is made for the establishment of municipalities in accordance with the requirements relating to municipal categories as outlined above. Upon the establishment of a municipality, the powers and functions of the various municipal categories are allocated according to the Municipal Structures Act, 1998 that also regulates the internal systems, structures and office bearers of municipalities (Venter & van der Walt, 2007).

2.2.5 Municipal Political Structure

Venter & van der Walt (2007) states that a municipality consists of its political structures, its administration and the community, functions within and governs its area of authorisation in accordance with its aforementioned political structures.

Legislative provision is made for the establishment of three models of governance in local government. The Municipal Structures Act, 1998 states that the different types of municipalities which may be established within each category are defined in accordance with the systems or combination of systems of municipal government. These systems and combination of systems include the following:

1. *Collective executive system*: A system which allows for the exercise of executive authority through an executive committee in which the executive leadership of the municipality is collectively vested.
2. *Mayoral executive system*: A system which allows for the exercise of executive authority through an executive mayor in whom the executive leadership of the municipality is vested and who is assisted by a mayoral committee.
3. *Plenary executive system*: A system that limits the exercise of executive authority to the municipal council itself.

4. *Subcouncil participatory system*: A system that allows for delegated powers to be exercised by subcouncils established for parts of the municipality.
5. *Ward participatory system*: A system that allows for matters of local concern to wards to be dealt with by committees established for wards.

Table 5 outlines the legislative provision made for the establishment of the various municipal categories in terms of the different government systems as outlined above.

TABLE 5 - POSSIBLE GOVERNMENT SYSTEMS FOR DIFFERENT MUNICIPAL CATEGORIES

Systems or combination of municipal government	Municipal Category		
	A	B	C
Collective executive system combined with:	x	x	x
Subcouncil participatory system	x		
Ward participatory system	x	x	
Both Subcouncil and Ward participatory system	x		
Mayoral executive system combined with:	x	x	x
Subcouncil participatory system	x		
Ward participatory system	x	x	
Both Subcouncil and Ward participatory system	x		
Plenary Executive System combined with:		x	x
Subcouncil participatory system			
Ward participatory system		x	
Both Subcouncil and Ward participatory system			

Table 5 relates to Figure 8 which shows the differences between models of governance endorsed to be implemented at municipalities of different municipal categories. These differences include variations in terms of the role of the municipality's major, speaker, council and the executive committee.

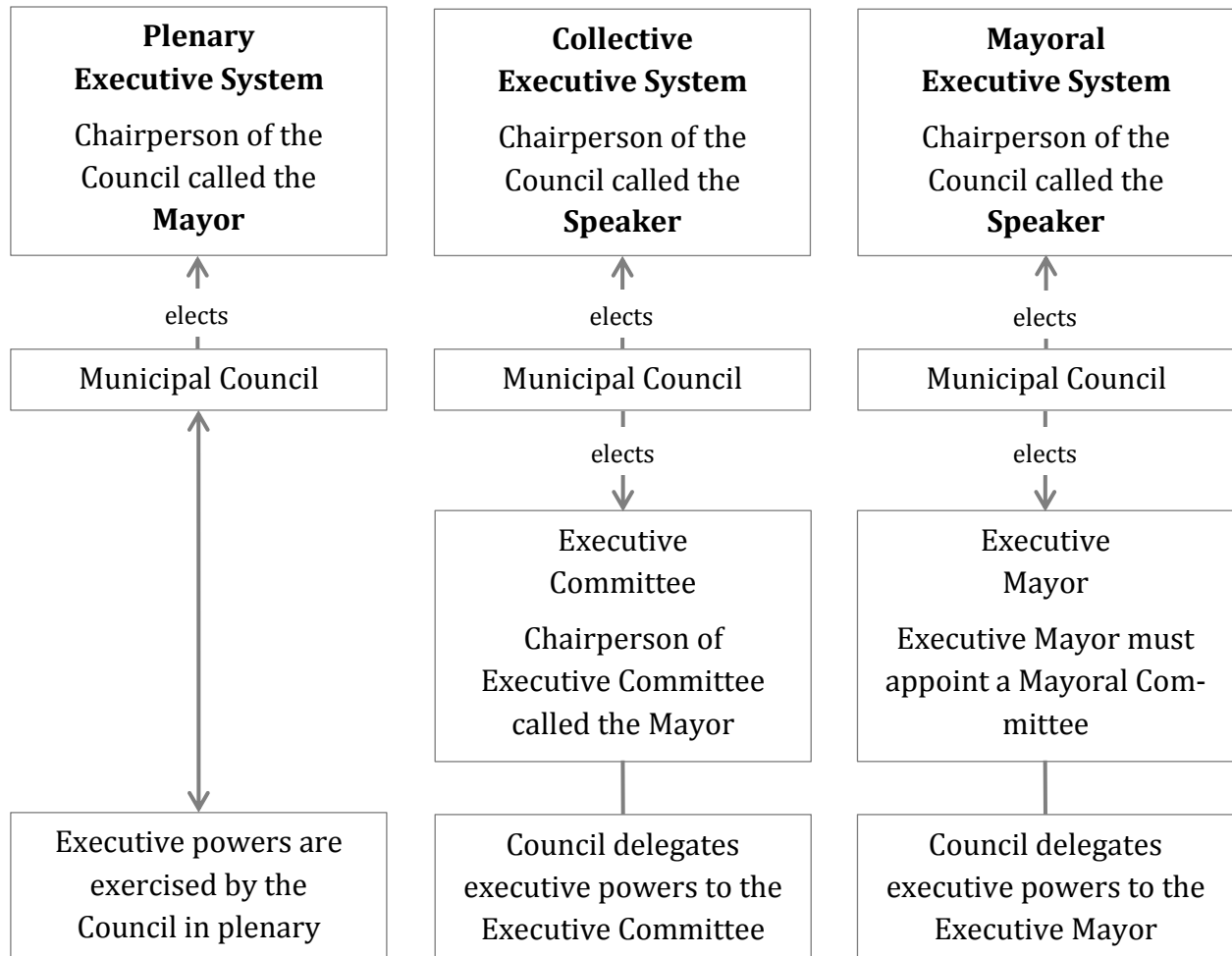


FIGURE 8 - THE THREE MODELS OF GOVERNANCE IN LOCAL GOVERNMENT
(LAWLESS, 2007)

2.2.6 Municipal Functions

Table 6 lists the functions of Local Government, as stated in Schedule 4B and 5B of the Constitution. Enacted by the Constitution, it is the responsibility of municipalities to collectively perform these functions. Evidently, municipalities are responsible for the delivery of a large number of municipal services.

As introduced in Chapter One and reaffirmed in Table 6, it is the mandate of municipalities to deliver, amongst others, water provision, refuse removal and sanitation services, electricity provision, municipal roads and stormwater management. As mentioned formerly, these services can be delivered at three distinct standards, i.e. basic, intermediate and full level. However, municipalities are obliged to deliver these six services at a basic level and also consider it as a top priority in order to quicker eradicate long-lasting service delivery backlogs (South Africa, 2000).

It should be noted that in Table 6, marked with an asterisk (*), water provision services are limited to potable water supply systems, while sanitation services are limited to domestic wastewater and sewage disposal. Furthermore, refuse removal services include the management of refuse dumps and solid waste disposal, whereas the delivery of municipal roads includes the management of traffic, parking street lightning and street trading.

TABLE 6 - FUNCTIONS OF LOCAL GOVERNMENT AS ADOPTED FROM THE CONSTITUTION

Constitution: Schedule 4B	Constitution: Schedule 5B
Air pollution	Beaches and amusement facilities
Building regulations	Billboards and public advertisements
Child care facilities	Cemeteries, funeral parlours, crematoria
Fire fighting services	Cleansing and noise pollution
Local tourism	Control of public nuisances
Municipal airports	Control of public liquor trading
Municipal planning	Facilities for care, burial of animals, pounds
Municipal health services	Fencing and fences
Municipal public transport	Licensing of dogs
Municipal public works	Licensing of public food trading
Pontoons, ferries, jetties, piers, harbours	Local amenities
Trading regulations	Local sport facilities
Stormwater management systems*	Markets, parks and other public places
Electricity and gas reticulation*	Municipal abattoirs
Sanitation services limited to domestic waste-water and sewage disposal*	Municipal roads, traffic, parking street lightning and street trading*
Water services limited to potable water supply systems*	Refuse removal, refuse dumps and solid waste disposal*

Table 6 lists the functions of local government to be delivered collectively by municipalities of different categories. This suggests that municipalities of different categories need either to deliver different sets of services or work together in delivering these services. Such separation is achieved by policies as part of a collection of legislative documents regarding the specific responsibilities of district municipalities. Through an investigation of regional services councils and constitutional frameworks, including the White Paper on Local Government, the Municipal Structures Act, the Municipal Systems Act and the Intergovernmental Relations Framework Act, the Local Government Project (2007) concludes that a district municipality has the following responsibilities:

1. *Coordination*: A district municipality must execute integrated development planning for the district as a whole. Such activity must include a framework for the integrated development plans of all its local municipalities.
2. *Service provision*: According to section 84(1) of the Structures Act, district municipalities are required to perform the following 12 functions excluding those related to finance and the preparation of the IDP:

- a. Bulk supply of water
 - b. Bulk supply of electricity
 - c. Bulk sewage purification works and main sewage disposal
 - d. Solid waste disposal
 - e. Municipal roads which form an integral part of road transport systems
 - f. Regulation of passenger transport services
 - g. Municipal airports
 - h. Municipal health services
 - i. Fire fighting services
 - j. The establishment, conduct and control of fresh produce markets & abattoirs
 - k. The establishment, conduct and control of cemeteries & crematoria
 - l. Promotion of local tourism
3. *District-wide services*: A district municipality is responsible for providing services which could be used by the entire district, such as airports, markets, abattoirs, fire fighting services, municipal roads, solid waste disposal sites and tourism.
 4. *Support to local municipalities*: A district municipality is responsible for building the capacity of local municipalities within its area to fulfill their functions and practice their power where relevant capacity is lacking.
 5. *Redistribution of resources*: A district municipality is responsible for the promotion of the equal distribution of resources between local municipalities in its area with a view to ensure appropriate levels of municipal services within the area.

Evidently, it can be assumed that where municipal services are not included to be delivered by the district municipality, as indicated above, local and metropolitan municipalities take the responsibility to deliver the municipal functions as set out in Table 7 above. Further, it should be noted that apart from the responsibility to deliver physical services, district municipalities are enacted to also support local municipalities through capacity building. This particular support will be discussed in the following chapter.

Although suitable legislative provision exists for the mandating of overall municipal service delivery, limited specifications are provided in terms of exact definitions of basic municipal services. Accordingly, little legislative provision is made in terms of defining the three distinct standards for the delivery of the six municipal services. Specifications for these three standards are important, as it could have a significant effect on the level of engineering capacity at municipalities. For this reason, the following section focuses on providing more insight to the definition of basic municipal services.

Chapter Three, concerning municipalities' engineering functions, will elaborate on the definitions of the three service delivery standards for each of the six basic municipal services.

2.2.7 Basic Municipal Services

The Municipal Systems Act, 2000 defines basic municipal services as services which are “*necessary to ensure an acceptable and reasonable quality of life and, if not provided, would endanger public health or safety or the environment*”. This is indeed a vague view on basic municipal services and hence it can be argued that current local government legislation fails to provide an adequate definition in this regard. For municipalities to effectively fulfil service delivery mandates, understandably exact specifications are required regarding service delivery standards.

The Finance and Fiscal Commission (FFC), puts forward the following specific criteria and suggests that where a municipal service meets at least three of these criteria it may be categorised as a *basic municipal service*. These criteria include the following:

1. The service is classified as a function of local government in the Bill of Rights as outlined in schedules 4B and 5B of the Constitution.
2. The service is regarded as included in the definition provided by the Municipal Systems Act, 2000 (as provided above).
3. The service conforms to section 153(a) of the Constitution, which links basic needs to the promotion of development.
4. The municipal service is highlighted in policy and legislation as an essential service.

By applying these criteria, the FFC identified eight basic municipal services. Table 7 shows the accordance of each basic municipal service with the set criteria.

TABLE 7 - ANALYSIS OF EIGHT MUNICIPAL SERVICES

ADAPTED FROM (FFC, 2001)

#	Basic Municipal Service	Criteria 1: Bill of Rights (Constitution)	Criteria 2: Municipal Systems Act	Criteria 3: Constitution S153(a)	Criteria 4: Included in Legislation
1	Potable water	x	x	x	x
2	Sanitation	x	x	x	x
3	Municipal health	x	x	x	x
4	Fire Fighting	x	x	x	
5	Stormwater management	x	x	x	x
6	Solid waste removal	x	x		x
7	Municipal roads		x	x	x
8	Electricity			x	x

It should be noted that electricity is not in accordance with three or more of the set criteria and is therefore not regarded as a basic municipal service by the FFC. The Reconstruction and Development Program (1994), however identifies energy as a basic need. Relating to this, the South African government has set specific service delivery targets to be reached by 2014 that include the provision of electricity services to all in South Africa (CoGTA, 2009).

As a result, the FFC today acknowledges electricity as a basic service. As formerly declared, this research study's focus does not include fire fighting and municipal health.

For the majority of the basic municipal services, as outlined above, standards for various service levels have been developed and are collectively included in a vast number policies and legislations. An in-depth discussion of these standards is included in Chapter Three.

2.2.8 Municipal Service Delivery Mechanisms

As previously indicated, the capacity of municipalities in South Africa differs specifically in terms of their engineering capacity. Where municipalities do not have the sufficient internal capacity to fulfil the functions as listed previously, municipalities are permissible to utilise a variation of service delivery mechanisms to overcome capacity downfalls (Lawless, 2007). The various service delivery mechanisms, as outlined in Table 8, are defined in the Municipal Systems Act, 2000. These mechanisms are divided into internal and external service delivery mechanisms (NBI, 2006). For each of these groups, the Municipal Systems Act, 2000 suggests a different procedure of procurement which needs to be in accordance with the Municipal Finance Management Act (MFMA), 2003.

TABLE 8 - OPTIONS FOR MUNICIPAL SERVICE DELIVERY MECHANISMS
(SOUTH AFRICA, 2000)

Internal Service Delivery Mechanism	External Service Delivery Mechanism
Internal department or administrative unit.	A municipal entity
Internal business unit of the municipality.	Another municipality
Any other internal component of the administration of the municipality.	A community based organisation or a NGO, legally competent to enter into such an agreement.
	Any other institution, entity or person legally competent to operate a business activity.
	An organ of the state, including: <ol style="list-style-type: none"> 1. A water committee; 2. A licenced service provider; and 3. A traditional authority.

Evidently, numerous service delivery mechanisms exist, with each mechanism obviously imposing a different engineering capacity requirement for the municipality. According to Lawless (2007), challenges for the municipality prior to the service delivery process, typically ascend from procuring the appropriate service delivery mechanism or combination of service delivery mechanisms. To facilitate such decision-making process, municipalities are mandated by the Municipal Systems Act, 2000 to complete an internal capacity assessment.

Owing to this assessment, the prospect is that the municipality can make an informed decision regarding the procurement of either an internal or external service delivery mechanism. This capacity assessment, as first introduced in Chapter One, though is not subject to any further legislation. The Municipal Systems Act, 2000 merely states that a capacity as-

assessment should be performed internally by the municipality, while providing no further specifications in terms of its completeness, focus area or specific capacity criteria.

2.2.9 Conclusion

The objective of this section was to provide the necessary terminology required for the understanding of municipalities in a South African context. Reference was made to the various municipal categories, municipal political structures, municipal functions, the permissible service delivery mechanisms and the definition of basic municipal services. By means of the various discussions around these matters, it became evident how municipal capacity can be overall related to each of these topics.

Firstly, it is important to note that municipalities are categorised to reflect variations in settlement type and institutional form. All mentioned settlement types and sizes naturally impose a unique capacity requirement. With reference to Table 3, it can be assumed that Category A municipalities require more capacity than, for instance, Category B4 municipalities. Closely related to this organisation, stand the various options of political structures for municipalities, as shown in Figure 8. It should be noted that patently, by relating a municipality's political structure to its organisation, these structures can be assumed to have a certain relation to a municipality's capacity. While the nature of this relation is not necessarily of concern, it is important to take note that the political environment of a municipality could have an influence on the municipality's capacity and service delivery performance.

Additionally, the functions of local government were considered, while making a distinction between the responsibilities of metropolitan, district and local municipalities. From here, it became known that district municipalities deliver numerous services, including the bulk provision of water, sanitation, electricity, refuse removal and municipal roads. However, it remains the responsibility of local and metropolitan municipalities to deliver the remaining services as listed in Table 5. The physical delivery of basic municipal services to households within a municipal region is therefore either the responsibility of a local or metropolitan municipality. It is important to note that district municipalities have the duty to assist local municipalities in capacity building where necessary.

With this research study primarily focused on municipalities' performance in terms of delivering of the six basic municipal services, this section included an in-depth discussion of the verification of the definition of *basic municipal services*. Subsequent discussions of the permissible service delivery mechanisms indicated how, based on its engineering capacity, municipalities can choose from a variety of internal or external service delivery mechanisms to deliver each of the six basic municipal services.

The preceding sections provided content to support the understanding of municipalities in South Africa, how it is structured, what its mandates are and which approaches should be followed to fulfil these mandates. As an organ of the state, a municipality need to function

within a set legislative framework. The next section therefore considers the legislative framework which is related to municipalities' service delivery performance.

2.3 Legislative Framework for Municipal Service Delivery

2.3.1 Introduction

Given the nature of the South African municipal environment, the proposed development of a municipal capacity self-assessment model, triggers the necessity for investigating several additional fields of which legislation forms a great part of. As municipalities are organs of the state, they are obligated to comply with several legislations, regulations and standards. Key challenges exist regarding the identification of legislation and illustrating how it affects the assessment criteria for municipal capacity. Surely, as applicable legislation affects the manner in which municipalities operate, it accordingly affects the criteria for assessments.

Although the legislative frameworks for the South African local government sets voluminous assessment criteria, several additional assessment criteria can be derived from the science of public administration, including organisational structures, communication, technology, systems, processes and structures for organisational duties. As this study focuses primarily on the engineering capacity of municipalities, capacity requirements will also be derived from additional knowledge fields, including project and performance management. These fields will enjoy more focus in Chapter Four.

Table 9 shows all major legislation affecting local government and particular functions of local government. Indeed, the table refers to legislation which affects municipal service delivery either directly or indirectly. Evidently, ample legislation exists that are directly related to the six basic municipal services. For the purposes of this study, the focus of the next sections though will be placed on legislation which specifically relates to local government, all of which stems from the basis of the Constitution. This legislation is fundamental to understanding the municipal environment as well as the research problem of this study.

TABLE 9 - LEGISLATION AFFECTING LOCAL GOVERNMENT

(LAWLESS, 2007)

Local Government	Physical Planning Act, 1991
Constitution of Republic of South Africa, 1996	Land Administration Act, 1995
Municipal Systems Act, 2000	Development Facilitation Act, 1995
Municipal Structures Act, 1998	Communal Property Association Act, 1996
Municipal Finance Act, 2003	Extension of Security of Tenure Act, 1997
Municipal Demarcation Act, 1998	Municipal Property Associations Act, 1996
Organised Local Government Act, 1997	Communal Land Rights Act, 2004
Municipal Electoral Act, 2000	Health and Safety
IGRF Act, 2005	Occupational Health and Safety Act, 1993
Local Government Transition Act, 1993	National Health Act, 2003
Cross-boundary Municipalities Act, 2000	Disaster Management Act, 2002

Water	Fire Brigade Service Act, 1987
Water Services Act, 1997	Labour and BBBEE
National Water Act, 1998	Labour Relations Act, 1995
Energy	Basic Conditions of Employment Act, 1997
Electricity Act, 1987	Employment Equity Act, 1998
Electricity Regulations Act, 2006	BBBEE Act, 2003
Roads	Finance and Procurement
National Land Transport Transition Act, 2000	Municipal Finance Management Act, 2003
National Road Traffic Act, 1996	State Tender Board Act, 1968
Urban Transport Act, 1977	Intergovernmental Fiscal Relations Act, 1997
The SANRAL and National Roads Act, 1998	Public Finance Management Act, 1999
Solid Waste and Environment	Division of Revenue Acts (Annually revised)
National Environmental Management Act, 1998	Financial and Fiscal Commission Act, 1997
Environmental Conservation Act, 1989	Skills Development
National Heritage Resources Act, 1999	South African Qualifications Authority Act, 1995
Housing	Skills Development Act, 1998
Housing Act, 1997	Skills Development Levies Act, 1999
Housing Development Schemes Act, 1988	Adult Basic Education and Training Bill, 2002
Rental Housing Act, 1999	Professional Councils
Housing Arrangement Act, 1993	CIDB Act, 2000
Residential Landlord and Tenant Act, 1996	Council of the Built Environment Act, 2000
Building Regulations and Standards Act, 1977	Built Environment Councils Acts, 2000
Deeds Registries Act, 1937	Engineering Profession Act, 2000
Land Affairs Act, 1987	

When discussing the effect of legislation on municipal service delivery, it is important to make a distinction between legislation which provides guidance with regards to municipal performance and municipal capacity. The following sections focus explicitly on selected sections of applicable legislative documents which emphasise guidance related to municipal performance. Considering a similar collection of legislation, appropriate parts related to municipal capacity, will be discussed in sections thereafter. The aforementioned collection of fundamental legislation includes the following:

- The Constitution of Republic of South Africa, 1996
- Batho Pele White Paper, 1997
- White Paper on Local Government, 1998
- Local Government: Municipal Structures Act, 1998
- Local Government: Municipal Demarcation Act, 1998
- Local Government: Municipal Systems Act, 2000
- Local Government: Municipal Finance Management Act, 2003

2.3.2 Legislative Framework for Municipal Service Delivery Performance

2.3.2.1 Constitution of the Republic of South Africa, 1996

The Constitution of the Republic of South Africa, 1996 provides the framework for how the country will be constituted and governed, citizens' rights and responsibilities and the creation of particular institutions, such as municipalities, to support and safeguard democracy.

In the Constitution, chapter 7, section 152, the affairs of local government are set out in terms of which local government have numerous objectives. One of these objectives, as in section 152 (1)(1)(a), stipulates that local government comprises of statutory institutions to provide democratic and accountable government for local communities. In ensuring the objectives as set out in section 152, a suit of local government legislation aimed at transforming, guiding and regulating local government has been promulgated.

The reporting on the performance of an entity against its predetermined service delivery objectives is henceforth legislated in the Municipal Systems Act, 2000, the Municipal Finance Management Act, 2003, and related regulations.

2.3.2.2 Batho Pele White Paper, 1997

The requirement that government is performance driven can be found in the Batho Pele White Paper, 1997 which initially stipulated that all national and provincial government departments should develop performance management systems which include the establishment of service delivery indicators and the monitoring and measurement of municipal service delivery performance.

Today, these principles form the basis for performance management systems for local government. The *Batho Pele* principles postulates guidance for performance management systems in terms of consultation, service standards, access, courtesy, information, transparency and openness, redress and value for money.

2.3.2.3 White Paper on Local Government, 1998

The White Paper on Local Government, 1998 expands upon the vision of Batho Pele. The White Paper on Local Government states that developmental local government will be realised through the effective and efficient fulfilment of the following actions:

- Integrated development planning and budgeting;
- Performance management; and
- Working together with local citizens and partners.

In Section B of the White Paper the following question is posed, namely "*What is required of municipalities?*" In this regard the White Paper highlights the following concepts that are now incorporated into the budget processes, as defined in the MFMA:

- Developing a strategy and clear objectives for a particular area;

- Developing action plans and budgets for these areas;
- Compile Institutional plans; and
- Compile financial plans.

Section B, when mentioning Developmental Local Government, postulates the need for performance management and how performance information should be utilised in the monitoring of performance relating to service delivery. The Municipal Structures Act, 1998 and the Municipal Systems Act, 2000 are the two acts which give effect to the White Paper.

2.3.2.4 Local Government: Municipal Structures Act, 1998

The Municipal Structures Act, 1998 requires municipalities to annually review:

- The needs of the community;
- Its priorities to meet the needs of the community;
- The processes for involving the community;
- Its organisational and delivery tools for meeting the needs of the community; and
- The overall performance of the municipality.

These requirements provide the basis for performance review and assessment and emphasises the important role that communities have in the process. In practice, this translates to communities being part of the development of the performance management systems and the monitoring, measurement and review processes contained in these performance management systems. Councillors must ensure that these consultative recommendations, contained in regulations, are met when instigating their municipality's performance management systems.

Section 19 of the Municipal Structures Act, 1998 confirms the municipal objectives as detailed in section 152 of the Constitution. The rendering of services and defining of municipal objectives as detailed in the Constitution are confirmed in Chapter 5 of the Municipal Structures Act, 1998 under the heading "*Functions and Powers of Municipalities*". This chapter guides the delivery of services as listed in the Constitution and assigned to the various types of municipalities, as set out in terms of section 155 of the Constitution.

2.3.2.5 Local Government: Municipal Demarcation Act, 1998

The Municipal Demarcation Act, 1998 enabled a re-demarcation of all municipal boundaries. The re-demarcation process has eradicated racially based municipal jurisdictions and thereby has reduced the number of municipalities in South Africa from 834 to 284. A subsequent amendment resulted in 283 municipalities. The effect was to create municipal areas which were more financially viable (in terms of their revenue base), and to lay the basis for democratic non-racial governance. Today, the Municipal Demarcation Act allows for the continuous demarcation of municipal boundaries, based on municipalities' service delivery capacity and related performance.

2.3.2.6 Local Government: Municipal Systems Act, 2000

The Municipal Systems Act lays the foundation for the mechanisms, systems and processes which give effect to developmental local government by:

- Stressing the need for an accountable, inclusive and participatory approach to governing in the local arena, with emphasis on efficient and effective service delivery.
- Highlighting the major role of community participation, and goes on to prescribe the content and approach of participation in the system of local governance.

The Municipal Systems Act, 2000 further describes the role of the municipality as to ensure that a suitable and skilled workforce is in place to deliver services and manage the development and growth of the municipality.

Chapter 6 of the Act, the closely related Municipal Planning and Performance Regulations, 2001 and Municipal Performance Regulations for Municipal Managers and Managers directly accountable to Municipal Managers, 2006 together provide the legal framework for performance management in municipalities.

With regard to performance reporting, section 46 of the Act states that:

The municipality must prepare, for each financial year, a performance report reflecting:

- The performance of the municipality and of each service provider;
- A comparison between actual and anticipated performance; and
- Measures taken to improve performance.

Apart from guiding performance management, the Act requires all municipalities to:

- Set targets, monitor and review performance based on indicators linked to the IDP;
- Establish systems and processes for performance monitoring and measurement;
- Report on performance for councillors, staff, the public and the government;
- Incorporate and report on a set of general nationally prescribed indicators;
- Conduct an internal audit on performance before tabling the report;
- Assess the progress by a municipality with the implementation of its IDP; and
- Involve the community in setting targets and reviewing of municipal performance.

Chapter 10 of the Act requires the Municipal Executive Council (MEC) to establish tools to:

- Monitor municipalities in the province in managing their own affairs, exercising their powers and performing their functions;
- Monitor the development of local government capacity in the province; and
- Assess the support needed by municipalities to strengthen their capacity to manage their own affairs, exercise their powers and perform their functions.

The following two regulations exist in support of the Municipal Systems Act, 2000:

a) Local Government: Municipal Planning and Performance Regulations, 2001:

This regulation stipulates in more detail what is expected from municipalities in implementing its PMS, inter alia, requiring this policy which must clarify all processes and the roles and responsibilities of each role-player, including the local community, in the functioning of the system. It also regulates the establishment, composition and functioning of a Performance Audit Committee.

b) Local Government: Municipal Performance Regulations for Municipal Managers and Managers directly accountable to Municipal Managers, 2006:

This regulation contains performance regulations for municipal managers and managers directly accountable to the municipal managers. The regulations include the terms of conditions of employment of these persons and ensure that their performance will in future be uniformly directed, monitored and improved.

2.3.2.7 Local Government: Municipal Finance Management Act, 2003

The Municipal Finance Management Act, 2003 was promulgated to ensure that municipalities manage their finances in a sustainable way, which is accountable and transparent. Subsequently, the Municipal Budget and Reporting Regulations, 2009 were announced to enable the practical implementation of budget practices by establishing uniform norms and standards and other requirements for ensuring transparency, accountability and appropriate lines of responsibility in the budgeting and reporting processes.

Municipalities are required to execute three year capital and operating budget cycles. This provides officials and councillors with a medium term plan for spending. It enables municipalities to monitor spending and to identify problems timeously and to plan accordingly. These budgets must be clearly linked to the IDP and SDBIP of the municipality which reflect their current and future development priorities. The three years cycle for budget processes and financial management run continuously and overlap.

2.3.3 Legislative Framework for Municipal Service Delivery Capacity**2.3.3.1 Constitution of the Republic of South Africa, 1996**

The Constitution of the Republic of South Africa outlines a vision for a developmental local government. The Constitution further tasks local government with meeting the basic service needs of people, especially the poor, and facilitating opportunities for economic development in the local area, region and national economy.

The Constitution notes that a municipality must govern its affairs on its own initiative, by emphasizing the financial and administrative capacity to:

- Provide democratic and accountable government for local communities;
- Ensure the provision of services to communities in a sustainable manner;
- Promote social and economic development;

- Promote a safe and healthy environment; and
- Encourage the involvement of communities and community organisations in all matters of local government.

The Constitution, and legislation aimed at realising the vision of developmental local government outlined in the Constitution, includes clauses explicitly related to building the capacity for developmental local government. These are summarised in Table 10.

TABLE 10 - CAPACITY BUILDING RESPONSIBILITIES RELATED TO THE CONSTITUTION

Legislative Requirement	Related Legislation	Responsibility
<i>"... support and strengthen the capacity of municipalities to manage their own affairs, to exercise their powers and to perform their functions".</i>	Constitution, 1996, Section 154 (1)	National government & provincial government by legislative and other measures
<i>"... promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs".</i>	Constitution, 1996, Section 155(6) b	Provincial government, by legislative and other measures
<i>Build "... the capacity of local municipalities in its area to perform their functions and exercise their powers where such capacity is lacking".</i>	Municipal Structures Act, 1998, Section	District municipalities
<i>"... a municipality must develop its human resource capacity to a level that enables it to perform its functions and exercise its powers in an economical, effective, efficient and accountable way, and for this purpose must comply with the Skills Development Act, 1998, and the Skills Development Levies Act, 1999".</i>	Municipal Systems Act, 2000, Section 68	District municipalities
<i>"All spheres of government and all organs of state within each sphere" must, amongst other things, "secure the well-being of the people of the Republic; provide effective, transparent, accountable and coherent government for the Republic as a whole and cooperate with one another in mutual trust and good faith by fostering friendly relations ... assisting and supporting one another..."</i>	Constitution, 1996, Section 41	All municipalities
<i>Each "administration in every sphere of government, organs of state, and public enterprises must adhere to the basic values and principles governing public administration".</i>	Constitution, 1996, Section 195	All three spheres of government

The Constitution regards developmental municipalities as having capacity to govern local government affairs on their own initiative, while supported through appropriated inter-governmental relations, by national and provincial government.

2.3.3.2 White Paper on Local Government, 1998

The White Paper on Local Government expands on the vision of developmental local government put forward by the Constitution. The White Paper identifies four inter-related characteristics of local government geared towards development:

- Exercising municipal powers and functions in a manner which maximises their impact on social development and economic growth.
- Playing an integrating and coordinating role to ensure alignment between public and private investment within the municipal area.
- Democratising development, empowering the poor, and redistributing income and opportunities in favour of the poor.
- Building social conditions favourable to development.

The White Paper urges local government to focus on development outcomes, such as:

- The provision of household infrastructure and services
- The creation of liveable, integrated cities, towns, and rural areas
- The promotion of local economic development
- Community empowerment and redistribution.

The White Paper goes on to identify three approaches to assist municipalities in becoming more developmental. These approaches include integrated development planning, budgeting and performance monitoring, performance management, and working with citizens and partners. The White Paper denoted a major shift in how municipalities should democratise development and incorporate development planning with community-based goals.

2.3.3.3 Local Government: Municipal Structures Act, 1998

The Municipal Structures Act provided the basis for the establishment of new metropolitan, local and district municipalities. The Act also created an institutional framework for developmental local government. The establishment of a two-tier system of local government in non-metropolitan areas was adopted as a way of ensuring service delivery in areas where local municipalities lacked the capacity to deliver. The Act charged district municipalities with building *“the capacity of local municipalities in their area to perform their functions and exercise their powers where such capacity is lacking”*.

2.3.3.4 Local Government: Municipal Demarcation Act, 1998

The MDB, by the Municipal Structures Act, 1998 is mandated to perform annual capacity assessments of all municipalities in South Africa. Based on these assessments and following guidelines as listed in the Municipal Demarcation Act, 1998 the MDB may make recommendations on the adjustment of appropriate functions between district and local municipalities to the provincial members of the executive council. Adjustments of this kind bring subsequent adjustments to the capacity requirements of municipalities.

2.3.3.5 Local Government: Municipal Systems Act, 2000

Mandated by the Municipal Systems Act, 2000, whenever a municipality decides on a service delivery mechanism to be appointed to execute a specific municipal service delivery process, the municipality must conduct an internal capacity assessment. Such assessment must consider the municipality's current capacity and potential future capacity to secure the required skills, expertise and resources for the provision of a municipal service. Details regarding the outsourcing of municipal service delivery processes and the aforementioned capacity assessment are included in Section 76, 77, and 78 of the Municipal Systems Act.

2.3.3.6 Local Government: Municipal Finance Management Act, 2003

The Municipal Finance Management Act, 2003 provides financial management frameworks for local government. It elaborates on the powers and functions of national treasury in relation to municipalities, financial management, approaches to municipal budgets, roles and responsibilities of councillors and municipal officers, financial conduct and the management of misconduct.

Chapter 5, Section 34 of the MFMA indicates that the national and provincial governments must by agreement, assist municipalities in building the capacity of municipalities for efficient, effective and transparent financial management. Moreover, it notes that the national and provincial governments must support the efforts of municipalities to identify and resolve their financial problems. Notably, the MFMA states that efficient and effective service delivery is a shared responsibility between the local and other spheres of government.

2.3.3.7 Intergovernmental Relations Framework Act, 2005

The Intergovernmental Relations Framework Act, 2005 gives substance to the idea of co-operative government. The Act offers a framework for all spheres of governments and organs of state to aid coordination in the implementation of policy and legislation, including:

- Coherent government;
- Effective provision of services;
- Monitoring implementation of policy and legislation; and
- Realisation of national priorities.

The Act notes that all spheres of government should seek to uphold its objectives by, amongst other things, *"taking into account circumstances of other spheres when performing their powers and functions"*. This is achieved through consultation, coordinating of actions, avoiding duplication, effective and efficient shared systems and procedures and participation in inter-governmental structures.

The Act addresses local government planning and capacity directly by acknowledging that local government's realm is the shared responsibility of a wide range of stakeholders in and across government. It creates the legislative platform for joint responsibility for local gov-

ernment through clusters, committees and other forums. The Act enables a more structured form of coordination and implementation, which will impact on the roles and corresponding capacity needs of all three spheres of government. Eventually, the Act calls for a “*new way of integrating and doing things*”. This implies a level of institutional strengthening to ensure that the objectives and intent of the Act are understood and operationalised.

2.3.3.8 Skills Development Act, 1998

The Skills Development Act, 1998 aims to develop the skills of the South African workforce to improve the quality of life of workers and their prospects of work. It perceives skills development as contributing to the improvement of performance and productivity in the workplace as well as the competitiveness of employers. The Act and specifically the Workplace Skills Plan provides a valuable vehicle for the training and development of staff.

2.3.4 Conclusion

The objective of this section was to highlight notable content of essential legislation which is related to both municipal service delivery performance and capacity. By fulfilling this objective, this section provided a basis for a better understanding of the municipal environment in South Africa. This section also provided additional background to the transformation of the South African Local Government, as all discussed legislation were formed after the enactment of the Constitution in 1996.

The combined effect of these acts and regulations oblige the council of municipalities to establish and implement a performance management system (PMS) with the purpose of improving the performance of its staff and to build individual, institutional and ultimate organisational capacity. This could be accomplished by using the PMS to identify the training and development needs of employees and to implement policies and programs in response to these needs in order to improve the productivity of the organisation.

It can thus be anticipated that part of an apt PMS, would be some form of capacity assessment to accurately identify municipal capacity strengths and weaknesses. This correlation between the PMS and such capacity assessment reaffirms the use of capacity assessments during performance management processes, as was introduced in Figure 7 of Chapter One.

This section provided a holistic overview of all legislation which is applicable to the service delivery performance and capacity of municipalities in South Africa. It can be reasoned that legislative provision is made for the successful establishment of municipalities with sufficient municipal capacity to deliver municipal services at the required rate of efficiency. From Chapter One though, it can be confirmed that despite adequate legislative provision, municipalities are truly underperforming and that this underperformance is the result of a sure lack of municipal capacity.

The next sections will consider an assortment of performance and capacity indicators to provide a further overview of existing municipal performance and capacity in South Africa.

2.4 Municipal Service Delivery Performance

2.4.1 Introduction

With the enactment of a new Constitution in 1996, the South African government initiated processes focused on eradicating the service delivery backlogs. By 2009, the South African government had accelerated investments into infrastructure in response to major service delivery backlogs and frequent protests against inadequate service delivery. Soon thereafter, the South African government committed itself to the eradication of these backlogs by 2014, in a way that allows municipalities the appropriate capacity to operate and maintain this service delivery infrastructure while remaining financially viable (CoGTA, 2009).

However, the graph in Figure 9, shows how government's objective to eradicate all service delivery backlogs by 2014 will not be met. Yet though, a major decline in allocated capital for service delivery backlogs is shown from 2015 onwards. This emphasises the anticipated eradication of all backlogs at least only by 2019. For the same timeframe, allocated capital for spend on infrastructure growth and rehabilitation is fairly similar for each year and shows how emphasis is and will be placed on the maintenance of infrastructure.

The strategy, as can be derived from Figure 9, is in line with suggestions by Lawless (2007) with regards to expenses linked to the life-cycle of services infrastructure. Lawless (2007) alludes how municipalities' ignorance towards the maintenance of infrastructure, has over the years resulted into major infrastructure deterioration and serious financial demands.

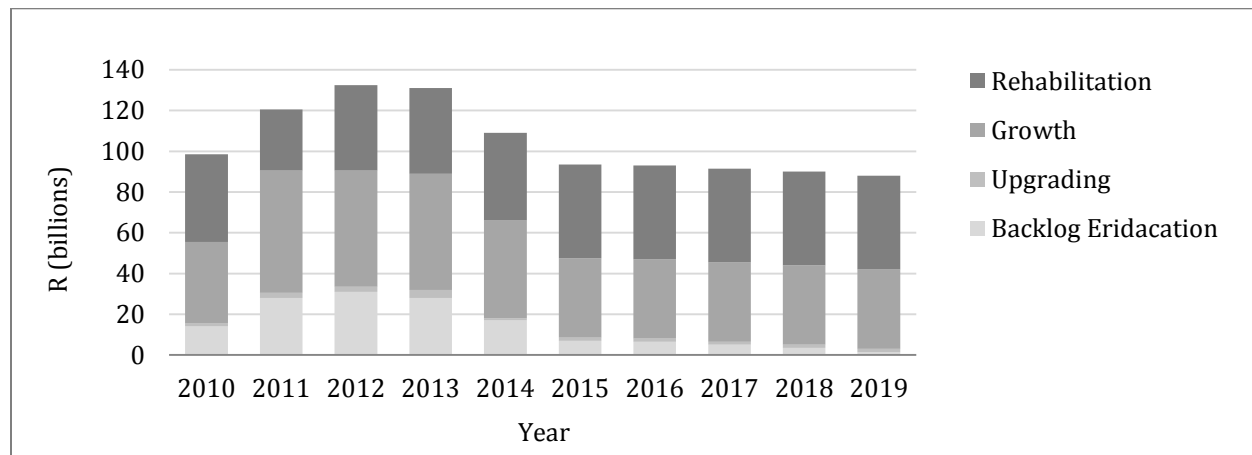


FIGURE 9 - SPLIT OF CAPITAL EXPENDITURE: BASE SCENARIO

(COGTA, 2011)

In an effort to report on the past progress in terms of eradicating service delivery backlogs, the following sections outline backlogs of basic municipal services over the past decade, ranging from 2001 to 2011. As challenges exist in measuring backlogs with regards to municipal roads and stormwater management, backlogs merely in terms of water, sanitation, electricity services and refuse removal will be considered. It should be noted that basic

municipal services as reported on in the following sections, refer to services which are delivered at the most basic level of service. As stated, this level of service for each of the six basic municipal services is quantified in Chapter Three.

In the following sections, the number of households which have not received these four services is indicated per province to illustrate aforementioned regional specific service delivery backlogs, which can be linked to the history of service delivery in South Africa. Data sources for statistics used in the next sections include the 2001 and 2011 National Census, Community and General Household Surveys in 2007 and surveys by the Department of Water Affairs and Forestry and the Department of Minerals and Energy in 2009.

2.4.2 Basic Municipal Service Delivery Backlogs

2.4.2.1 Basic Municipal Water Services Backlogs

Backlogs in terms of basic water services have been and remain to be the most apparent in provinces which includes earlier Bantustans, such as the Eastern Cape, KwaZulu-Natal and Limpopo. Moderate backlogs also exist in Mpumalanga and the North West. Clearly communities in the Northern Cape, Western Cape and Free State are best served in terms of the provision of water services. On a national basis, 15% of the South African population have not received water services at a basic level by 2011.

In terms of water provision, backlogs will unquestionably not be eradicated by the end of 2014. However, for the majority of provinces, a gradual decline of water services backlogs can be observed from Figure 10. For some cases though, a small increase is observed.

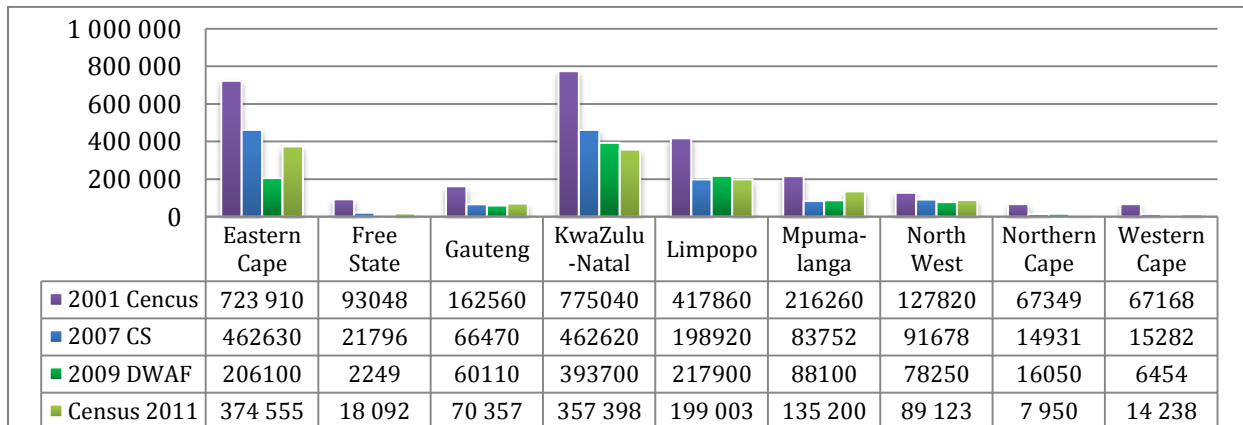


FIGURE 10 - BASIC WATER SERVICES BACKLOGS (2001-2011)

2.4.2.2 Basic Municipal Sanitation Services Backlogs

Figure 11 shows the extent of service delivery backlogs in term of basic sanitation services, again with previous Bantustans, i.e. Eastern Cape, KwaZulu-Natal, Limpopo, showing major backlogs. As foreseen, backlogs in the Western Cape and Northern Cape are relatively much lower. Yet not the most critical, moderate service delivery backlogs remain to exist in Gaut-

eng, Mpumalanga, the North West and the Free State. By 2011, about 26.6% of the South African population have not received sanitation services at a basic level.

In contrast with the eradication of backlogs in terms of water provision services, no major eradication of backlogs in terms of sanitation services can be observed from Figure 11. In fact, excluding the Eastern Cape and Free State, backlogs on average in all remaining provinces have increased since 2007. This surely is worrying and with reason it can be assumed that all these backlogs will not be eradicated by the end of 2014.

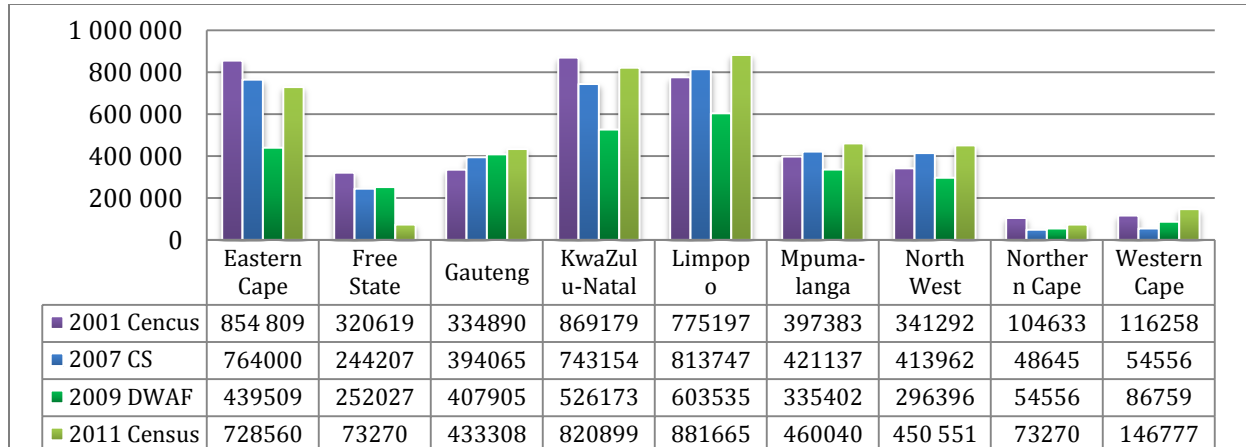


FIGURE 11 - BASIC SANITATION SERVICES BACKLOGS (2001-2011)

2.4.2.3 Basic Municipal Refuse Removal Backlogs

From Figure 12 it can be observed that some of the greatest basic services backlogs exist in term of basic refuse removal services. Again, by 2011, provinces which hold previous Bantustans experience the largest backlogs. By 2011, more than 800 000 households have not received refuse removal services at a basic level, whereas only 50 000 households in the Northern Cape were without refuse removal services.

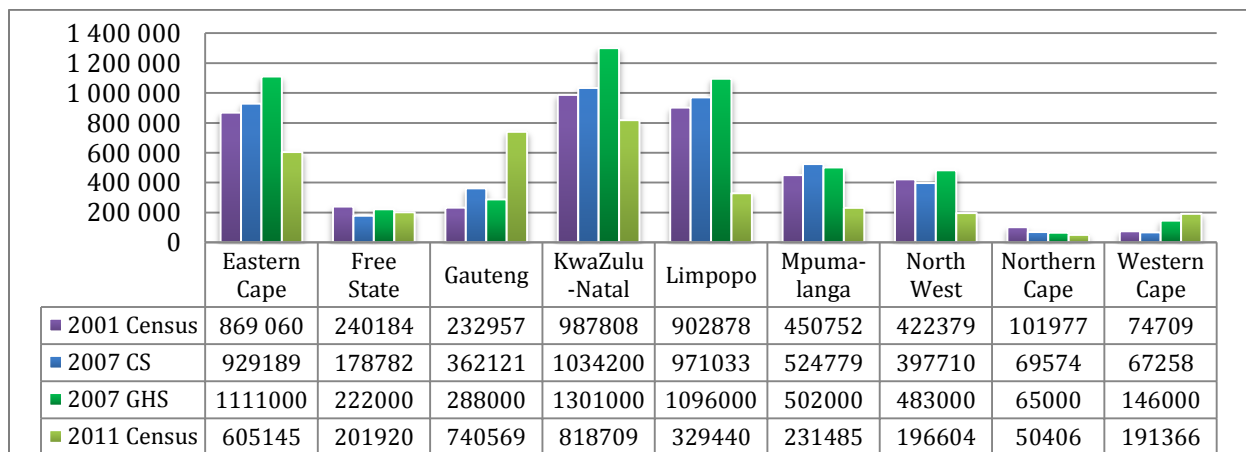


FIGURE 12 - REFUSE REMOVAL SERVICES BACKLOGS (2001-2011)

By 2011, nearly 40% of all households in South Africa were receiving below-basic levels of refuse removal services or none at all. Where for most provinces, a gradual decrease in service delivery backlogs can be observed, statistics and related graphs for Gauteng and the Western Cape show how backlogs for refuse removal services have increased from 2001.

The enormous backlogs in terms of refuse removal services can be related to a number of factors, including the access of refuse removal vehicles to houses. Logically, standard operations for refuse removal can significantly be troubled by narrow roads in dense residential developments such as the informal dwellings, also known as squatter camps. With 13,6% of the South African population living in squatter camps in 2011, the backlogs in terms of refuse removal can be put into perspective (Census, 2011).

2.4.2.4 Basic Municipal Electricity Services Backlogs

Considering the service delivery backlogs as discussed above, it is expected that service delivery backlogs in terms of electricity services are most patent in the Eastern Cape and KwaZulu-Natal. Here, Gauteng is also among the provinces which experience some of the greatest backlogs, while the Northern and Western Cape experience the smallest basic electricity services backlogs. By 2011, roughly one in every four households in South Africa has received either no or a below-basic levels of electricity services.

From Figure 12 it can be seen that in provinces where backlogs have been eradicated since 2001, only slight decreases can be observed. Again, in the case of some provinces, an increase in backlogs can be observed. Without disregarding the importance of all other basic municipal services, the significant backlogs which existed in 2011 in terms electricity services, raises much concern as electricity provides people with a mode of cooking food, powering household devices and lights and charging mobile devices such as cell phones.

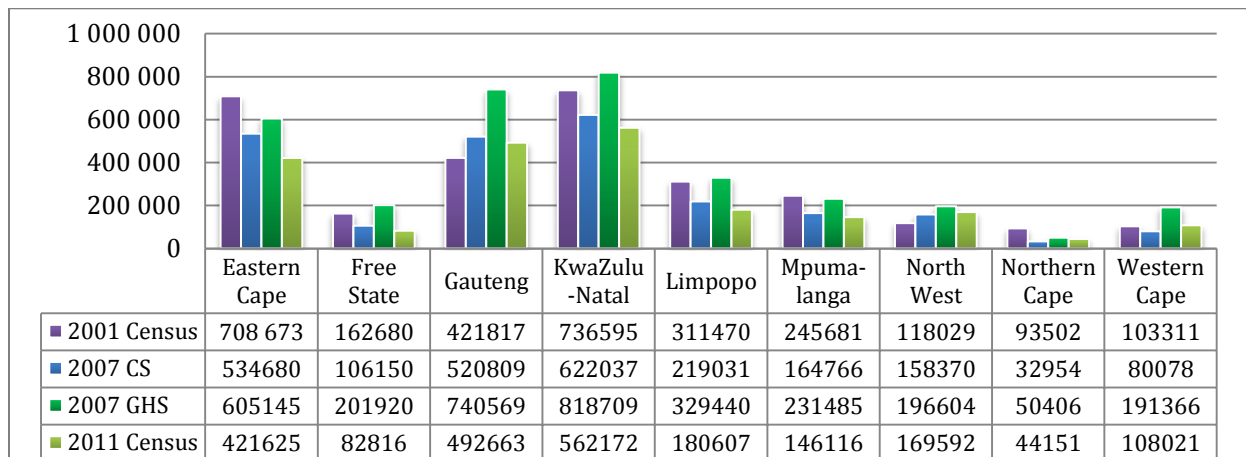


FIGURE 13 - BASIC ELECTRICITY SERVICES BACKLOGS (2001-2011)

2.4.3 Conclusion

Preceding sections discussed and graphically showed service delivery backlogs per province as recorded from 2001 to 2011. Across four basic services, including water provision, sanitation, refuse removal and electricity provision, the largest backlogs exists in the Eastern Cape, Kwa-Zulu Natal and Limpopo, all of which include previous Bantustans. Overall, basic service delivery backlogs are the lowest in the Western Cape, Northern Cape and Free State. For some services, increases in backlogs could be observed from 2001 to 2011, while for the remaining services, a decrease in backlogs was moderate.

As previously indicated, one of the key performance indicators for municipalities is its service delivery performance, including the quality and quantity of services delivered. Provided that it is one of local government's top priorities to eradicate all municipal service delivery backlogs by 2014, it can be accepted that municipalities are certainly struggling to perform at the required rate of efficiency. Surely great concern is created by the phenomenon, as described above, knowing that, despite the acceleration of investments into infrastructure, pre-set service delivery objectives and extensive legislative provision, as discussed in previous sections, municipalities are incapable to fulfil its mandate.

As suggested in Chapter One, the underperformance of municipalities can primarily be attributed to downfalls in its multi-dimensional capacity. The UNDP (2005) proposes that the organisational capacity of a municipality consists of three interdependent and interrelated dimensions, i.e. individual, institutional and environmental capacity. Existing reports on the capacity of municipalities primarily consider the individual capacity found at municipalities as a result of the narrow approach taken by current municipal capacity assessments.

The following sections make use of these reports (MDB, 2012) in commenting on the capacity of municipalities as recorded in 2011. It is expected that a broad assessment of the individual capacity of municipalities will aid the understanding of its capacity downfalls.

2.5 Municipal Service Delivery Capacity

2.5.1 Introduction

The objective of the following sections is to report on the municipal service delivery capacity, as recorded in 2011. No assessment of municipal capacity was performed by the MDB in 2012, hampering the possibility to provide updated figures and comparative statistics. As stated, modern municipal capacity assessments in South Africa follow a narrow approach to reporting on municipalities' overall capacity as it only considers the individual capacities of municipalities. Although this is not ideal, Lawless (2007) and Macleod (2007) regards human resources, and particularly civil engineers as one of the most essential capacity requirements for municipalities.

Hence, discussions around this dimension (individual capacity) of municipalities' organisational capacity remain to hold ample value. Importantly, it should be noted that as a result

of the transformation of local government, the technical department of municipalities underwent their own transition in terms of capacity. Instead of developing municipalities' engineering capacity to also serve previous disadvantaged black communities, the restructuring of municipalities caused well skilled and experienced engineering professionals to retire or to resign in order to enter the private sector (Lawless, 2007).

As discussed in foregoing sections, legislative provision is made for the use of both internal and external service delivery mechanisms. The transformation of engineering departments required the use of these, mostly external service delivery mechanisms, in order for municipalities to fulfil its service delivery mandate. With time, municipalities' engineering capacity deteriorated to a level where, today, the majority of service delivery phases are subcontracted to the private sector (Lawless, 2007). Essentially, evolving internal engineering capacity gaps are today filled by external capacities. In theory, this approach can be as effective as any other, but it remains crucial for municipalities to maintain a minimum level of internal engineering capacity for the management and oversight functions (Lawless, 2007).

The following sections' reflections on modern municipal engineering and associated management capacities should therefore be viewed in the context of the background provided above. By considering the human resources of municipalities, the following sections will make reference to the number of vacant posts and the academic qualifications held by persons in municipal management posts. This is of particular importance, as all municipal management posts have specific pre-requisites in terms of level of academic qualification. With Technical Services Managers heading all municipal service delivery operations, the individual capacity found among persons in this position, will be further investigated by considering their relevant work experience and number of years in their current position.

Following sections, also related to human resources, will discuss the organisation of engineering professionals as well as the annual registration of these professionals to better understand the existing shortage in this regards. Discussions in proceeding sections will make use of an assortment of graphical representations to compare results between different municipal categories and provinces. It could be anticipated that correlations between different provinces will be observed in terms of the relationship between municipal performance and capacity. Proof in support of this relationship is of great value, as it is necessary to determine how municipal capacity self-assessments can be used as a catalyst for improved municipal performance – the main objective of this research.

2.5.2 Individual Capacity

2.5.2.1 Municipal Vacancies

As previously indicated, a large number of vacancies exist in local government. Nationally, with an estimated 28% vacancy rate, roughly one in every four posts was vacant by 2011 (MDB, 2012). The highest vacancy levels are found in the Eastern Cape, Kwa-Zulu Natal and

Limpopo, while the lowest vacancy levels are evident in the Western Cape, North-West and Gauteng. Already, a correlation between the number of vacant municipal posts and service delivery performance, as exemplified by service delivery backlogs, can be observed.

It should be noted that as a consequence of inadequate budgeting, amongst others, municipalities are commonly not able to fund posts. Nevertheless, of the funded posts, 32.5% remain vacant on average across all municipalities in South Africa. According to MDB (2012), this phenomenon typically results from municipalities' incapability to attract and employ suitable and competent personnel. This is often the case for municipalities situated in rural areas and previous Bantustans (MDB, 2012).

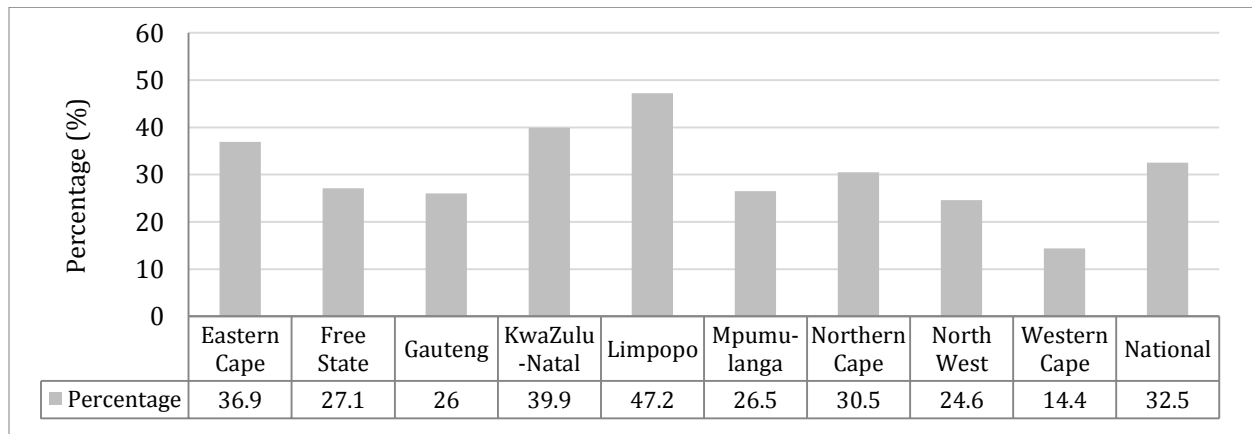


FIGURE 14 - PERCENTAGE OF FUNDED POSTS WHICH WERE VACANT IN 2011
(MDB, 2012)

According to Lawless (2007), the number of vacancies, as shown in Figure 14, is reasonably dominating municipal capacity challenges as human resources are one of the most fundamental capacity requirements for municipalities. For municipalities in Limpopo, Kwa-Zulu Natal and the Eastern Cape particularly, high vacancy rates create much concern as backlogs in terms of basic municipal services are high in these regions and need adequate municipal capacity for its eradication.

2.5.2.2 *Municipal Management Resources*

In Chapter One a conflict of viewpoints on the inclusion of leadership in the understanding of organisational capacity, reaffirmed the potential impact of leadership on municipal performance. Through discussions on this matter, it became widely recognised that the leadership shown and the quality of decisions made by a municipality's management team is an essential prerequisite for municipal performance. Relating to this, Lawless (2007) suggests that apart from high vacancy levels, a lack of strategic leadership and especially poor management practices have significantly hampered municipal service delivery in recent years.

It can be assumed that the leadership, as referred to above, is interconnected with municipalities' management practices, though agreeing that not all managers fulfil the leadership

responsibilities often associated with management as implied by the section above. By ignoring the particular relation between leadership and management, but acknowledging the existence thereof, management capabilities of existing municipal managers can be used as a measure for the management and leadership practices found at municipalities.

The following sections will in turn consider the level of academic qualification and relevant work experience of senior municipal managers, as measures of their leadership and management capabilities. Surely, the management and leadership capabilities of Technical Services Managers are of significant importance as the person in this position typically administers all municipal service delivery processes in a municipality. Yet, considering the complete service delivery process as shown in Figure 3, the management and leadership practices of other functional managers can affect the success of the technical department's efforts to deliver actual services to the community.

In the context of the increased focus on the skills, competencies and experience of senior managers, an analysis of the data collected from the 2011 MDB Capacity Assessment provides useful insights into the status quo with respect to the academic qualifications and relevant work experience of senior municipal managers. CoGTA (2012) recognises six key senior management positions within the municipal structure, including municipal managers, chief financial officers, human resources managers and the directors of planning, engineering and corporate services. Figure 15 shows the average level of academic qualifications for five of these positions across all South African municipalities as recorded in 2012.

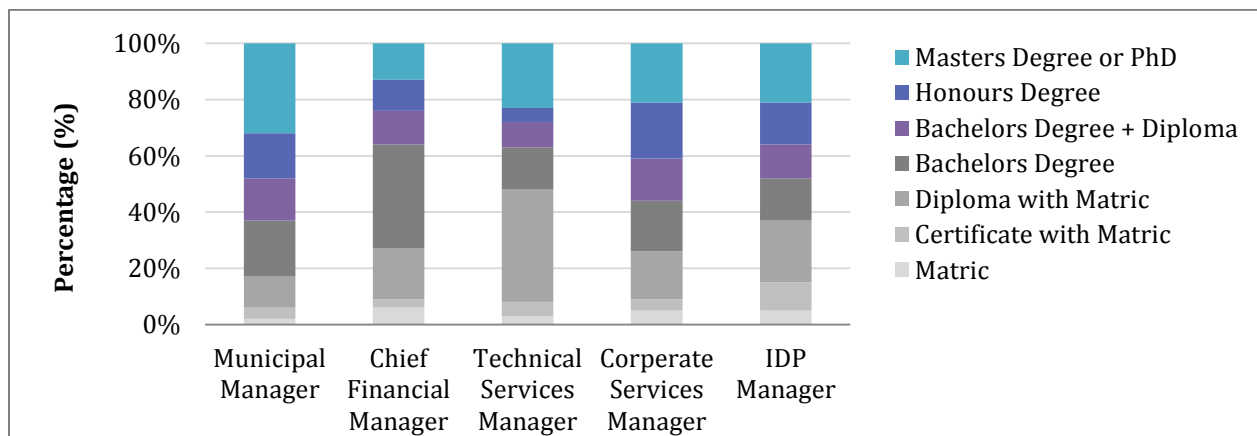


FIGURE 15 - LEVEL OF ACADEMIC QUALIFICATION OF SENIOR MUNICIPAL MANAGERS
(MDB, 2012)

An analysis across all management posts suggests that municipal managers generally have higher levels of education, while a considerable percentage of Technical Services Managers hold lower accredited qualifications than a Bachelor's degree. As a result, across all types of managers shown in Figure 15, Technical Services Managers, on average, hold the smallest percentage of bachelor's degrees, bachelor's degrees with diplomas and honours degrees.

Given the major backlogs in terms of basic municipal services, Technical Services Managers should ideally be qualified with sufficient technical qualifications (B.Eng. degree in civil engineering), have relevant work experience and be in a position for longer than five years as part of the required municipal performance-based contracts (MDB, 2012). Relevant work experience is a crucial necessity for large and long-term infrastructure projects, while the stability of the management structures for capital projects is vital (Lawless, 2007).

Figure 16 and 17 provide distinct overviews of the relevant work experience and years of service in current position of the Technical Services Managers at municipalities in South Africa. Statistics are sorted according to the nine provinces in South Africa to further indicate possible regional-specific municipal strengths and weaknesses.

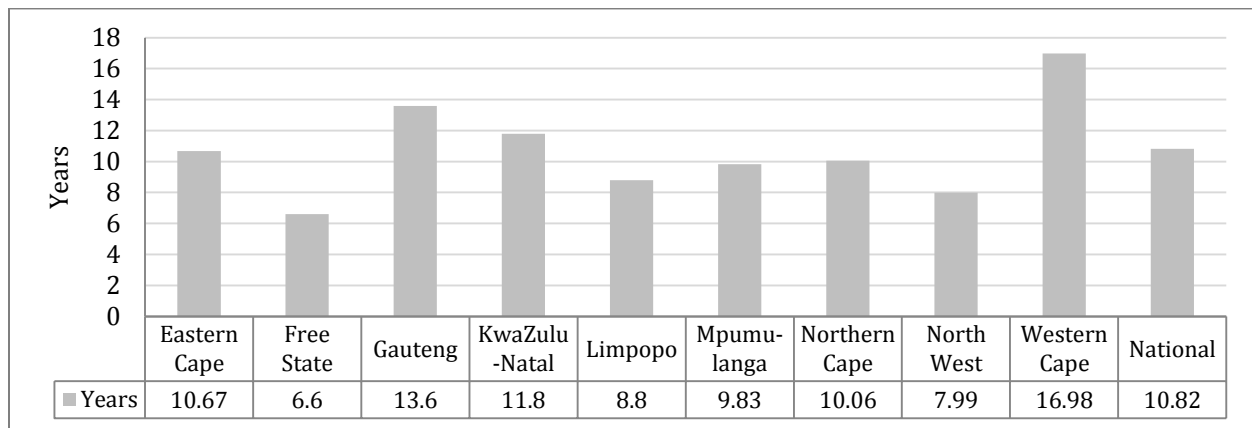


FIGURE 16 - YEARS OF RELEVANT WORK EXPERIENCE OF TECHNICAL SERVICES MANAGERS

(MDB, 2012)

The analysis per province, shown in Figure 16 above, shows that Technical Services Managers employed at municipalities in the Western Cape and Gauteng have the largest number years of relevant experience. In contrast, experience levels are the lowest at municipalities in the Free State, North West, Limpopo and Mpumalanga.

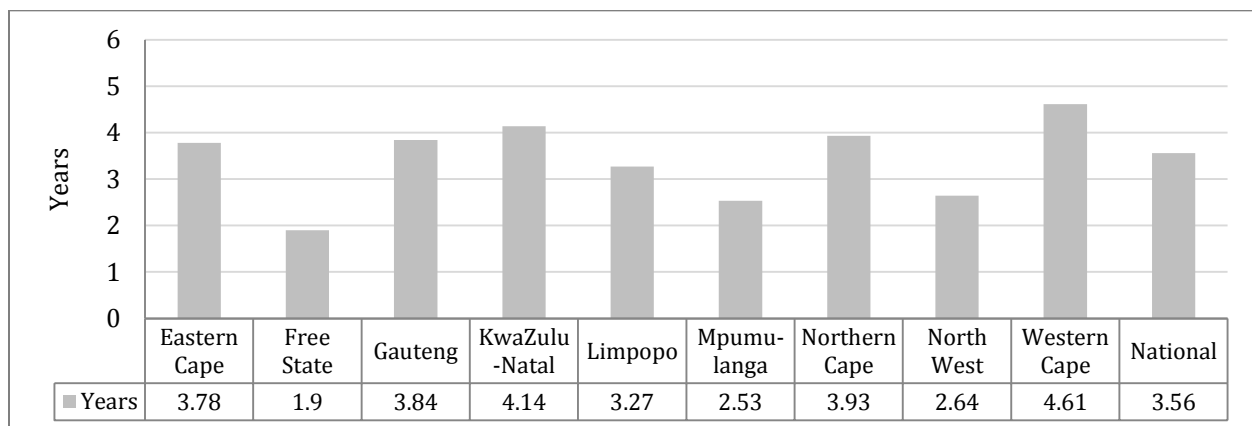


FIGURE 17 - YEARS OF SERVICE IN CURRENT POSITIONS OF TECHNICAL SERVICES MANAGERS

(MDB, 2012)

Figure 17 shows similar trends to earlier insights by showing that the number of years which Technical Services Managers remain in their existing positions is the highest in the Western Cape and the lowest in the Free State, Mpumalanga and the North West. Evidently, the patterns with respect to relevant work experience and years of service in current position of Technical Services Managers, are not ideal (MDB, 2012).

Related to this drawback, are the remaining municipal engineering resources that functions under the management of the Technical Services Manager (MDB, 2012). The next sections accordingly provide an impression of the engineering resources at municipalities in South African, as recorded in 2011. Reference is made to the organisation of engineering professionals, the current number of municipal engineering staff and the growth in this regard.

2.5.2.3 Municipal Engineering Resources

As a result of the limited number of published capacity assessments of municipalities in South Africa, the task of reporting on municipalities' individual capacity remains challenging. In this regard the capacity assessments performed by Lawless in 2005 remain the most thorough, but are today of course out-dated. The MDB though continued its capacity assessments since 2001, measuring inter alia, municipalities' engineering capacity.

Coinciding with the vacancy rate at municipalities, a serious scarcity of municipal engineers currently exists in South African. The following sections provide evidence of the results of the worldwide transfer of engineering resources from the public to the private sector. Coinciding with this, these sections give rise to key reasons for the deterioration of municipalities' ability to deliver basic municipal services, with reference to the:

- categorization of engineering professionals;
- number of engineering professionals; and
- growth in number of engineering professionals.

2.5.2.3.1 Organisation of Engineering Professionals

Engineering professionals can, according to the ECSA (Engineering Council of South Africa) classification, be divided into three categories. For each of the three categories, the corresponding required academic qualification and relevant work experience are discussed below. An awareness of these different categories of ECSA Engineering Professionals supports an appreciation for following sections related to the number and growth in number of engineering professionals employed by municipalities in South Africa. The following explanations are provided by Lawless (2007).

1. Professional Engineering Technician

In order to register as a Professional Engineering Technician, candidates require a National Diploma in engineering which is a three-year program, including two years of academic study and one year of practical training. Registration as a Professional Engineering Techni-

cian moreover requires a minimum of three years post-graduate workplace practice under the supervision of an experienced registered professional.

2. Professional Engineering Technologist

In order to register as a Professional Engineering Technologist, candidates require a Bachelors of Technology (BTech) which is a one-year degree undertaken after the completion of the aforementioned accredited National Diploma. After completion of the BTech degree, the Graduate Technologist is expected to gain at least three years' workplace experience before an application for registration as a professional technologist is considered by ECSA.

3. Professional Engineer

To register as a Professional Engineer, candidates require a Bachelors of Engineering, or a Bachelors of Science in Engineering is the required qualification. This degree is a four year course which is offered at selected universities in South Africa. After its completion, candidate engineers are expected to gain at least three years' practical experience before registration as a Professional Engineer will be considered by ECSA.

It must be noted that a person who holds the requisite qualification for registration as any of three above-mentioned engineering professionals, but do not hold the required experience, may register with ECSA as a candidate engineering professional.

2.5.2.3.2 Number of Engineering Professionals

Considering the number of technical staff, Lawless (2007) explains that the shortage of civil engineers in the municipal domain is regarded as one of the worst capacity tragedies in recent years. As mentioned, the annual MDB municipal capacity assessment is currently the only recurrent census of municipal engineering staff in South Africa. The next discussions are based on the 2010/2011 assessment as it is the last assessment performed by the MDB.

The MDB, through its municipal capacity assessment of 2010/2011 recorded a total number of 4295 engineering professionals of all types at municipalities of all categories. However, when collecting data on municipalities' engineering staff levels, PDG, which was contracted by the MDB to perform these assessments on behalf of the MDB, in the assessment, did not distinguish between registered and non-registered technicians and technologist. So, a total number of 3312 registered and non-registered technicians and technologists were recorded alongside 983 registered Professional Engineers.

Moreover, it cannot be assumed that the aforesaid technicians and technologists even hold the necessary qualifications or experience to be considered by ECSA for registration as professionals. Vague definitions of these two categories of engineering professionals by PDG in MDB (2012) include: “

- *Technologists: typically holds a BTech degree, and*
- *Technicians: typically holds a NDIP diploma”*

Nevertheless, the following statistics illustrates levels of municipal engineering capacity in South Africa. Grouped per municipal category, the number of each engineering professional category is shown in Figure 18.

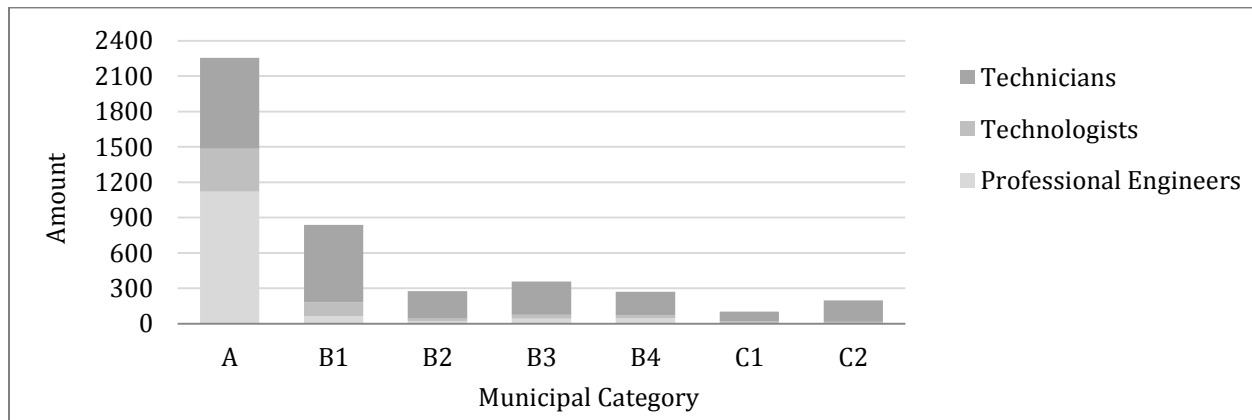


FIGURE 18 - NUMBER OF ENGINEERING PROFESSIONALS BY MUNICIPAL CATEGORY

(MDB, 2012)

Figure 18 shows that the majority of engineering professionals are concentrated at the metropolitan municipalities. Owing to the mere 42 registered professional engineers employed by 79 B3 municipalities, the number of registered professional engineers particularly is far less in the remaining categories of municipalities. On average 0.53 engineers currently serves a B3 municipality. This shortage of engineering professionals is felt equally among the remaining municipal categories. Figure 18 shows how, except for metropolitan municipalities, technicians form the largest group of engineering professionals at municipalities overall in South Africa.

The graph in Figure 19 shows the average number of engineering professionals per 10000 citizens for the same set of municipal categories as in Figure 18.

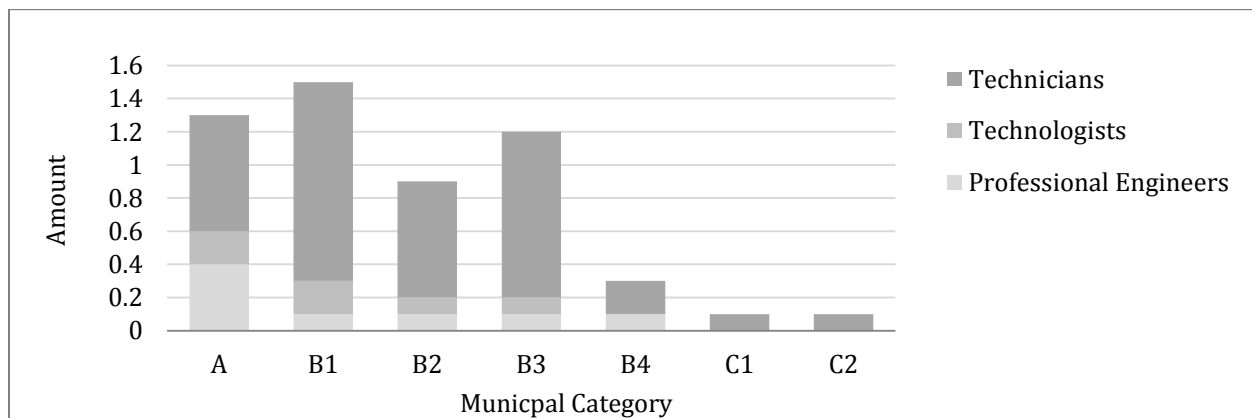


FIGURE 19 - NUMBER OF ENGINEERING PROFESSIONALS PER 10000 CITIZENS

(MDB, 2012)

Figure 19 can be used to better comprehend the extent to which engineering resources are stretched and therefore how well the consumers within communities are served. Evidently, metropolitan municipalities are generally better served with registered professional engineers, with an average of 0.44 engineers per 10000 citizens and a total of 1.37 engineering professionals per 10000 citizens. B1 municipalities have 1.56 engineering professionals per 10000 citizens and are better served by technologists and technicians. Clearly, serious engineering constraints exist in B4, C1 and C2 municipalities (MDB, 2012).

2.5.2.3.3 Growth of Engineering Professionals

Table 11 shows the actual number of registered professionals for each category and the number of successful registrations at ECSA during 2012. Table 11 further shows the number of registered engineering candidates and the number of these candidates that has been registered for less than three years. As engineering candidates may only register as a professional engineer, technologist or technician after at least three years, these numbers signify the pool of candidates from which new professional registrations will progress.

TABLE 11 - NUMBERS OF ENGINEERING PROFESSIONALS AND CANDIDATES IN 2012

(ECSA, 2012)

Professional Engineering Category	Total Registrations	New Registrations
Professional Engineer	15168	546
Professional Engineering Technologist	4066	370
Professional Engineering Technician	2844	340
Candidate Engineering Category	Total Registrations	Registrations (<3 years)
Candidate Engineer	6594	3753
Candidate Engineering Technologist	2487	1689
Candidate Engineering Technician	4019	2954

From Table 11, it is evident that for both categories of registered engineering professionals and registered engineering candidates, professional and candidate engineers respectively form the majority in terms of total registrations, new registrations and registrations within the past three years. Yet, from Figure 18 and Figure 19, it can be noticed that municipalities mainly employ technologists and technicians. This suggests that, not only do municipalities generally not employ an adequate number of professional and candidate engineers, but the intake of these engineering resources at municipalities is disproportionate to the quantity of registration shown in Table 11.

Related to this, Lawless (2007) alludes that few university qualified engineering graduates enter local government upon completion of their tertiary studies except if they have municipal bursaries, while only some metropolitan and large district or local municipalities offer bursaries in the field of civil engineering. Between 2004 and 2007, long after the enactment of the new Constitution and the accompanying acts, Lawless (2007) noticed an average net civil staff loss by municipalities of about 80 due to early retirement, retirement, frustration, the lure of the private sector and emigration.

2.5.3 Conclusion

The objective of this section was to report on the existing individual capacity of municipalities in South Africa. Assuming that the organisational capacity of municipalities consists of three distinct, yet interrelated dimensions, it is ideal to reflect on all three of these capacity dimensions. Reports on the status quo in this regard are limited by the deficiencies of modern municipal capacity self-assessment models (MDB, 2012). While insights with regards to the institutional and environmental capacity of municipalities are not included in these reports, Lawless (2007) suggests that individual capacity is the most important. By only considering the technical staff profiles of municipalities, it can be confirmed that the South African local government is indeed experiencing a serious lack of engineering capacity.

In this section, it became known that, overall, one in every four posts at municipalities was vacant in 2011. Of funded posts, a significant 32,5% were vacant in 2011. The statistics revealed regarding two key focus areas of this research study, i.e. municipal management and engineering, were not anymore promising. It was shown that, generally, municipal managing staff, including technical managers holds inappropriate academic qualifications while technical managers specifically hold inadequate relevant work experience. Considering the Technical Services Manager, provinces with major cities, i.e. the Western Cape, Gauteng and Kwa-Zulu Natal, are the best served. As expected, statistics in this regard are aligned with earlier insight regarding regional municipal capacity strengths and weaknesses and basic service delivery backlogs.

The statistics as provided in this section are primarily based on the MDB Municipal Capacity Assessment of 2010/2011 which is the most recent survey of municipalities' technical staff profiles in South Africa. Although the content of this report (MDB, 2012) was very useful in confirming the findings of Lawless in 2007, it has proved to be somewhat inaccurate. In the context of this research study, the quality of this report's content moreover emphasises the shortfalls which exists in terms of municipal capacity assessments in South Africa.

2.6 Municipal Service Delivery Capacity Building

2.6.1 Introduction

The preceding sections' reflection of municipal capacity in South Africa confirmed that municipalities are experiencing a serious lack of capacity, specifically in terms of engineering and management. Low levels of academic and experience are found among the majority of municipalities' management. It is thus imperative to consider capacity building initiatives that have specifically been implemented to address these lacks of municipal capacity by investigating, amongst other, the function of the National Capacity Building Framework.

Various local government capacity building projects have been initiated with the purpose of enabling municipalities to improve service delivery and to eradicate related backlogs. However, several challenges have been experienced in this regard which have hampered

the effectiveness of these initiatives (Ajam, 2012). The Financial and Fiscal Commission has raised thoughtful concerns regarding the sustained government spend on municipal capacity-building initiatives, its monitoring as well as the measureable impact thereof.

Ajam (2012) terms capacity building attempts in South Africa as legion and their impact as disappointing despite substantial resources which have been allocated for these purposes since 1994. Many initiatives have supposedly taken a too narrowly technical perspective, while the diagnostic of root causes is known to be broader. Ajam (2012) proposes that not only should factors within municipalities be considered, but also political, intergovernmental issues and the socio-economic environment within which the system of local government planning, budgeting and service delivery operates. It should be noted that all the aforementioned intergovernmental issues are included in earlier definitions of municipalities' environmental capacity.

Ajam (2012) describes the monitoring of capacity-building initiatives as ineffective and being seldom independently evaluated. It is stated that a lack of comprehensive information exist regarding municipalities' expenditure on staff training, the number of staff that benefits from the programs and the nature of the training. Uncertainties also exist regarding the achievement of anticipated outcomes in terms of building applied competence, skills transfer and returns on investments (Ajam, 2012). In order to better understand the purpose of the aforementioned capacity building initiatives, it is essential to study the functions of the National Capacity Building Framework (NCBF).

2.6.2 National Capacity Building Framework

The purpose of the National Capacity Building Framework is to identify the need for capacity building of municipalities, and to determine objectives related to this. The NCBF additionally aims to steer capacity building strategies towards enabling municipalities to fulfil their constitutional duties, and to perform their powers and functions, as developmental local government entities (CoGTA, 2012). The NCBF for 2012-2016 proposes to reach these objectives by establishing integrated capacity building frameworks and guidelines, which considers all applicable legislation.

The NCBF for 2012-2016 was compiled to ensure that the Department of Cooperative Governance provides improved oversight and coordination of support, capacity building and training initiatives to achieve the required impact on local government's functionality, performance and service delivery. It additionally aims to build on the foundation of on-going appropriate capacity building initiatives through the management thereof to ensure an improved enabling environment for capacity support for municipalities (CoGTA, 2012).

The NCBF for 2006 states that the various partners which coordinate the capacity building at municipalities in South African need to operate within a common set of assumptions, legislative provisions and standard practices and procedures. If municipal capacity is to con-

tinue to illustrate long-term improvement, greater emphasis is needed on the coordination of the capacity building environment to avoid overlaps and to jointly close gaps. It is therefore also the aim of the NCBF to align the efforts of all entities which are providing direct assistance to municipalities (DPLG, 2006).

The following section outlines the national and provincial capacity building projects which have been initiated in South Africa since 1994 with the overall aim to improve the capacity of municipalities of all categories.

2.6.3 National and Provincial Capacity Building Initiatives

Various capacity building and support initiatives have been initiated by South African government departments, professional institutes, and donor agencies. The most important aspects of these initiatives are described in Table 12 that is an extract from the National Capacity Building Framework for 2006. Reference is made to the organising departments, the purpose and progress and the primary impacts of each program. The key impact of each program is categorised under the dimension of organisational capacity it targets.

TABLE 12 - PAST AND PRESENT CAPACITY MUNICIPAL BUILDING PROGRAMS IN SOUTH AFRICA

ADAPTED FROM DPLG (2006)

Programs	Supports	Purpose and Progress	Primary Focus
Project Consolidate	<ul style="list-style-type: none"> ▪ Department of Local Government ▪ National Government ▪ Provincial Government 	Project Consolidate was a support initiative, aimed at helping struggling municipalities with overcoming capacity gaps by the provision of expertise. It created a platform for collective development planning of the three spheres of government in the form of municipal action plans, Izimbizo programs and IDP Reviews.	Institutional Capacity
Municipal Leadership Development Program (MLDP)	<ul style="list-style-type: none"> ▪ Department of Local Government 	MLDP is an individually based leadership development program, directed at accelerating and improving service delivery to communities and strengthening the sustainability of local government by enhancing the leadership competencies of elected and appointed officials. This is done by structured and tailored leadership skills programs	Individual Capacity
Learnership Programs	<ul style="list-style-type: none"> ▪ Local Government Sector Education and Training Authority 	<p>The Learnership and Skills Programs offers:</p> <ul style="list-style-type: none"> ▪ LED Learnerships at NQF Level 4, 5, 6 ▪ Admin Learnerships at level NQF 4, 5, 6 ▪ Finance Learnerships at level NQF 4, 5, 6 ▪ CDW Learnerships at level NQF 5 ▪ IDP Learnership at level NQF 5 ▪ Ward committee skills training ▪ Councillor skills training 	Individual Capacity
Municipal Finance Management Program	<ul style="list-style-type: none"> ▪ Treasury ▪ Department of Local Government 	The Municipal Finance Management Program focuses on enhancing key financial management capacity in selected municipalities. It includes a practical component, where financial experts are placed in strategic selected local and district municipalities across South Africa for a period of time.	Individual Capacity

<p>Urban Renewal Program (URP)</p>	<ul style="list-style-type: none"> ▪ Department of Local Government ▪ Development Bank of South Africa ▪ South African Cities Network ▪ Treasury 	<p>The URP includes projects in eight spatial areas geared towards coordination of inputs to tackle urban poverty by inducing on township development strategies with inclusion of specific module of the township economies. The URP's aim is to enhance planning of economic skills and includes an extension of the Technical Support Facility.</p>	<p>Institutional Capacity</p>
<p>Integrated Sustainable Program for Rural Development (ISRDP)</p>	<ul style="list-style-type: none"> ▪ Department of Local Government 	<p>The ISRDP specifically targets financial and technical support to identified rural nodal municipalities, including the establishment of Performance Management Units (PMUs) with the aim to embed necessary technical skills to aid delivery.</p>	<p>Individual Capacity</p>
<p>Joint Initiative on Priority Skills Acquisition (JIPSA)</p>	<ul style="list-style-type: none"> ▪ Presidency 	<p>JIPSA was launched in 2006, and is intended to create short-term, sustainable interventions to the skills problems. JIPSA aims to increase the level of this much-required set of skills. Municipalities are among the intended beneficiaries, as they suffered from a dire need of engineering, planning, artisan, technical and project management skills.</p>	<p>Individual Capacity</p>
<p>Siyenza Manje</p>	<ul style="list-style-type: none"> ▪ Department of Local Government ▪ Development Bank of South Africa 	<p>The Siyenza Manje initiative recruits qualified retired experts, pairs them with young graduates and deploys them to local municipalities which require assistance. It was purposefully crafted to support municipal efforts to implement various service-delivery projects, particularly those focusing on infrastructure.</p>	<p>Individual Capacity</p>
<p>ENERGYS</p>	<ul style="list-style-type: none"> ▪ Department of Local Government ▪ Department of Water Affairs and Forestry ▪ Provincial Government ▪ South African Institute for Civil Engineering 	<p>The ENERGYS Program deploys senior engineers paired with students and graduates in local authorities to solve technical service delivery problems and simultaneously offering comprehensive training to students, but more specifically to engineering graduates.</p>	<p>Individual Capacity</p>

Training Sessions on National Policy and Acts	<ul style="list-style-type: none"> ▪ National Government ▪ Provincial Government ▪ External Facilitators 	The aim of Training and Information Sessions on National Policy and Acts is to ensure that municipalities and other key stakeholders properly understand new initiatives and the relevance thereof to their own organisations and service delivery.	Institutional Capacity
Thusong Service Centres	<ul style="list-style-type: none"> ▪ Government Communication and Information System ▪ National Government ▪ Provincial Government 	The aim of Thusong Service Centres is to provide communities with to access information about government services.	Institutional Capacity
Municipal Revenue Development Programs	<ul style="list-style-type: none"> ▪ Department of Local Government 	<p>Municipal Revenue Enhancement Programs aim to:</p> <ul style="list-style-type: none"> ▪ Improve and sustain revenue collection ▪ Solve causes of municipal service debts ▪ Extend services (free basic services) ▪ Clarify policies related to service delivery 	Institutional Capacity
Deployment of Community Development Workers	<ul style="list-style-type: none"> ▪ Presidency ▪ Department of Local Government ▪ Provincial Government ▪ Local Government Sector Education and Training Authority 	The aim of the deployment of community development workers is to improve communication with and engagement of communities in government issues affecting them.	Institutional Capacity
National Spatial Development Plan (NSDP) District Application Project	<ul style="list-style-type: none"> ▪ Presidency ▪ Department of Local Government ▪ Council for Scientific and Industrial Research 	The NSDP District Application Project is a pilot project focussing on provinces and districts to assist them to integrate the NSDP approach into their IDP planning.	Institutional Capacity
Sector Skills Plans	<ul style="list-style-type: none"> ▪ Local Government Sector Education and Training Authority 	In terms of the Skills Development Act, LGSETA prepared Sector Skills Plans which aims to assist municipalities in completing their own Workplace Skills Plans and Workplace Training Reports. It is basically a national sector skills plan for municipalities.	Institutional Capacity

Table 12, setting out past and present municipal capacity building programs, shows that numerous capacity building endeavours have been launched since 1994. Evidently, these programs are focused only on the individual and institutional capacity of municipalities. It should be noted that the environmental capacity of municipalities was formerly defined by NCBF as the potential and competency found freestanding of the formal structure of a municipality. It was additionally stated that this environmental capacity includes the administrative, legal, technological, political, social, economic, cultural, etc. factors that have an impact on the effectiveness and sustainability of capacity building efforts (Matachi, 2006).

Owing to these definitions of environmental capacity, rationally none of the capacity building programs, as shown in Table 12, is focused on this dimension of capacity. It was earlier stated that greater focus should be placed on the coordination of the capacity building environment to avoid overlaps and to jointly close gaps. Table 12 suggests that this overlap indeed occurs with regards to several areas of municipal capacity, which include individuals' capabilities and municipalities' practices in terms of financial administration, management leadership and engineering. Taking note of this phenomenon and earlier criticism by Ajam (2012), it remains important to recognise the reactions or lack thereof to capacity gaps at municipalities.

2.7 Chapter Conclusion

Chapter Two provided insight to the recent (2011) state of municipal service delivery and performance in South Africa. Chapter Two provided further sufficient references to use in the answering of the research questions of this chapter. The main research question needed to be answered in this chapter is: *"What is the state of current municipal service delivery performance, capacity and capacity building in South Africa?"*

Derived from this research question, it was the objective of this chapter to discuss the legislative framework that is applicable to municipal basic service delivery and overall performance, ways in which this municipal service delivery performance relate to municipal capacity and initiatives to develop municipal capacity. Through achieving these objectives, Chapter Two studied the municipal environment in South Africa, with reference to municipalities' organisation, organisational and political structure, functions and service delivery mechanisms. These aspects of the municipal environment are fundamentally based on the legislative framework for local government in South Africa.

Chapter Two therefore studied the legislative frameworks for both municipal service delivery performance and capacity. Discussions around these foci reflected the transformation of South African local government with the aim of putting service delivery backlogs in perspective with changes in the political environment. Chapter Two used basic service delivery backlogs and the rate of its eradication as an indicator of municipal performance.

By discussing the service delivery capacity of municipalities, this chapter reviewed the standard of management and engineering resources of municipalities. As could be foreseen, a clear correlation exists between the performance and capacity of municipalities. In actual fact, where municipalities illustrated low levels of managing and engineering capacities, major service delivery backlogs were observed. In turn, provinces where municipalities held developed capacity, service delivery performance were better. It can therefore be described as ironic to see, that long after the changes in local government legislation, little has been done to increase the managing and engineering capacity of underperforming municipalities.

Evidence suggests that this could be a realistic approach to the eradication of long-standing municipal service delivery backlogs, which are limiting the uplift of formerly disadvantage communities and ultimate economic growth. Undoubtedly, there are many consequences, such as financial implications, to consider during such operations, but some form of capacity building is needed to drastically turn around municipal underperformance. Recently, the president of SAICE, Dr Martin Van Veelen, suggested methods of placing dedicated groups of engineering professionals at underperforming municipalities to instil the necessary managing and engineering practices.

Chapter Two reflected on already-implemented capacity building projects in South Africa since 1994 and the function of the NCBF. It was stated that the aim of the NCBF is to identify the need for capacity building of municipalities, and to determine objectives related to this. A collection of fifteen national and provincial capacity building initiatives were specified, with reference to these initiatives' purpose, focus, progress and primary impacts. It though, should be noted that Ajam (2012) suggests that these capacity building attempts, in general, are legion and their impact is disappointing despite the substantial number of resources which have been allocated to its operation.

Evidently, the overall failure of capacity building in South Africa can be linked to the inappropriate identification of capacity gaps. Though the aim of the proposed municipal capacity self-assessment model is to assist internal capacity building initiatives, this model could potentially also aid capacity building on national, provincial and local levels. Through the implementation of this model, and the resulting benchmarking between municipalities, this model can generate valuable insight in terms of trends in capacity strengths and weaknesses. Chapter Four will further discuss the practicality of capacity assessments.

Chapter Three will focus more specifically on the earlier introduced municipal engineering functions. This chapter will include a more comprehensive view on the legislative mandate of municipalities' technical departments, with reference to its structure, legislative framework and strategic planning, to more accurately report on the role of these departments during basic municipal service delivery.

Chapter Three: Municipal Engineering Functions

Chapter Three focuses on the engineering functions of municipalities with a main research question of: *What is the current role of municipalities' technical department in the delivery of municipal services?*

In providing a thorough answer to this main research question, the following research sub-objectives need to be achieved in this chapter:

- Identify the mandate of municipalities' technical departments with regards to delivery of the six basic municipal services.
- Identify which strategic planning procedures exist with regards to the fulfilment of the municipal engineering function's mandate.
- Determine the required resources and legislative framework for the fulfilment of the municipal engineering function's mandate.

Through the achievement of these research objectives, Chapter Three will provide the necessary insight to understand the role of municipalities' technical departments and the engineering functions it fulfils. In doing so, this chapter will moreover discuss several phases of the *municipal engineering service delivery process* as introduced in Figure 3.

3.1 Introduction

Chapter Two focused on contemporary (2011) municipal service delivery capacity and performance in South Africa, while moreover considering the legislative framework and other essential foundations of the municipal environment. Discussions around these focuses can be complimented by deliberating the engineering functions of municipalities in South Africa. By discussing the role of municipalities' technical departments in the delivery of basic municipal services, it will be exemplified how municipal performance depend significantly on the individual capacity found within municipalities' technical departments.

The objective of Chapter Three is to discuss the engineering functions of municipalities, as first introduced in Chapter One. This chapter will henceforth refer to the derived municipal engineering mandate, strategic planning, resource requirement and operations. A vital part of Chapter Three is its focus on the standards of basic municipal services as former sections merely mentioned that different service levels exist, without providing further details. In terms of municipal strategic planning, this chapter will refer to two essential strategic documents, the IDP and the SDBIP. Although it is not the responsibility of engineering departments to compile these strategic documents, it is imperative for these departments to provide input where needed and understand how these documents affect its responsibilities.

Related to the background of municipal engineering capacity downfalls in South Africa, this chapter will discuss the requirements for a functioning municipal engineering department, mainly in terms of human resources. This chapter will also consider engineering operations

associated with the delivery of basic municipal services that consist of engineering and re-engineering, construction and the operations and maintenance of municipal infrastructure.

With the objective of presenting these facets of municipal service delivery in context of the municipal engineering functions, this chapter will moreover consider the structure of municipalities' civil engineering departments. This will be an extension to former discussion around the organisational structure of municipalities. For the necessary understanding of municipalities' engineering function, the next section provides a brief background.

3.2 Background

Gradually, after the arrival of the Dutch in the Cape of Good Hope in 1652, market centres were established throughout South Africa to serve key trade routes, farming communities and the extraction of minerals. The local government structure of the time granted support mainly to business interest of individuals or companies, and the public sector, local and international, which relied on well-served communities. In realising this approach, civil engineers played a major role in constructing road and rail networks, infrastructure for water provision as well as the management of sewerage and solid waste removal (Lawless, 2007).

Engineers consequently played an indispensable role in shaping municipalities. They were systematic problem solvers who ensured that services performed the functions required by the growing population. At this point in time, the served population was limited to those who could afford taxes, resulting in a large percentage of the South African population living in appalling conditions. While little attention was given to the economic and social well-being of the working class, municipalities became discrete entities and reflected patterns of colonisation. With time, service and land distribution became gradually skewed and ultimately saw the enactment of the Land Act, 1913 (Act 2 of 1931) which prohibited Africans from purchasing land outside specific reserves assigned to them.

The effects of the Land Act were intensified by the Native Laws Amendment Act, 1937 (Act 34 of 1937), which was promulgated to control the flow of black people to towns or cities. During the mid-1900, the National Party, which came into power in 1948, intensified its anti-urbanisation policies toward black people through limiting them only to enter 'white areas' as servants. The migrant labour system became well entrenched and also divided in terms of the levels of services. These policies resulted in more or less 3.5 million people suffering forced removal between 1960 and 1983 (Lawless, 2007).

Until 1994, beyond the white-owned urban centres and surrounding rural areas of commercial farms, lay the non-independent homelands of Gazankul, KaNgwane, KwaNdebele, KwaZulu, Lebowa and QwaQwa that covered densely populated rural areas housing mostly indigent communities. These areas, known as Bantustans, were the responsibility of provincial and national government and were serviced by several Development Boards and Councils. Faraway from the non-independent homelands, lay densely populated rural areas

that had been given independence and were not developed by the South African government. This was the case in Transkei, Bophuthatswana, Venda and Ciskei (Lawless, 2007).

Prior to 1994, 843 racially segregated municipalities had been established in South Africa, with only some 250 being urban and rural towns and the remaining, rural and district structures. Municipal engineers were traditionally responsible for the planning, design, delivery and mostly also construction of all municipal infrastructure. By 1994, the number of civil engineering professionals serving the 250 urban municipalities, totalled around 3000. This enabled the engineering departments of local authorities to function as the client and service provider, offering consulting and contracting services, as well as operations and maintenance, while local authorities either provided finance or was able to raise its own funds through commercial loans.

The engineering departments of local authorities were staffed with engineers and technical assistants, and the execution of responsibilities was handled in very structured ways with the hierarchy of superintendent, foreman, master artisan, artisan's assistant to general labourer being well understood. Detailed organograms existed, outlining roles and responsibilities and lines of reporting. In large municipalities separate departments existed for each service, whereas in smaller municipalities, roles and responsibilities were combined while only one or two technical staff, trained at large municipalities, carried the management responsibilities. Provincial capacity or consulting engineers were used to manage production phases, but operations and maintenance stayed rooted in the municipality (Lawless, 2007).

After the enactment of the Constitution and the resulting political reform in South Africa, local government underwent a momentous transformation which paints a very different picture of municipal service delivery and the role of municipal engineers. Although the need for engineering skills significantly increased dramatically as the entire population of South Africa required servicing, the restructuring process did not recognise this. The rationalisation of the existing engineering departments thus resulted in significant numbers of engineering staff, including significant numbers of senior engineers, being retrenched, retiring early or leaving the service.

When asked at the Discourse Café, presented by the Frederik van Zyl Slabbert Institute for Student Leadership Development on 27 February 2013 at the Botanical Gardens in Stellenbosch, former Apartheid-president, FW de Klerk, admitted that, in order for municipalities to meet the service delivery demand of the 'new South Africa', municipalities need to drastically expand and develop their municipal engineering capacities. De Klerk confirmed that the main reason for adequate municipal service delivery in South Africa prior to 1994 was adequate quantity and quality of engineering professionals at the time. Related to this, Lawless (2007) states that since 1994, the restructuring of municipalities' engineering departments has continued unabated and as a result, created an increasing contrast between past and present roles and responsibilities of municipal engineers.

The transformation of local government policies, the resulting deterioration of municipalities' engineering capacity and the associated forced transfer of engineering responsibilities to the private sector, have become part of how municipalities are understood today.

In South Africa, the following national departments, including their regional or provincial counterparts, where relevant, are directly contributing and adding value to the municipal infrastructure programmes through supporting the planning, design, implementation, operation and maintenance, monitoring and evaluation phases of infrastructure projects implemented by municipalities countrywide (DPLG, 2007):

- Department of Provincial and Local Government and its provincial counterparts
- National Treasury and its provincial counterparts
- Department of Water Affairs and Forestry
- Department of Public Works and its provincial counterparts
- Sports and Recreation South Africa and its provincial counterparts
- Department of Environmental Affairs and Tourism and its provincial counterparts
- Department of Minerals and Energy
- Department of Transport and its provincial counterparts
- Department of Housing and its provincial counterparts

The following sections will include discussions in connection to the current municipal engineering functions in South Africa, and will contradict the service delivery practices of the past. The objective of Chapter Three is to report on existing practices, whilst also referring to relevant dissimilarities with past practices in order to understand the how the transformation of local government has affected the functioning of municipal engineering departments. This undertaking will emphasise how earlier practices proved to be effective, while current practices are failing in certain aspects. The following section focuses on modern municipal engineering departments' mandate.

3.3 Municipal Engineering Mandate

3.3.1 Introduction

Previous chapters highlighted the functions of local government. Through discussing the responsibilities of district municipalities, Chapter Two separated the functions of local government according to three municipal categories, i.e. local, district and metropolitan municipalities. Contributing to the allocation of responsibilities, this section discusses the functions to be performed by the technical departments of municipalities for the ultimate fulfilment of municipalities' service delivery obligations. In relation to the background above, the following section will refer to the transformation of municipal engineering functions to, where today, the majority of service delivery phases are outsourced to the private sector.

3.3.2 Municipal Engineering Functions

Chapter One introduced the transfer of traditional municipal engineering duties to the private sector and the subsequent changes which resulted to a modified set of municipal engineering functions, as shown Figure 5. Apart from the outsourcing of municipal service delivery phases, according to Lawless (2007), the decline in engineer resources in local government has caused municipalities to struggle in order to provide strategic, oversight and management functions during the project cycle as shown in Figure 20.

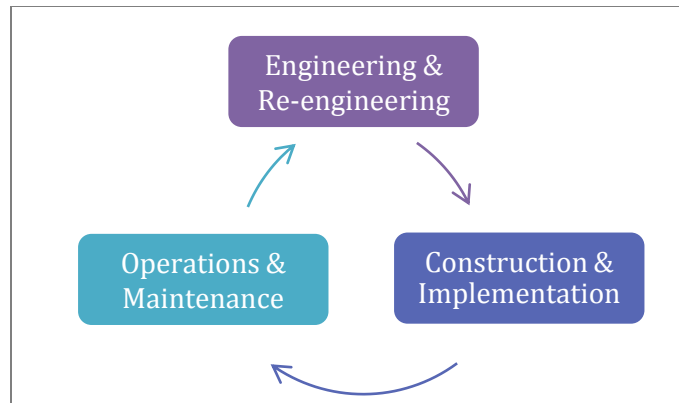


FIGURE 20 - THE PROJECT CYCLE

(LAWLESS, 2007)

Lawless (2007) emphasises that it is particularly important for municipalities to, especially where the outsourcing of engineering functions occur, hold certain minimum levels of engineering capacities to oversee and manage several key phases of the project cycle.

Table 13 provides an itemisation for all three phases of the project cycle. According to Lawless (2007), each phase consists of six sub-phases, which naturally includes the municipal engineering functions. Reference to the project cycle is used to contextualise the municipal engineering functions and further illustrate the critical role which municipalities’ technical departments need to fulfil. It should be noted that municipalities are allowed to outsource either a part of or an entire phase of the project cycle.

TABLE 13 - PROJECT CYCLE

(LAWLESS, 2007)

Engineering & Re-engineering	Construction	Operations & Maintenance
Receive brief	Award Tender	Handover
Planning	Sub-Contracting	Operations
Design	Fabrication	Maintenance
Drawing	Construction	Refurbish
Detailing & Quantities	Commissioning	Upgrade
Tender	Operating Documents	Decommissioning

Naturally, many of the *project cycle* sub-phases either includes former municipal engineering functions, as shown in Figure 5, or relate to the engineering field. As cited, Lawless (2007) suggest that, although municipalities are rightfully outsourcing either main or sub-phases of the project cycle, the engineering departments should hold certain minimum capacities to provide necessary oversight and management. Figure 21 shows recommended internal staff and functions to be performed by municipalities' engineering departments. This figure confirms that a specific minimum level of engineering capacity is required for strategic and oversight purposes during key service delivery phases.

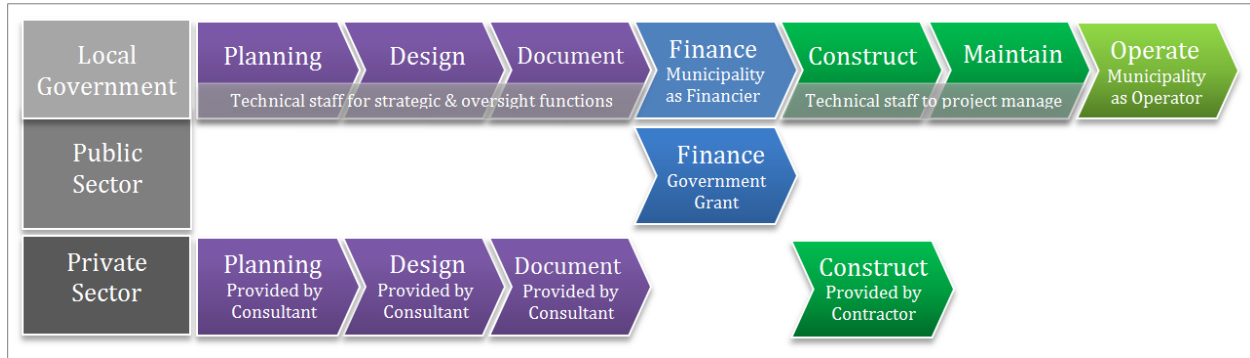


FIGURE 21 - RECOMMENDED INTERNAL ENGINEERING STAFF AND FUNCTIONS TO BE PERFORMED
ADOPTED FROM LAWLESS (2008)

Lawless (2007) suggests that municipal engineering departments should perform the functions as shown in Figure 21. These functions should be performed for all the functions of local government, as listed in Table 5, which requires the abilities and knowledge of technical staff. As formerly noted, amongst these functions are basic municipal services.

To this point, basic municipal services have been understood to be services which are necessary to ensure an acceptable and reasonable quality of life and, if not provided, would endanger public health or safety or the environment. Based on this definition, earlier sections identified six basic municipal services which are key municipal engineering functions. The following section provides more detailed definitions of the six basic municipal services.

3.3.3 Municipal Service Delivery Standards

The adequate delivery of water, sanitation, refuse removal, electricity, municipal roads and stormwater management services are known as the six basic municipal services to be delivered by municipalities' technical department. The purpose of the following sections is to quantify the term, *adequate*. Three separate service levels exist for the provision of basic municipal services, i.e. basic, intermediate and full level (Lawless, 2007). As *basic* is the lowest level of service provision and the most relevant in terms of legislative requirements, the following section will discuss and evaluate legislation and policies in order to quantify this level of service.

3.3.3.1 Basic Municipal Water Services

Municipal water services comprise of the abstraction of water from a water resource, conveyance, treatment, storage and distribution of potable water, water intended to be converted to potable water and water for industrial or other usages, to consumers or other water services providers. Potable water is water used for purpose of drinking or domestic use and is of a quality which is consistent with *SABS 241: Specifications for Drinking Water*.

Two key legislative documents exist with regards to municipal water supply services, i.e. the National Water Act, 1998 and the Water Services Act, 1997.

Regulation 3 as part of the Compulsory National Standards for the Quality of Potable Water, under section 9 of the Water Services Act, 1997, defines the minimum standard of basic water supply services as: “

- a. *the provision of appropriate education in respect of effective water use; and*
- b. *a minimum quantity of potable water of 25 litres per person per day or 6000 litres per household per monthly -*
 - i. *at a minimum flow rate of not less than 10 litres per minute;*
 - ii. *within 200 metres of a household; and*
 - iii. *with an effectiveness such that no consumer is without a supply for more than seven full days in any year”*

3.3.3.2 Basic Municipal Sanitation Services

Municipal sanitation services include the collection, removal, disposal or treatment of human excreta and domestic wastewater, and the collection, treatment and disposal of industrial wastewater (CoGTA, 2011). Generally, this falls under the duties of municipalities that have been authorized as Water Services Authorities, i.e. category C2 municipalities.

Further, as stated in the Water Services Act, 1997, a Water Services Authorities have a right but not a mandate to accept industrial wastewater from industries within their area of jurisdiction. Regulation 3, under section 9 of the Water Services Act, 1997 (Act 108 of 1997) states that the minimum standard for basic sanitation services is: “

- a. *the provision of appropriate health and hygiene education; and*
- b. *a toilet which is safe, reliable, environmentally sound, easy to keep clean, provides privacy and protection against the weather, well ventilated, keeps smells to a minimum and prevents the entry and exit of flies and other disease-carrying pests.”*

3.3.3.3 Basic Municipal Refuse Removal Services

MIIF (2010) refers to municipal refuse removal services as to comprise of the collection, removal of solid waste and the disposal thereof to a proper landfill site (DPLG, 2007). Basic and intermediate levels of refuse removal services involve the transfer of refuse by individual households or by a local contractor to communal points, for the collection and trans-

fer to a landfill site. Refuse removal by means of kerb-side collection are regarded as the highest level of refuse removal service.

A basic level of refuse removal services is defined as a baseline service level as established under Clause 9.1 of the National Policy on the Provision of Basic Refuse Removal to Independent Households. This definition includes the weekly collection of refuse. Table 14 defines the various levels of domestic refuse removal for urban areas (Department of Environmental Affairs (DEA), 2010) as adopted in (Slabbert, 2010).

TABLE 14 - LEVELS OF DOMESTIC REFUSE REMOVAL FOR URBAN AREAS
(DEA, 2010)

Level of Service	Service Type	Details of the Type of Service
Basic	Communal dump site	(a) Households are required to transport their own waste to a dumping site outside of the settlement area. (b) The dumping site is provided and operated by the service provider or appointed contractor and is basically a small landfill site
Intermediate	Households transfer to communal bins (skips)	(a) Households are required to carry their own solid waste to a communal point in the neighbourhood where large bins (skips) are provided. (b) The skips are then removed to the landfill site and emptied by the district council or an appointed contractor
Full	Kerbside collection	(a) Households put their separated waste out for collection once a week (or more frequently if required). (b) The municipality or appointed contractors collect the recyclable and residual waste from each household in trucks, or with tractors and trailers, etc. and transport it to the landfill and/or recycling handling facility

3.3.3.4 Basic Municipal Roads

Several role-players are involved with the design, construction and maintenance of municipal roads in South Africa. Guided by legislation and policies, local, district and metropolitan municipalities have a mandate regarding the construction and maintenance of what is termed municipal roads. These legislations include the following four acts:

- National Land Transport Transition Act, 2000
- National Road Traffic Act, 1996
- Urban Transport Act, 1977
- SANRAL and National Roads Act, 1998

In addition to these acts, the Functional Road Classification System of the Road Infrastructure Strategic Framework for South Africa (RIFSA) is used to classify roads in South Africa. Class 3 to Class 5 as included in RIFSA and shown in Table 15 relates best to possible definitions of municipal roads. Neither RIFSA, nor any of the acts mentioned above provide a distinct definition of municipal roads at a basic level. However, RIFSA, when discussing

minimum service levels, refers to "*all-weather access to within 500m of the dwelling*" (DPLG, 2007), which can be assumed to be its definition of municipal roads at a basic level.

According to DPLG (2007) basic levels of municipal roads will vary according to the geographical context of rural, urban and metropolitan areas. In urban areas, access to each residential household by a vehicle is generally possible and necessary, while in rural areas, where many small and scattered settlements are found, it is often not feasible to provide all-weather access to within 500m of every dwelling.

TABLE 15 - RIFSA CLASSIFICATION
(DEPARTMENT OF TRANSPORT, 2002)

Class #	Description
Class 1	Roads, which form the principal avenue of communication: <ol style="list-style-type: none"> i. between and through major regions of South Africa; ii. between provincial capitals and key towns which have significant national economic/social interaction; iii. between South Africa and adjoining countries, and iv. which main function is to provide access to freight terminals, including ports.
Class 2	Roads whose main function is to form an avenue of communication: <ol style="list-style-type: none"> i. Between important centres and between class 1 roads and key towns within a specific province, on a province -wide basis. ii. Between important centres, within a specific province which have a significant economic, social tourist or recreation role.
Class 3	Roads other than class 1 or 2 roads, whose main function is to provide the principle arteries for intra-metropolitan traffic and freight movements.
Class 4	Roads, which are not class 1, 2 or 3, are roads whose main function is to carry inter-municipality social, commercial and industrial traffic within specific metropolitan and district municipality areas.
Class 5	Roads whose primary function is to collect and distribute all traffic within local municipality areas including developing townships and to provide access to the wider road network, as well as the abutting properties.
Class 6	Roads whose function is to provide the only access to scattered rural settlements and communities of up to 500 persons and which primarily serve local social services as well as access to markets and generally form the first phase of the journey for commuters and migrant workers. These roads will often form part of a rural infrastructure development framework.
Class 7	This category comprises special purpose public roads which cannot be assigned to any other class above and which are provided almost exclusively for one specific activity or function such as recreational, forestry, mining, national parks or dam access.

3.3.3.5 Basic Municipal Stormwater Management

DPLG (2007) defines stormwater as the accumulation of rain and other forms of precipitation after it has fallen and the consequential runoff and flow from higher to lower lying levels in the process of reaching streams and rivers. Uncontrolled stormwater has the potential to limit road access and for this reason stormwater management is closely related to road constructions (DPLG, 2007). The purpose of providing stormwater infrastructure is to

manage the volume, flow velocity and direction of flow of accumulated stormwater. This run-off water must be controlled to acceptable levels in order to minimize the damaging effect that the stormwater may have on the environment (DPLG, 2007).

No legislation or policy exists with definitions of basic levels of stormwater management in South Africa. DPLG (2007) however suggests that basic levels of stormwater management will vary according to the geographical context and defines basic levels of stormwater management in rural areas as open channels alongside roads or through open areas. These channels can be either lined (with concrete or other materials) or unlined. In an urban context, however, basic levels of stormwater systems can be assumed to be a combination of open channels and underground pipes which are channelled to underground pipes by kerbs and catch-pits.

3.3.3.6 Basic Electricity Services

The MIIF defines electricity supply services as the generating, conveyance, storage and distribution of the appropriate quantity and voltage of electricity for industrial use, to households, electricity distributors and other providers (DPLG, 2007). Municipalities, mandated by the Municipal Systems Act, 2000 are responsible for the provision of electricity. ESKOM, however in most cases, provides this service on behalf of municipalities (Lawless, 2007).

The basic level of electricity supply services are defined as the delivery of 50kWh/month or equivalent from a 220V outlet delivered to each household. This number of energy are considered as sufficient to provide basic lighting, basic media access, basic water heating using a kettle and basic ironing in terms of grid electricity and basic lighting and basic media access for non-grid systems (DPE, 2013).

3.4 Municipal Engineering Strategic Planning

Different strategic frameworks are usually established for the delivery of all basic municipal services. These frameworks establish service provision requirements, commonly set in terms of the maintenance and operation of municipal services infrastructure, which should be met through the efforts of the municipal engineering department. These frameworks, as enacted by the Municipal Systems Act, 2000 should be included in municipalities' Integrated Development Plan (IDP) and Service Delivery and Budget Implementation Plan (SDBIP). These two essential strategic documents are discussed in the next two sections.

3.4.1 Integrated Development Planning (IDP)

According to the Intergovernmental Forum for Effective Planning (2001), the notion of integrated development planning can be defined as a participatory planning process aimed at integrating sectoral strategies, to support the allocation of limited resources between sectors, geographical areas and across the population, in a manner that promotes sustainable growth, equity and empowerment of the poor.

The DPLG (2001) describes integrated development planning as a process through which municipalities prepare a strategic development for a five year period. This process is intended to arrive at decisions on issues such as municipal budgets, land management, promotion of local economic development and institutional transformation in a consultative and strategic manner.

According to the Municipal Systems Act, 2000 a municipality must undertake developmentally-oriented planning so as to ensure that the municipality adheres and gives effect to the Constitution. Each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan for the development of the municipality. This integrated development plan must reflect, amongst others the following:

- The municipal council's vision for the long term development of the municipality with special emphasis on the municipality's most critical development and internal transformation needs;
- an assessment of the existing level of development in the municipality, which must include an identification of communities which do not have access to basic municipal services;
- the council's development strategies which must be aligned with any national or provincial sectoral plans and planning requirements binding on the municipality in terms of legislation;

In addition to the requirement above, the IDP of a municipality must also include the council's strategies for the municipality's operations and key performance indicators and performance targets determined in terms of section 41 of the Municipal Systems Act, 2000 related to the performance management of a municipality.

3.4.2 Service Delivery and Budget Implementation Plan (SDBIP)

The SDBIP gives effect to IDP and the budget of the municipality (National Treasury, 2006). The Municipal Finance Management Act, 2003 requires that for effective use of a SDBIP, a municipality's IDP and budget should be aligned.

According to the National Treasury (2006), the SDBIP provides the vital link between the mayor, the executive council and the administration, and facilitates the process for holding the municipal management accountable for its performance. The SDBIP is a management, implementation and monitoring tool which assists the mayor, councillors, municipal manager, senior managers and community (National Treasury, 2006).

A properly formulated SDBIP ensures that appropriate information is circulated internally and externally for purposes of monitoring the execution of the budget, performance of senior management and achievement of the strategic objectives set by council. It enables the municipal manager to monitor the performance of senior managers, the mayor to monitor

the performance of the municipal manager, and for the community to monitor the performance of the municipality (National Treasury, 2006).

The SDBIP should therefore include the performance agreements between the mayor and the municipal manager and the municipal manager and senior managers determined at the start of every financial year and approved by the mayor. It must additionally be consistent with outsourced service delivery agreements with municipal entities, public-private partnerships, service contracts and the like (National Treasury, 2006).

The SDBIP is essentially the management and implementation tool which sets in-year information, such as quarterly service delivery and monthly budget targets, and links each service delivery output to the budget of the municipality, thus providing credible management information and a detailed plan for how the municipality will provide such services and the inputs and financial resources to be used.

The SDBIP gives the responsibilities and outputs for each of the senior managers in the top management team, the inputs to be used, and the time deadlines for each output. The SDBIP will therefore determine the performance agreements of the municipal manager and senior managers, including the outputs and deadlines for which they will be held responsible. The SDBIP should moreover provide expenditure information (for capital projects and services) per municipal ward, so each of the outputs can be broken down per ward, where this is possible, to support ward councillors in service delivery information. The SDBIP also enables the council to monitor the performance of the municipality against quarterly targets on service delivery (National Treasury, 2006).

3.5 Municipal Engineering Resource Requirements

3.5.1 Introduction

In order to give effect to strategic planning, municipalities need adequate resources, including the appropriate human, financial, physical and technological resources. As indicated in previous sections, modern municipalities do not hold the same quality and quantity of resources as before the transformation of local government. Former sections discussed the deterioration of municipal engineering resources, with reference to permissible service delivery mechanisms to be used in order to fill the resulting capacity gaps. In prior sections, it became known that adequate municipal engineering experience, oversight and control are crucial to ensure that municipalities get the best value for money in terms of new developments and that existing basic municipal infrastructure is operated and maintained to the optimum.

As previously discussed, the provision of the six basic municipal services relate meticulously to the science of engineering and more precisely to the field of civil engineering Lawless (2007). As mentioned, Lawless (2007) suggests that, for municipalities to fulfil the above-mentioned functions, particular minimum levels of engineering capacity are needed.

After the observation of municipal performance and lack thereof in a significant portion of South Africa’s local municipalities and metros, Lawless (2007) developed a set of formulas with the aim of providing guidance on the required number of civil engineering staff. These formulas can thus be used to obtain results to serve as indicators of the minimum number of civil engineering staff required to perform the functions assigned to any particular municipality. These formulas are based on the number of households within a municipality’s authorisation and incorporate land use and urbanisation factors.

The following sections will discuss these formulas with the purpose of supporting the understanding of the municipal engineering downfalls in South African and the consequential need for large-scale capacity building. Again, the following sections will focus merely on the human resources (individual capacity) of municipalities to correspond with Section 2.5 related to municipal service delivery capacity statistics. For the purpose of contextualising municipal engineering resource requirements, the following sections will also discuss suggested organograms for all civil engineering services.

3.5.2 Individual Capacity

3.5.2.1 Engineering Department Structure

Figure 22 shows the typical functional areas that require the attention of civil engineering staff at municipalities with the six basic municipal services marked with an asterisk (*).

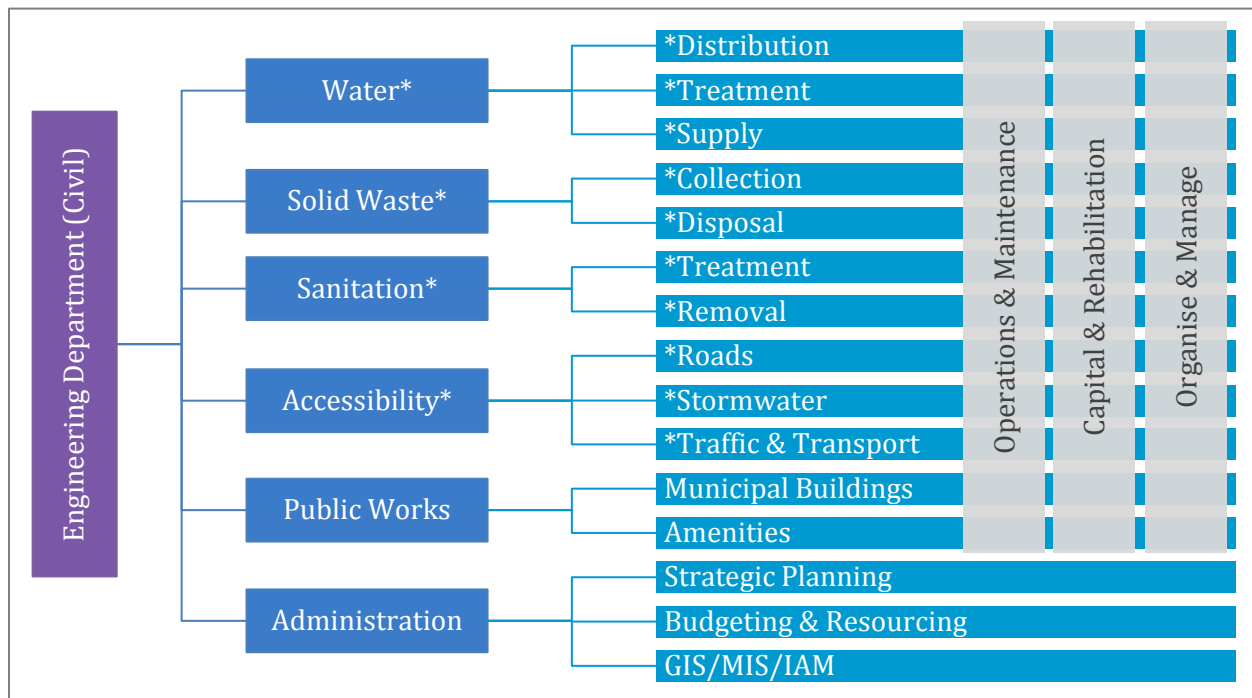


FIGURE 22 - SIMPLISTIC ORGANOGRAM SHOWING ALL CIVIL ENGINEERING SERVICES

(LAWLESS, 2007)

Figure 22 above reaffirms the portfolio of services and functions which should be delivered by the civil engineering department of municipalities. Depending on the population and topology served, municipalities need to allocate resources to the delivery of the various services as shown in Figure 22. As stated, Lawless (2007) disagrees with the existing number of civil engineers which are staffed by municipalities and suggest that a new appreciation for engineers be instilled to re-establish former best practices.

The following formulae and related arguments, as set out in Lawless (2007), can be used to determine an estimated required number of engineering professionals for different municipalities. Owing to Lawless's focus on civil engineering, these formulae focus only on civil engineering professionals.

3.5.2.2 Engineering Department Staff Requirements

As previously stated, civil engineering professionals are viewed by many as the fundamental resource required for effective and efficient basic municipal service delivery. As such, the purpose of the aforesaid formulas to be discussed below is to calculate the required number of civil engineering professionals in order for municipalities to fulfil its service delivery mandate. An initial estimation can be calculated with the use of the following formula, which is based on the number of households served:

$$N_H = 1 + \text{ROUND} \left(\frac{N}{5000} \times \frac{\Sigma_{\text{CEF}}}{9} \right) \quad \dots \text{Equation 1}$$

Where,

N = number of households

N_H = number of required civil engineering professionals

CEF = Civil engineering functions performed

Σ_{CEF} = Sum of number of civil engineering functions (A+B+C+D+E+F+G+H+I)

A = Planning

B = Road service provision

C = Stormwater service provision

D = Sanitation service provision

E = Solid waste service provision

F = Traffic engineering and transport planning

G = Water service authority

H = Water service provision

I = Project management unit

Where a municipality primarily supply dry sanitation and limited water borne networks, D (sanitation service provision) should be set to 0.5.

As indicated, the formula as illustrated above relates only to households served. However, in larger towns many plots do not relate to households, but to a range of other uses, such as business, commercial, industrial, mining, education, tourism, entertainment, sports, health, ecclesiastic, public and state-owned enterprises. These types of developments typically also require servicing and create the need to include a land use factor into the formula above. This land use factor must be related to the total area that requires servicing in relation to the residential area as occupied by the households referred to in the previous formula. The use of a land use factor results to the following formula:

$$N_L = N_H \times \frac{\text{area of municipality} - \text{area of farms} - \text{area of public open space}}{\text{area of residential property}} \quad \dots \text{Equation 2}$$

Where,

N_L = number of required civil engineering professionals according to land use factor

Noticeably, the area of farms and public open space are subtracted in the numerator as neither of these land uses requires servicing. Hence, where land use is almost exclusively agricultural and residential, the formula above can be simplified to $N_L = N_H$.

A further demand on engineering capacity is made as a consequence of urbanisation. This is observed mainly in large cities, while throughout South Africa people are moving from rural settings to towns and cities in the hope of finding work and being able to benefit from the improved household, health and education facilities they perceive to be available to city dwellers. With insufficient low-income housing, squatter settlements continue to grow and cause major challenges for municipalities' technical departments in providing basic municipal services. According to Lawless (2007), where municipalities deliver services to informal households, their engineering departments must be expanded. The use of an urbanisation factor results to the following formula:

$$N_U = N_L \times \frac{N + N_{INF}}{N} \quad \dots \text{Equation 3}$$

Where,

N = number of households

N_U = number of civil engineering professionals according to urbanisation factor

N_{INF} = number of informal households

N_L = number of required civil engineering professionals according to land use factor

The formulae provided above should be used merely as a guide. However, if municipalities have fewer civil engineering personnel as proposed by the formulae, it is likely for services

infrastructure and systems to be in a poor state. This would require municipalities to reassess its organograms, job descriptions and appoint more technical staff. Where municipalities employ more technical staff as suggested by the formulae, additional staff should not be retrenched as there are many other parameters that could demand extra resources, including internal municipal design offices, area of municipality, number of town and settlements, coastal areas, topography and amenities.

By implementing the formulae, it is suggested that between five and seven civil engineering staff are required per 100000 members of the population. This figure is considerably less than the fifteen to twenty staff members, as used before the transformation of local government, but much higher than the present one to two. Lawless (2007) alludes that the formulae as discussed above do not incorporate qualifications and experience of engineering professionals and will vary according to the complexity of infrastructure required and the size of the municipality. Obviously, the formulae also did not consider the differences in the skills and knowledge of the three types of engineering professionals.

Evidently, the task of determining engineering resource requirements for municipalities is not an easy task as it requires the consideration of a significant number of factors which varies between municipalities. Hence, it can be assumed that this task should be performed by the Municipal Manager with input from the Technical Services Manager. As discussed in Chapter Two, Technical Services Managers are bound to a performance agreement with the Municipal Manager. This should encourage the employment of sufficient well qualified and experienced technical staff.

3.5.2.3 Performance Agreements of Municipal Managers

According to the Municipal Systems Act, 2000, the appointment of a person as, among other, the Technical Services Manager, is subject to an annual performance agreement, which includes the duties, remuneration, benefits and other terms and conditions of employment. According to Section 56(4) of the Municipal Systems Act, 2000, the agreement must include performance objectives and linked timeframes, standards and procedures for performance evaluation and the consequences of substandard performance. The aforesaid performance objectives must be practical, measurable and based on the KPI's as captured by the municipality's IDP (South Africa, 2000).

With the majority of municipalities in South Africa facing major basic service delivery backlogs, strategies around the eradication of these backlogs form a focus area of municipalities' IDP. As such, the eradication of backlogs for the six different basic services is typically used as a municipality's KPI's. This consequently increases the demand for effective and efficient performance by the Technical Services Manager. In turn, whenever possible, the Technical Services Manager usually desires well-skilled and experienced engineering staff to achieve pre-determined service delivery objectives. It is thus important for the Technical Services Manager to provide input during strategic planning and setting resource requirements.

3.5.3 Conclusion

This section introduced a collection of formulas which can be used to calculate the required number of civil engineering professionals to deliver adequate basic municipal services effectively and efficiently. The formulas can be used by municipalities to ensure that the desired number of civil engineering professionals is present in its organograms, based on the land use and number of informal households in the municipal area. This section additionally highlighted that the appointment of Technical Services Managers is subjected to performance agreements that can arguably only be met if satisfactory engineering resources are available. It can therefore be stated that, in order to accurately calculate municipal resource requirements, inputs from the Technical Services Manager is necessary.

Though this section only considered requirements in terms of human resources, and specifically civil engineering resources, it is important to note that municipalities also need sufficient financial, technological and physical resources to support the human resources.

3.6 Chapter Conclusion

Chapter Three focused on the engineering functions of municipalities. This chapter offered an extensive background to the establishment of municipalities in South Africa, the deliberate limitation of geographical services infrastructure development as well as the ultimate transformation of local government. Through discussions around the difference in past and present service delivery, this chapter projected to answer the research question: *What is the current role of the engineering department of municipalities in delivering municipal services?*

In order to provide suitable answers also to the secondary research questions, this chapter focused on three key aspects, which include the municipal engineering mandate, the related strategic planning and engineering resource requirements. Relating to the engineering functions of municipalities, it can be concluded that, while municipalities are permitted to outsource any of the main or sub-phase of the project cycle, its technical department should maintain a certain minimum level of engineering capacity. This is particularly necessary in order to ensure that a municipality provides suitable oversight and management during the project cycle to ultimately fulfil its mandate more effectively.

Various challenges exist in determining the aforesaid minimum level of capacity. This chapter introduced a collection of equations, which can be used to overcome these challenges. Lawless (2007) proposes the use of these equations to calculate an estimation for the minimum level of required engineering capacity. Maintaining this minimum level of capacity in turn relates to the performance agreement between the Municipal Manager and Technical Services Manager. It can be concluded that, for Technical Services Managers to accomplish their objectives, as included in the abovementioned performance agreement, they need to ensure that the engineering department is staffed with suitable engineering personnel.

As the aforesaid performance agreements are linked to municipalities KPI's, as must be included in the IDP, it can be concluded that it is crucial for Technical Services Managers to be thoroughly involved with the development of the IDP and the calculation of the minimum level of required municipal engineering capacity. This suggests that the Technical Services Manager and the engineering department, as a whole, fulfil a fundamental role in determining truthful service delivery objectives to be included in both the IDP and SDBIP. It is evident that the technical departments of municipalities should play a key role in the strategic planning of municipality. However, Macleod (2007) suggests that senior municipal management generally do not recognise or use the strategic skills of engineers.

Similarly to the contradiction above, Chapter One to Chapter Three provided proof of a contrast between what logically makes sense and what the current reality at municipalities is. The majority of these divergences are related to the engineering capacity of municipalities. Through the use of the 2011 Census statistics and reports by Lawless (2007), an investigation of the individual capacity of municipalities proved that, as a result of the continuous decay of municipal engineering resources, municipalities are underperforming. Chapter One introduced the concept of organisational capacity and suggested that it consists of individual, institutional and environmental capacity. As current municipal capacity assessments in South Africa take a very narrow approach, it remains very challenging to report on the institutional and environmental capacity of municipalities.

In order to continue the investigation of the correlation between municipal capacity, performance and the leadership found within the administrative structure of municipalities, it is evidently necessary to investigate mechanisms to acquire insight also to the institutional and environmental capacity of municipalities. Chapter Four consequently focuses on capacity assessments and related performance improvements.

Chapter Four: Organisational Capacity and Performance

Chapter Four studies the functions and practices of capacity self-assessment in the context of organisational capacity and performance and in doing, aims to answer the main research question for this chapter: *What features of a municipal capacity self-assessment framework are suitable for self-assessment to be effective in a South African context?*

In providing a thorough answer to this main research question, the following research sub-objectives need to be achieved in this chapter:

- Identify the legislative requirements with regards to the organisational capacity of the municipal technical department.
- Identify the features of organisational capacity self-assessments which have been applied in the global municipal domain.
- Identify the requisite decision-making procedures with regards to capacity building initiatives as part of municipal management.

Through the achievement of these research objectives, Chapter Four will provide an understanding of organisational capacity and performance, while also providing further evidence of how municipal capacity assessments can be used to support the municipalities PMS.

The anticipated output of this chapter is a municipal capacity assessment framework to be used in a subjective municipal capacity self-assessment model.

4.1 Introduction

Earlier chapters established that a relationship exists between municipalities' capacity and performance. Chapter One introduced the relationship between capacity, performance and leadership within an organisation (MDB, 2010). Chapter Two focused on providing quantitative measures for municipal capacity and performance to investigate the applicability of this relationship. It became known that the current underperformance of municipalities is patently linked to the deterioration of local government's engineering capacity. This phenomenon inspired the investigation of capacity building in South Africa that suggested that the majority of capacity building initiatives are failing. In this chapter it will be shown how these failures can be linked to possible shortcomings in terms of capacity assessments.

As previously introduced, existing municipal capacity assessments in South Africa adopts a very narrow approach by merely considering the individual capacity of municipalities. As a result, reports on municipal capacity in South Africa mainly use quantitative data related to number of vacant posts, number of years of experience, level of academic qualifications and professional registration of employees. For the purposes of understanding the relationship between municipal capacity and performance, the use of the aforesaid capacity elements as Key Capacity Indicators (KCI's) and the delivery of basic municipal services as KPI's, proved to be sufficient in Chapter Two. However, for the actual aid of more effective capacity de-

velopment initiatives, as an enabler for performance improvements, it can be assumed that more sophisticated municipal capacity assessments are required.

Chapter One introduced the concept of organisational capacity and stated that the capacity of municipalities does not only consists of the summation of the individual capacities found within the organisation. Organisational capacity rather also includes institutional and environmental capacity. Notably, major challenges exist in terms of acquiring quantitative data for these two dimensions of capacity, as less measurable norms, standards and legislative requirements exist in this regard. Thus, assessments of the complete organisational capacity of municipalities would necessitate the collection, processing, interpretation and report of predominantly qualitative data.

As indicated, it is an objective of this research study to investigate the role of municipal capacity assessment as a catalyst for performance improvement. Considering the insights gained in earlier chapters, it can be assumed that capacity assessments can be used to acquire key capacity related information and in doing so, ensure opportunities to more effectively perform decision-making processes around capacity building. Based on this and the fact that the most widespread municipal capacity assessment in South Africa adopts renowned narrow approaches, it can be accepted that a more thorough capacity assessment, which considers all three capacity dimensions, holds much potential value.

As will be ascertained in Chapter Four, the fundamental purpose of capacity assessments is to ensure that following capacity building initiatives are appropriately aligned with capacity challenges. As shown in Chapter Two, capacity building initiatives in South Africa are generally focused on one key capacity area. This suggests that the success of capacity building initiatives largely depends on how accurate the key capacity area is defined and generalised across targeted municipalities. Chapter Three provided an extensive background of local government in South Africa and indicated that, as a result of the policies of the past, municipalities are indeed facing varying capacity challenges.

However, beyond regional-specific capacity strengths and weaknesses, capacity challenges are moreover differentiated by the way municipalities have been managed since the transformation of local government, municipal organisation, service delivery backlogs, future endeavours and external environmental factors, such as political influences, the economy, technological advancements, changes in legislative frameworks and numerous attributes of the social environment. By acknowledging that all municipalities function within a very dynamic environment and that each of the 283 municipalities in South African possibly experiences a unique collection of capacity challenges, it can be better understood how generalised capacity building initiatives are currently struggling to succeed.

While municipal capacity building initiatives are generally struggling to succeed in South Africa, an increasing demand for capacity building remains. Again, this function can be outsourced to private sector consultants or it can be performed internally. Naturally, for a mu-

municipality experiencing capacity challenges, the task of administering internal capacity developments might be unachievable as an effect of the capacity constraints. The outsourcing of such tasks then should see more success, but at a cost. Private sector consultants are increasingly focussing on the development of management models to aid the capacity development of municipalities. Consequently, where municipalities do not have the financial resources to use consultants, capacity challenges are typically not addressed (Cronjé, 2013).

Reverting to the use of municipal capacity assessments, and by incorporating the phenomenon as described above, Chapter Four will study the use of self-assessment as a technique to sustain internal capacity development processes which is linked with the Performance Management System (PMS) of municipalities. It is anticipated that the use of capacity self-assessments will enable municipalities to accurately identify its unique collection of capacity strengths and weaknesses. Based on these findings, municipalities can more innovatively respond and accordingly develop tailored strategies for the required capacity building.

Chapter Four will combine the insights from previous chapters with further investigations to provide answers to the research question as stated above. These investigations require the understating of key management concepts. The following sections will therefore provide definitions of fundamental management concepts to also support an appreciation for the features of the proposed municipal capacity self-assessment model.

4.2 Defining Capacity and Related Concepts

4.2.1 Capacity

Chapter One introduced the term *organisation capacity* as a multi-dimensional concept, encompassing *individual, institutional and environmental capacity*. Definitions of the three capacity dimensions and the integration thereof, as included in Chapter One, are aligned with the following definitions of the foundation term, *capacity*.

Capacity is used in numerous forms and contexts and can be conceptualised as the ability to achieve a particular objective in a certain field. According to the UNDP (1998), *capacity* can be defined as the ability of individuals and organisations or organisational units to perform functions effectively, efficiently and sustainably. Fukuda-Parr, et al. (2002) agree with this in describing capacity as “*the ability to perform functions, solve problems and establish and achieve objectives*”. Amongst the UNDP and JICA, the International Institute for Capacity Building in Africa (IICBA) agree on defining *capacity* as follows:

“Capacity is the organisational and technical abilities, relationships and values that enable countries, organisations, groups, and individuals at all levels of humanity to carry out functions and achieve their development objectives over time” (adapted from Morgan, 1998).

4.2.2 Capacity Deficiencies

According to CoGTA (2012), *capacity deficiency* is defined as the difference between the capacity which organisations have and the capacity which it requires to comply with legislation, satisfy service delivery needs and overcome other developmental challenges. *Capacity deficiencies*, when assessed, determine the nature and magnitude of capacity development endeavours. Reasonably, the identification and quantification of *capacity deficiencies* within an organisation rely on the diligence of the capacity assessment processes.

4.2.3 Capacity Assessment

4.2.3.1 Introduction

Organisations perform capacity assessments for different reasons of which ultimate capacity development, in the majority of instances, remains the anticipated outcome. Capacity assessments thereby also enable opportunities for performance improvement, which can ultimately be reached when intended procedures of capacity building and performance management are correctly executed. Within a performance management framework, sophisticated capacity assessments can be used as a foundation for capacity building and ultimate performance improvement endeavours as it typically provides (UNDP, 2007):

- a process to identify the best areas to intervene by means of capacity building
- an interpretation of issues which can be addressed in capacity assessments;
- a logical method for defining future capacity needs and assessing current capacity;
- a common language to facilitate discussion among potentially disparate parties;
- a platform for identifying innovative solutions already implemented elsewhere;
- a structure for discussions around the scale and scope of capacity assessments;
- a foundation for motivating the acquisition of targeted investment; and

In accordance with the background above, UNDP (2007) defines *capacity assessment* as an analysis of existing capacities against desired future capacities with the aim of generating an awareness of capacity strengths and weaknesses and serving as a foundation for capacity development strategies. UNDP (2008) proposes the integration of *capacity assessments* into strategic planning on a national, provincial, sectorial and local level.

The UNDP (2005) defines *capacity assessment* as an exercise undertaken to analyse the existing capacity of an individual or collective entity to perform key functions and deliver expected results. It is thus intended for a capacity assessment to link latent capacity with performance. As the foundation for capacity development strategies, *capacity assessment* is an integral and indispensable part of any capacity development process (UNDP, 2005). Capacity assessments can be orchestrated by an external assessor or be internalised as standard management practice (UNDP, 2005). The UNDP accentuates that it can be an ad-hoc event, but should preferably form part of on-going management and programming processes.

Depending on the context of the problem and the resources available, capacity assessments can be conducted at one or more levels, i.e. organisation, institution or individual. Regardless of the entry point, a capacity assessment must take account of the interconnectedness of capacity issues between the targeted levels and the enabling environment (UNDP, 2005).

4.2.3.2 Capacity Self-Assessment

4.2.3.2.1 Introduction

Prior to the 1990's, the concept of *self-assessment* was seldom incorporated into the understanding of organisational development and performance improvement. Along with the unravelling of the ideas of development, performance and sustainability came the consideration of self-assessment (Lusthaus, Adrien & Anderson, 1997). Early academic literature (Rahman, 2001), on *self-assessment* focus on the study of quality awards models and its relations to performance, *self-assessment* practices, processes and benefits (Van der Wiele, Williams, Dale & Carter, 2001) and the development of *self-assessment* tools based on quality awards criteria (Lee & Quazi, 2001).

Studies suggest that a large number of organisations have conducted, or are planning to conduct, *self-assessment* projects (Link & Scott, 2011). Although models and scope vary (Ford & Evans, 2002), a mutual objective of *self-assessment* projects is the improvement of organisational processes based on opportunities identified by the assessment process (Mohrman & Cummings, 1989). Therefore, *self-assessment* can be viewed as a catalyst for positive change, and is attractive to managers seeking to operationalize a performance improvement philosophy in the organisations (Ford & Evans, 2002).

Despite the potential benefits, the extent to which self-assessments truly enable positive change is unclear. Emerging research implies some positive relationship between the use of self-assessment and performance improvement (Van der Wiele, et al., 2001). On the other hand, practical accounts suggest that many organisations derive little benefit from conducting self-assessment and achieve few of the process improvements suggested by self-assessment endeavours (Conti, 2001).

The phenomenon as described above can result from various factors, including poorly executed evaluation processes (Blazey, 1998), lack of validity of the organisational model employed in the assessment or the negative influence of external forces (Ford & Evans, 2002). These three and other aspects of self-assessment will be discussed after the following section which focuses on the definition of self-assessment.

Self-assessment is a methodology for continuous improvement which organisations develop either in the context of total quality management (TQM) or as an independent strategy. Organisations from the private sector (Bayazit & Karpak, 2007) and the public sector (Fraser, 2005) have used this methodology. Owing to the contemporary use of *self-assessment*, it

can moreover be described as the holistic evaluation of organisational processes and performance using limited external assistance (Ford & Evans, 2002).

Through executing frequent self-assessments, senior executives can better understand an organisation's strengths and weaknesses, which further aids in finding the suitable strategy to move the organisation forward (Van der Wiele, et al., 2001). Ritchie & Dale (2000) describes *self-assessment* as a necessary task to execute if an organisation wishes to maintain the momentum required for continuous improvement.

Researchers and practitioners, specifically, provide varying definitions for *self-assessment*. Nuland, Van & Broux, (1999) defines *self-assessment* as “*an analysis within an organisation in a structured and systematic way, after which a decision-making process regarding an action-plan takes place. The actions are prioritised and have a strategic importance. The realisation of these actions allows you to achieve a breakthrough in results*”.

Hillman (1994) instead defines *self-assessment* as “*the process of evaluating an organisation against a chosen framework for the purposes of continuous improvement, in order to highlight what has been achieved and what needs improving*”. According to Beasley (2011), the use of *self-assessment* varies between organisations depending on the objectives and focus areas of the self-assessment endeavour, the stakeholders involved, legislative requirements and various other aspects.

Considering the above definitions and earlier insights, *capacity self-assessment*, in the context of capacity building and performance improvement, can be defined as an exercise performed internally, with the objective to identify key capacity strengths and weaknesses and formulate suitable capacity building strategies in order to the achieve desired levels of performance. Whereas conventional performance self-assessments are based on the criteria of quality awards, capacity self-assessments should also be based on a particular framework.

4.2.3.2.2 Process of Self-Assessment

Managing an assessment begins with understanding the motivation for conducting it. It is essential to know if the assessment is motivated from within or outside an organisation. Those engaged in the assessment therefor need to determine the following (Hakes, 2007):

1. the central purpose of the assessment;
2. the time and budget;
3. the overall approach; and
4. how to communicate and use the information.

These matters are ideally included in written terms of reference that help clarify and communicate the intentions. The format of terms will vary for an external assessment versus a self-assessment, but in either case, it is beneficial to keep the assessment process and purpose of the product aligned. Stakeholder steering committees generally guide the assessment process, by clarifying stakeholders' interests, values and perspectives on frameworks,

methodologies and sources of data and engages in vetting of the preliminary findings, address political issues, and provide a forum for debate of preliminary reports (Hakes, 2007).

Upon completion of steps 1-4, as shown above, the needed leadership commitment for using self-assessment as a tool for achieving organisational performance should be acquired. Hereafter the departments involved with conducting the self-assessment should be identified, a model for self-assessment must be designed and a reporting system must be established. This includes the selection of individuals to direct the self-assessment process, design appropriate record forms and methods for scoring achievements (Hakes, 2007).

The objectives, strategies and planning for conducting self-assessment should be communicated throughout the organisation. All facilitators and employees directly involved in the self-assessment processes should be trained. After conducting the self-assessment, action plans must be agreed on, showing priorities, responsibilities and milestones for all actions. Improvement teams should be given the responsibility and the appropriate resources to implement actions according to the action plans and the strategic directions. Lastly, the entire self-assessment process must be subject to regular reviews (Finn & Porter, 1994).

In summarising the preceding sections regarding self-assessment, Finn & Porter (1994) suggest the use of a systematic process of self-assessment, as shown in Figure 23.

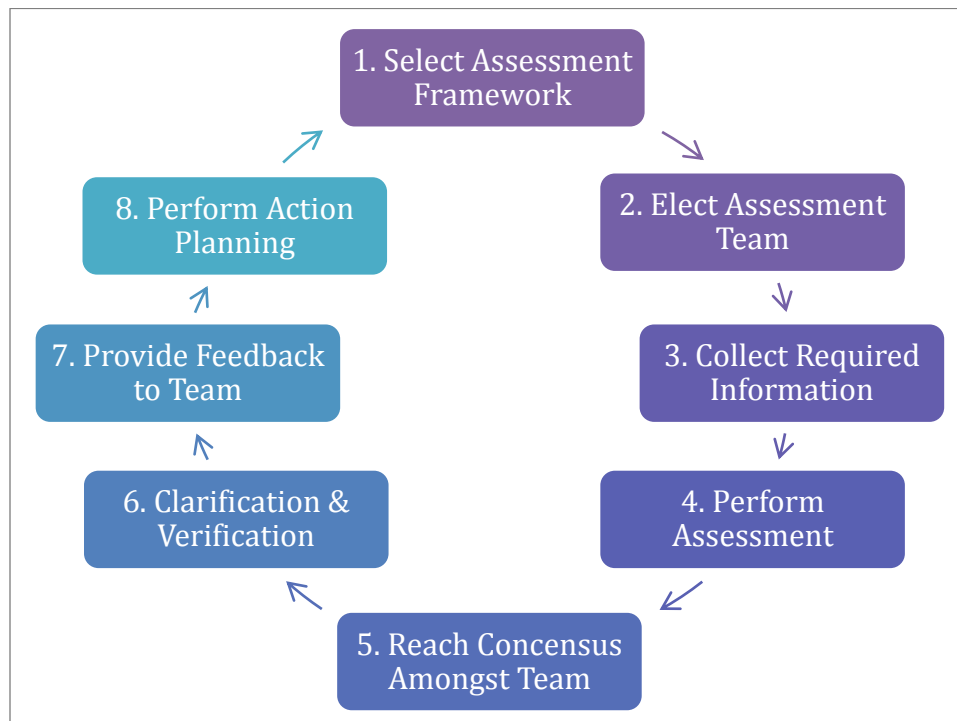


FIGURE 23 - THE PROCESS OF SELF-ASSESSMENT

(FINN & PORTER, 1994)

4.2.3.2.3 Techniques of Self-Assessment

There are different ways of carrying out an actual self-assessment in an organisation, while many approaches share common key processes. However, every approach differs substantially in how the data is collected to produce the position document that provides the basis of the information to be assessed. Data collection methods range from discussions or focus group approaches to the full award-type process. The most well-known techniques of self-assessment are questionnaires and surveys. Other techniques include the matrix and proforma approach, award-type processes and e-approaches (Porter & Tanner, 2004).

It is important that the selected technique for self-assessment matches the organisation's present needs, as these needs and the approach to self-assessment might change with time. Choosing an approach is typically effected by budgets and the availability of participants. Each approach logically has specific advantages, disadvantages and resource implications (Porter & Tanner, 2004). The two most relevant self-assessment techniques to this study are discussed in the following sections and include the matrix and evidence based method.

4.2.3.2.3.1 The Matrix Method

According to Porter & Tanner (2004), the *matrix method* makes use of a matrix to enable the self-assessment process. This method entails the participatory individuals to provide their perception of the current reality in the organisation by rating a set of statements derived from the content of a provided matrix. The ratings must reflect the alleged truthfulness of the statements. The statements are the result of the identified capacity areas and processes to be assessed.

This logical approach to self-assessment is easy to implement as it requires little resources and limited training of individuals. A constructive feature of this approach is the opportunity to tailor the matrix according to the particular requirements of the organisation. Changes to the matrix would typically also occur during a re-assessment phase. The *matrix method* additionally facilitates the understanding of the collections of assessment criteria and self-assessment process (Porter & Tanner, 2004).

The *matrix method* is known as a very efficient assessment process as it facilitates objectivity, while the output is suitable for the resulting action planning (Porter & Tanner, 2004).

4.2.3.2.3.2 The Evidence Based Method

The *evidence based method* takes the form of a workshop where participants are provided with an initial awareness and understanding of the self-assessment process. Hereafter, participants are required to accumulate factual data and information from within the organisation with regards to the chosen sets of assessment criteria. Following this activity, the participants are required to meet again to perform a detailed self-assessment of the organisation and to compile, and reach consensus on, a list of strengths and weakness based upon

that factual evidence. Typically, at the proceeding session participants would prioritise the identified areas for improvement and formulate an action plan (Porter & Tanner, 2004).

Porter & Tanner (2004) suggest that the *evidence based method* is specifically useful where the participants consist of members of the organisation's management team.

Further, the *evidence based method* is relatively inexpensive as it requires minimum training of the participant, while it encourages ownership of the self-assessment process and its outcomes. While factual data is used in this approach, self-assessment limits the possibility of publicising sensitive information via second or third-party assessment. This method further supports the efficient identification of key areas of concern and where the participants consists of members of the management team, ownership of the assessment is encouraged, allowing for effective prioritisation and action planning (Porter & Tanner, 2004).

4.2.3.2.4 Benefits of Self-Assessment

In relation to the previous benefits of capacity assessments, Hillman (1994), Conti (1999), Porter & Tanner (2004) and Van der Wiele, A. et al, (1996), identify many benefits of using self-assessment to improve organisational performance, which describes it as a systematic and logical, yet undervalued mechanism for:

- Providing a method to identify and analyse an organisation's strengths weaknesses.
- Providing a platform for measuring an organisation's progress periodically.
- Creating a platform to improve the development of strategy and business planning.
- Creating a framework for managing and improving organisational performance.
- Educating employees on the concept of performance and their contribution to it.
- Developing the management knowledge and abilities of employees.
- Involving employees from different organisational levels and departments.
- Providing a method to assess an organisation at both a macro and micro level.
- Identifying and facilitating the sharing of *good practice* within an organisation.
- Integrating the various improvement initiatives into standard operations.

4.2.3.2.5 Benchmarking of Self-Assessment

As outlined above, the use of self-assessment delivers many benefits among the opportunity to implement benchmarking and knowledge transfer practices (Zairi, 2003). Benchmarking has proved to be a useful exercise where organisations desire an improved understanding of its own strengths and weakness and the opportunities and threats posed by the enabling environment. Evidence suggests that benchmarking is continuing to have a major effect on organisations' improvement strategies. According to Andel (1999), benchmarking stimulates organisations' efforts to investigate already existing best practices and gain the desired insight to make the required organisational changes.

Researchers and practitioners recommend that generic benchmarking should be used during self-assessment, which will result in an increased focused direction to secure successful

knowledge transfer and continuous improvement (McAdam & Kelly, 2002). Leonard & McAdam (2002) further insist that that self-assessment generates a valuable opportunity for practicing benchmarking. Since benchmarking transfers knowledge between organisations, it delivers evidence that self-assessment can indeed be used as a mechanism for benchmarking and knowledge transfer (Andel, 1999).

4.2.3.2.6 Validity of Self-Assessment Results

A major methodological challenge of organisational assessments is its validity. Validity has three principal issues, i.e. the false assertion of a positive result, the failure to detect a positive result and asking the wrong questions and contaminating the assessment with organisational or personal bias (Dunn, 1982).

Two ways to counterwork validity limitations include an exercise of benchmarking or baseline comparison. As discussed, benchmarking enables an organisation to compare itself to standards in the industry. Differences in the organisations' environment and the manner in which they are regulated frequently trigger difficulties regarding benchmarking exercises. The interpretation of differences in organisations' assessment results can become a major analytic issue. Accreditation, as a type of benchmarking, is often used in some social sectors such as health and education. Organisations are typically accredited if they conform to certain standards of capacity, and sometimes performance (Scriven, 1997).

Additionally, where participants changes roles following an assessment exercise to assume the role of facilitators or performance consultants are often regarded as being in conflict of interest, since these individuals can be perceived as consciously or unconsciously orienting the report to promote their services. Internal reviewers may similarly orient the organisation according to their future role within it (Scriven, 1997).

Importantly, Scriven (1997) suggests that, to counterwork this phenomenon, all parties involved in the self-assessment exercise, should be informed and agree on which party's interests is the most important. Theoretically, in all cases, the interest of the assessed organisation must be the most important and so it is important for all parties to agree on this.

4.2.3.2.6.1 Quantitative and Qualitative Data

Self-assessments can be used to collect both quantitative and qualitative data. The majority of analysts and evaluators prefer quantitative data as it is easier accessible, understandable and useable, especially for benchmarking purposes. Quantitative data of related concepts of an organisation though is less significant if regarded in isolation. The interconnectedness of quantitative data requires it to be viewed in an apt context to make accurate deductions. It, though, is not continually possible to attain quantitative data, since certain assessment criteria cannot be captured in numerical terms. Lusthaus, et al. (1997) however suggests that in many instances, qualitative data is more valuable as it is presented in a variety of forms and often more suitable in certain contexts for reporting purposes.

Qualitative data integrates a reviewer's judgment on its saliency for the assessment and in doing so, often represents relevance far beyond mere counts. Qualitative data and analysis, therefore, in many instances, are easily obtainable and require minimum preparation operations (Lusthaus, et al., 1997). In the debate on the relative merits of quantitative and qualitative data, the compromise position is to incorporate both. Where different types of data are collected through self-assessment, it should be noted that participants with opposing values and orientations have different views on the importance of the different types of data. Lusthaus, et al. (1997) therefore suggest that an appropriate balance in the use of each data type be maintained to also manifest a sense of thorough self-assessment.

4.2.3.2.6.2 Data Sources for Self-Assessment

Typical data sources include documents, people and databases. Obviously, documents need to be reviewed based on their authorship, and with an understanding of the original context and purpose for which they were written. People represent special challenges, either when involved in normative data collection subject to quantitative analysis, or for their qualitative insights. Two of the most common issues are including a proper sample, and ensuring that the data collected are valid or truthful. Sampling is often problematical as it requires an accurate inclusion of the necessary stakeholders (Lusthaus, et al., 1997).

When collecting non-numeric data from participants, vetting, pilot-implementation and other forms of validation may be required for data collection purposes. One of the costs of the trend toward self-assessment and internal evaluation is neglecting the fundamental requirements of the reliability and validity of data collection techniques, since people do not fully understand the importance, or they lack the requisite technical skills. This underscores the advisability of defining indicators and data collection procedures on an on-going basis, rather than only when formal assessments are performed (Lusthaus, et al., 1997).

A great challenge of self-assessment is understanding how to value data that are distorted by self-interest, be it highly praiseworthy, or unreasonably negative. Missing data are particularly troublesome unless reviewers perform efforts to investigate the reasons for lacks of responsiveness. The validity of data can further be enhanced through a process of triangulation (Lusthaus, et al., 1997).

Related to this, challenges exist in agreeing on what extent of data-collection can be regarded as sufficient within the environment of an assessment. According to Lusthaus et al., 1997, credibility is of as much concern as statistical validity. Hence, where stakeholders are consulted, it is important for assessments to be viewed as inclusive and offering each of the stakeholders a voice.

4.2.3.2.7 Conclusion

The preceding sections considered self-assessment as a generic tool to identify and analyse the strengths and weaknesses of an organisation. Where the focus is capacity, as is the case

in this study, self-assessment endeavours can be used to identify the present and desired future capacity strengths and weaknesses of organisations. The use of self-assessment evidently holds many potential benefits for organisations and fulfils a key role in formulating improvement strategies. It can accordingly be stated that capacity self-assessments certainly have the potential to facilitate and direct capacity building activities. The different techniques of self-assessment and related opportunity of benchmarking evidently proves to be essential tools for organisations to attain detailed levels of insight of itself.

4.2.3.3 Supporting Analyses for Capacity Assessment

According to the UNDP (2008), the context and objectives of an assessment determines the appropriate type of analysis. Although this research study focuses on capacity assessments, it is imperative to consider different types of analysis to recognise where each type of analysis is required and can be used in conjunction with a capacity assessment. For the purposes of improving business processes, understanding stakeholder positions, reviewing operational functions or redefining organisational structures, analysis besides capacity assessments may be more suitable (UNDP, 2008).

Related to the preceding sections, a collection of analysis can be used in conjunction with a capacity assessment, either before, during or after, depending on the context of the development challenge. This collection is included in Table 16.

TABLE 16 - SUPPORTING ANALYSES FOR CAPACITY ASSESSMENT

UNDP (2008)

Approach	Brief Description
Business Process Re-engineering	An analysis of a process flow to identify key steps, decision points and bottlenecks and the consequent redesign the process with the objective to its improve efficiency and effectiveness. It is a potential response to a capacity assessment to address the core issue of institutional arrangements.
Functional Review	A review of functional activities either across a number of entities or within one to determine where best the function should be exercised. It is used when it is not apparent which entity should perform what function. A functional review is conducted before a capacity assessment.
Horizon Scan	A review of development trends and dynamics and the policy environment in which an entity operates, i.e. the enabling environment. Moreover, it reviews internal procedures, frameworks, systems, processes etc. A horizon scan is typically performed in parallel with capacity assessments.
MDG Needs Assessment	A mapping of the quantitative and qualitative interventions required to accomplish country-specific Millennium Development Goals (MDG) targets and an analysis of the related costs of such interventions. This assessment is typically performed in conjunction with capacity assessments.

Organisational Design	An analysis of an organisation's mandate, vision, mission, formal organisational structure, roles and responsibilities, powers, functions and organisational culture.
Performance Assessment	Assessment against a set of predetermined criteria of the efficiency and effectiveness with which an organisation carries out a range of activities. Organisations may be set regular targets on particular aspects of their performance against which their performance is monitored and evaluated.
Risk analysis	A review of a system or organisation to define operational and financial risks; primarily for implementing partners. It is conducted to identify capacity gaps before the implementation of a capacity development response. A capacity assessment can be conducted after a risk analysis to focus on specific key capacity deficiencies.
Stakeholder analysis	A mapping of key stakeholders and their position versus an entity's objectives to establish an understanding of the various stakeholders' degree of support and influence. A stakeholder analysis is typically used to identify which stakeholders to include in the capacity assessment.
SWOT	An analysis of an organisation's internal strengths and weaknesses of and the opportunities and threats posed by the external environment. It was initially designed as a tool to understand an entity's positioning opposed to its competitors but has been adapted for use in a development context.
Training needs assessment	Collection and analysis of organisational, occupational and individual competencies which are critical to organisational performance. It is an analysis of desired versus existing performance with the aim to determine a strategy by which training programs should respond to the gap.

4.2.4 Capacity Development

4.2.4.1 Introduction

Potter & Brough (2004) suggests that the terms, capacity development and capacity building and other similar terms can be used interchangeably. However, according to the Joint Internal Cooperation Agency in CoGTA (2012), the term *building* suggests the creation of a non-existing concept, while the term *development* refers to a growing development process.

Morgan (1998) defines *capacity building* as “the ability of individuals, groups, institutions or organisations to identify and solve development problems over time”, whereas the United Nations Children's Fund (UNICEF) (1996) defines capacity building as “any support which strengthens an institution's ability to effectively design, implement and evaluate development deeds according to its mission”.

Portraying the variance between *capacity building* and *capacity development*, as highlighted above, UNDP (1997) defines capacity development as “the process by which individuals, groups, organisations, institutions and societies mature their abilities to perform functions,

solve problems and achieve objectives; to understand and deal with the development need in a broader context and in a sustainable manner”.

To further illustrate the variety of definitions that exists for the establishment or advancement of capacity, Lusthaus et al. (1997) defines the *capacity strengthening* as “*an on-going process by which people and systems, operating within a dynamic context, enhance their abilities to develop and implement strategies in pursuit of their aims for increased performance in a sustainable way*”. It should be noted that the simplified process for capacity building was discussed in Chapter One and shown in Figure 6.

4.2.4.2 Variations of Capacity Development

Often a perceived understanding is adopted about capacity building which exclusively entails the development of human resources. Wakely (2012) explains how although it is a major component of capacity building, decision-makers, managers, professionals and technicians need more than just their own abilities to operate at full capacity. Wakely (2012) suggest an integrated approach to capacity building which considers the following:

- Human Resource Development
- Organisational Development
- Institutional Development

From Chapter One, it is evident how these different forms of capacity building relate to the three agreed dimensions of capacity, i.e. individual, institutional and environmental capacity. While human resource development, as referred to above, incorporate individual capacity, the organisational and the institutional development, relate to the institutional capacity of an organisation. It should be noted that, owing to the nature of the environmental capacity of organisations, no form of capacity development in this regard can exist.

4.2.4.2.1 Human Resource Development

McGuire, et al., (2011) explains how despite various attempts to define the field of Human Resource Development (HRD), consensus does not yet exist on specific definition of HRD. The multidisciplinary nature of the field of HRD has been long established. Relating to this, Hatcher (2006) agrees with Chalofsky (2004) that HRD has been long considered to have an interdisciplinary foundation and consequently, it is challenging to become complacent about defining such a complex and multi-disciplinary field.

Smith (1988) alludes that HRD consists of programs and activities, direct and indirect, instructional or individual which probably affect the development of the individual and the productivity of the organisation. This relates to McLagan (1989) which defines HRD as the integrated use of training and development, career development and organisational development to improve individual and organisational effectiveness.

Human resource development includes the motivation of people to operate constructively and efficiently through the development of effective communication, positive attitudes and progressive and innovative approaches to responsibility and productivity (Wakely, 2012). Importantly, according to Wakely (2012), the development of leadership capabilities in this regard is often neglected, and should form part of human resources development.

4.2.4.2.2 Organisational Development

Beckhard (1969) terms organisational development as a strategic and organisation wide effort which is managed from employees in the top part of the organogram and increase organisational effectiveness and health through strategic interventions in the organisation's processes, using behavioural science knowledge.

Beer (1980) states that the aims of organisational development include the enhancement of the similarity between organisational structures, processes, strategies, people, and culture. It additionally includes the development of innovative organisational solutions for the advancement of the organisation's self-renewing capacity.

According to Wakely (2012), organisational development involves the improvement of the following four core capacity requirements:

- Strategy Formulation and Alignment
- Structural and Organisational Configuration
- Administrative Systems and Structures
- Operational Processes and Procedures

Stemming from these elements, organisational development also includes more specific management practices and procedures, communication, rules and regulations, hierarchies and job descriptions. Additionally, it includes working relationships, objectives and values, team-work, dependencies and support structures (Wakely, 2012).

4.2.4.2.3 Institutional Development

Wakely (2012) states that institutional development includes several legal and regulatory developments which are necessary for the improvement of an organisation's capacities. In the context of municipalities, institutional development includes processes of borrowing or trading capacity of government agencies and municipal authorities, the ability of local government to negotiate contracts and form partnerships with private entities and community organisations, centrally regulated conditions of employment, salary and career structures, democratic legislation that allows, enables and encourages communities to take responsibility for the management of their own neighbourhoods and services (Wakely, 2012).

4.2.4.3 Process of Decision Making

Evidently, to achieve the objectives of capacity assessment, key decision making, which revolves around capacity development strategies, is required (UNDP, 2005). *Decision making*

is the cognitive process leading to the selection of a course of action among alternatives. All decision making processes generate an *ultimate choice*. *Decision making* is a reasoning process which can be rational or irrational, and can be grounded on explicit or tacit assumptions (Kennerley & Mason, 2008).

Bekker (2010) defines *decision making theory* as the object of research within a wide range of fields, specifically including management sciences. Bekker (2010) advises that perspectives on the decision-making process and its relationship to the final decisions vary considerably as a result of various decision-making contexts. Therefore, it is important to perform an assessment of these contexts during a decision making process (Bekker, 2010).

Roy (1996) defines the aforementioned *ultimate choice* as “a *synthesis of an interconnected web of decisions*” made during a decision making process, and consequently states that “*the concept of a decisions cannot be completely separated from that of a decision process*”. Importantly, Kennerley & Mason (2008) suggest that to succeed in the undertaking of decision making, the tools required include decision support tools, decision making and prioritising techniques, project management and feedback systems.

Decision-making processes prescribe guidelines regarding how decisions could and should be made. Drucker (1955) suggests that a decision-making process involves many logically arranged steps. Belton & Steward (2002) and Roy (1996) suggest the following:

Belton & Steward (2002) divide the decision-making process into the following three sequential stages whilst highlighting the iterative relationship between the stages:

1. Identifying and structuring the problem
2. Building a model of the decision problem, and using this model
3. Developing and action plan

Roy (1996) divides the decision making process into the following four levels, emphasising that the levels do not necessarily occur in sequence, but are continuously interrelated:

1. Object of the decision and spirit of participation
2. Analysing consequences and developing criteria
3. Modelling comprehensive preferences and operationally aggregating performances
4. Investigating and developing the recommendation

4.3 Defining Performance and Related Concepts

4.3.1 Performance

Performance is a multidimensional construct, the measurement of which varies depending on a variety of factors that comprise it (Fitzgerald & Moon, 1996). Mwita (2000) states that performance should be defined as the outcomes of work because they provide the strongest linkage to the strategic goals of the organisation, customer satisfaction and economic

influence (Rogers, 1994). Van der Waldt (2004) elaborates on this by indicating that performance relates to:

- the efficiency relationship between inputs and outputs;
- the reduction of inputs or the cost of inputs; and
- the relationship among inputs, outputs and outcomes.

A wide range of factors could influence performance levels in an organisation and therefore a comprehensive system for performance measurement and management should be designed and implemented (Palmer, 1993). Some of the factors that could affect performance include a lack of skills and experience among staff, low quality of municipal leadership and other municipal institutional factors (Van der Wiele, et al., 2001).

4.3.2 Performance Measuring

According to Venter & van der Walt (2007), in a municipal context, performance measures should express, usually in quantifiable terms, how well a municipality delivers on its constitutional mandate and obligations. Venter & van der Walt (2007) also suggest that measures may be applied to municipal services as a whole, or to the processes involved in delivering a particular service. Municipal councils should assess the economy, efficiency and effectiveness of the municipality, while performance measures and targets should enable the council to perform these assessments accordingly.

Basic performance measures, as mentioned, above are discussed in the following sections with reference to Figure 24. These measures which forms part of a chain of events, including inputs, activities, outputs, outcomes and impact, is known as the results chain or the logic model, and is a simple, systematic cause-effect approach to managing and measuring development results in as tangible a manner as possible (UNDP, 2010). This model will be further discussed in proceeding sections. Efficiency and effectiveness exist as part of the result chain as shown in Figure 24 and are discussed in the contexts of management and leadership also in proceeding sections.

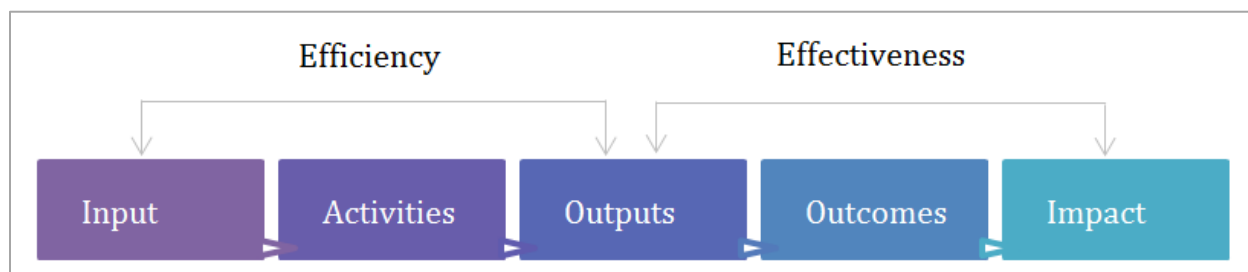


FIGURE 24 - THE RESULT CHAIN

(CIDA, 2000)

4.3.2.1 Performance Inputs

According to UNDP (2010), inputs are defined as the financial, human, material, and information resources which organisations absorb from the environment to produce a service. Inputs also includes efforts with regards to the identification of key problems; analysis of the political economy, social reality, and capacity assets and needs; grouping of root causes; identification of interdependencies; scenario planning; prioritization of issues; and cost analysis of various options.

4.3.2.2 Performance Outputs

According to the UNDP (2010), an output is a short-term development result produced by project and non-project activities. It relates to the completion (rather than the conduct) of activities and is a product and/or service that make achievement of outcomes possible. It is the type of result over which managers have a high degree of influence.

UNDP (2010) states that there is a qualitative difference between an output (a product or service completed) and an outcome (a change which occurs after products and services are provided). It is desirable, but not definitive, that outputs and outcomes have a cause-and-effect relationship; outputs may be produced without any change happening, or change may occur without the production of outputs. In addition, outputs and outcomes do not necessarily have a parts-and-whole relationship; a collection of outputs does not make up an outcome; nor does adding details to and clarifying specifics of an output transform it into an outcome.

4.3.2.3 Performance Outcomes

Outcomes are described as the medium-term or shorter-term effects or behaviour changes resulting from a development intervention, such as the decrease in poverty levels and increase in economic growth. The UNDP (2010) states that an outcome is an actual or intended change in development conditions which interventions are seeking to support. It usually relates to changes in an institution's ability to work better and fulfil its mandate. To achieve development goals, a strategic plan should identify specific changes or outcomes that must occur within various systems. It is important to note that there can be several levels of outcomes leading ultimately to the desired impact.

4.3.2.4 Performance Impacts

According to UNDP (2010) the term *impact* relates to an actual and intended change in human development as measured by people's well-being. Impacts typically capture change in people's lives. Impacts signify underlying goals such as better living conditions, through improvements in health, income, education, nutrition, or the environment. An impact within a department or smaller unit describes more detailed and specific changes that make up or contribute to higher-level or national impact.

4.3.3 Performance Management

The next sections discuss performance management as a theoretical concept and how it is applied in the municipal environment. Following sections also define the concepts of management and leadership in order to understand it's relevant to performance management.

4.3.3.1 Organisational Performance Management

Organisational performance management (OPM) is defined by O'Donnell & Duffy (2002) as the effective measurement of outputs and the efficient allocation of resources to programs and projects. It is intended that OPM focuses on interconnectedness between the measurement and management of an organisation's productivity (outcomes) and profitability in the context of overall performance improvement of the organisation.

Internationally, municipalities acknowledge that OPM is a catalyst for institutional development as it significantly supports the delivery of quality services and products. According to Sole (2009), OPM should be executed with emphasis on three distinct levels, i.e. strategy, operations and team (or individual) levels. Grobler et al. in Craythorne (2003) and Van der Waldt (2007) states that the OPM function embraces the functions performed in the entire organisation, in line with its vision, mission and objectives.

Performance management drives continuous performance assessment, akin to Total Quality Management (TQM), used extensively in the past to achieve performance goals. Craythorne (2003) states that performance management functions drive four important managerial tasks, i.e. organisational, process, team and job performance management.

Fryer, Anthony & Ogden (2009) define the role of performance management as being responsible for "*improvements in behaviour, motivation and processes*" and lists five "*universal criteria*" for OPM implementation, including the following:

1. leadership commitment,
2. strategy aligned to performance objectives,
3. stakeholder involvement,
4. continuous monitoring, assessment and feedback and
5. building a culture of performance in the delivery of quality outputs and outcomes.

According to Jessa (2012), OPM assumes the responsibility for setting in place a series of measures by which a municipality can quantify and qualify progress made instead of its organisational development and the services and products it renders to its stakeholders. Ketelaar (2007) holds that by engaging stakeholders, such as citizens in the design and accomplishments of measures and targets, the performance of an organisation is incrementally enhanced.

4.3.3.2 Municipal Performance Management

Performance Management is defined by the Department of Local Government (DPLG) as a strategic approach to management, which equips leaders, managers, employees and stakeholders at different levels with a set of tools and techniques to regularly plan, continuously monitor, periodically measure and review performance of the organisation in terms of indicators and targets for efficiency, effectiveness and impact. Municipal performance management systems therefore ensure that the leaders, managers and individuals in the municipality are held accountable for their actions which should result in improved service delivery (eThekweni Municipality, 2008). Swanepoel (2012) and CASE (2003) suggest that the eThekweni Municipality, one of eight metropolitan municipalities in South Africa, has over the past decade sustained commendable practices of performance management.

eThekweni Municipality (2008) propose the following six-phase process for municipal performance management in South Africa. These phases are shown in Figure 25, followed by definitions of the six phases. Note that step two and three are clustered together.

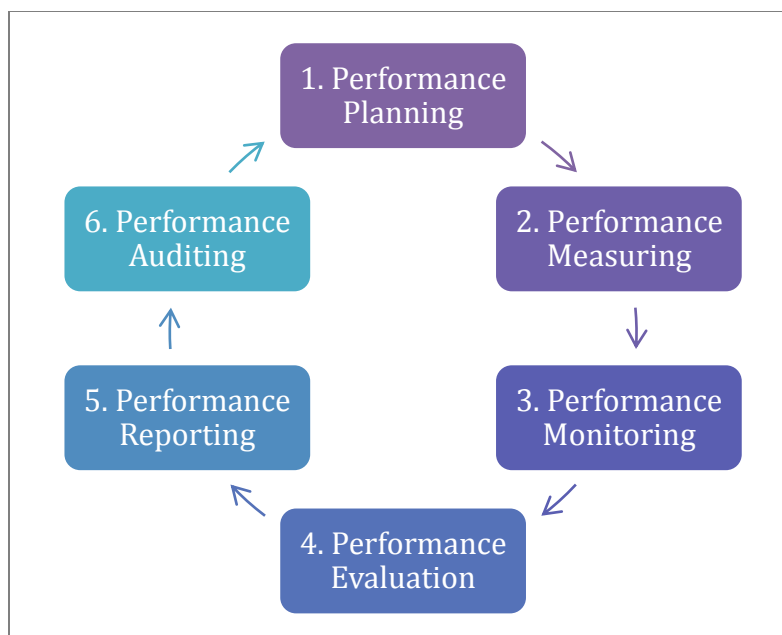


FIGURE 25 - PROCESS OF PERFORMANCE MANAGEMENT

(ETHEKWINI MUNICIPALITY, 2008)

1. *Performance planning* ensures that the strategic direction of a municipality more explicitly informs and aligns the IDP with all planning activities and resource decisions. This is the process phase where KPA's and KPI's are aligned with the IDP and national requirements, where after performance targets are set.
2. *Performance measuring and monitoring* is an on-going process to determine whether performance targets have been met, exceeded or not met. Projections can also be made

during the year as to whether the final target and future targets will be met. It occurs during key points in a process, for example, on a quarterly and annual basis.

3. *Performance evaluation* includes an analysis of the overall municipal performance and the factors which contribute to this performance. Where targets are not met, its causes must be examined before recommending correctional action. This phase of the performance management process also include the review of KPA's and KPI's.
4. *Performance reporting* entails bi-annual reporting to municipal management, the performance audit committee, the municipal council and the public. In addition, a quarterly report is prepared and sent to the municipality's internal audit department, before being submitted to municipal council and the performance audit committee.
5. *Performance auditing* is an important part of the monitoring and evaluation process. It includes the verification of the accuracy of measurement mechanisms and the procedures for evaluating and improving performance. According to Section 45 of the Municipal Systems Act, 2000 results of performance measurement must be audited as part of the municipality's auditing process before the audit by the annual Auditor General.

4.3.3.3 Management

The most common definition of management has two components. Management is (i) the process of planning, organizing, leading, and controlling human and other organisational resources with the aim to (ii) effectively achieve organisational goals. The first part of the definition identifies the four main functions of management, while the second part identifies the purpose of management (Dyck & Neubert, 2012). The functions of management and the terms, *efficiency* and *effectiveness*, are discussed in the following sections.

4.3.3.3.1 Functions of Management

Planning, organizing, leading, and controlling are the four fundamental functions of management, which were first identified by Henri Fayol almost a century ago. The same four management functions are evident in the basic definition of an organisation: *a goal-directed (planning), purposely structured (organizing) group of people working together (leading) to achieve results (controlling)*" (Dyck & Neubert, 2012).

4.3.3.3.2 Efficiency and Effectiveness

Dyck & Neubert (2012) allude how managers typically have to be concerned with efficiency and effectiveness in the work process. Efficiency is defined as performing work with a minimum of effort, expense, or waste. It can also be defined as increasing the level of output (goods, services and other resources which an organisation put into the environment) that is achieved with a given level of inputs (human, material and information resources which an organisation takes in from the environment).

Efficiency alone, however, is not enough to ensure success. Managers must also strive towards effectiveness, which refers to accomplishing tasks that help fulfil organisational ob-

jectives. According to Dyck & Neubert (2012) effectiveness refers to the selection of the correct over achieving organisational goals to pursue. The difference between efficiency and effectiveness can be graphically shown as in Figure 24.

Measures of efficiency relate inputs to outputs, signifying how well a municipality uses resources to achieve the desired end result. Improvement in efficiency occurs when the municipality achieves more outputs without using more resources. Measures of effectiveness relate outputs to outcomes, focussing on the impact of services provided. Measures of efficiency and effectiveness should also access quality (De Bruijn, 2002). A number of qualities make an effective target. These qualities can be summarised by means of the mnemonic *SMART*; targets should be specific, measurable, achievable, realistic and time-bound.

4.3.3.4 Leadership

Various definitions of leadership have emerged as a result of its complexity the various understandings, theories and opinions which exist. Chemers (1997) defines leadership as a process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task. Studies of leadership have produced theories involving traits, abilities, behaviours, attitudes, interaction, values, vision, power, function, behaviour, charisma and intelligence, among others.

According to Yukl (1981) researchers usually define leadership according to their individual perspectives and those aspects of the phenomenon of most interest to them. Leadership has been defined in terms of traits, behaviour, attitudes, interaction, intelligence and influence over other persons, patterns of interaction, role relationships, occupation of an administrative position, and the perception of other regarding legitimacy of influence. Leadership and management are not necessarily synonymous, although leading does normally occur within the higher hierarchies of an organisation (Thornhill & Hanekom, 1979).

A major distinction between definitions of the effectiveness of leadership is the type of outcome selected to be the effectiveness criterion. These outcomes may include; group performance, attainment of group objectives, group survival, group growth, group readiness, group competence to deal with crises, subordinate satisfaction with the leader, subordinate commitment to group objectives, the psychological well-being and development of group members, and the leader's retention of this status and position in the group (Yukl, 1999).

The most common method of measuring leader effectiveness is the extent to which the group or organisation of the leader performs its task successfully and attains its objectives (Yukl, 1999). In his definition of leadership, French (1987) states that effective leadership within the context of the organisation, is an interactive process of influencing individual and group behaviour toward the attainment of the enterprise's objectives. In some cases objective measures of performance such as productivity, are available. In other cases sub-

jective evaluations are used, including ratings of the leader's effectiveness in carrying out responsibilities, and ratings of the group's success in carrying out its mission.

Relating to these measurements, several dimensions, applications and approaches to leadership has been developed, which predominantly focuses on how a leader influences other people. Within this field, Wagner, Bapat & Bennett (2005) identifies competencies required for effective and efficient leadership which are shown in Table 17.

TABLE 17 - CORE COMPETENCIES FOR EFFECTIVE AND EFFICIENT LEADERSHIP

ADAPTED FROM (WAGNER, ET AL., 2005)

Communication	Awareness	Motivation	Development	Influence
Active Listening	Mental Knowledge	Coordination	Knowledge Study	Cooperation
Aid Discourse	Social Orientation	Orientation	Identify Value	Persuasion
Public Speaking	Service Orientation	Aspire Success	Assessment	Negotiation
Networking	Foster Relations	Form Teams	Coaching	Empowerment

4.4 Municipal Capacity Assessment

4.4.1 Introduction

Previous sections focused on the understanding of organisational capacity, capacity building and its relation to performance improvement. Specific focus was put on self-assessment as an exercise for organisations to work towards continuous self-improvement. The aim of this section is to provide background to the current municipal capacity assessment practices in South Africa. As introduced in Chapter One, a limited number of capacity assessments are performed in South Africa, with the annual MDB municipal capacity assessment being the most profound. As such, only this assessment will be discussed in the following section.

Further objectives of this section include discussions around three capacity assessment frameworks which have been implemented around the world in various contexts and organisations. Through these discussions, possible downfalls of present capacity assessment practices in South Africa can be identified.

4.4.2 Municipal Capacity Assessment Practices in South Africa

4.4.2.1 The MDB Municipal Capacity Assessment

Various entities in the South African public sector, including the MDB, acknowledge the need to gather reliable insight regarding municipal capacity as it holds extensive potential to influence decision-making processes especially in terms of local government policy formulation and municipal planning. Though no capacity assessment was performed in 2012, the annual MDB municipal capacity assessment is seen at the forefront in South Africa in this regard for the past eleven years (MDB, 2010).

The MDB, for different reasons to those stated above, perform annual capacity assessments of metropolitan, district and local municipalities. The MDB conducts these assessments

with the objective of fulfilling its mandate as prescribed by the Municipal Structures Act, 1998. The Municipal Structures Act, 2000 requires the MDB to provide recommendations when the adjustment of municipal functions is considered. The MDB gathers capacity-related data from municipalities and use this as a basis for these recommendations. Data is acquired through a web-based questionnaire (MDB, 2010).

Questions as part of the MDB's capacity assessment relate to the number of municipal vacancies (funded and unfunded) in each municipal department in addition to the experience, skills, knowledge and level of qualifications of municipal employees. The mentioned municipal departments include water and sanitation, electricity and gas reticulation, municipal transport, waste management, roads and stormwater systems, community and social services, planning and development, emergency services, municipal health, primary health care, environmental management, economic development, housing, traffic and policing.

The annual MDB municipal capacity assessment is executed at the end of the financial year, during which municipalities have worked towards the achievement of performance objectives (MDB, 2012). Such approach thus discounts future capacity needs and thereby allows limited opportunities for in-year responses to both apparent and latent capacity needs, as these needs remain indefinite until a subsequent capacity assessment is performed.

As earlier discussed, UNDP (2007) suggests continuous and frequent execution of capacity assessments to continuously remain aware of whether capacity gaps in each of the three dimensions of capacity are affecting municipal performance. In a South African context, two interrelated aspects are of much concern, including the aforementioned time of the year at which capacity assessments are performed as well as the magnitude and nature of current capacity gaps at South African municipalities.

The work of UNDP (2007) therefore suggests that the MDB capacity assessment has two major shortfalls. UNDP has performed comprehensive research in the field of municipal capacity and related assessments and proves to be a reliable basis for the improvement of practices in South Africa. Related to the UNDP's suggestions above in terms of the time at which capacity assessments should be performed and the extent to which capacity should be assessed, the UNDP developed a capacity assessment framework. This framework has been used across the world in different contexts and organisations and is discussed in the following section. This framework represents a benchmark in capacity assessment frameworks and should aid an appreciation for sophisticated municipal capacity assessments and the level of detail which is obtainable.

4.4.3 Capacity Assessment Frameworks

4.4.3.1 The UNDP Capacity Assessment Framework

The primary mandate of UNDP is to support the building of national capacity for self-reliant development. It includes the promotion of self-reliance regarding managerial, technical,

administrative and research capabilities required to formulate and implement development plans and policies (Hopkins, 1994).

Accordingly, UNDP has developed a methodology for conducting capacity assessments that is systematic and rigorous, yet flexible and adaptable to different contexts and needs. It does not offer a blueprint, but serves as a point of departure for a capacity assessment. The UNDP Capacity Assessment Methodology consists of three components, i.e. the UNDP Capacity Assessment Framework, a process and supporting tools (Colville, 2008). The UNDP Capacity Assessment Framework is composed of three dimensions, as shown in Figure 26. Definitions for each of the dimensions include (UNDP, 2008):

1. *Points of Entry*: UNDP recognises that capacity exists on different levels, which includes the enabling environment and organisational and individual levels. According to UNDP, a capacity assessment team must select one level as its point of entry, and may increase or decrease its attention from that level when needed. It should be noted that capacity assessments at the individual level are generally conducted within the context of an organisational assessment.
2. *Core Issues*: The core issues are matters upon which the UNDP is most often called to address. Not all of the following issues are necessarily analysed in assessments, but it provides a set of issues from which a capacity assessment team may choose as it defines its scope: i) leadership; ii) policy and legal framework; iii) mutual accountability mechanisms; iv) public engagement; v) human resources; vi) financial resources; vii) physical resources; and viii) environmental resources.
3. *Functional Capacities*: Specific functional capacities are necessary for the successful creation and management of policies, legislations, strategies and programs. The UNDP has chosen to prioritise the following functional capacities, which exist at all points of entry and for all core issues: i) engage in multi-stakeholder dialogue; ii) analyse a situation and create a vision; iii) formulate policy and strategy; iv) budget, manage and implement; and v) monitor and evaluate.

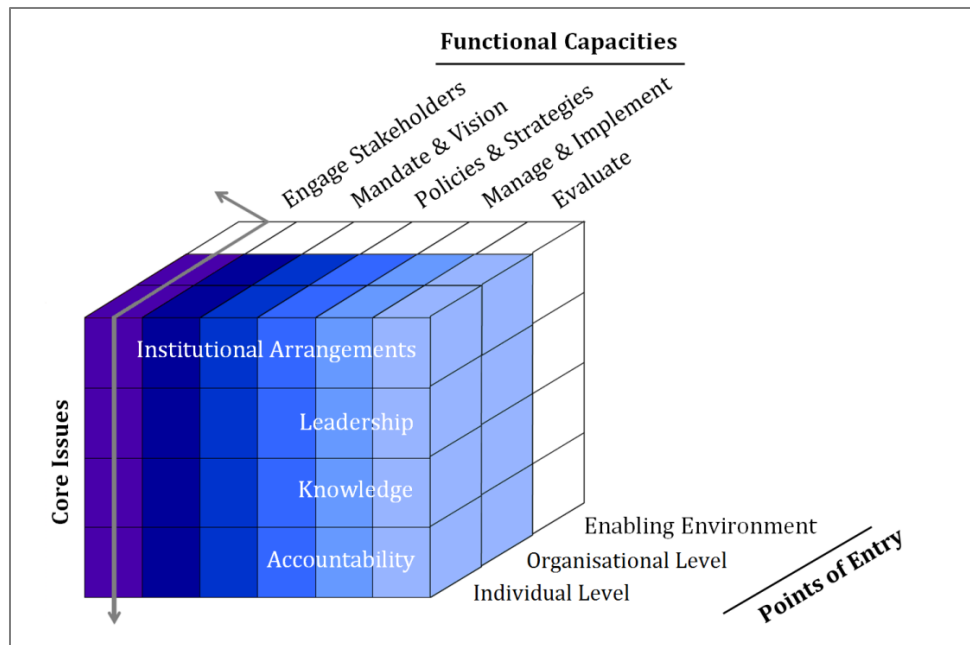


FIGURE 26 - UNDP CAPACITY ASSESSMENT FRAMEWORK

(UNDP, 2008)

4.4.3.2 *The Lusthaus Capacity Assessment Framework*

In 1993, the International Development Research Centre (IDRC) and Universalia Management Group initiated an investigation into issues surrounding methods and means to better understand how to assess institutional and organisational performance. IDRC was interested in exploring ways to gather organisational data about the centres they supported, to aid decision-making around future funding. They were interested in an evaluation process that would use evaluation results to support organisational learning (Lusthaus, et al., 1997).

Both IDRC and Universalia supposed that self-evaluation could empower organisations and aid them in both using an evaluation and learning from it as the notion of self-evaluation also appeared to be a more sustainable approach to development (Universalia, 1991). Related to self-assessment, IDRC argued that organisations would be more likely to engage in experimenting with an organisational assessment model if they could control the process and be empowered by it (IDRC, 1991), noting that due to the individual natures and needs of organisations, self-assessment as an approach to institutional assessment is complex.

Through extensive research endeavours, IDRC and Universalia gained insights to four concepts which eventually shaped their proposed framework. The first insight was the understanding of the complexity of notion of organisational performance. Lusthaus, et al. (1997) states that practices in the private sector and its use of measures to assess organisational performance was a valuable learning platform in this regard (Kaplan & Norton, 1996).

The second insight came as a result of the work of institutional economists as it provided a theoretical perspective of the enabling environment within which an organisation need to function (North, 1994). A third insight was gained through remarking an inconsistency in organisations' performance relative to the external conditions and its available resources. Lusthaus, et al. (1997) remarked that such differences were generally closely-related to the motivation of individuals within the organisation and hence suggested that organisational motivation was a factor worth exploring when performing an organisational assessment.

A fourth insight was gained through prior studies focused on determining the relationship between organisational performance and organisational capacity. The four insights forms a basis for the proposed capacity assessment framework, as shown in Figure 27.



FIGURE 27 - LUSTHAUS ORGANISATIONAL ASSESSMENT FRAMEWORK

(LUSTHAUS, ET AL., 1997)

The schematic representation of the framework as in Figure 27 defines organisational performance in terms of effectiveness (mission fulfilment), efficiency, and on-going relevance (the extent to which the organisation adapts to changing conditions in its environment). The framework implies that certain contextual forces drive performance, i.e. organisational capacity, forces in its external environment, and internal motivation.

The various components of the Lusthaus Capacity Assessment Framework comprise of the different elements as listed in Table 18.

TABLE 18 - DETAILED CONTENT OF THE LUSTHAUS ORGANISATIONAL ASSESSMENT FRAMEWORK

(LUSTHAUS, ET AL., 1997)

Organisational Performance	Organisational Motivation	Organisational Capacity	Enabling Environment
Effectiveness	History	Strategic Leadership	Administrative
Efficiency	Mission	Human Resources	Political
Relevance	Culture	Financial Management	Social/Cultural
Economic	Incentives/Rewards	Infrastructure	Economic
Financial viability	-	Program Management	Stakeholder
-	-	Process Management	-
-	-	Organisational Links	-

4.4.3.3 The McKinsey Capacity Assessment Framework

The McKinsey Capacity Assessment Grid implements the matrix method of self-assessment, and is a tool designed to support non-profit organisations in assessing their organisational capacity. The grid requires the participant to score the organisation on each element of organisational capacity and its components by selecting the description that best represents the organisation's current state of capacity. This assessment grid is intended to be used in conjunction with the McKinsey Capacity Framework that incorporates the following seven elements of organisational capacity (McKinsey & Company, 2001):

1. *Aspirations*: An organisation's mission, vision, and overarching goals, which collectively articulate its common sense of purpose and direction.
2. *Strategy*: An organisation's coherent collection of actions and programs aimed at the fulfilment of the organisation's overarching goals.
3. *Organisational Skills*: The organisation's overall capabilities, including performance measurement, planning, resource management and external relationship building.
4. *Human Resources*: The collective capabilities, experiences, potential and commitment of the organisation's board, management team, staff, and volunteers
5. *Systems and Infrastructure*: An organisation's planning, knowledge management, decision making, administrative systems and physical and technological resources.
6. *Organisational Structure*: The governance, organisational design, interfunctional coordination, job descriptions that shape the organisation's management structure.
7. *Culture*: The shared values and practices within the organisation, behaviour norms of employees and the organisation's orientation towards performance.

By combining these different elements of organisational capacity in a single, coherent diagram, the pyramid, shown in Figure 28, emphasizes the importance of examining each element both individually and in relation to the other elements, as well as in context of the whole organisation (McKinsey & Company, 2001).



FIGURE 28 - MCKINSEY & COMPANY CAPACITY FRAMEWORK

(MCKINSEY & COMPANY, 2001)

4.4.3.4 Evaluation of Organisational Assessment Frameworks

This section discussed three universally used organisational assessment frameworks. Particular aspects of each of these three frameworks are of major importance to the development of the proposed municipal capacity self-assessment framework and model.

The UNDP Capacity Assessment Framework shows, amongst other, how a capacity assessment framework can consist of three dimensions and suggests that such framework can be systematic, yet flexible and adaptable to different contexts and needs.

The Lusthaus Organisational Assessment Framework emphasizes that organisations function within a particular enabling environment and suggests that the relationship between organisational performance, motivation, capacity and the enabling environment is complex. Furthermore, IDRC and Universalia noted that the notion of self-evaluation appears to be a more sustainable approach to development, that organisations would be more likely to engage in experimenting with evaluation models if they could control the process and be empowered by it, but that as a result of human nature, self-assessment can become complex.

The McKinsey Capacity Assessment Framework suggests that matrices can be used during self-assessment in obtaining participants' input by requiring them to score the organisation on all elements of organisational capacity by selecting the most suitable description.

4.4.4 Conclusion

The preceding sections discussed the MDB municipal capacity assessment as the most profound, used and wide-spread assessment of municipal capacity in South Africa. Research in

UNDP (2007) though suggests that assessments such as the MDB's have various downfalls. These downfalls could arguably be traced back to the mandate of the MDB regarding capacity assessments, whilst allowing for typical uses of capacity assessment.

The mandate of the MDB includes performing frequent municipal capacity assessments in order to allow them to accurately make recommendations when an adjustment of municipal boundaries or municipal functions between local and district municipalities are considered. This clearly suggests that the MDB municipal capacity assessment is not instigated for the primary aim of supporting capacity building endeavours. The aforesaid measures of adjusting municipal boundaries or functions between local and district municipalities, imply a change in municipalities' duties and resulting capacity requirements.

Nonetheless, the results of the annual MDB municipal capacity assessment are widely used in South Africa by local government (the municipalities themselves), but also other spheres of government and governmental departments, such as the National Treasury, CoGTA and SALGA with the objective to develop capacity building strategies and actual capacity building projects. It can be concluded that although the MDB Municipal Capacity Assessment has many downfalls in relation to suggestions by UNDP (2007) and is not performed for the sole purpose of initiating capacity building activities, its results are still used for various strategic planning purposes in both the public and private sector.

This section furthermore discussed three capacity assessment frameworks which have been implemented world-wide in various contexts and organisations. Considering the downfalls of the MDB municipal capacity assessment as implemented through the use of a restrictive questionnaire, whilst studying the aforesaid three frameworks, an extensive set of insights was gained in a process of conceptualising an innovative capacity assessment for municipalities in South Africa to deliver more useful outputs than the current MDB Municipal Capacity Assessment.

4.5 Municipal Performance Management

4.5.1 Introduction

Apart from capacity and related concepts, previous sections furthermore considered performance and other related concepts. As part of these discussions, the notions of performance and specific municipal performance measures were considered. Additionally the concept of performance management and municipal performance management in a South African context were introduced. From these discussions, it became known that a guaranteed relationship exists between municipal performance and capacity.

The purpose of this section is to further reflect on the current practices in South Africa in terms of municipal performance management by considering the performance management system (PMS), as mandated by the Municipal Systems Act, 2000. For the purpose of expanding the understanding of this system, this section will discuss seven performance

management models which have been developed and implemented around the world in various organisations and contexts.

4.5.2 Municipal Performance Management Practices in South Africa

4.5.2.1 The Municipal Performance Management System

In the local government context, a comprehensive system of monitoring and managing the performance of municipalities are legislated. This system is intended to continuously monitor the performance of municipalities in fulfilling their developmental mandate. Central to this is the development of key performance indicators as instruments to assess performance. These indicators help to translate complex socio-economic development challenges into quantifiable and measurable outputs.

In Chapter Three, Section Seven of the Municipal Planning and Performance Management Regulations, 2001 the Municipal PMS is defined as *“a framework that describes and represents how a municipality’s cycle and processes of performance planning, monitoring, measurement, review, reporting improvement will be conducted, organized and managed, including determining the roles of the different role players”*.

Legislation, as discussed in Chapter Two, collectively forms a framework for municipalities to perform and manage its performance within. Patently a comprehensive set of legislative documents must be considered in this regard. Three particular legislative documents have a fundamental effect on the development of municipalities’ PMS. These include the Municipal Systems Act, 2000, the Municipal Planning and Performance Management Regulations, 2001 and the Municipal Finance Act and influences municipalities’ PMS as follows.

Firstly, the Municipal Systems Act, 2000 requires a municipality to:

1. Develop a Performance Management System;
2. Sets targets, monitor and review performance based indicators linked to the IDP;
3. Publish an annual report on performance of various spheres of government;
4. Conduct an internal audit of performance;
5. Have its annual performance report audited by the Auditor-General; and
6. Involve the community in setting indicators and targets and reviewing performance.

Secondly, the Municipal Planning and Performance Management Regulations, 2001 require municipalities to ensure the following when developing its PMS:

1. Compliance with all the requirements set out in the Municipal Systems Act;
2. Demonstrations of management operations from the planning to reporting phases;
3. Clarification of roles and responsibilities of all role players in the municipal system;
4. Clarification of implementing the PMS within the framework of the IDP;
5. Agreement on frequency of reporting and lines of accountability for performance;
6. Alignment with the municipality’s Employee Performance Management processes.

Lastly, the Municipal Finance Management Act, 1998 contains various provisions relating to municipal performance management. It requires municipalities to develop and adopt an annual SDBIP with service delivery targets and performance indicators. When adopting the annual budget, the municipality must furthermore set measurable performance targets for each revenue source and vote. The aim of institutionalising a PMS is to serve as a mechanism to monitor, review and improve the implementation of the Municipality's IDP.

As part of developing a PMS, many municipalities in South Africa adopt the Balanced Scorecard as its performance management model. The Balanced Scorecard, amongst seven other performance management models is discussed below as studied by Jessa (2012).

4.5.3 Performance Management Models

4.5.3.1 The Balanced Scorecard

Kaplan & Norton (1996) introduced the Balanced Scorecard (BSC) which is considered by many as the most frequently used and important performance measurement framework. The BSC was first introduced in a series of articles in 1992 before this dynamic, well “*balanced*” framework was formally published in 1996 in the book *The Balanced Scorecard*.

The focus of the BSC is to link different types of measures including: (1) financial and non-financial, (2) external (financial and customer) and internal (critical business processes, innovation, and learning and growth), (3) inputs/ drivers and outcomes/ results, and (4) objective, easily quantifiable and subjective measures. The emphasis of this model is to link organisational strategy with the performance measurement process to reflect changes and to indicate improvements of the organisation as a whole.

Kaplan & Norton (1996) defines the four quadrants of the BSC necessary to obtain these types of measures and obtain an integrated view of the performance of an organisation as:

- the financial perspective;
- the customer perspective;
- the internal business processes; and
- the learning and growth perspective.

These four perspectives of the scorecard permit a balance between short-term and long-term objectives, between desired outcomes and the performance drivers of those outcomes, and between hard objective measures and softer, more subjective measures. The Balanced Scorecard as developed by Kaplan & Norton (1996) is shown in Figure 29. From the illustration, it is shown how the various performance measures are linked to each other and the vision and the strategy of the organisation.

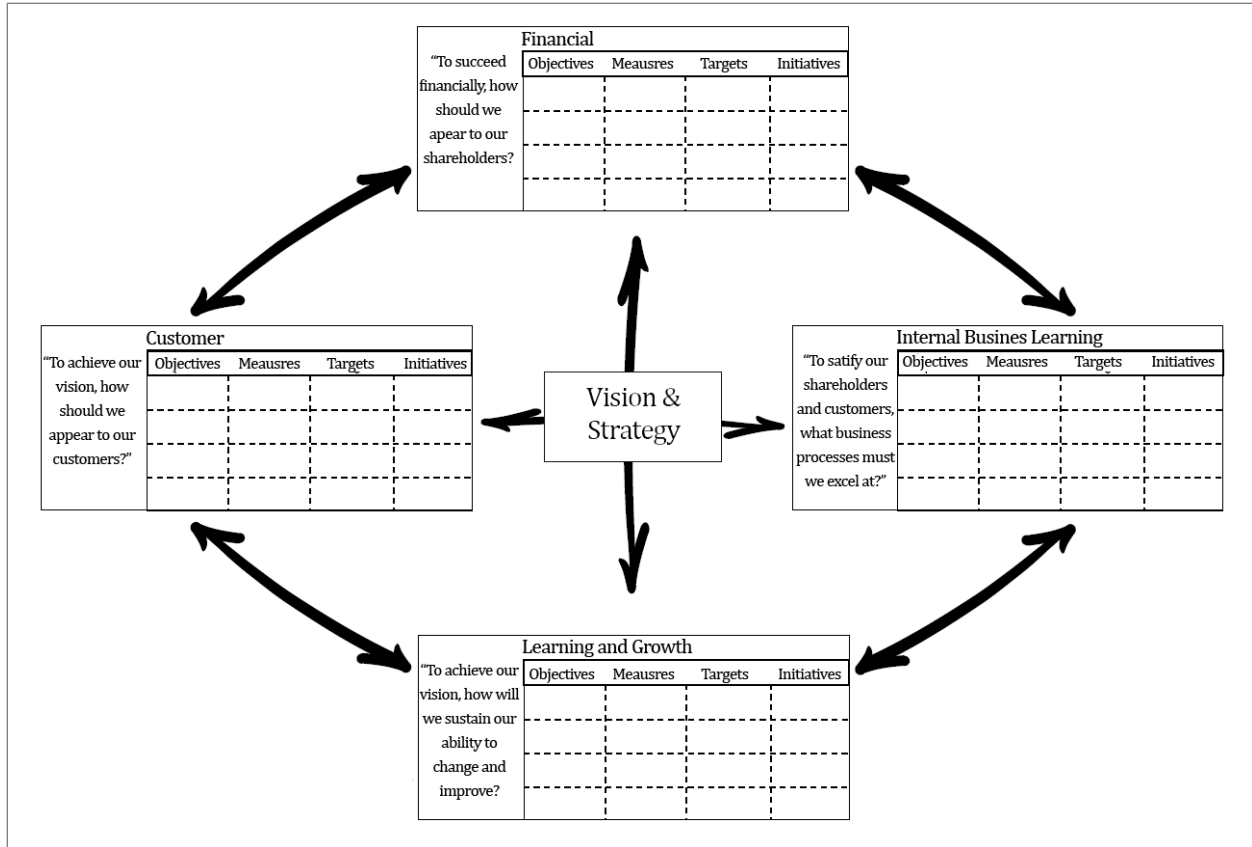


FIGURE 29 - THE BALANCED SCORECARD
(KAPLAN & NORTON, 1996)

4.5.3.2 The Logic Model

The logic model defined by W.K. Kellogg Foundation (1998) puts forward a well-developed instrument for the logical planning and tracking of programs for managers and all other stakeholders to follow the sequence of program events, and to comprehend the theoretical bases for a program or project. The objectives of a program are operationalized through a logical outline of program inputs, targets, baselines, outputs and outcomes, presented in the matrix format. KPI's are introduced in each activity in the program or project, thereby simplifying reporting exercises. The model offers flexibility for the monitoring and evaluation of programs, data storage and iterative analyses of organisational programs.

4.5.3.3 The Public Service Quality Model

Gaster & Squires (2003) proposes a *Public Service Quality Model* incorporating the *Parasuraman-Zeithaml-Berry Gaps Model of Quality* which places a particular focus on delivering quality services and products to the public. As part of the model, five *gaps* are highlighted, which if effectively addressed at municipal level, adds value through new knowledge to the organisational performance management function. The five *gaps* include (i) public ex-

pected service (ii) service quality specifications, (iii) quality of services delivered (iv) external communication with the public and (v) expected service versus perceived service.

The *Public Service Quality Model* is a *quality assurance* tool for the continuous enhancement of organisational performance, with the emphasis on measuring quality outputs and customer satisfaction. The Public Service Quality Model addresses areas in service delivery neglected by municipal authorities and places a compelling focus on it.

4.5.3.4 The Systems Model

Straub, et al. (2010) proposes a *systems model* for organisational performance management in which a systemic analysis of inputs, throughputs and outputs of service efficiencies (planning, budgeting, training, work flow, coordination, communication) can be evaluated as elements of an operational function. The model makes provision for stakeholder involvement, problem solving and the eventual effective and efficient delivery of municipal services and products, i.e., outputs, as well as instilling opportunity for on-going improvements. The *systems model* and the *logic model* share many similarities.

4.5.3.5 The Results-oriented Framed Performance Management Model

Burke & Costello, et al. (2007) proposes a results-oriented *framed model* for organisational performance management, consisting of four *frames* or strategic domains in which can be performance measured and managed. Implementation of this model entails strengthening internal management, developing empowered, capable employees and placing the interests of the public above that of the organisation. The four *frames* are:

1. *The Structured Frame*: This frame covers organisation, institutionalisation, relationship building, tasks, roles and responsibilities, strategy and facilitation of a results-oriented organisational performance management function.
2. *The Human Resource Frame*: This frame covers the training and capacity building of employees, establishing links between organisational and employee needs, encourage internal networking, collaboration and linking individual performance appraisal with the organisations' performance objectives.
3. *The Political Frame*: This frame establishes balance in power, leadership, the administrative-political interface, self-interest versus collective interests and shared power for excellence in organisational performance.
4. *The Symbolic Frame*: This frame represents building the *energised environment*, performance culture and reports on the organisation's vision, mission, goals and aims.

4.5.3.6 The ISO 9000 as a Model for Service Excellence

The ISO 9000 proposes categories of standards for quality management and control, internationally recognised, against which organisations can acquire a certification of compliance for their continuous performance assessments of organisational structures, functions, outputs, outcomes measures and public opinion (Vouzias, 2005). The ISO 9000 requires metic-

ulous management and reporting and compels the continuous improvement of organisational processes. Vouzas (2005) states that there is much value in the employment of ISO 9000 quality standards in the development of quality assurance instruments in large organisations, particularly with the new ISO 9000:2000 range of standards and measures.

According to Gaster & Squires (2003), the ISO 9000 can be used in the measurement of achievements at municipalities. The factors affecting quality at municipalities include (i) a need for clear specifications or standards, (ii) clear objectives for service delivery, (iii) consultation with the public (iv) innovation, (v) commitment from top management and (vi) a commitment from national government to improve service delivery. Gaster & Squires (2003) states that there are difficulties in defining quality as no consensus exist on the definition. Gaster & Squires (2003) asserts that “*standard setting*” and an “*ascending quality improvement*” takes place when quality is defined in terms of standards.

4.5.3.7 The O'Donnell & Duffy's E² Model

The *E² Model* is designed specifically to obtain measures for efficiency and effectiveness of performance. O'Donnell and Duffy (2002) developed the *E² Model*, based on three *axioms*, used in the design of KPI's to ensure an alignment, congruency and coherence between activities and their performance outcomes. These *axioms* are (i) that activities are fundamental to the creation of performance, (ii) that all performance measures can be typified to efficiency or effectiveness indicators and (iii) that the execution of activities and the management thereof are inextricably linked.

The *E² Model* employs four knowledge factors, in calculating the *product* of efficiency and effectiveness i.e. the knowledge goal that steers activities, former knowledge as knowledge inputs, knowledge resources and knowledge outputs which are the result of the performed activities. These factors contribute to the measurement of effectiveness, but cannot measure efficiency. Inferences about efficiency though can be made (O'Donnell and Duffy, 2002).

4.5.3.8 The Sole's Three Performance Dimensions Model

Sole (2009) provides a performance management model that serves to measure municipal performance in three *performance dimensions*. The first is *the strategic dimension* that involves the public and politicians in the monitoring and measurement of the effectiveness of the municipalities' strategic initiatives. The outcomes are used at a later stage in decision making processes.

The second is *the operational dimension* where performance measures focus on municipal efficiencies and quality of services and products. Performance can be assessed daily, weekly or monthly. The third is *the team and individual level* where feedback to employees, attention to internal accountability and human resources enhancement is affected. Organisational productivity is thus a result of the *performance dimensions*, interacting systemically.

4.5.3.9 Evaluation of Performance Management Models

This section discussed nine universally used performance management models. Particular elements of each of these nine models are of significant importance to the development and the understanding of the proposed municipal capacity self-assessment model. Although all these models adopt different approaches to performance management, each include a particular underlying focus, not only on efficiency and effectiveness, but on the result chain of inputs, processes, outputs, outcomes and impacts. This is of interest as the prospective municipal capacity self-assessment model would need to incorporate a similar focus on a municipal service delivery process.

4.5.4 Conclusion

The preceding sections focused on the current practices in South Africa in terms of municipal performance management and in addition, discussed seven performance management models that are used around the world in various types of organisations, including municipalities. Evidence suggests that legislation in terms of municipal performance management in South Africa can be considered as sufficient, although the impact of its implementation remains variable between municipalities. This section further suggests that a wide range of performance management models exist and can be used instead or in addition to the Balanced Scorecard model that is today used by many South African municipalities.

Based on the findings of this section, it can be understood that performance management is a function performed internally by municipalities. Accordingly, it can be said that for capacity assessments to form part of this performance management, it should be in the form of self-assessment. Reverting to the relationship between organisational performance and capacity as introduced in Figure 2 in Chapter One, while recognising the functions of capacity assessments, it can be said that wherever performance management at municipalities occurs, parallel internal capacity assessments could and should be instilled for its' support.

Furthermore, it was previously noted that benchmarking of capacity self-assessment outputs has the potential to stimulate organisations' efforts to investigate already existing best practices and gain the desired insight to make the required organisational changes. Related to this, it was also previously noted that it often occurs that municipalities' level of capacity is not reflected through its service delivery performance. According to the relation shown in Figure 2, this phenomenon can be attributed to the leadership shown within the political and administrative structures of municipalities. It can therefore be stated that benchmarking could be much more significant where it compares the capacity to performance ratio of municipalities. In doing so, potential municipal performance can be measured against actual performance to provide a more refined view on best-practices and municipalities can be distinguished in terms of effectiveness and efficiency.

4.6 Prospective Capacity Assessment Model

The purpose of this section is to combine insights, gained from all the former investigations and propose a prospective assessment model which is suitable in the context of the current local government in South Africa. The objective of this section is to investigate methods by which municipal service delivery processes can be assessed in terms of the internal municipal capacity which is accessible for the execution of these service delivery processes.

4.6.1 Capacity Categories of Assessment

Provided that one of the objectives of this research study is to design an assessment model which purpose is to be used as part of a capacity assessment, it is essential to firstly identify categories for assessment in terms of capacity.

Essentially, UNDP (2007) suggests that, by referring to the enabling environment of an organisation as a dimension of capacity, organisational capacity consists of three interrelated and interdependent dimensions of capacity, i.e. individual, institutional and environmental capacity. Each dimension, reasonably consist of smaller capacity elements. Table 19 lists a collection of elements for each dimension of organisational capacity. These elements are based on the former definitions of the capacity dimensions and former discussions of the three widely-used capacity assessment frameworks.

TABLE 19 - IDENTIFIED ELEMENTS OF ORGANISATIONAL CAPACITY

Individual Capacity	Sources
Technical Knowledge	Matachi (2006) & JICA (2004)
Management Abilities	Matachi (2006) & JICA (2004) & UNDP (2007)
Leadership Abilities	CoGTA (2012) & UNDP (2007) & JICA (2004)
Behaviour	CoGTA (2012) & UNDP (2007)
Attitude & Ethics	CoGTA (2012) & UNDP (2007)
Institutional Capacity	Sources
Individual Capacity	Lusthaus, et al. (1995) & McKinsey & Company (2001)
Strategic Leadership	Lusthaus, et al. (1995) & (Matachi, 2006)
Organisational Purpose	Cloete (2002) & McKinsey & Company (2001)
Organisational Orientation	Cloete (2002) & McKinsey & Company (2001)
Institutional Memory	Cloete (2002) & McKinsey & Company (2001)
Powers and Functions	Cloete (2002) & McKinsey & Company (2001)
Support Systems	Cloete (2002) & McKinsey & Company (2001)
Infrastructure	Lusthaus, et al. (1995)
Structures	Cloete (2002) & McKinsey & Company (2001)
Processes	Cloete (2002)
Culture	Cloete (2002) & McKinsey & Company (2001)
Governance	Cloete (2002) & McKinsey & Company (2001)
Financial Management	Lusthaus, et al. (1995) & McKinsey & Company (2001)
Program Management	Lusthaus, et al. (1995) & McKinsey & Company (2001)

Process Management	Lusthaus, et al. (1995) & McKinsey & Company (2001)
Performance Management	McKinsey & Company (2001)
Environmental Capacity	Sources
Administration	Lusthaus, et al. (1995) & McKinsey & Company (2001)
Legal frameworks	Matachi (2006)
Technological Environment	McKinsey & Company (2001)
Political Environment	Matachi (2006) & Lusthaus, et al. (1995)
Social Environment	Lusthaus, et al. (1995)
Cultural Environment	Lusthaus, et al. (1995) & McKinsey & Company (2001)
Economic Environment	Lusthaus, et al. (1995)
Stakeholders	Lusthaus, et al. (1995) & McKinsey & Company (2001)

In the context of the South African municipal environment, as studied in Chapter Two, the collections of capacity elements as identified from all preceding chapters and as outlined in Table 19 above, can be refined as various elements overlap or are not as relevant as others. Through means of a refinement process, the following set of elements of organisational capacity was formulated. For each dimensions of capacity, as defined by the UNDP, five key elements have been identified as a combination of the initial set of elements. This amounts to fifteen elements of organisational capacity which are shown in Table 20.

TABLE 20 - REFINED ELEMENTS OF ORGANISATIONAL CAPACITY

Three-Dimensional Organisational Capacity		
Individual Capacity	Institutional Capacity	Environmental Capacity
Abilities and Knowledge	Policies & Regulations	Economic Environment
Relevant Work Experience	Powers & Functions	Social Environment
Management Capabilities	Structures	Technological Environment
Technical Capabilities	Systems, Processes, Procedures	Legislative Frameworks
Attitude & Leadership	Performance Management	Political Environment

4.6.2 Delivery Processes for Assessment

The previous section allows for a chosen set of processes to be measured against the set of identified or formulated elements of organisational capacity. In the context of this research study, these processes need to focus on the service delivery process, as mentioned in section 4.5.3.9: *Evaluation of Performance Management Models*. This section will focus on the formulation of a logical set of processes to be measured in terms of the fifteen identified elements of organisational capacity. It should be noted that the purpose of the prospective capacity assessment must be to support municipalities' decision-making around building capacity initiatives.

Suitable processes for assessment, as were discussed in previous chapters, predominantly include those proposed by Lawless (2007). While these processes relate to service delivery, the Logic Model, as earlier discussed, and several aspects of additional performance management models, can be very useful in this regard. With a focus on the delivery of municipal

basic services, it is intended that the processes for assessment are a combination of the engineering functions of a municipality and the project life cycle for municipal infrastructure, both as outlined by Lawless (2007), the Logic Model and specific aspects of additional performance management models.

A combination of these processes should moreover consider the municipal environment as outlined in Chapter Two. Chapter Two provided a comprehensive impression of the legislative requirements regarding municipal capacity and performance. Regarding municipal capacity self-assessments, the MDB municipal capacity assessment and municipalities' PMS, legislation provides a foundation for mandating and guiding these endeavours. Equally, the Municipal Systems Act, 2000 in support of the Constitution, mandates the delivery of basic municipal services. It can therefore be concluded that the mandate of local government can be regarded as the first phase of a combination of processes to be assessed.

Closely related to municipalities' service delivery mandate, stands the formulation and implementation of two municipal strategic plans, i.e. the IDP and SDBIP. As earlier discussed, these two strategic planning documents should include planning in terms of the delivery of municipal services and typically refer to requisite resources, measures for delivery, predetermined performance targets and anticipated long-term impacts in society.

With reference to these insights and the process as shown in Figure 3, it can be concluded that the following flow of service delivery phases reflects an applicable process for municipal service delivery in South Africa.

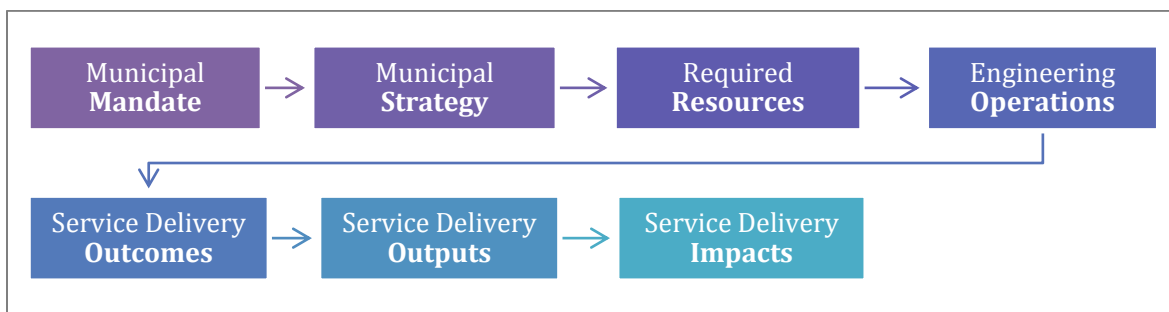


FIGURE 30 - PROPOSED MUNICIPAL SERVICE DELIVERY PHASES

Each of the service delivery phases as shown in Figure 30 was derived from prior chapters and consists of sub-phases. Table 21 lists both the main phases and sub-phases of the proposed service delivery process as shown in Figure 30. Table 21 lists all the sections of this research dissertation that was used as reference for the listed service delivery phases.

TABLE 21 - SUB-PHASES OF THE MUNICIPAL SERVICE DELIVERY OROCESS

Municipal Mandate	
Constitution of the Republic of South Africa, 1996	Section 2.3.2.1
Municipal Systems Act, 2000	Section 2.3.2.6
Municipal Structure Act, 1998	Section 2.3.2.4
Municipal Finance Management Act, 2003	Section 2.3.2.7
Municipal Demarcation Act, 1998	Section 2.3.2.5
Municipal Strategy	
Integrated Development Plan (IDP)	Section 3.4.1
Service Delivery and Budget Implementation Plan (SDBIP)	Section 3.4.2
Required Resources/Inputs	Section 4.3.2.1
Human Resources	Section 1.3.2
Financial Resources	Section 1.3.2
Physical Resources	Section 1.3.2
Technological Resources	Section 1.3.2
Engineering Operations	
Planning	Section 1.2.2
Designing	Section 1.2.2
Documenting	Section 1.2.2
Procurement	Section 1.2.2
Financing	Section 1.2.2
Construction	Section 1.2.2
Maintenance	Section 1.2.2
Operations	Section 1.2.2
Outputs	Section 4.3.2.2
Outcomes	Section 4.3.2.3
Impacts	Section 4.3.2.4

4.6.3 A Consolidated Municipal Capacity Assessment Framework

Coinciding with the McKinsey Capacity Assessment Framework that implements the matrix method of assessment, a consolidated municipal assessment framework can be formulated from the capacity categories of and delivery processes for assessment, as discussed above. Its formulation should of course also consider the delivery of the earlier identified six basic municipal services, i.e. water provision, sanitation, refuse removal, electricity provision, municipal roads and stormwater management.

Through the consolidation of the requirements as mentioned above, the framework as shown in Figure 31 were formulated. By means of plotting the capacity categories of assessment on a vertical axis and the municipal service delivery phases to be assessed on a horizontal axis, a resulting matrix is formed. With reference to Figure 31, the proposed consolidated municipal capacity assessment framework suggests that each of the phases of

the proposed municipal service delivery process can be measured in terms of each dimension of capacity and its respective five elements, for each of the six basic services.

The following chapter will discuss measures by which the proposed consolidated municipal capacity assessment framework can be implemented, with reference to selected techniques and forms of assessment. Chapter Five will thus discuss the construction of the proposed Subjective Municipal Capacity Self-Assessment Model (SMCSAM).

Municipal Service Delivery Process		Three-Dimensional Organisational Capacity															
		Individual Capacity			Institutional Capacity				Environmental Capacity								
Water Provision Refuse Removal Sanitation Electricity Provision Municipal Roads Stormwater Management	Mandate	Abilities and Knowledge	Relevant Work Experience	Technical Capabilities	Management Capabilities	Attitude & Leadership	Policies & Regulations	Powers & Functions	Structures	Systems, Processes & Procedures	Performance Management	Economic Environment	Social Environment	Technological Environment	Legislative Frameworks	Political Environment	
	IDP																
	SDBIP																
	Human Resources																
	Financial Resources																
	Physical Resources																
	Technological Resources																
	Planning																
	Designing																
	Documenting																
	Procurement																
	Financing																
	Construction																
	Maintenance																
	Operations																
	Outputs																
	Outcomes																
Impacts																	

FIGURE 31 - CONSOLIDATED MUNICIPAL CAPACITY ASSESSMENT FRAMEWORK

Figure 31 is presented in a three-dimensional arrangement in Figure 32. In doing so, Figure 32 supports the understanding of the integration of the proposed municipal service delivery process, as shown in Figure 30, and the fifteen elements of organisational capacity as listed derived in Table 20. Owing to the focus on six basic municipal services, the consolidated municipal capacity framework is three-dimensional and consists of 1620 elements.

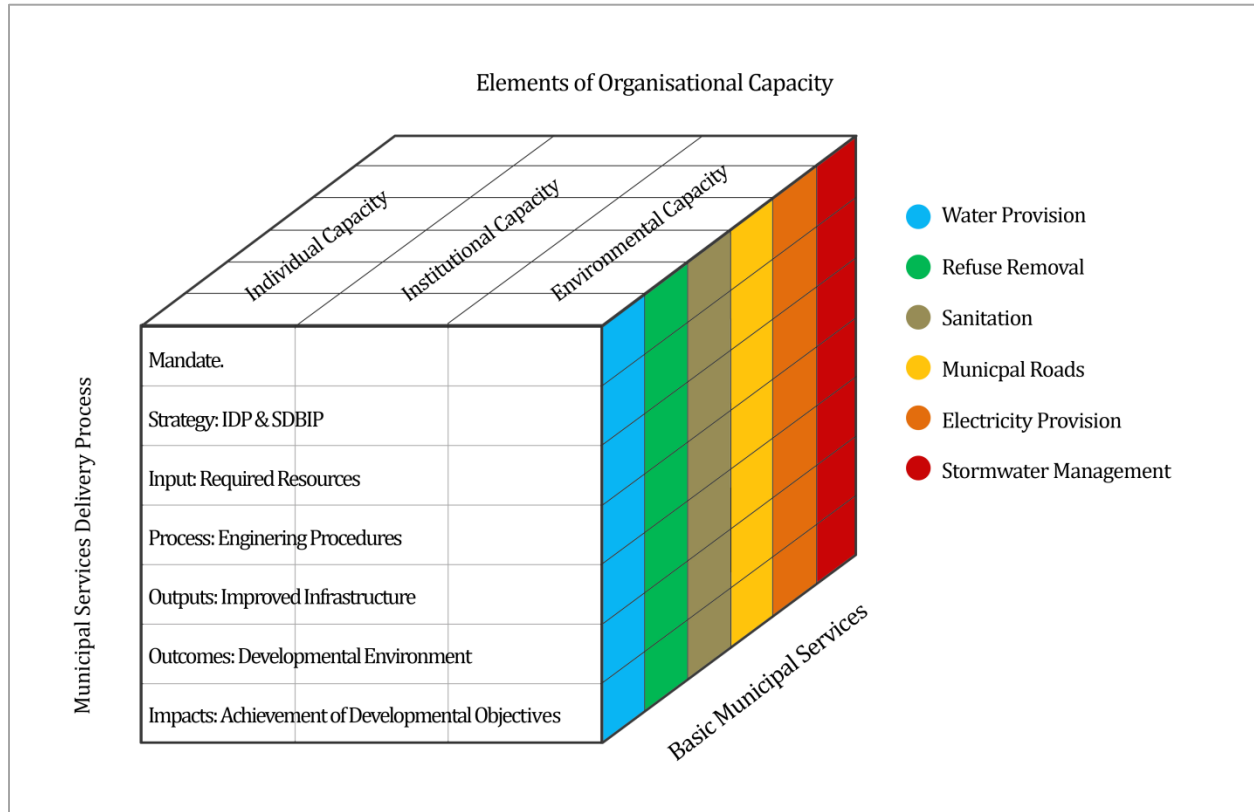


FIGURE 32 - THREE-DIMENSIONAL REPRESENTATION OF THE CONSOLIDATED FRAMEWORK

The three-dimensional representation of the consolidated framework as shown in Figure 32 contains all the elements of the framework as shown in Figure 31. With reference to the conventional orientation of axis, Figure 32 shows that the three dimensions of capacity are listed along the x-axis, the municipal service delivery phases are listed along the y-axis and the six basic municipal services are listed along the z-axis. The three dimensional representation of the consolidated framework will aid the understanding of SMCSAM as it shows how the framework consists of 1620 interrelated elements. It should be noted that the Municipal Service Delivery Phases are clustered together in Figure 32.

4.7 Chapter Conclusion

Chapter Four provided a comprehensive overview of key concepts related to organisational capacity and performance. By means of these definitions, the relation between capacity and performance could be better understood, after it was first introduced in Chapter One and confirmed in following chapters. Moreover, Chapter Four discussed a collection of capacity

assessment frameworks while considering the current practices in South Africa in this regard. Chapter Four also discussed a variety of performance management models and practices in the South African municipal environment. Importantly, this chapter consequently made proposals in terms of how capacity assessment can be integrated with municipalities' performance management systems.

Hence, the objective of Chapter Four was achieved and through the formulation of a consolidated municipal capacity assessment framework, a feasible answer was provided to the main research question of this chapter's, i.e. *What features of a capacity assessment framework are suitable for municipal self-assessment to be effective in South African?*

As anticipated in Chapter One, confirmed in Chapter Two and Three and further motivated in Chapter Four, a sure relationship exists in between organisational capacity and performance while, for effective capacity building to be realised where apparent and latent capacity deficiencies exist, sophisticated measures of capacity assessment are necessary. Based on these relations, Chapter Four provided proof of the possibilities to incorporate capacity assessments in performance management endeavours.

The purpose of Chapter Five is to reflect on the implementation of the consolidated municipal capacity assessment framework. For the achievement of this objective it was necessary to further develop the framework through populating content for the framework's grid of elements as well as to design and construct a platform for the complete framework to be implemented at municipalities. These undertakings led to the construction of the Subjective Municipal Capacity Self-Assessment Model (SMCSAM). Chapter Five therefore discusses how SMCSAM was constructed, with reference to the software platform used and mathematical models implemented for the acquiring and processing of user input data.

Chapter Five: Subjective Municipal Capacity Self-Assessment Model

Chapter Five aims to report on the method of implementation and construction of SMCSAM and to accordingly provide supportive evidence of the applicability of SMCSAM. Closely related to the research question of Chapter Four, the main research question of this chapter is: *What features of a capacity self-assessment model are required for it to be effective in a South African municipal context?*

In providing a thorough answer to this main research question, the following research sub-objectives need to be achieved in this chapter:

- Identify, select and develop the needed features of a self-assessment to acquire accurate and truthful user-inputs.
- Identify, select and implement a suitable procedure for the processing of data acquired through the self-assessment.
- Develop a method to effectively report on the results generated by the proposed subjective municipal capacity self-assessment model.

Through the achievement of these research objectives, Chapter Five will discuss the technique and execution used during the implementation of SMCSAM as part of the pilot study performed at Drakenstein Municipality.

5.1 Introduction

Insights gained from previous chapters, with specific reference to the consolidated municipal capacity assessment framework, was used to formulate a unique solution for the need in South Africa related to practices in terms of municipal capacity assessment and performance management.

Chapter Five will reflect on the construction of SMCSAM which uses the consolidated municipal capacity assessment framework as proposed in Chapter Four, as a basis. SMCSAM was developed as a software model for the implementation at South African municipalities of all categories to be used as an internal management tool with the purpose of supporting strategy formulation with regards to capacity building, performance, performance management and performance improvement.

SMCSAM was developed in Visual Basic for Applications (VBA), an implementation of Microsoft's event-driven programming language, Visual Basic 6 and its associated integrated development environment (IDE). SMCSAM includes the concept of *Fuzzy Logic* as a mathematical model to process users' input data. SMCSAM uses a variety of methods to represent its outputs to support users in identifying capacity strengths and weaknesses.

5.2 Implementation of SMCSAM

5.2.1 Technique of Assessment

SMCSAM implements the technique of self-assessment by means of the matrix method as described in Chapter Four. Ritchie & Dale (2000) alludes that the mutual objective of self-assessment endeavours is the improvement of organisational processes based on opportunities identified by the assessment process. According to Ford & Evans (2002), therefore, self-assessment can be viewed as a catalyst for positive change and be attractive to managers seeking to operationalize a performance improvement philosophy in an organisation. It is indeed intended for SMCSAM to be implemented as catalyst for positive change, which is triggered from within inside municipalities. Varying from conventional methods of capacity assessment and resulting capacity development endeavours, SMCSAM, as a self-assessment model, enables municipalities to build its capacity without the support of external agents.

SMCSAM further implements the matrix method to enable the self-assessment process. This method requires the partaking individuals to provide their perception of the current reality in the organisation by rating a set of statements derived from the structure of a chosen matrix, which in the case of SMCSAM, is the consolidated municipal capacity assessment framework. As part of a self-assessment, these ratings must reflect the perceived truthfulness of the statements. As a result of the use of the matrix method as part of a self-assessment exercise, users' ratings are inevitably subjective whilst used as qualitative data. In this why, the matrix method is easy to implement as it requires little resources and limited training of individuals. A practical feature of this approach is the opportunity to tailor the matrix according to the particular requirements of the organisation.

5.2.2 Execution of Assessment

Related to the nominated combination of techniques of assessment, SMCSAM was implemented at a municipality and the self-assessment was executed under conditions similar to those for which SMCSAM is designed. After the demonstration of SMCSAM, participants (technical employees of municipality) were required to execute the self-assessment within a timeframe of two months. These circumstances simulated a real-world scenario that allowed for accurate conclusions in terms the validation of SMCSAM, and will be discussed in Chapter Six.

5.3 Construction of SMCSAM

5.3.1 Key Municipal Capacity and Performance User Interface

The opening user interface of SMCSAM is designed to supply and obtain key municipal capacity and performance information, and is shown in Figure 33. This interface requires the user to select the province and the name of the municipality. Based on these selections, SMCSAM draws from a database, the magnitude of the municipal region (in km²), its population and population density along with the number of people in the municipal area with-

out access to specific basic municipal services in 2001 and 2011. The eradication of these backlogs, calculated over the ten year period, is also shown, again as a KPI.

1. KEY PERFORMANCE AND CAPACITY INFORMATION ABOUT MUNICIPALITY									
Province of Municipality:		Western Cape			▼		Go		
Name of Municipality:		Stellenbosch Local Municipality			▼		Go		
Municipal Category:		B1							
Municipal Description		Secondary cities - municipality with large budget							
Population:		155733 people			Census 2011				
Area:		831 km ²			Census 2011				
Population Density:		187.4 people/km ²			Census 2011				
Population with no access to basic water provision services:		20245 people		13.0%		Census 2011		18.2%	
Population with no access to basic refuse removal services:		42982 people		27.6%		Census 2011		28.5%	
Population with no access to basic sanitation services:		20089 people		12.9%		Census 2011		18.0%	
Population with no access to basic electricity provision services:		11057 people		7.1%		Census 2011		7.9%	
						Census 2001		5.2%	
						Census 2001		0.9%	
						Census 2001		5.1%	
						Census 2001		0.8%	
								Improvement	
Basic Municipal Services	Service Delivery Phases	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract					
	Planning (majority of)	Internal	Internal Business Unit	Service Contract					
	Designing (majority of)	External	Municipal Entity	Lease Contract					
	Documenting (majority of)	External	Other Institution	Management Contract					
	Procurement (majority of)	External	Other Municipality	Management Contract					
	Financing (majority of)	Internal	Administrative Unit	Concession					
	Construction (majority of)	Don't Perform Function	Other Municipality	Management Contract					
	Maintenance (majority of)	Don't Perform Function	Other Municipality	Management Contract					
	Operations (majority of)	Don't Perform Function							
	*This section accounts for staff members allocated to the delivery of all six basic municipal services.								
ECSA Registered Staff		Number of Employees			Non ECSA Registered Staff		Number of Staff		
Professional Engineers		3			Candidate Engineers		2		
Professional Technicians		2			Candidate Technicians		3		
Professional Technologists		1			Candidate Technologists		1		
Graduate Engineers		1			Non-Graduate Engineers		0		
Graduate Technicians		0			Non-Graduate Technicians		0		
Graduate Technologists		0			Non-Graduate Technologists		0		
Post Position		Highest Degree Obtained			Field of Study		# Years Experience		
Head: Engineering Services		Master's Degree			Engineering		16		

FIGURE 33 - MUNICIPAL PERFORMANCE AND CAPACITY INTERFACE

The remaining section of this interface requires the user to indicate, for all six basic municipal services, the service delivery mechanism, provider and contract used in the majority of cases for each service delivery phase, by selecting the applicable options from the provided option lists. The next section requires the user to indicate the total number of each type of municipal engineering employee and details related to the Technical Services Manager.

It is important to note that the data provided and obtained through this interface is not used in SMCSAM for the calculation of a municipality's capacity, but is rather used for the purpose of comparing it with data as obtained by the MDB through its capacity assessment. It will moreover be used in Chapter Six to verify the numbers against the equations as formulated by Lawless regarding municipalities' engineering resources requirements. It is al-

so provided to give the user a sense of the service deliver challenges which the municipality is experiencing.

The following sections, with reference to the implementation of the consolidated municipal capacity assessment framework and Fuzzy Analytical Hierarchies, report on the user interfaces that provide and obtain data for the purpose of calculating a municipality's capacity.

5.3.2 Application of a Consolidated Municipal Capacity Assessment Framework

SMCSAM is based on the consolidated municipal capacity assessment framework, as developed in Chapter Four and uses various interfaces to guide participants through the assessment. As previously mentioned, the consolidated municipal capacity assessment framework, as shown in Figure 31, suggests that each of the phases of the proposed municipal service delivery process can be measured in terms of each dimension of capacity and its respective five elements. The assessment matrix is further enlarged with the addition of the six municipal basis services, leading to a three-dimensional framework.

The three-dimensional representation of the consolidated framework, as shown in Figure 34, suggest that the overall capacity of a municipality to deliver the six municipal basic services can be assessed in terms of 1620 capacity criteria as it relates to fifteen elements of capacity, eighteen phases of a municipal service delivery process and six basic municipal services. For each capacity criteria, SMCSAM holds a statement which is essentially a link between the three dimensions of the consolidated framework. SMCSAM requires the user to navigate to various sets of statements to allocate a rating to each statement based on the participant's opinion of its accuracy. Examples of these statements include:

- *A technological environment, enhancing the execution of the maintenance of refuse removal infrastructure, is present at the municipality.*
- *Systems, processes and procedures, appropriately designed to endorse water provision services strategies as part of the municipality's IDP, are present.*
- *Employees, with appropriate relevant work experience to be aware of and understand the procurement for municipal sanitation services infrastructure, are present.*

A generic set of statements, similar to those as shown above, is included in Appendix A and does not distinguish between the six different municipal basic services, as statements for each service is nearly identical. This set of statements thus refers to *municipal service*, instead of six different sets referring to each basic municipal service respectively. Figure 34 shows the user interface used to navigate to sets of statements and view a user progress.

| Chapter Five: Subjective Municipal Capacity Self-Assessment Model

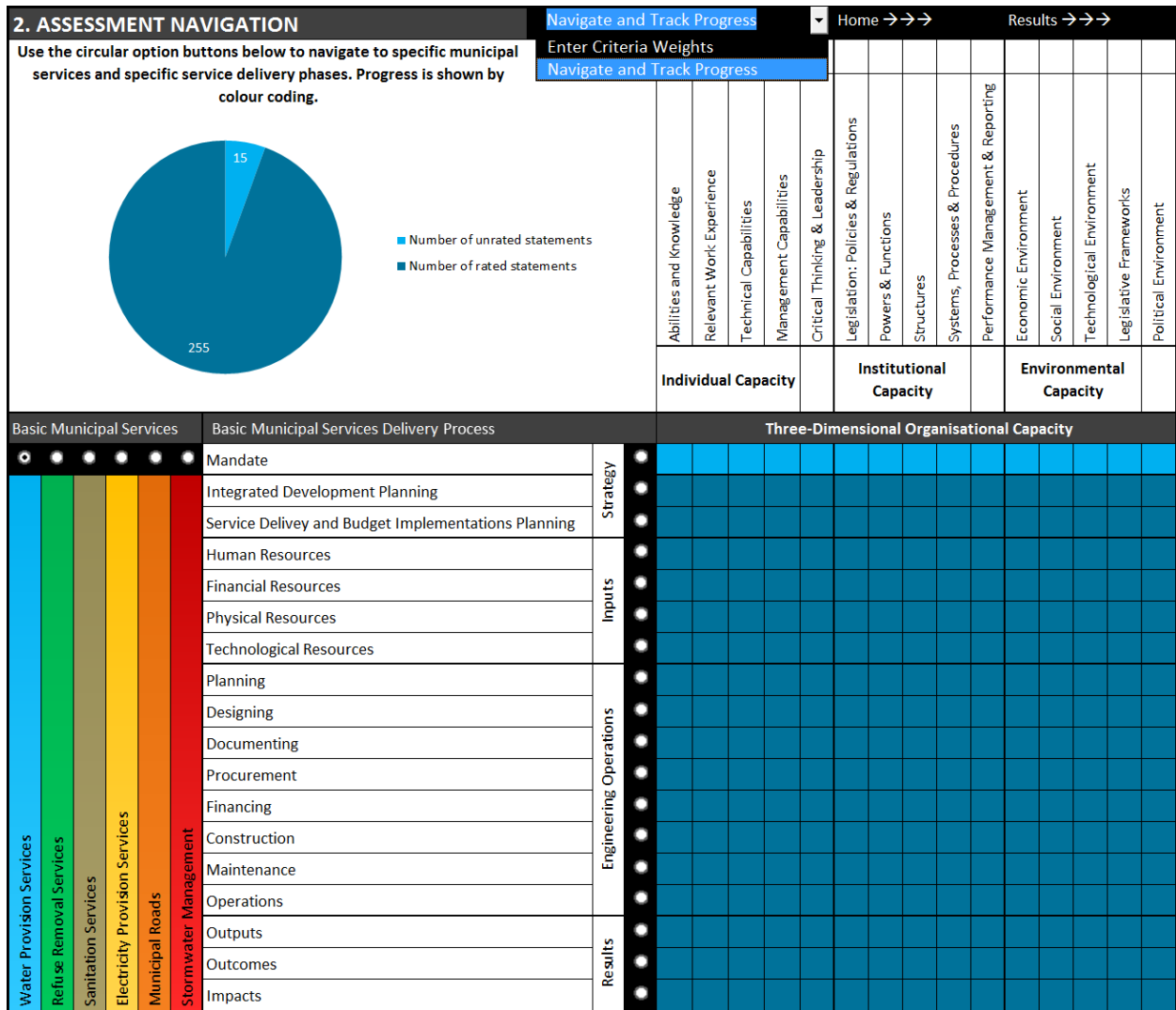


FIGURE 34 - SMCSAM NAVIGATION AND PROGRESS INTERFACE

Figure 34, shows the *Navigation and Track progress* interface (selected from the dropdown box at the top of the interface), by which a user can navigate to a specific set of statements by clicking on a combination (*basic municipal service* and *municipal service delivery phase*) of *radio buttons*. Figure 35 shows how *Water Provision Services* is selected with the assessment matrix and pie chart colour-coded accordingly (Figure 35, shows another example). Here, light blue represents statements which have not been rated. In order to navigate to an interface which holds these unrated statements, the user may simply click on the *radio button* allocated next to *Mandate*. Two versions of this interface are shown in the Figure 36 and Figure 37. Rightfully, Figure 37 show how no statements have been rated.

| Chapter Five: Subjective Municipal Capacity Self-Assessment Model

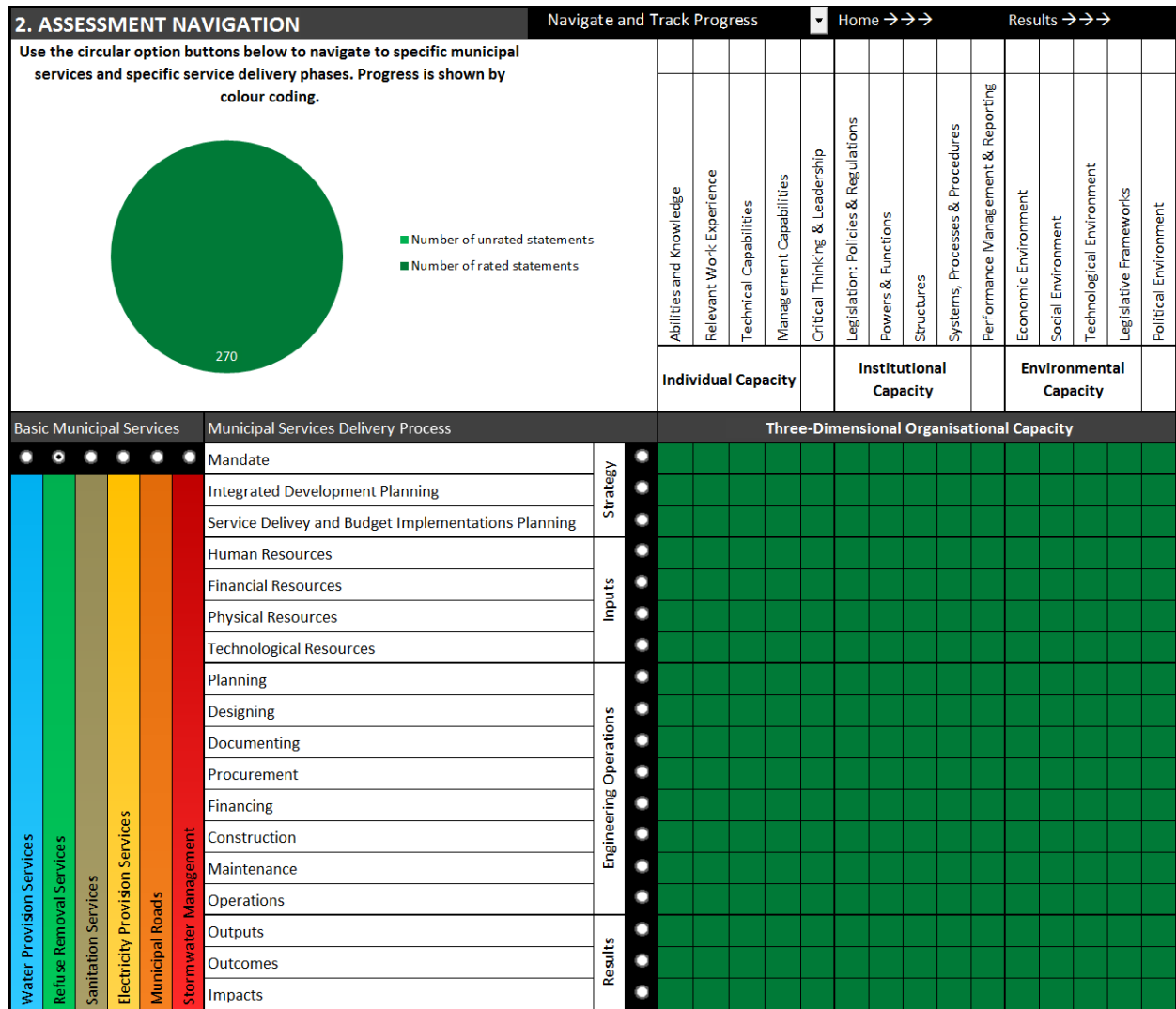


FIGURE 35 - SMCSAM NAVIGATION AND PROGRESS INTERFACE

WATER PROVISION SERVICES		Mandate → Strategy → Inputs → Operations → Outputs → Outcomes → Impacts →						Home ⇌	Results ⇌
Individual Capacity	Abilities and Knowledge	Employees, with appropriate academic qualifications to be aware and understand the water provision services mandate of the municipality, are present.						0	
	Relevant Work Experience	Employees, with appropriate relevant work experience to interpret the water provision services mandate of the municipality, are present.						0	
	Technical Capabilities	Employees, with appropriate technical skills and knowledge to accomplish the water provision services mandate of the municipality, are present.						0	
	Management Capabilities	Employees, with appropriate management skills and knowledge to affect the water provision services mandate of the municipality, are present.						0	
	Critical Thinking & Leadership	Employees, with appropriate abilities to think critically and illustrate the necessary leadership around affecting the water provision services mandate of the municipality, are present.						0	
Institutional Capacity	Legislation: Policies & Regulations	Policies and regulations, with appropriate content to express the water provision services mandate of the municipality, are present.						0	
	Powers & Functions	Powers and functions, appropriately interpreted, designed and assigned to articulate the water provision services mandate of the municipality, are present.						0	
	Structures	Structures, appropriately designed to direct the water provision services mandate of the municipality, are present.						0	
	Systems, Processes & Procedures	Systems, processes and procedures, appropriately designed to endorse the water provision services mandate of the municipality, are present.						0	
	Performance Management & Reporting	Performance management and reporting, appropriately designed and implemented to measure the water provision services mandate of the municipality, are present.						0	
Environmental Capacity	Economic Environment	An economic environment, enhancing the attainment of the water provision services mandate of municipality, is present.						0	
	Social Environment	A social environment, enhancing the attainment of the water provision services mandate of municipality, is present.						0	
	Technological Environment	A technological environment, enhancing the attainment of the water provision services mandate of municipality, is present.						0	
	Legislative & Strategy Frameworks	Legislative and strategy frameworks, enhancing the attainment of the water provision services mandate of municipality, are present.						0	
	Political Environment	A political environment, enhancing the attainment of the water provision services mandate of municipality, is present.						0	

FIGURE 36 - STATEMENTS RELATED TO THE MANDATE OF WATER PROVISION SERVICES

REFUSE REMOVAL SERVICES		Mandate → Strategy → Inputs → Operations → Outputs → Outcomes → Impacts →						Home ⇌	Results ⇌
Individual Capacity	Financial Resources	Human Resources Financial Resources Physical Resources Technological Resources							
	Academic Qualifications	Employees, with appropriate academic qualifications to be aware of and understand the objectives of financial resources for refuse removal services, are present.						50	
	Relevant Work Experience	Employees, with appropriate relevant work experience to be aware of and understand the objectives of financial resources for refuse removal services, are present.						75	
	Skills & Knowledge (Technical)	Employees, with appropriate technical skills and knowledge to acquire and apportion financial resources for refuse removal services, are present.						96	
	Skills & Knowledge (Management)	Employees, with appropriate management skills and knowledge to acquire and apportion financial resources for refuse removal services, are present.						95	
Institutional Capacity	Critical Thinking & Leadership	Employees, with appropriate abilities to think critically and illustrate leadership in managing financial resources for refuse removal services, are present.						52	
	Legislation: Policies & Regulations	Policies and regulations with appropriate content to govern financial resources for refuse removal services, are present.						88	
	Powers & Functions	Powers and functions, appropriately interpreted, designed and assigned to govern and manage financial resources for refuse removal services, are present.						100	
	Structures	Structures, appropriately designed to manage financial resources for refuse removal services, are present.						89	
	Systems, Processes & Procedures	Systems, processes and procedures, appropriately designed to manage financial resources for refuse removal services, are present.						100	
Environmental Capacity	Performance Management & Reporting	Performance management and reporting, appropriately designed and implemented to measure the management of financial resources for refuse removal services, are present.						100	
	Economic Environment	An economic environment, enhancing the management of financial resources for refuse removal services, is present.						91	
	Social Environment	A social environment, enhancing the management of financial resources for refuse removal services, is present.						87	
	Technological Environment	A technological environment, enhancing management of financial resources for refuse removal services, is present.						65	
	Legislative & Strategy Frameworks	Legislative and strategy frameworks, enhancing management of financial resources for refuse removal services, are present.						79	
	Political Environment	A political environment, enhancing the management of financial resources for refuse removal services, is present.						55	

FIGURE 37 - STATEMENTS RELATED TO THE FINANCIAL RESOURCES OF REFUSE REMOVAL SERVICES

5.3.3 Implementation of a Fuzzy Analytical Hierarchy Process

5.3.3.1 Introduction

The nature and implementation of the consolidated municipal capacity assessment framework necessitates a method by which the fifteen elements of organisational capacity can be weighted according to its relevance. Through a weighting process, the relative relevance of each of the fifteen capacity elements can be calculated to accurately report on the capacity of a municipality. For this use, the theory of Fuzzy Logic was incorporated into SMCSAM.

The concept of Fuzzy Logic was developed by Lotfi A. Zadeh in 1965. Fuzzy Logic is a multi-valued logic, which allows intermediate values to be defined between conventional evaluations like true or false, yes or no, high or low, etc. and can therefore be conceptualized as a generalisation of classical logic. Owing to a wide range of uses, Fuzzy Logic has emerged as an operational tool for the controlling and steering of systems and complex industrial processes (Hellmann, 2001). The ambiguity and nature of the extent to which a capacity element contributes to organisational capacity can also be overcome by the use of Fuzzy Logic.

A Fuzzy analytical hierarchy process (AHP) was thus developed to form part of SMCSAM in order to standardise the relevance of each of the fifteen capacity elements. AHP is one of the extensively used multi-criteria decision-making (MCDM) methods, in which the decision makers need to make qualitative assessments regarding the performance of the decision alternatives with respect to each independent criterion and the relative importance of each independent criterion regarding the overall objective of the problem (Saaty, 1980).

AHP is a subjective MCDM (Hwang & Yoon, 1981) where it is not compulsory to involve a large sample, and it is useful for research focusing on the specific issue where a large sample is not mandatory (Lam & Zhao, 1998). Fuzzy AHP's were developed to solve the hierarchical fuzzy problems due to uncertainty or fuzziness. The applications of fuzzy AHP have been done by many researchers (Laarhoeven & Pedrycz, 1983) and different fuzzy AHP models (Boender, de Graan, & Lootsma, 1989) are constructed for different problems in the areas of human needs and interests, such as political (Murtaza, 2003), economic (Chi & Kuo, 2001) and management sciences (Kang & Lee, 2006).

The hierarchy, based on the consolidated municipal capacity assessment framework, which is relevant to this research study, is shown in Table 21 in Chapter Four. The following sections, with reference to this hierarchy, discuss the AHP which was implemented as part of SMCSAM. SMCSAM asks for user-input with regards to the relative importance of capacity element relative to the applicable dimension of organisational capacity. User-input is required similarly for each of the three dimensions of organisational capacity relative to the inclusive organisational capacity. These inputs are attained in SMCSAM by means of the interface as shown in Figure 38 and Figure 39.

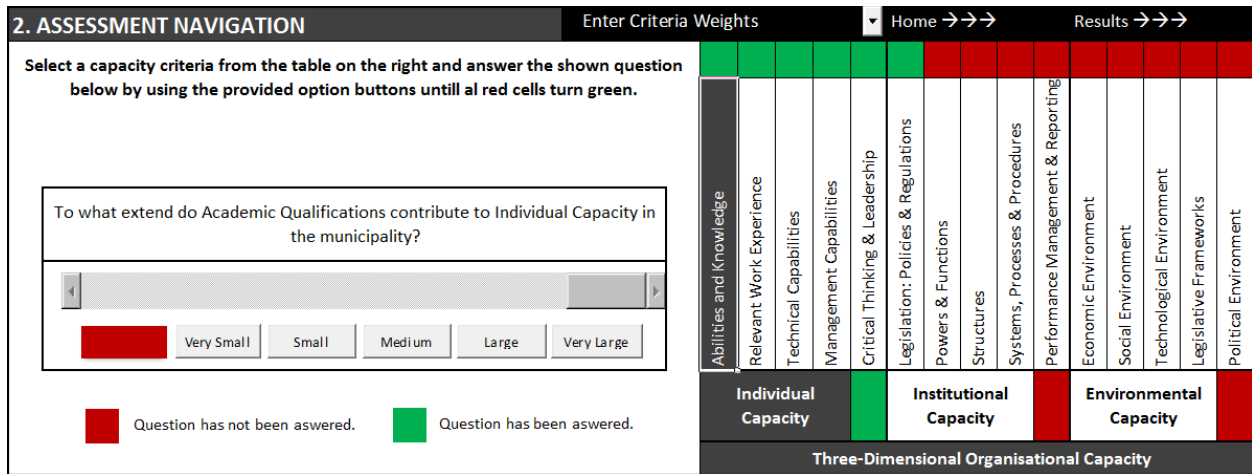


FIGURE 38 - USER INTERFACE USED TO ATTAIN USER-INPUT FOR FUZZY AHP A

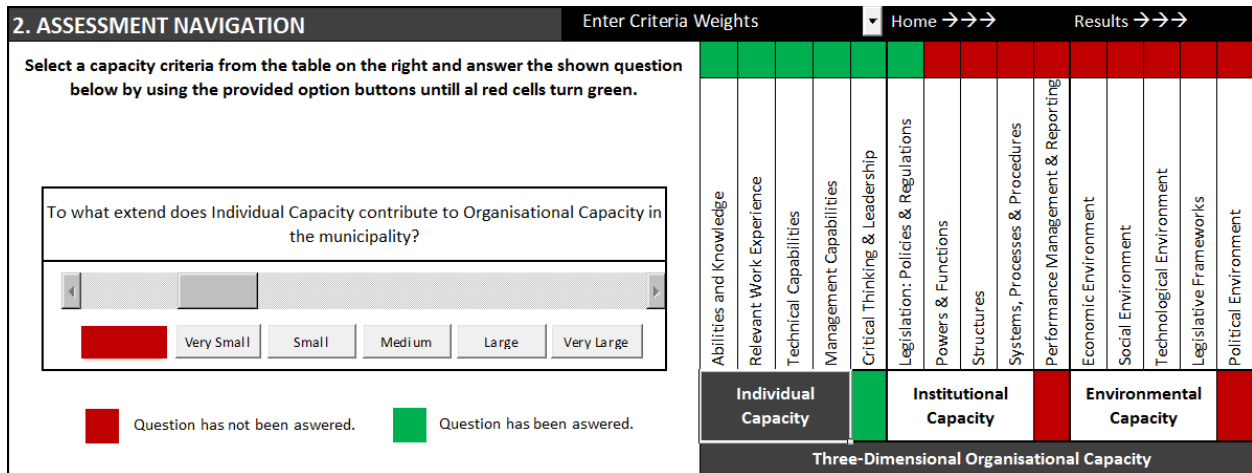


FIGURE 39 - USER INTERFACE USED TO ATTAIN USER-INPUT FOR FUZZY AHP B

The user interface as shown in Figure 38 and Figure 39 is presented when the user selects *Enter Criteria Weights* from the *dropdown box* at the top of the interface and is designed to display a unique question that is based on the user’s selection in the matrix of capacity categories for assessment. The displayed question must then be answered by clicking on the most appropriate option button. The option buttons are labelled as: *very small*, *small*, *medium*, *large* and *very large*. After selecting the most appropriate option, the provided *scrollbar* will reflect the decision made, while the cells adjacent to the selected capacity category will turn from red to green, indicating that the related *question has been answered*.

Regarding the AHP’s use of these user-inputs, the selected linguistic scale is linked to fuzzy numbers and related triangular fuzzy membership functions as shown in Table 22.

TABLE 22 - FUZZY SCALE USED IN SMCSAM

Fuzzy Number / Judgement	Membership Function (M _i)
1 - <i>Very Small</i>	(1, 1, 2)
2 - <i>Small</i>	(1, 2, 3)
3 - <i>Medium</i>	(2, 3, 4)
4 - <i>Large</i>	(3, 4, 5)
5 - <i>Very Large</i>	(4, 5, 5)

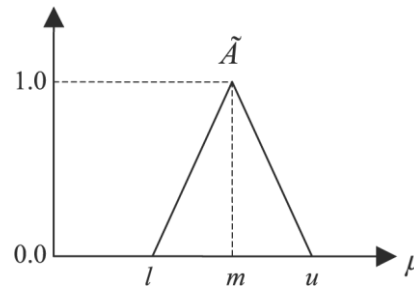
After the completion of this user-input exercise for each of the fifteen elements and three dimensions of organisational capacity, attained data is used in an automated Fuzzy AHP. A typical Fuzzy AHP decision problem, consists of (1) a number of alternatives, M_i (i=1, 2, ..., m), (2) a collection of evaluation criteria, C_j (j=1, 2, ..., n), (3) a linguistic judgement r_{ij} representing the relative importance of each pair criteria, and (4) a weighting vector, w = (w₁, w₂, ..., w_n). SMCSAM incorporates a simplified Fuzzy AHP (Buckley, 1984). The following sections further discuss the aspects of a typical Fuzzy AHP in the context of SMCSAM.

5.3.3.2 Development of a Fuzzy Analytical Hierarchy Process

The triangular fuzzy number or membership function, denoted with \tilde{M} , is represented by (l, m, u) where the strongest grade of membership is the parameter m, that is $f_M(m) = 1$, and l and u are the lower bound and upper bound of variable x respectively. The membership function can be defined and graphically shown as below:

$$\mu_{\tilde{M}}(x) = \begin{cases} \frac{x-l}{m-l}, & l \leq x \leq m \\ \frac{u-x}{u-m}, & m \leq x \leq u \\ 0, & \text{otherwise} \end{cases}$$

with $-\infty < l \leq m \leq u < \infty$.



If $l = m = u$, the fuzzy number turns to a crisp number. It can moreover be assumed that for $\tilde{M}_1 (l_1, m_1, u_1)$ and $\tilde{M}_2 (l_2, m_2, u_2)$, the main basic operations can be expressed as follows:

- $\tilde{M}_1 + \tilde{M}_2 = (l_1 + l_2, m_1 + m_2, u_1 + u_2)$
- $\tilde{M}_1 \times \tilde{M}_2 = (l_1 \times l_2, m_1 \times m_2, u_1 \times u_2)$
- $\tilde{M}_1^{-1} = (u_1^{-1}, m_1^{-1}, l_1^{-1})$

In the case of SMCSAM, a five-point fundamental scale is used, as shown in Table 21, for the pair-wise comparisons as required by a Fuzzy AHP. Thus, the triangular fuzzy numbers from 1 to 5 and its reciprocals are attained to capture the vagueness in the pair-wise comparisons. Herby, a n-dimensional fuzzy pairwise comparison matrix \tilde{A} can be constructed:

$$\tilde{A} = \begin{bmatrix} (1,1,1) & \tilde{r}_{12} & \cdots & \tilde{r}_{1n} \\ \tilde{r}_{21} & (1,1,1) & \cdots & \tilde{r}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \tilde{r}_{n1} & \tilde{r}_{n2} & \cdots & (1,1,1) \end{bmatrix}$$

\hat{r}_{ij} is a triangular fuzzy number $\hat{r}_{ij} = (l_{ij}, m_{ij}, u_{ij})$ denoting a person's judgement between elements i and j for all $i, j \in \{1, 2, \dots, n\}$; $\hat{r}_{ij} = \hat{r}_{ji}^{-1}$. It should be understood that these judgements can create an inconsistency in logic for example when one evaluator said "*criterion A is more important than criterion B, criterion B seems moderately more important when compared with criterion C, criterion A is equally important compared with criterion B*". To avoid or reduce the suffering from such inconsistencies, evaluations need to be examined. This analysis can be done by determining the consistency ration (CR) that is defined as the consistency index (CI) divided by an average index for the randomly generated weights (RI). The consistency index (CI) can be approximated as follows:

- $CI = \frac{\lambda_{max} - n}{n - 1}$,
- where λ_{max} = maximum eigenvalue, and n is the dimension of the matrix \hat{A} .

Such analysis was not implemented in the case of SMCSAM as it merely makes use of one evaluator's input at a time and is therefore rather structured to attain the relevance of capacity elements in terms of the applicable dimension of organisational capacity, instead of the relative relevance between capacity elements itself.

Depending on the AHP method, the Normalisation of the Geometric Mean (NGM) method, as used in Buckley's simplified model, can be used to calculate the relative weight of each element. The weight of each capacity element, relative to the applicable dimension of organisational capacity can be calculated by using the following formulae:

- $w_i = \frac{g_i}{\sum_{i=1}^n g_i}$, where
- $g_i = (\prod_{j=1}^n r_{ij})^{\frac{1}{n}}$

In the equations above, g_i is the geometric mean of element i . r_{ij} is the comparison value of element i to j . w_i is the i th element weight, where $w_i > 0$ and $\sum_{i=1}^n w_i = 1$, $1 \leq i \leq n$. SMCSAM uses the NGM method to initially determine the *local* weight of each capacity element in relation to the applicable dimension of organisational capacity, where after each of these dimensions' weights, in relation to the overall organisation capacity, is calculated.

Hereby it is possible to, through a simple weighting exercise, calculate the global weight of each of the fifteen capacity elements. This exercise, that is essentially a normalisation process, allows for the compilation of a priority list, which lists all capacity elements according

to its weight or relevance to the overall organisational capacity. Chapter Six, with regards to the validation of SMCSAM, reports on this priority list as developed in the case study.

5.3.3.3 Implementation of Microsoft's Visual Basic for Applications (VBA)

Typically, three types of management information systems are encountered in the day-to-day business life, i.e. transaction processing systems, management report systems, and decision support systems. SMCSAM is fundamentally a decision support systems and thus requires further investigation of this type of management information system. According to Wang & Wang (2008), decision support systems can provide information to a decision maker where the decision are not well structured or are unanticipated. Decision support systems allow the decision maker to use a computerized information system to add structure to the situation and convert unstructured problems into a selection of structured problems in order to solve these problems.

As such, a combination of management judgement, paths of problem solving, decision models, and data analysis is required in a decision support system. User-computer interface and model management are the main concerns in decision support systems. According to Wang, et al. (2008), visual computer languages such as VBA are best suitable for the development of decision support systems. Decision support systems consist of three major components, i.e. interface, database and model base. The design of SMCSAM required the use of these three components and consequently, Microsoft's VBA was chosen as the programming language to be used for the construction of SMCSAM.

VBA is the programming language for Microsoft Office and its associated applications that strongly resemble the majority of popular, structured programming languages. According to Schneider (1999), VBA is one of the most valuable developments in programming in many years. VBA is the following generation of BASIC (a family of general-purpose, high-level programming languages whose design philosophy emphasizes ease of use) and is designed to make user-friendly programs easier to develop. In the context of this research study, the requirements regarding the construction of SMCSAM could sufficiently be satisfied by the use of Microsoft's Visual Basic for Applications (VBA) in Microsoft Excel.

These requirements include systematic methods for attaining user inputs and effective systems to process, store, transfer and present this data in coherent ways to support the user's understanding of the municipality's capacity strengths and weaknesses. With reference to user-input, user-computer interfaces, model bases, data bases model outputs, Figure 40 shows a framework of a decision support system in the spreadsheet environment.

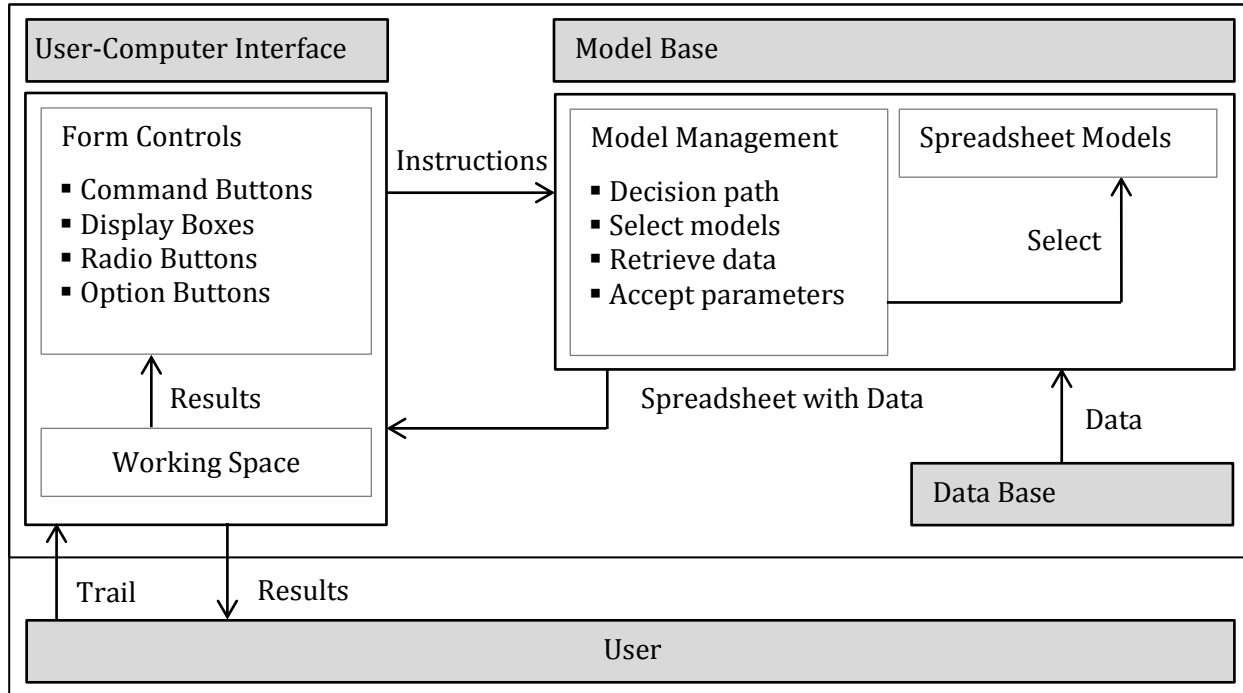


FIGURE 40 - FRAMEWORK OF A DECISION SUPPORT SYSTEM IN THE SPREADSHEET ENVIRONMENT

(WANG & WANG, 2008)

5.4 Outputs of SMCSAM

Through the implementation of SMCSAM and the related processing of user input data, as discussed above, insightful outputs are provided to the user. In the same context of the user inputs, outputs of SMCSAM report on a participant's or combination of participants' perceived capacity of a municipality. As discussed, inputs to SMCSAM are subjective and are implemented as qualitative data. It is therefore necessary for the user to interpret the outputs of SMCSAM with such perspective. This characteristic of self-assessment should encourage the honesty of participants during the allocation of ratings of the 1620 statements.

As a result of the extensive number of statements needed to be rated, it is necessary for the outputs of SMCSAM to be presented in a systematic and logical method. SMCSAM uses the consolidated municipal capacity assessment framework to overcome this challenge. After each statement has been rated and the data has been weighted according to the Fuzzy Logic mathematical model, the result of SMCSAM is accessible from a user interface that is similar to the initial *navigation and progress* interface. This interface as shown in Figure 41 shows how colour-coding is used to express the results of an assessment.

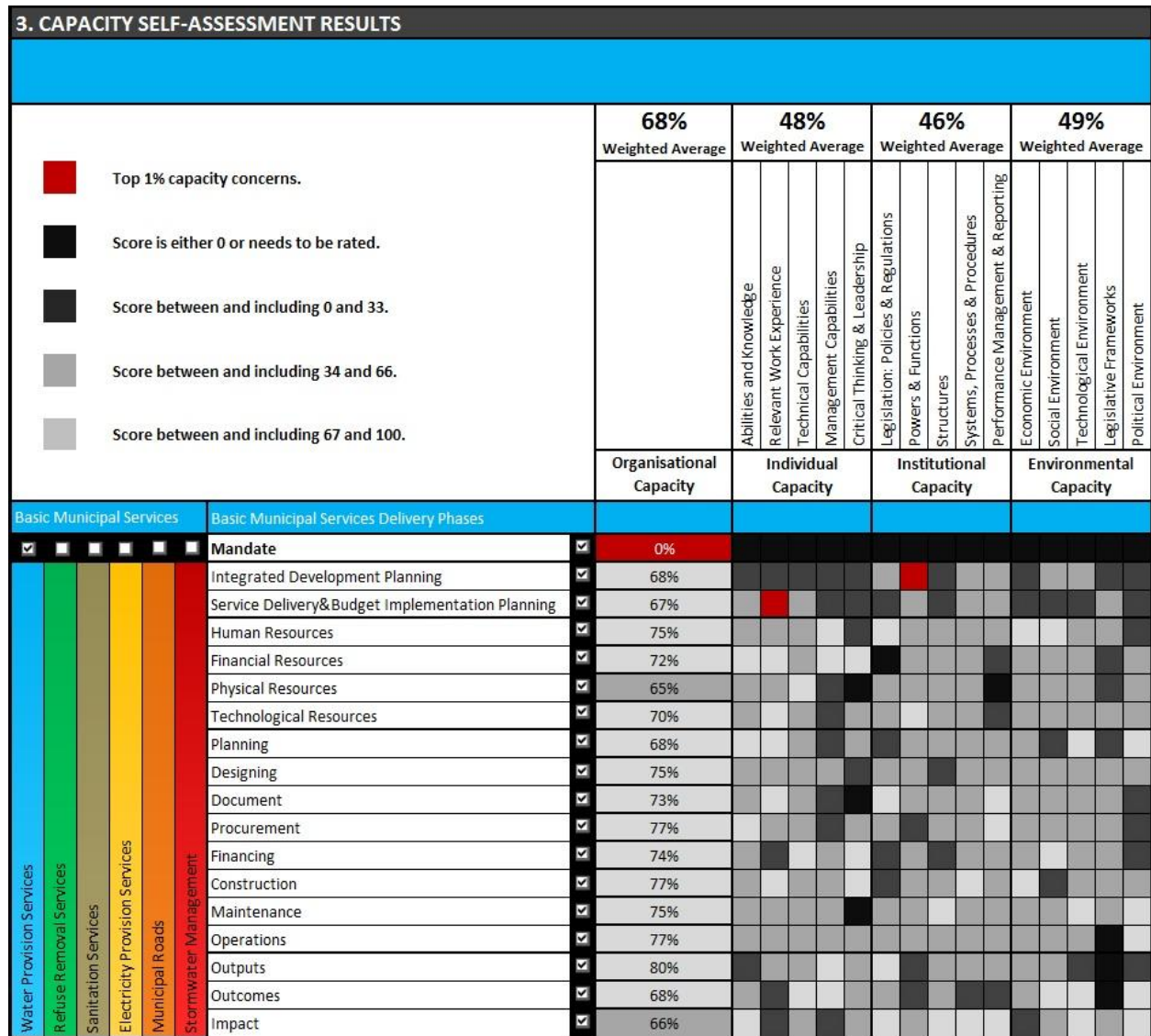


FIGURE 41 - SMCSAM RESULTS INTERFACE: ASSESSMENT MATRIX

Similar to the initial *navigation and progress* interface, the *SMCSAM results interface* enables a user to select a combination of basic municipal services and basic municipal services delivery phases. The colour-coding of cells in the assessment matrix is applied according to the user's selection. With reference to the illustrated legend, the colour of each cell in the assessment matrix represents its ranking. Evidently, darker cells represent lower levels of rankings for perceived capacity, while red cells signify the top 1% lowest rated statements. In the case of this demonstration, the weighted average rating for *Mandate* is 0% as none of the linked statements has been rated. The weighted average for all service delivery phase is shown and used to calculate averages for all dimensions of organisational capacity.

In addition to this interface, Figure 42 SMCSAM uses a *spider diagram* to support the user's understanding of the assessment results. Logically, the *spider diagram* also refers to the same fifteen elements of organisational capacity and uses a scale from 0 to 100.

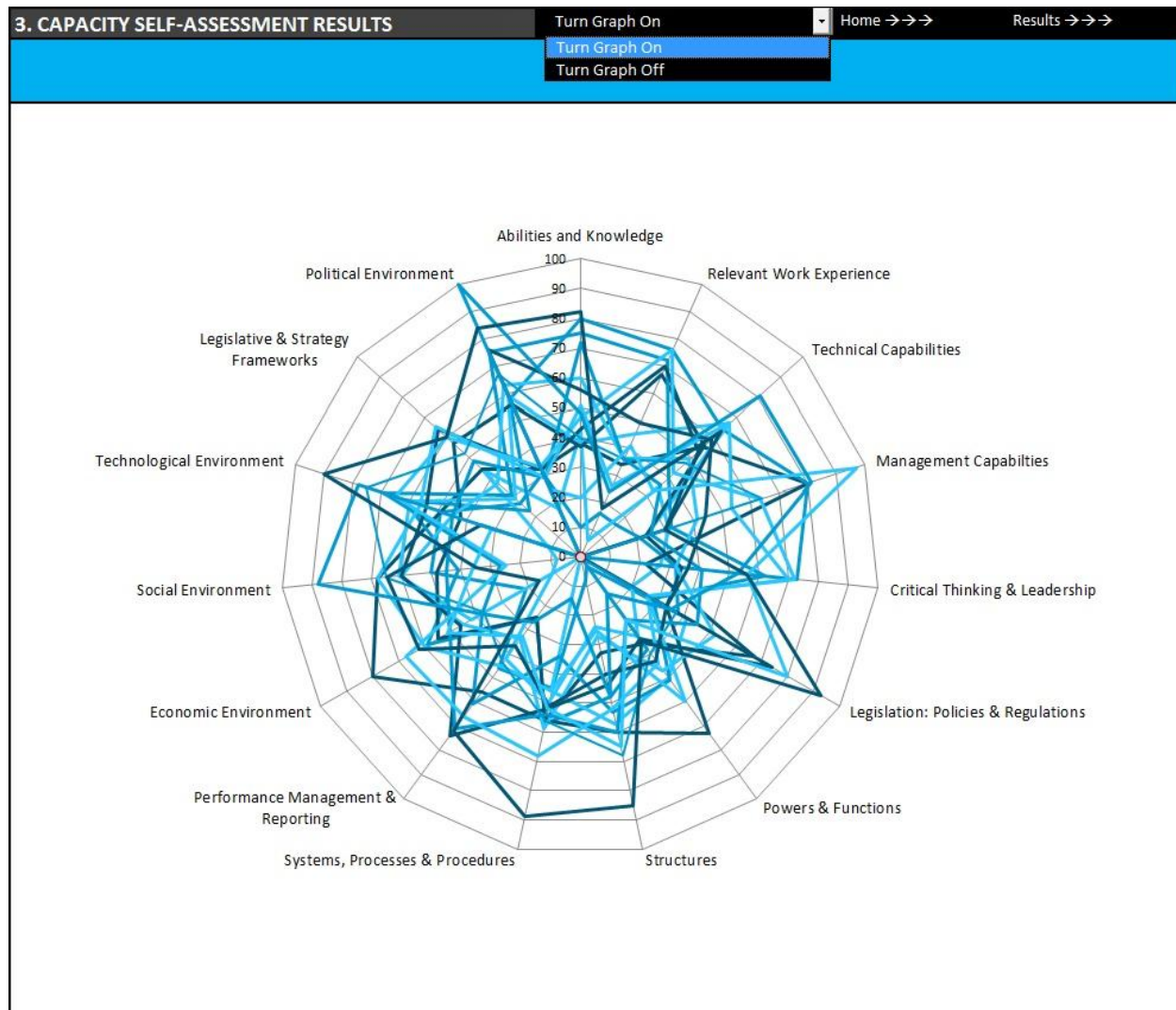


FIGURE 42 - SMCSAM RESULTS INTERFACE: SPIDER DIAGRAM

Evidently, the results as shown in Figure 42 are not interpretable as the *spider diagram* conveys the results of too many of the service delivery phases. Nevertheless, where a user's selection is more refined, the *spider diagram* can be used to effortlessly compare a smaller user selection. When a user selection includes many basic municipal services and municipal service delivery phases and the *spider diagram* becomes useless, by selecting the applicable option from the option box at the top of the interface, the user can pick to hide the diagram.

Variations of the two SMCSAM results interfaces are included in Annexures C and D to demonstrate how two closely related municipal service delivery phases for water provision can be compared and how its results can be analysed.

5.5 Aims of SMCSAM

Through the use of the various user-interfaces in SMCSAM, the model aims to support municipalities in understanding its basic service delivery capacity. It is intended that municipi-

palities implement SMCSAM throughout the year prior to strategic planning, policy formulation or capacity building initiatives. SMCSAM should be completed by functional engineering managers at the highest level, but where the Technical Services Manager would like to consider the view-points of lower level managers or employees, these individuals can also participate in the assessment process. SMCSAM aims to simplify the complexity and interrelatedness of organisational capacity by using two interactive user-interfaces to view assessment results. As SMCSAM implements the matrix method, the model enables a municipality to use alternative service delivery phases or elements of capacity.

It should be noted that it is not intended that the results of SMCSAM be used by higher authorities in bench-marking exercises. SMCSAM captures the subjective views of municipalities' technical employees and therefore the results must be viewed with an appreciation for this subjectivity. However, SMCSAM implements the matrix method which supports the objectivity of assessments. Therefore, where the implementation of SMCSAM is monitored by external facilitators, assessment results should become more standardised for the purpose of bench-marking exercises. Nevertheless, SMCSAM aims to initiate dialogues between municipal managers and even between different municipalities and spheres of government on the development of municipal capacity for ultimate improved municipal service delivery.

5.6 Chapter Conclusion

Chapter Five focused on providing supportive evidence of the applicability of SMCSAM. A combination of the selected technique and execution of SMCSAM was discussed to reflect on its implementation. Selections in this regard were based on insights attained in Chapter Four. By discussing the construction of SMCSAM, this chapter provided evidence of how SMCSAM can be practically implemented at municipalities in South Africa and provided viable answers to the main research question of this chapter. Fundamental to answering this question, Chapter Five also focussed on the following aspects in an attempt to answer the secondary research questions of this chapter:

- Implementing the consolidated municipal capacity assessment framework as part of the design of SMCSAM to acquire comprehensive and truthful user input data.
- Implementing the concept of Fuzzy Analytical Hierarchies as a method to appropriately process the aforesaid user input data and reflect accurate assessment results.
- Constructing an output interface for SMCSAM that uses both colour-coding and diagrams to enable users to effortlessly and accurately interpret assessment results.

Chapter Five essentially concluded an extensive research process of reasoning and arguing. SMCSAM thereby reflects all insights gained throughout all previous chapters and related research. Although the development of SMCSAM is based on credible source documents, needs exist to validate the applicability of SMCSAM. As stated earlier, SMCSAM was imple-

mented at Drakenstein municipality and the self-assessment was performed under conditions similar to those for which SMCSAM is developed.

In addition to this implementation, three interviews with specialists were performed, while an appropriate number of questionnaires were completed and collected. Chapter Six elaborates on these and further processes adopted for the validation of SMCSAM.

Chapter Six: Research Validation

Chapter Six aims to report on the validation of SMCSAM by referring to a collection of validation procedures. The main research question of this chapter accordingly includes: *Which insights can be gained by means of the implementation of SMCSAM?*

In providing a thorough answer to this main research question, the following research sub-objectives need to be achieved in this chapter:

- Implement the SMCSAM at Drakenstein Municipality and perform an assessment of all six selected basic municipal services.
- Compare the SMCSAM results with the findings of the literature study related to the performance of Drakenstein Municipality.
- Determine the extent of support gained through the assessment results in terms of decision-making related capacity building.

By the achievement of these research objectives, Chapter Six will provide substantial evidence of the usability, credibility, practicality and relevance of SMCSAM.

6.1 Introduction

Chapter Four introduced the consolidated municipal capacity assessment framework after which Chapter Five reported on the method of implementation, construction and operation of SMCSAM. For the purpose of validating SMCSAM, it was required to be implemented at a municipality. In addition to its implementation at Drakenstein Municipality, SMCSAM was validated by means of questionnaires and interviews with academic experts as well as specialist from both the private and public sector. It is the aim of Chapter Six to report on these three and further forms of validation to draw sound conclusions regarding the current and potential value of SMCSAM. The next section reports on the implementation of SMCSAM, as part of the pilot study executed at Drakenstein Municipality, located in Paarl, Western Cape.

6.2 Pilot Study: Drakenstein Municipality

6.2.1 Introduction

Drakenstein Municipality was chosen for the implementation of SMCSAM after it was identified as one of the highest performing municipalities in South Africa. Based on figures provided by the 2011 Census, Drakenstein Municipality was the Category B1 municipality with the lowest average level of backlogs regarding water provision, sanitation, refuse removal and electricity provision, while when considering all municipal categories, it had the third lowest levels of backlogs in South Africa. As confirmed by forgoing chapters, high performing municipalities, such as Drakenstein Municipality, generally have high levels of capacity.

An assessment for each of the six selected basic municipal services was completed through means of SMCSAM with input from different technical managers at Drakenstein Municipality.

ty. These managers oversee either a single or a combination of services and are shown in Table 23. The Technical Services Director, Deon du Plessis, completed the SMCSAM section related to sanitation services. It must be noted that Carel Lots completed the SMCSAM sections related to both municipal roads and stormwater management.

TABLE 23 - DETAILS OF ENGINEERING MANAGERS AT DRAKENSTEIN MUNICIPALITY

Engineering Service	Engineering Manager
Water Provision	Andre Kowalewski
Refuse Removal Services	Ronald Brown
Sanitation Services	Deon du Plessis
Electricity Provision	Marahwaan Fredericks
Municipal Roads	Carel Lotz
Stormwater Management	Carel Lotz

The next sections provide a background of the recently recorded performance and capacity of Drakenstein Municipality. Following on this section, the results as obtained through the implementation of SMCSAM are discussed with reference to the following aspects:

- Key Capacity Information
- Capacity Criteria Weights
- Contextualised Capacity Self-Assessment Results

6.2.2 Performance and Capacity Background

6.2.2.1 Introduction

According to Drakenstein Municipality's Performance Overview Report for 2011/2012, the municipality achieved 99% of the KPI's which are monitored, measured and reported on in terms of the National Key Performance Areas. Subsequently, CoGTA rated Drakenstein Municipality under Class 4, a classification for the highest performing municipalities in South Africa. This municipality was also rated as the national eighth most productive municipality in 2012. According to its records, the municipality has no backlogs regarding basic services, spent 100% of its Municipal Infrastructure Grant and collected 96% of billed revenue from end-users (Drakenstein Municipality, 2013).

According to MDB (2012), by the end of 2011, 255 of the 2045 funded and unfunded posts at Drakenstein Municipality were vacant. Although this municipality had a vacancy rate of 12.5%, it is well-below the average of 33.3% for all Category B1 municipalities. By the end of 2011, the municipality employed 4 registered Professional Engineers, 10 technologists and 49 technicians (registered and not registered), while 26.0% of all staff members had at least a graduate degree from a university. Table 24 shows the services delivered by Drakenstein Municipality with the associated allocated percentage of staff, vacancy rates and the percentage of staff with undergraduate degrees per service.

TABLE 24 – STAFFING PROFILE OF DRAKENSTEIN MUNICIPALITY
MDB (2012)

Municipal Service	Employees	% Staff	% Vacancies	% Staff with Degree
Governance and Administration	362	17.7%	13.1%	24.3%
Water Services	162	7.90%	4.80%	1.70%
Electricity and Gas Reticulation	235	11.5%	6.50%	1.70%
Waste Management	229	11.2%	13.3%	0.60%
Roads and Stormwater	168	8.20%	11.4%	2.40%
Community and Social Services	372	23.1%	20.4%	1.40%
Planning and Development	72	3.50%	10.9%	9.40%
Emergency Services	102	5.00%	13.3%	94.7%
Economic Development	14	0.70%	0.00%	30.0%
Housing	119	5.80%	9.00%	1.10%
Traffic and Policing	84	4.10%	8.80%	1.60%

6.2.2.2 Water Provision

Related to Water Services as shown in Table 24, in 2011, Drakenstein Municipality had 5.48 staff per 10000 persons in service, including no registered Professional Engineers, three technologists and two technicians (registered and not registered). Although these numbers are lower than the average for all the Category B1 municipalities, Drakenstein Municipality achieved a Blue Drop status with an average score of 96.3% (MDB, 2012). The municipality achieved many other objectives related to water provision, including the completion of the Newton and Antoniesvlei bulk water upgrades as well as the upgrading of the water reticulation system that included the upgrading and installation of 19152 metres of water pipes. Drakenstein Municipality eradicated 7.9% of water provision backlogs from 2001 to 2011 and by 2012 delivered 11.4% non-revenue water.

6.2.2.3 Refuse Removal Services

In 2011, Drakenstein Municipality had 7.83 staff per 10000 persons for refuse removal services, while the average for all South African municipalities was 5.95. In 2011, it was recorded that, for waste management, the municipality employed only one technologist and one technician and had no registered professional engineers in service. Yet, the municipality upgraded various refuse drop-offs, expanded the At-Source recycling system and upgraded the Wellington Landfill Facility. The municipality further has an approved Integrated Waste Management Plan, all its municipal-owned landfill sites are registered according to the Environmental Conservation Act and the Waste Act, while between 2001 and 2011, it eradicated 13.9% of its backlogs regarding refuse removal services and was awarded with first prize as Greenest Municipality in the Western Cape for 2011.

6.2.2.4 Sanitation Services

Drakenstein Municipality's sanitation services staff forms part of the statistic stated above, as MDB (2012) groups sanitation services with water provision together under *water services*. With regards to sanitation service delivery performance, the municipality achieved various objectives in 2011, including an above-average Green Drop score of 80.3%, the improvement of the Wastewater Treatment Works (WWTW) in Paarl, Saron and Gouda and the upgrading of two major pump stations. Accordingly, Drakenstein Municipality received an award for Best Wastewater Treatment Practices from the Water Research Commission. From 2001 to 2011, the municipality eradicated 6.7% of its sanitation services backlogs.

6.2.2.5 Municipal Roads and Stormwater Management

In 2011, Drakenstein Municipality had 5.7 staff per 10000 persons for municipal roads and Stormwater Management which are above the average of 3.2 for all Category B1 municipalities in South Africa. However, 11.4% posts were vacant for these services and only 2.4% of staff had at least a graduate degree. The municipality allocated two registered Professional Engineers, none technologists and two technicians to the delivery of municipal roads and stormwater management. Nonetheless, the municipality, according to its annual report for 2011/2012, achieved all its service delivery objectives with regards to the construction and maintenance of municipal roads and stormwater management infrastructure.

6.2.2.6 Electricity Provision

For electricity provision in 2011, Drakenstein Municipality had two registered Professional Engineers, one technologist and two technicians in service, with an average of 8.01 staff per 10000 persons. 6.5% of the posts were vacant while merely 1.7% of the staff had at least a graduate degree (MDB, 2012). With regards to its service delivery performance, Drakenstein municipality achieved many of its objectives including the construction mini substations, transformer stations and high tension overhead lines as well as the installation of prepaid meters and the execution of associated inspections. Between 2001 and 2011, Drakenstein Municipality eradicated 7.9% of electricity provision backlogs in its area of authorisation and according to its annual report, 100% of formal households in its area have access to basic levels of electricity services (Drakenstein Municipality, 2013).

6.2.2.7 Conclusion

The reports on Drakenstein Municipality's capacity and performance above reflect a sensible level of municipal management and leadership. Acknowledging the relative low levels of staffing along with the relative high levels of performance, it can be concluded that Drakenstein Municipality is delivering basic municipal services at high levels of efficiency. This confirms the phenomenon as described already, where municipalities' performance cannot be directly related to its capacity. As in this case, the service delivery performance of Dra-

kenstein Municipality could be related to effective management practices as well as active leadership from within its administrative and political structures.

Owing to the difference between the capacity assessments of the MDB, as referred to in the reflections above, and the assessments as part of SMCSAM, the next sections report on the results of SMCSAM's implementation at Drakenstein Municipality in order to determine the extent to which the results of these two assessments correspond. Opposed to its practicality and usability, this form of validation is performed to verify the credibility of SMCSAM.

6.2.3 Service Delivery Mechanisms

6.2.3.1 Introduction

Information with regards to the service delivery mechanisms, providers and contracts, as implemented at Drakenstein Municipality and captured through the *Key Municipal Capacity and Performance Interface* of SMCSAM will be discussed for all services in the following sections. It should be noted that the data collected for each service reflects the scenarios which are implemented during the majority of service delivery projects. Reasonably, for different projects, a variety of combinations of service delivery mechanisms, providers and contracts will be used for each of the engineering functions.

Based on previous insights related to the transformation of local government, it can however be anticipated that, for most of the six basic municipal services, the following sections will confirm that the engineering functions are outsourced by Drakenstein Municipality, as suggested by Lawless (2007) in Figure 21. It can be assumed that the extent of outsourcing of engineering functions significantly affects the need for internal capacity.

6.2.3.2 Water Provision

In Table 24, it can be seen that, for water provision, the technical department of Drakenstein Municipality fulfils the related engineering functions in a way that is similar to the modern approach as suggested by Lawless (2007) in Figure 21. However, the municipality uses external service delivery mechanisms for the majority of maintenance activities, while this function is usually performed internally. Similarly, documenting is performed internally, while it is usually performed through the use of external service delivery mechanisms.

As can be expected for all services, the procurement phase is performed through an internal administrative unit. Though Lawless (2007) do not include procurement as part of the process as shown in Figure 21, the Municipal Systems Act, 2000 suggests that it is a critical function and will in most cases be performed by the municipality itself. Owing to the nature of the funding of municipalities from the national fiscus and through government grants, it is likely that for all services, the function of financing will also be performed internally.

With reference to the different options for service delivery providers, though it is not specified that, where *other institutions* are selected, outsourcing to private or state-owned com-

panies is implied, based on the literature study, it can be indeed be assumed. Accordingly it can be observed that for all outsourced engineering functions, management contracts are implemented. Table 25 moreover shows that for each engineering functions which are performed internally by an administrative unit, service contracts are used.

TABLE 25 - KEY MUNICIPAL CAPACITY DATA FOR WATER PROVISION

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	Internal	Administrative Unit	Service Contract
Financing	Internal	Administrative Unit	Service Contract
Construction	External	Other Institutions	Management Contract
Maintenance	External	Other Institutions	Management Contract
Operations	Internal	Administrative Unit	Service Contract

6.2.3.3 Refuse Removal Services

Table 26 shows the use of service delivery mechanisms for the delivery of refuse removal services and how it is the same as for water provision. This indicates that the suggestions by Lawless as shown in Figure 21 are equally accurate for refuse removal services.

TABLE 26 - KEY MUNICIPAL CAPACITY DATA FOR REFUSE REMOVAL SERVICES

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	Internal	Administrative Unit	Service Contract
Financing	Internal	Administrative Unit	Service Contract
Construction	External	Other Institutions	Management Contract
Maintenance	External	Other Institutions	Management Contract
Operations	Internal	Administrative Unit	Service Contract

6.2.3.4 Sanitation Services

Table 27 shows the use of service delivery mechanisms for the delivery of sanitation services and how it is similar to the combinations of service delivery mechanisms used for water provision and refuse removal services. This can be assumed to be the result of the similarities in the nature of the aforesaid services. Nevertheless, for sanitation services, the municipality fulfils the maintenance function through an internal administrative unit. The combination of service delivery mechanisms used for sanitation services therefore is exactly the same as the contemporary approach as suggested Lawless in Figure 22.

TABLE 27 - KEY MUNICIPAL CAPACITY DATA FOR SANITATION SERVICES

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	Internal	Administrative Unit	Service Contract
Financing	Internal	Administrative Unit	Service Contract
Construction	External	Other Institutions	Management Contract
Maintenance	Internal	Administrative Unit	Service Contract
Operations	Internal	Administrative Unit	Service Contract

6.2.3.5 Electricity Provision

Table 28 shows the use of different service delivery mechanisms, providers and contracts for the provision of electricity. Owing to the role of ESKOM in the delivery of electricity to households, Drakenstein Municipality do not fulfil the majority of functions related to the planning, designing, procurement, financing, construction, maintenance and operations of infrastructure for the provision of electricity. This suggests that Drakenstein Municipality fulfils a limited role in the provision of electricity. As a result, the combination of service delivery mechanisms used for electricity provision is not aligned with suggestions made in Figure 21. Table 27 shows how, also for electricity provision, service and management contracts are used for internal and external service delivery mechanisms respectively.

TABLE 28 - KEY MUNICIPAL CAPACITY DATA FOR ELECTRICITY PROVISION

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	External	Other Institutions	Management Contract
Financing	External	Other Institutions	Management Contract
Construction	External	Other Institutions	Management Contract
Maintenance	External	Other Institutions	Management Contract
Operations	External	Other Institutions	Management Contract

6.2.3.6 Municipal Roads

Table 29 shows the use of different service delivery mechanisms, providers and contracts for the delivery of municipal roads. Evidently, only for the majority of activities related the documenting and financing of municipal roads infrastructure, an internal service delivery mechanism is used. This phenomenon can be assumed to be a result of the role of the Cape Winelands district municipality. As stated in Chapter Two, it is the function of district municipalities to support local municipalities during the provision of municipal roads.

It can therefore be assumed that where Table 29 shows that the service delivery provider is another municipality, the Cape Winelands district municipality performs the majority of activities. Table 29 shows that, also for municipal roads, private companies fulfil the majority of engineering functions related to the planning, designing, construction and maintenance of municipal roads infrastructure.

TABLE 29 - KEY MUNICIPAL CAPACITY DATA FOR MUNICIPAL ROADS

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	External	Other Municipality	Management Contract
Financing	Internal	Administrative Unit	Service Contract
Construction	External	Other Institutions	Management Contract
Maintenance	External	Other Institutions	Management Contract
Operations	External	Other Municipality	Management Contract

6.2.3.7 Stormwater Management

Table 30 shows the use of different service delivery mechanisms, providers and contracts for the delivery of stormwater management. It was formerly noted that the delivery of stormwater management and municipal roads are interrelated. This phenomenon is confirmed by the similarity between the service delivery mechanisms, providers and contracts used for municipal roads, as shown above, and stormwater management, as shown below.

TABLE 30- KEY MUNICIPAL CAPACITY DATA FOR STORMWATER MANAGEMENT

Service Delivery Phase	Service Delivery Mechanism	Service Delivery Provider	Service Delivery Contract
Planning	External	Other Institutions	Management Contract
Designing	External	Other Institutions	Management Contract
Documenting	Internal	Administrative Unit	Service Contract
Procurement	External	Other Municipality	Management Contract
Financing	Internal	Administrative Unit	Service Contract
Construction	External	Other Institutions	Management Contract
Maintenance	External	Other Institutions	Management Contract
Operations	External	Other Municipality	Management Contract

6.2.3.8 Conclusion

The results as discussed in the sections above significantly confirm the suggestions by Lawless with regards to functions performed and suggested functions to be performed by municipalities' technical departments. For the majority of the services, the planning, designing, documenting, construction and maintenance of basic services infrastructure are performed by means of external service delivery mechanisms at Drakenstein Municipality. It is critical

to note that, as the municipality makes use of external service delivery mechanisms for the fulfilment of the majority of engineering functions for most of the six basic municipal services, low levels of internal capacity is expected. With reference to the performance and capacity background of Drakenstein Municipality, as provided in the previous section, the staffing profile for each of the six basic municipal services reflect the extent to which external service delivery mechanisms are used. It is important to note that Lawless (2007) suggests that the low number of engineering staff at municipalities is not the result of, but rather the cause of the outsourcing of engineering functions.

6.2.4 Capacity Criteria Weights

As part of the implementation of SMCSAM at Drakenstein Municipality, the validators were required to submit data through the *Enter Criteria Weights* interface. As explained in Chapter Five, this interface requires users to answer questions related to the relevance of capacity elements and capacity dimensions. Through the implementation of the developed Fuzzy Analytical Hierarchy, the abovementioned captured data was processed in order to compile a priority list. This list shows the fifteen elements of overall organisational capacity, the local and global weights as well as the ranking for each of these elements. It should be noted that higher rankings indicate larger contribution made to overall organisational capacity.

TABLE 31 - WEIGHTS AND RANKINGS ALLOCATED TO THE ELEMENTS OF ORGANISATIONAL CAPACITY

Capacity Dimension	Capacity Element	Local Weight	Global Weight	Priority Ranking
Individual Capacity	Abilities and Knowledge	0.2097	0.0707	3
	Relevant Work Experience	0.1993	0.0705	6
	Technical Capabilities	0.2097	0.0742	1
	Management Capabilities	0.2097	0.0742	2
	Critical Thinking & Leadership	0.1818	0.0643	11
Institutional Capacity	Legislation: Policies & Regulations	0.1993	0.0672	7
	Powers & Functions	0.1993	0.0705	5
	Structures	0.1818	0.0613	14
	Systems, Processes & Procedures	0.1993	0.0672	8
	Performance Management & Reporting	0.2097	0.0707	4
Environmental Capacity	Economic Environment	0.2097	0.0648	9
	Social Environment	0.1818	0.0562	15
	Technological Environment	0.2097	0.0648	10
	Legislative Environment	0.1993	0.0616	12
	Political Environment	0.1993	0.0616	13

Through SMCSAM it was determined that the perceived top three contributing elements of organisational capacity include *technical capabilities*, *management capabilities* and *abilities and knowledge*, while three lowest contributing elements of organisational capacity include the *social environment*, *municipal structures* and the *political environment*. The global weights as shown in Table 31 are used for the weighting of the results as discussed below.

In terms of the various capacity dimensions, clearly, individual capacity achieved the lowest overall score with a weighted average of 37%. Environmental capacity achieved 61% while institutional capacity achieved the highest score of 62%. With a weighted average of 53% for overall organisational capacity, it can be said that the validator believes the capacity of Drakenstein Municipality for water provision, is worrying.

In terms of the *Basic Municipal Services Delivery Process*, the greatest capacity deficiencies are experienced with regards to technological and human resources. With scores of 32%, it is well below the overall organisational capacity of 53%. Moreover, technological resources along with many of the *engineering operations* phases, including designing, document, procurement, maintenance and operations are forming the top 1% of capacity concerns. These concerns are largely related to the technical capabilities, management and critical thinking and leadership of employees. Generally, low levels of capacity are illustrated for resources, engineering operations as well as outputs, outcomes and impacts.

However, it is evident that relative high levels of capacity exist for understanding and implementing the mandate, IDP and SDBIP. It can be concluded that, for water provision, Drakenstein Municipality is experiencing several perceived capacity deficiencies. Nonetheless, with reference to former sections, the municipality has shown relative high levels of performance in recent years, suggesting that the municipality's workforce fulfils their functions with high levels of efficiency.

6.2.5.3 Refuse Removal Services

Figure 44 shows the SMCSAM results for the delivery of refuse removal services. Evidently, the perceived capacity of Drakenstein Municipality for the delivery of refuse removal services is very high. Individual capacity achieved a weighted average score of 79%, while institutional and environmental capacity scored 80% and 81% respectively. With the overall organisational capacity scoring 80%, few elements of the assessment matrix reflect weighted scores of below 67. However, for all *Basic Municipal Services Delivery Process*, the maintenance of service delivery infrastructure represents the top 1% of capacity concern. Across all elements of the assessment matrix, the top 1% capacity concerns is represented by the performance management and reporting practices which exist for giving effect to the mandate and the IDP of the municipality.

Former sections reported high levels of performance by Drakenstein Municipality in terms of the delivery of refuse removal services. It can thus be said that the high levels of performance is aligned with the high levels of perceived capacity, as reflected in Figure 44.

3. CAPACITY SELF-ASSESSMENT RESULTS																																																																																																																																																																																																																																																																																																																																																																				
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FIGURE 44 - SMCSAM RESULTS FOR REFUSE REMOVAL SERVICES

6.2.5.4 Sanitation Services

Figure 45 shows the results as generated by SMCSAM for sanitation services. Again, in terms of capacity dimensions, individual capacity achieved the lowest score, with 57%. Both of institutional and environmental capacity achieved a perceived weighted score of 71%, resulting to a 66% weighted average for overall organisational capacity. In terms of the *Basic Municipal Services Delivery Process*, the lowest capacity scores are observed with regards to resources, and more specifically technological resources. The top 1% of capacity concerns is again related to technical and management capabilities as well as critical thinking and leadership essentially in terms of designing, document, procurement, construction, maintenance and operation of service delivery infrastructure.

and a Green Drop score of 80.3%, Drakenstein Municipality has received much recognition for its wastewater treatment practices. It can thus be stated that the performance of Drakenstein Municipality related to sanitation services, is aligned with the SMCSAM results.

6.2.5.5 Electricity Provision

Figure 46 shows the results as generated by SMCSAM for electricity provision. It is evident that the trends regarding the scores for the different capacity dimensions, as discussed above, are not observed for electricity provision. For this service, individual capacity achieved the highest score, while institutional and environmental capacity achieved 82% and 72% respectively. With a perceived weighted average of 83% for overall organisational capacity, it can be stated that the capacity of Drakenstein Municipality to provide electricity in its area of authorisation, is believed to be sufficient.

3. CAPACITY SELF-ASSESSMENT RESULTS		83%	94%	82%	72%
		Weighted Average	Weighted Average	Weighted Average	Weighted Average
<ul style="list-style-type: none"> Top 1% capacity concerns. Score is either 0 or needs to be rated. Score between and including 0 and 33. Score between and including 34 and 66. Score between and including 67 and 100. 		Organisational Capacity	Individual Capacity	Institutional Capacity	Environmental Capacity
Basic Municipal Services		Basic Municipal Services Delivery Process			
Mandate		78%			
Integrated Development Planning		73%			
Service Delivery & Budget Implementation Planning		83%			
Human Resources		95%			
Financial Resources		90%			
Physical Resources		89%			
Technological Resources		89%			
Planning		92%			
Designing		90%			
Document		83%			
Procurement		82%			
Financing		86%			
Construction		76%			
Maintenance		76%			
Operations		79%			
Outputs		79%			
Outcomes		73%			
Impact		77%			

FIGURE 46 - SMCSAM RESULTS FOR ELECTRICITY PROVISION

Although none of the *Basic Municipal Services Delivery Process* scored below 67, the top 1% of capacity concern in this regard exists in terms of the outcomes achieved. Further specific elements of the assessment matrix that forms part of the top 1% of capacity concerns include the IDP and SDBIP and relate to the municipality’s social and political environments. For all services discussed so far, the overall weighted organisational capacity for electricity provision is the highest. As earlier discussed, Drakenstein Municipality indicated significant performance in recent years related to the provision of electricity to households. It can thus be concluded that reasonable relations exist between the perceived capacity of Drakenstein Municipality to provide electricity and the municipality’s performance in this regard.

6.2.5.6 Municipal Roads

Figure 47 shows the results as generated by SMCSAM for municipal roads.

3. CAPACITY SELF-ASSESSMENT RESULTS					
		60%	63%	64%	53%
		Weighted Average	Weighted Average	Weighted Average	Weighted Average
			Abilities and Knowledge Relevant Work Experience Technical Capabilities Management Capabilities Critical Thinking & Leadership	Legislation: Policies & Regulations Powers & Functions Structures Systems, Processes & Procedures Performance Management & Reporting	Economic Environment Social Environment Technological Environment Legislative Frameworks Political Environment
		Organisational Capacity	Individual Capacity	Institutional Capacity	Environmental Capacity
<p>■ Top 1% capacity concerns.</p> <p>■ Score is either 0 or needs to be rated.</p> <p>■ Score between and including 0 and 33.</p> <p>■ Score between and including 34 and 66.</p> <p>■ Score between and including 67 and 100.</p>					
Basic Municipal Services		Basic Municipal Services Delivery Process			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		Mandate	59%		
		Integrated Development Planning	61%		
		Service Delivery & Budget Implementation Planning	58%		
		Human Resources	56%		
		Financial Resources	56%		
		Physical Resources	62%		
		Technological Resources	60%		
		Planning	58%		
		Designing	61%		
		Document	64%		
		Procurement	63%		
		Financing	62%		
		Construction	62%		
		Maintenance	62%		
		Operations	61%		
		Outputs	60%		
		Outcomes	60%		
		Impact	60%		

FIGURE 47 - SMCSAM RESULTS FOR MUNICIPAL ROADS

Evidently, the perceived capacity of Drakenstein Municipality to provide municipal roads is fairly low. Again environmental capacity achieved the lowest score with a weighted average of 53%, while individual and institutional capacity respectively achieved scores of 63% and 64%. This resulted to a weighted average of 60% for overall organisational capacity. In terms of the *Basic Municipal Services Delivery Process*, evidently, human resources formed the top 1% of capacity concerns. Specific elements of the assessment matrix which formed part of the top 1% capacity concerns are linked to the economic environment of the municipality in terms of the mandate, IDP and SDBIP. It can be stated that the capacity of the municipality to provide municipal roads, is well reflected by the related performance.

6.2.5.7 Stormwater Management

Figure 48 shows the SMCSAM results for stormwater management.

3. CAPACITY SELF-ASSESSMENT RESULTS																		
		59%	63%	63%	51%													
		Weighted Average	Weighted Average	Weighted Average	Weighted Average													
			Abilities and Knowledge	Relevant Work Experience	Technical Capabilities	Management Capabilities	Critical Thinking & Leadership	Legislation: Policies & Regulations	Powers & Functions	Structures	Systems, Processes & Procedures	Performance Management & Reporting	Economic Environment	Social Environment	Technological Environment	Legislative Frameworks	Political Environment	
		Organisational Capacity	Individual Capacity	Institutional Capacity	Environmental Capacity													
Basic Municipal Services		Basic Municipal Services Delivery Process																
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		Mandate		57%														
		Integrated Development Planning		59%														
		Service Delivery & Budget Implementation Planning		53%														
		Human Resources		52%														
		Financial Resources		58%														
		Physical Resources		57%														
		Technological Resources		62%														
		Planning		59%														
		Designing		65%														
		Document		62%														
		Procurement		63%														
		Financing		63%														
		Construction		55%														
		Maintenance		60%														
		Operations		59%														
		Outputs		66%														
		Outcomes		60%														
		Impact		58%														

FIGURE 48 - SMCSAM RESULTS FOR STORMWATER MANAGEMENT

It is important to note that, as previously stated, the provision of stormwater management is closely related to the delivery of municipal roads. It should also be noted that the same validator completed the assessment for stormwater management and municipal roads. Nevertheless, the phenomenon as described supra is clearly illustrated by the results as shown above for stormwater management and above for municipal roads. Clearly, the two sets of results correspond in terms of the capacity dimensions and overall organisational capacity.

For stormwater management, scores of 63%, 63% and 51% were achieved for *individual*, *institutional* and *environmental* capacity respectively, while overall organisational capacity achieved a score of 59%. As for municipal roads, human resources formed the top 1% capacity concerns for stormwater management. The elements of the assessment matrix that formed the top 1% of capacity concerns are largely related to the environmental capacity, and more specifically the political, social and economic environments. In terms of the *Basic Municipal Services Delivery Process*, these concerns relate to all phases, except for *designing*, *document* and *outputs*. As for municipal roads, it can be concluded that the capacity of the municipality to provide stormwater management, is reflected by the related performance.

6.2.5.8 All Basic Municipal Services

Figure 49 shows the combination of the SMCSAM results as discussed above and shows a perceived overall organisational capacity of 67% for Drakenstein Municipality and human resources as part of the top 1% of the municipality's capacity concerns.

As shown in Figure 49, capacity scores of 65%, 70% and 65% were achieved respectively for individual, institutional and environmental capacity. In terms of the elements of capacity, the top 1% of capacity concerns related to Drakenstein Municipality's political, social and economic environments. Evidently, for the combination of results for all services, none of the elements of the assessment matrix achieved a score of below 34. Thus, it can be concluded that Drakenstein Municipality has a reasonable perceived capacity to deliver the various basic municipal services and this perceived capacity is well aligned with the municipality's high levels of service delivery performance.

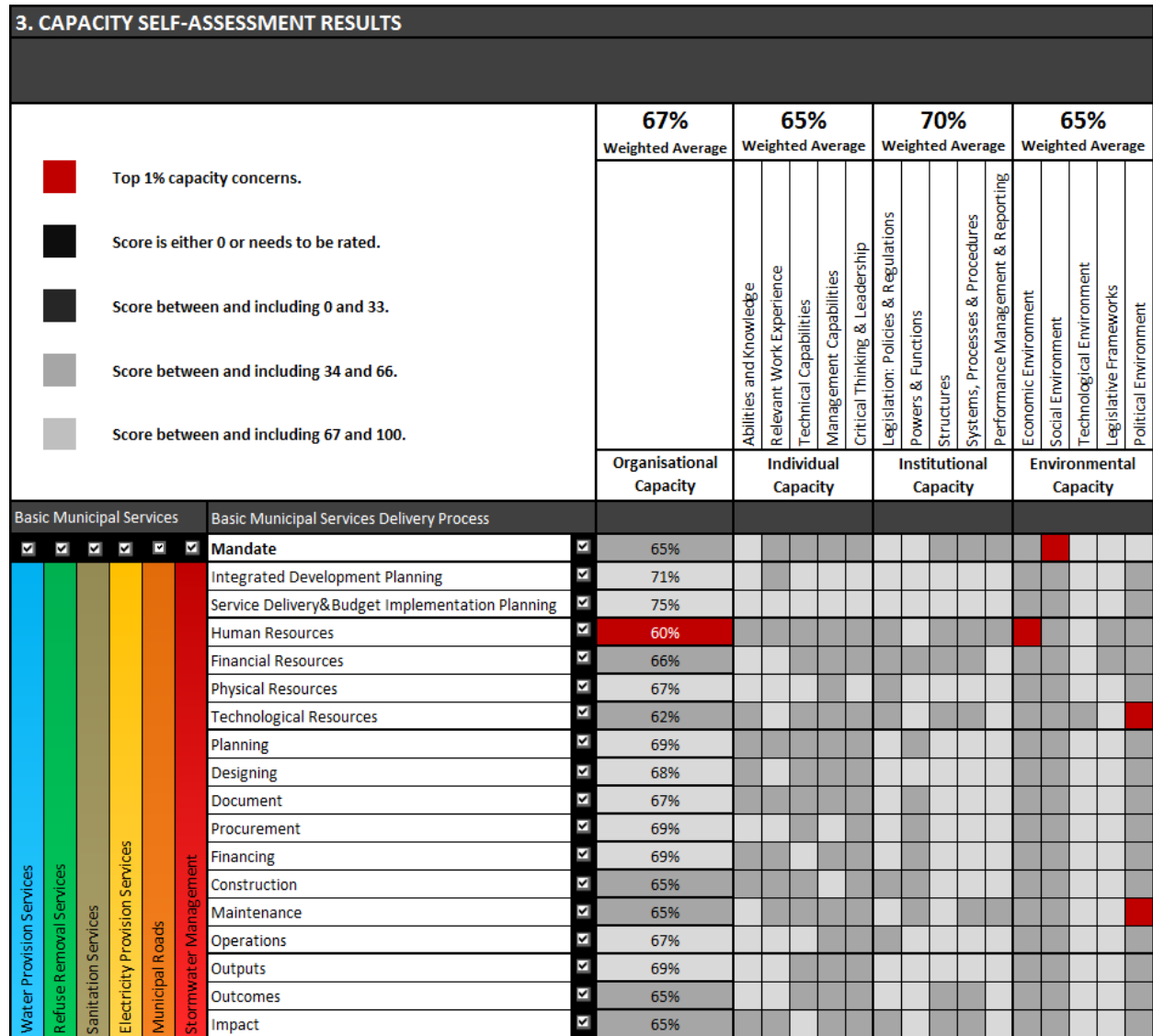


FIGURE 49 - SMCSAM RESULTS FOR ALL BASIC MUNICIPAL SERVICES

6.2.6 Conclusion

This section discussed the implementation of SMCSAM at Drakenstein Municipality to assess its organisational capacity to deliver the six basic services. Remarkable conclusions were drawn throughout this section regarding the correlation between the results obtained through SMCSAM and MDB capacity assessment. After considering the performance of the municipality it could be anticipated that the capacity, as assessed through SMCSAM, would reach sufficient levels. SMCSAM indicated high levels of perceived capacity for the municipality and serves as a further confirmation of the relation between the service delivery performance and the organisational capacity of a municipality. This correlation further contributes to the validation of SMCSAM as it proved that this model can provide accurate results, particularly where the participant holds the necessary knowledge and experience. In

support of the validation of SMCSAM, the following section will report on the questionnaire which was compiled to be completed by a relevant group of experts.

6.3 Verification: Formulae for Resource Requirements

This section uses the formulae as proposed by Lawless in Chapter Three for the calculation of an estimated number of required civil engineers at Drakenstein Municipality. In doing so, it can be compared to the results as attained through SMCSAM related to the staffing profile for each of the six basic municipal services and the overall technical department. With reference to the formulae by Lawless, the following table list the necessary attributes. The data as shown in Table 32 was used in the formulae by Lawless.

TABLE 32 - ATTRIBUTES FOR FORMULAE FOR RESOURCE REQUIREMENTS

Attribute	Value
Sum of Civil Engineering Service Delivered (Σ_{CEF})	9
Number of Households (N)	42321
Number of Informal Households (N_{INF})	6531
Area of Municipality	1650.06 km ²
Area of Farms	1489.63 km ²
Area of Public Open Space	1.423 km ²
Area of Residential Property	127.01 km ²

The following equation can be used to calculate an initial estimate number of required civil engineering professionals (N_H):

$$N_H = 1 + \text{ROUND} \left(\frac{N}{5000} \times \frac{\Sigma_{CEF}}{9} \right) \quad \dots \text{Equation 1}$$

$$N_H = 1 + \text{ROUND} \left(\frac{42321}{5000} \times \frac{9}{9} \right) = 9$$

The following equation refines the estimate as calculated above in equation 1 by the use of a land use factor to calculate (N_L):

$$N_L = N_H \times \frac{\text{area of municipality} - \text{area of farms} - \text{area of public open space}}{\text{area of residential property}} \quad \dots \text{Equation 2}$$

$$N_L = 9 \times \frac{1650.06 \text{ km}^2 - 1489.63 \text{ km}^2 - 1.423 \text{ km}^2}{127.01 \text{ km}^2} = 11.27$$

The following equation further refines the estimate as above calculated in equation 2 by the use of an urbanisation use factor to calculate N_U :

$$N_U = N_L \times \frac{N + N_{INF}}{N} \quad \dots \text{Equation 3}$$

$$N_U = 11.27 \times \frac{42321 + 6531}{42321} = 13.00 \text{ civil engineering professionals}$$

By the use of Lawless’s formulae, it was calculated that Drakenstein Municipality requires an estimated thirteen civil engineering professionals. SMCSAM recorded the municipalities’ current number of engineering staff as shown in Table 33. By excluding the engineering professionals for electricity provision, the municipality employs twelve engineering professionals. Eight of these professionals are professional registered engineers and the remaining four are professional registered technologists. According to the estimation for required engineering professionals as calculated by means of Lawless’s formulae, Drakenstein Municipality employs nearly an adequate number of engineering professionals.

TABLE 33 - NUMBER OF ENGINEERING STAFF EMPLOYED AT DRAKENSTEIN MUNICIPALITY

Engineering Services	No. Engineering Professionals									
Water Provision	2		1			1		2	2	
Refuse Removal	2		1		1			1		
Sanitation Services	2									
Electricity Provision	1									
Municipal Roads	1		1			1				
Stormwater Management	1		1			1			1	
Total for All Six Services	8		4		1	2		3	3	12
	Professional Engineers	Professional Technicians	Professional Technologists	Candidate Engineers	Candidate Technicians	Candidate Technologists	Graduate Engineers	Graduate Technicians	Graduate Technologists	

The findings of this section support the previous suggestions that Drakenstein Municipality is under-capacitated in terms of individual capacity. However, it should be noted that this municipality outsources many of its engineering functions. Yet, Lawless’s formulae assume that most municipalities use the outsourcing-approach as shown in Figure 21. Clearly then the performance of Drakenstein Municipality cannot be used as a proxy for whether the municipality has the necessary individual capacity or not. It can thus be concluded that Drakenstein Municipality utilises its resources effectively and provides municipal services at significant levels of efficiency.

6.4 Survey: Questionnaire

6.4.1 Introduction

In support of the validation of SMCSAM, the self-assessment model was demonstrated to a particular group of specialists during different occasions, where after each expert validated SMCSAM by means of completing the questionnaire as shown in Annexure 8E. The objec-

tive of the questionnaire was to establish whether SMCSAM is understandable, useable and valuable. The questionnaire's content thus was based on these three criteria of assessment. The list of validators for SMCSAM is discussed in the following section, where after the results of the questionnaires are presented and conclusions are drawn. Validators were requested to provide a *yes* or *no* answer with an associated score from one to five.

It must be noted that particular sections of the questionnaire were constructed in a manner which assumes that the validator is a municipal employee. As this was not always true, validators, where not municipal employees, were requested to answer these questions with an adjusted point of view. Still, hereby thorough and diversified feedback was attained. This should be considered where the summery of the survey results are analysed and discussed. Validators had to answer questionnaires based on the demonstration of SMCSAM provided.

6.4.2 Selection of Validators

In order to acquire truthful data through the use of a questionnaire, it was important for all validators to be completely aware of the features and functions of SMCSAM and as such the model was demonstrated to all validators to gain the necessary understanding thereof. SMCSAM was demonstrated at eight different occasions to employees of different institutions, in varying positions and with different academic backgrounds as listed in Table 34.

Patently, the selected group of validators has a diverse academic background and functions within varying business sectors. Highly qualified validators from the private and public sector as well as candidates from the academic world formed part of the selection of validators which provided feedback. The diverse selection of validators, which also holds the relevant work experience, allows for high quality, detailed and well-balanced feedback.

TABLE 34 - SELECTION OF VALIDATORS

#	Validator	Institution	Position	Degree
1	Adam Steer	Breede Valley Municipality	GIS Technician	MSc
2	James Beukes	Breede Valley Municipality	GIS Technician	MSc
3	Ronald Brown	Drakenstein Municipality	Engineer: Waste Services	BTech
4	Deon du Plessis	Drakenstein Municipality	Technical Services Director	BEng
5	Andre van Niekerk	Stellenbosch Municipality	Technical Services Director	BEng
6	Nishendra Moodley	Palmer Development Group	Director & Chairperson	MPA
7	JP Barnard	Stellenbosch University	Lecturer	PhD
8	Lidia Auret	Stellenbosch University	Lecturer	PhD
9	Coenie Nel	Stellenbosch University	Lecturer	MBA
10	Phelia van Breda	Stellenbosch University	MEng Student	BEng
11	Carinus de Kock	Stellenbosch University	MA Student	BA

6.4.3 Survey Result Summery

Generally, the feedback as attained through the questionnaires, reports that SMCSAM can be a useable, understandable and valuable management tool for municipalities. On average,

the validators strongly agree with the range of the fifteen elements and three dimensions of organisational capacity used in SMCSAM. Two validators though, strongly disagreed with the suggested elements of environmental capacity. However, all validators agreed that the municipal service delivery phases, as used in SMCSAM, are inclusive and aptly used. This feedback proves that the consolidated municipal capacity assessment framework generally is appropriately structured and implemented as part of SMCSAM.

With regards to the assessment outputs as delivered through two different user-interfaces of SMCSAM, validators declared that the use of colour-coded cells, indication of weighted averages and the accompanying spider diagrams significantly supported their understanding of the results of the self-assessment. Furthermore, the validators indicated that, overall, the assessment outputs of SMCSAM provide significant unique insight regarding capacity strengths and weaknesses in terms of the various capacity dimensions and service delivery phases. Merely one validator indicated that limited unique insights could be gained regarding environmental capacity.

Additionally, all validators indicated that the outputs of SMCSAM could impact future decisions made regarding requirements set for employees in terms of academic qualifications, relevant work experience, technical, and management and leadership capabilities. Only one validator indicated that the outputs of SMCSAM would not affect decisions regarding the future training and mentoring of employees, while the other validators strongly suggested that the outputs would indeed have a positive effect. Overall, the validators strongly agreed that the outputs of SMCSAM have the potential to affect future decisions regarding the municipalities' ability to adapt to a changing economic, social, technological and political environment as well as related legislative frameworks.

The collection of validators, overall, agreed even more that the outputs of SMCSAM could affect future decision regarding the formulation of policies and regulations, the assignment of powers and functions, the design of an organisational structure, systems, processes, and procedures at a municipality. Overall, the validators indicated to the largest degree that the insights gained through the implementation or demonstration of SMCSAM, could affect the general understanding of the significance of each element of organisational capacity.

It must be noted that the aim of SMCSAM is to provide useful information to be used for the purposes of subsequent capacity building exercises. In this regard, the validators indicated that the aforesaid insights could affect approaches of capacity building, with specific reference to the internal municipal capacity building activities as required by the Municipal Systems Act, 2000.

6.4.4 Conclusion

The feedback as collected through the questionnaires suggests that SMCSAM, to a significant extent, is understandable, useable and valuable. However, several validators indicated that they found it challenging to complete the questionnaire without it being implemented.

In some cases, a second demonstration was required in order for validators to entirely understand SMCSAM, while for the validators with relevant experience, SMCSAM was easily understood. In this regard, the validators from Stellenbosch University illustrated a particular appreciation for the consolidated assessment framework and the use of Fuzzy Logic Hierarchical Processes, while the validators from Palmer Development Group and EMANTI Management Group praised the thoroughness of the model in terms of the statements generated by the consolidated assessment framework. Validators from municipalities generally appreciated the usefulness of SMCSAM, though suggested that frequent use of the self-assessment model would require undesirable amounts of time from engineering managers.

This, as the main criticism of SMCSAM, confirms that the engineering staff of municipalities is typically overloaded with responsibilities. Time constraints were the reason for SMCSAM to only be tested at Drakenstein Municipality. The following section reports on an interview conducted with the Technical Services Director of Stellenbosch Municipality.

6.5 Survey: Interview

6.5.1 Introduction

An interview was conducted with Mr André van Niekerk, the Technical Services Director of Stellenbosch Municipality on 10 October 2013 from 12:00 to 13:00 PM (at the Engineering Services Office, 1st Floor, Ecclesia Building, 71 Plein Street, Stellenbosch) to attain feedback with regards to the applicability of SMCSAM beyond the response as captured through the questionnaires. Mr van Niekerk is a registered Professional Engineer at ECSA (registration number: 890461) since 1985, holds a BEng degree in civil engineering and has been in his position at Stellenbosch Municipality for the past three years and four months.

6.5.2 Survey Results Summery

Mr van Niekerk made the following remarks with regards to SMCSAM, its implementation and commercial value after it was demonstrated at the offices Stellenbosch Municipality:

1. *"Need for capacity assessments in South Africa"*

A sure need exist at South African municipalities to perform capacity assessments as thorough as can be realised by SMCSAM. However, these assessments must rather be facilitated by a task team, rather than performed internally by the municipality. It is often the case that municipalities do not illustrate the willingness to execute tasks when the fulfilment thereof is not monitored or reported. Coincidentally, from a business perspective, it would be

more favourable to incorporate SMCSAM into a wider capacity assessment or capacity building service to be delivered to municipalities.

2. *"Municipalities under-capacitated to develop own management solutions"*

In terms of the need for management solutions, municipalities are typically too under-capacitated to develop their own in-house support systems and thus many opportunities exist regarding the implementation of SMCSAM as it moreover indicates the field of work which consultants in the future will progressively focus more on.

3. *"Census data are inaccurate and need secondary data in order to be useable"*

The use of data as provided by the Census in SMCSAM is not ideal as it is generally known for its inaccuracy. Major shortages of reliable data regarding service delivery backlogs exist and as such municipalities are forced to use a range of methods to determine and verify data in this regard. This phenomenon typically causes great challenges for municipalities during the strategic planning of basic municipal service delivery and forces municipalities to make decisions based on assumptions.

4. *"Municipalities are mandated to deliver municipal transport including municipal roads"*

SMCSAM assesses the capacity of municipalities to provide, among others, municipal roads. It though should be noted that municipalities are actually responsible for the delivery of municipal transport that includes the delivery of also other conduits for transport that would enable people to use for example, bicycles, trains, boats and aeroplanes. Municipal roads as, a conduit for municipal transport, is predominantly used and as such, in this context, the use of the term municipal roads, is acceptable. Importantly, it should be noted that these comments correspond to suggestions by Lawless (2007) in Figure 22.

5. *"Individual capacity as used in SMCSAM should include the attitude of employees"*

Particular ISO standards exists which include a framework for assessing the competence of a person in terms of project management. This framework has four criteria, which include academic qualifications, relevant work experience, skills and attitude. Attitude, though not quantifiable, is one of the most important attributes of a person's competence and as such a very important driver for a person's performance. It is therefore suggested that employees' attitude forms part of the framework as implemented in SMCSAM.

6. *"Political influence has an adverse effect on the reappointment of municipal managers"*

The modern political and administrative structure of municipalities usually includes an executive mayor manager, a mayoral committee and a senior management group, which includes the municipal manager and the senior managers. The last-mentioned category of employees is regarded as political appointments and is, according to law employed for a maximum of five years where after, based on performance reviews, a reappointment may be considered. It regularly occurs that, as a consequence of political influence and not the performance of these managers, they are seldom reappointed.

7. *"Political influence therefor has an adverse effect on the continuity of managers"*

This phenomenon has significantly hindered the institutional memory of municipalities and continuity in performance of these managers. Within this context, it should be considered

to further develop SMCSAM to also assess the institutional memory found within a municipality's engineering department as it can be a critical attribute of a municipality's capacity to delivery basic municipal services.

6.5.3 Conclusion

The comments by Mr André van Niekerk, as outlined above, include various suggestions for the further development of SMCSAM. The first two remarks suggest that today municipalities are largely under-capacitated to an extent that does not permit either the development of in-house management solutions or solutions provided without facilitation. It, thus, seems that SMCSAM, as a self-assessment model with the objective to support more sustainable municipal management, would be more practical at better capacitated municipalities, while its implementation at under-capacitated municipalities must not be left without facilitation.

The third comment suggests that, in the same manner which municipalities are particularly dependent on data, regarding service delivery backlogs, for its consideration during strategic planning, municipalities also have a need to have data with regards to its organisational capacity to work towards overcoming capacity deficiencies. The fourth remark emphasises the importance of understanding the mandate of municipalities in terms of basic municipal service delivery. It further suggests that basic human needs can be satisfied through means of various solutions and that municipalities should consider non-conventional methods.

The fifth, sixth and seventh remarks confirm that the organisational capacity of municipalities is an extremely complex concept and that it is essential to understand the contributing factors. Based on these remarks, it can further be assumed that many of the challenges that municipalities presently face and will continue to face, could more effectively be overcome where the ideal leadership is illustrated by both the political and administrative structures of municipalities. Nonetheless, methods applied through SMCSAM, proves to be valuable.

6.6 Chapter Conclusion

Chapter Six focused on providing validation measures to show that SMCSAM is applicable, valuable, practical, and relevant. In doing so, this chapter provided detailed answers to the main and secondary research questions when it reported on the pilot study performed at Drakenstein Municipality, the feedback collected from expertise by means of questionnaires and an interview with the Technical Services Director of Stellenbosch Municipality. These methods of validation proved to provide significant insight whereby the validity of this research study is supported.

Chapter Seven: Research Conclusions

7.1 Research Methodology, Argument and Conclusions

7.1.1 Execution of Research Methodology

The execution of the research methodology followed in this research study included an extensive literature study covering three fundamental topics directly and indirectly related to municipal capacity self-assessments. The literature study provided the needed background regarding the potential significance of municipal capacity self-assessments in South Africa. It, thereby, formed the basis for the development of a consolidated municipal capacity self-assessment framework which then functioned as the basis for the construction of the Subjective Municipal Capacity Self-Assessment Model (SMCSAM).

Various measures were instigated for the validation of SMCSAM in order to provide accurate, truthful and transparent justification of the value of SMCSAM for South African municipalities. These measures included the implementation SMCSAM at Drakenstein Municipality, the demonstration of SMCSAM at two additional municipalities, three consultancies and various academics. Based on these demonstrations, questionnaires were completed and interviews were conveyed.

Through executing the initial research methodology, the expected research outcomes were achieved. These outcomes essentially include the development of a consolidated municipal capacity assessment framework and the related construction of SMCSAM. Each chapter of this research dissertation included a central argument, while the argument of each chapter was linked to the arguments of other chapters. In doing so, it could easily be identified how municipal capacity assessments and more specifically, self-assessments, can be implemented for the ultimate improvement of municipal service delivery performance.

7.1.2 Research Conclusions in the Context of the Research Methodology

The designated research methodology proved to be effective for the achievement of the desired research outcomes. As mentioned, the development of an authentic municipal capacity assessment framework required a thorough literature study in order to fully understand the context of the research problem and the objective of the suggested solution. The methodology with regards to the validation of SMCSAM included a thorough pilot study at Drakenstein Municipality to insure a high quality form of validation. Along with this, the methodology allowed for the development of a software tool to a level which allows for its commercialisation, distribution and implementation at South African municipalities.

7.1.3 Research Conclusions in the Context of the Hypothesis

Through the validation of SMCSAM, it is shown that the hypothesis of this research study is true. It was proved that municipal capacity self-assessment can undoubtedly facilitate essential decision-making during capacity building endeavours and among others, municipal

planning, policy formulation and performance management for the eventual achievement of the desired levels of municipal service delivery performance and efficiency. Based on the validation of SMCSAM, it can further be stated that its value and applicability are the result of a more comprehensive view of organisational capacity.

7.1.4 Research Conclusions in the Context of the Research Question

The development of a consolidated municipal capacity self-assessment framework and the related construction of SMCSAM suggest an innovative method to acquire and utilize information with regards to the organisational capacity of municipalities. As mentioned, this model has proved to support the decision-making of municipalities' management regarding performance improvement and related initiatives including capacity building.

Though focused on the capacity of municipalities' engineering departments to deliver basic municipal services, the output of SMCSAM can be used by many managers of various levels, such as the Technical Services Manager, Municipal Manager and Municipal Mayor.

7.2 Research Contribution

As earlier suggested, the annual municipal capacity assessment as performed by the MDB is the only official assessment in South Africa with the objective of providing widespread data regarding the capacity of municipalities. Through this dissertation, many of the downfalls of this assessment, including the inconsistency in its roll-out, its constrained methods of assessment and its slow progress in terms of development, were discussed. Through the development of SMCSAM, the downfalls of the MDB assessment were overcome, to provide an innovative method for municipal capacity self-assessment in South Africa. Key to the research contribution of this research study stands the complete development of a software package that can be implemented at municipalities in South Africa.

This research study focused on understanding the three-dimensional organisational capacity of municipalities in South Africa, how this capacity relates to municipal service delivery performance and the importance for municipalities' management to regularly assess this capacity in order to progressively work towards a state sustainable capacity. Not only is little related research currently performed in South Africa, but a massive need exist for solutions in this regard. In terms of international research and practices, this research study provided relevant and useful outputs and conclusions.

The majority of the research contributions are reflected by SMCSAM as it is the product of insights gained through a comprehensive literature study. SMCSAM, is a product that not only can be implemented and commercialised, but must with time be further developed and researched to provide similar and much needed management solutions to organisations around the world, including South African municipalities.

7.3 Critical Self-Evaluation of SMCSAM

Although SMCSAM made particular additions to the knowledge field of municipal and engineering management, opportunities for improvement were identified. These opportunities relate to the time required to complete the self-assessment, the benchmarking of municipal assessment results, measures to standardise user-inputs according to a given scale and the integration of Lawless's formulae as a verification measure and for setting capacity targets.

The use of SMCSAM in its current form requires the user or collection of users to rate a sum of 1620 statements. This activity can be time consuming and, as was noticed during the pilot study at Drakenstein Municipality, can result into the loss of truthful user-inputs. These user-inputs are imperative in providing accurate and truthful assessment results. During the pilot study, although the users were aware of this phenomenon, the users' determination to provide truthful input definitely deteriorated during the course of the assessment. It is therefore necessary to reduce the input to be required by the user or collection of users.

During the pilot study at Drakenstein Municipality, it was noticed that users found difficulty in providing subjective user-inputs on a scale of zero to hundred. The identified opportunity for improvement lies in using scales fluctuating between zero and four or five. Additionally, it is necessary to have descriptions for each level of the scale for each statement to be rated. This proposed addition to SMCSAM is aligned with the proposed reduction in user requirements as discussed above.

As was shown in Chapter Six, Lawless's formulae can be useful in providing estimations of the required number of engineering professionals for municipalities. Although the focus of SMCSAM is to translate qualitative user-inputs into quantitative outputs, SMCSAM can also use quantitative inputs to be measured against estimations for minimum capacity requirements by Lawless's formulae. This activity was performed in section 6.3 of this study, but it could be incorporated into the functioning of SMCSAM.

Based on the performed pilot study at Drakenstein Municipality, it can be valuable to compare the results of different municipalities of similar sizes and categories. Although this activity is not part of the original intension of SMCSAM, as it a self-assessment, benchmarking exercises could initiate valuable discourse between municipalities and between governing bodies. By means of this discourse, municipalities could realise that, although performance is reliant on capacity, leadership within the political and administrative structures of municipalities is also very important.

Based on this section, the next section provides possible topics for future and related work.

7.4 Candidate Topics for Future and Related Work

As discussed, SMCSAM is based on a consolidated municipal capacity assessment framework which is the product of insights gained through an extensive literature study. Further development of this framework is strongly suggested, as it can be extended, refined or defined with increased detail. Related to this suggestion, is extended research of municipal service delivery phases and the related business processes.

It is suggested that SMCSAM be further developed by allocating weights to and incorporating the input of the *Key Municipal Capacity and Performance User Interface*. In addition, the model could also incorporate the opportunities for improvements as outlined above.

Within the context of this research study, further investigations of the relationship amongst municipal performance and capacity and the impacts of leadership are strongly advised. Here it is strongly suggested to investigate the use of also qualitative indicators of a municipal capacity and finding validated relations with quantitative indicators of municipal performance.

7.5 Concluding Remarks

The completion of this research dissertation marks a momentous milestone for the author. This research document reflects the research performed during the past two years and the insight gained through the course component of the degree of Master in Engineering Management. This research study challenged the author in many aspects, i.e. time-management, problem-solving, self-motivation, research methods, collaboration with professionals in the private sector, public sector and academia, liaison with municipal engineers, public presentation of the research and negotiations with consultancies regarding the commercialisation of SMCSAM. The author is enthusiastic about the development of SMCSAM, its commercialisation and its eventual implementation to support municipalities in South Africa.

It is the hope and desire of the author to, through the collaboration with the necessary parties, further develop SMCSAM and implement it, or an adjusted version, at a large scale at municipalities in South Africa. Relating to this, the author wishes to have provided the necessary research outputs to encourage prospective students to partake in further research within this field especially in South Africa. This research study confirmed the importance of well-functioning municipalities with sufficient engineering capacity and for this reason, the author believes that the future generations of engineering graduates and professionals will become increasingly necessary for the achievement of national service delivery objectives.

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Annexures

A. Consolidated Municipal Capacity Assessment Framework Statements

Capacity Dimension	Municipal Service Delivery Phase: Mandate
Individual Capacity	Employees, with appropriate academic qualifications to be aware and understand the [municipal service] mandate of the municipality, are present.
	Employees, with appropriate relevant work experience to interpret the [municipal service] mandate of the municipality, are present.
	Employees, with appropriate technical skills and knowledge to accomplish the [municipal service] mandate of the municipality, are present.
	Employees, with appropriate management skills and knowledge to give effect to the [municipal service] mandate of the municipality, are present.
	Employees, with appropriate abilities to think critically and illustrate the necessary leadership around giving effect to the [municipal service] mandate of the municipality, are present.
Institutional Capacity	Policies and regulations, with appropriate content to express the [municipal service] mandate of the municipality, are present.
	Powers and functions, appropriately interpreted, designed and assigned to articulate the [municipal service] mandate of the municipality, are present.
	Structures, appropriately designed to direct the [municipal service] mandate of the municipality, are present.
	Systems, processes and procedures, appropriately designed to endorse the [municipal service] mandate of the municipality, are present.
	Performance management and reporting, appropriately designed and implemented to measure the [municipal service] mandate of the municipality, are present.
Environmental Capacity	An economic environment, enhancing the attainment of the [municipal service] mandate of municipality, is present.
	A social environment, enhancing the attainment of the [municipal service] mandate of municipality, is present.
	A technological environment, enhancing the attainment of the [municipal service] mandate of municipality, is present.
	Legislative and strategy frameworks, enhancing the attainment of the [municipal service] mandate of municipality, are present.
	A political environment, enhancing the attainment of the [municipal service] mandate of municipality, is present.

Capacity Dimension	Municipal Service Delivery Phase: Strategy: IDP
Individual Capacity	Employees, with appropriate academic qualifications to be aware and understand [municipal service] strategies as part of the municipality's IDP, are present.
	Employees, with appropriate relevant work experience to interpret and formulate [municipal service] strategies as part of the municipality's IDP, are present.
	Employees, with appropriate technical skills and knowledge to give effect to the [municipal service] strategies as part of the municipality's IDP, are present.
	Employees, with appropriate management skills and knowledge to give effect to the [municipal service] strategies as part of the municipality's IDP, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around giving effect to [municipal service] strategies as part of the municipality's IDP, are present.
Institutional Capacity	Policies and regulations, with appropriate content to express [municipal service] strategies as part of the municipality's IDP, are present.
	Powers and functions, appropriately interpreted, designed and assigned to articulate [municipal service] strategies as part of the municipality's IDP, are present.
	Structure and governance, appropriately designed to direct [municipal service] strategies as part of the municipality's IDP, are present.
	Systems, processes and procedures, appropriately designed to endorse [municipal service] strategies as part of the municipality's IDP, are present.
	Performance management and reporting, appropriately designed and implemented to measure the effectiveness of [municipal service] strategies as part of the municipality's IDP, are present.
Environmental Capacity	An economic environment, enhancing the execution of the [municipal service] strategies as part of the municipality's IDP, is present.
	A social environment, enhancing the execution of the [municipal service] strategies as part of the municipality's IDP, is present.
	A technological environment, enhancing the execution of the [municipal service] strategies as part of the municipality's IDP, is present.
	Legislative and strategy frameworks, enhancing the execution of the [municipal service] strategies as part of the municipality's IDP, are present.
	A political environment, enhancing the execution of the [municipal service] strategies as part of the municipality's IDP, is present.

Capacity Dimension	Municipal Service Delivery Phase: Strategy: SDBIP
Individual Capacity	Employees, with appropriate academic qualifications to be aware and understand [municipal service] strategies as part of the municipality's SDBIP, are present.
	Employees, with appropriate relevant work experience to interpret and formulate [municipal service] strategies as part of the municipality's SDBIP, are present.
	Employees, with appropriate technical skills and knowledge to give effect to the [municipal service] strategies as part of the municipality's SDBIP, are present.
	Employees, with appropriate management skills and knowledge to give effect to the [municipal service] strategies as part of the municipality's SDBIP, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around giving effect to [municipal service] strategies as part of the municipality's SDBIP, are present.
Institutional Capacity	Policies and regulations, with appropriate content to express [municipal service] strategies as part of the municipality's SDBIP, are present.
	Powers and functions, appropriately interpreted, designed and assigned to articulate [municipal service] strategies as part of the municipality's SDBIP, are present.
	Structure and governance, appropriately designed to direct [municipal service] strategies as part of the municipality's SDBIP, are present.
	Systems, processes and procedures, appropriately designed to endorse [municipal service] strategies as part of the municipality's SDBIP, are present.
	Performance management and reporting, appropriately designed and implemented to measure the effectiveness of [municipal service] strategies as part of the municipality's SDBIP, are present.
Environmental Capacity	An economic environment, enhancing the execution of the [municipal service] strategies as part of the municipality's SDBIP, is present.
	A social environment, enhancing the execution of the [municipal service] strategies as part of the municipality's SDBIP, is present.
	A technological environment, enhancing the execution of the [municipal service] strategies as part of the municipality's SDBIP, is present.
	Legislative and strategy frameworks, enhancing the execution of the [municipal service] strategies as part of the municipality's SDBIP, are present.
	A political environment, enhancing the execution of the [municipal service] strategies as part of the municipality's SDBIP, is present.

Capacity Dimension	Municipal Service Delivery Phase: Human Resources
Individual Capacity	Employees, with appropriate academic qualifications to be aware of and understand the objectives of human resources for [municipal service], are present.
	Employees, with appropriate relevant work experience to be aware of and understand the objectives of human resources for [municipal service], are present.
	Employees, with appropriate technical skills and knowledge to recognise strengths and weaknesses, supporting human resources for [municipal service], are present.
	Employees, with appropriate management skills and knowledge to recruit, deploy and lead human resources for [municipal service], are present.
	Employees, with appropriate abilities to think critically and illustrate leadership in managing human resources for [municipal service], are present.
Institutional Capacity	Policies and regulations with appropriate content to recruit/procure and utilize human resources for [municipal service], are present.
	Powers and functions, appropriately interpreted, designed and assigned to procure, utilize and manage human resources for [municipal service], are present.
	Structures, appropriately designed to procure, utilize and manage human resources for [municipal service], are present.
	Systems, processes and procedures, appropriately designed to procure, utilize and manage human resources for [municipal service], are present.
	Performance management and reporting, appropriately designed and implemented to measure the procurement, utilization and management of human resources for [municipal service], are present.
Environmental Capacity	An economic environment, enhancing the procurement, utilization and management of human resources for [municipal service], is present.
	A social environment, enhancing the procurement, utilization and management of human resources for [municipal service], is present.
	A technological environment, enhancing the procurement, utilization and management of human resources for [municipal service], is present.
	Legislative and strategy frameworks, enhancing the procurement, utilization and management of human resources for [municipal service], are present.
	A political environment, enhancing the procurement, utilization and management of human resources for [municipal service], is present.

Capacity Dimension	Municipal Service Delivery Phase: Financial Resources
Individual Capacity	Employees, with appropriate academic qualifications to be aware of and understand the objectives of financial resources for [municipal service], are present.
	Employees, with appropriate relevant work experience to be aware of and understand the objectives of financial resources for [municipal service], are present.
	Employees, with appropriate technical skills and knowledge to acquire and apportion financial resources for [municipal service], are present.
	Employees, with appropriate management skills and knowledge to acquire and apportion financial resources for [municipal service], are present.
	Employees, with appropriate abilities to think critically and illustrate leadership in managing financial resources for [municipal service], are present.
Institutional Capacity	Policies and regulations with appropriate content to govern financial resources for [municipal service], are present.
	Powers and functions, appropriately interpreted, designed and assigned to govern and manage financial resources for [municipal service], are present.
	Structures, appropriately designed to manage and procure financial resources for [municipal service], are present.
	Systems, processes and procedures, appropriately designed to manage financial resources for [municipal service], are present.
	Performance management and reporting, appropriately designed and implemented to measure the management of financial resources for [municipal service], are present.
Environmental Capacity	An economic environment, enhancing the management of financial resources for [municipal service], is present.
	A social environment, enhancing the management of the financial resources for [municipal service], is present.
	A technological environment, enhancing management of financial resources for [municipal service], is present.
	Legislative and strategy frameworks, enhancing management of financial resources for [municipal service], are present.
	A political environment, enhancing the management of financial resources for [municipal service], is present.

Capacity Dimension	Municipal Service Delivery Phase: Physical Resources
Individual Capacity	Employees, with appropriate academic qualifications to be aware of and understand the objectives of physical resources for [municipal service], are present.
	Employees, with appropriate relevant work experience to be aware of and understand the objectives of physical resources for [municipal service], are present.
	Employees, with appropriate technical skills and knowledge to recognise the requirements and extend of physical resources for [municipal service], are present.
	Employees, with appropriate management skills and knowledge acquire, deploy and control physical resources for [municipal service], are present.
	Employees, with appropriate abilities to think critically and illustrate leadership in managing physical resources for [municipal service], are present.
Institutional Capacity	Policies and regulations with appropriate content to acquire/procure and utilize physical resources for [municipal service], are present.
	Powers and functions, appropriately interpreted, designed and assigned to procure, utilize and manage physical resources for [municipal service], are present.
	Structures, appropriately designed to manage the physical resources for [municipal service], are present.
	Systems, processes and procedures, appropriately designed to manage physical resources for [municipal service], are present.
	Performance management and reporting, appropriately designed and implemented to measure the utilization, maintenance and management of physical resources for [municipal service], are present.
Environmental Capacity	An economic environment, enhancing the management of physical resources for [municipal service], is present.
	A social environment, enhancing the management of physical resources for [municipal service], is present.
	A technological environment, enhancing the management of physical resources for [municipal service], is present.
	Legislative and strategy frameworks, enhancing the management of physical resources for [municipal service], are present.
	A political environment, enhancing the management of physical resources for [municipal service], is present.

Capacity Dimension	Municipal Service Delivery Phase: Technological Resources
Individual Capacity	Employees, with appropriate academic qualifications to be aware of and understand the objectives of technological resources for [municipal service], are present.
	Employees, with appropriate relevant work experience to be aware of and understand the objectives of technological resources for [municipal service], are present.
	Employees, with appropriate technical skills and knowledge to recognise the requirements and extend of technological resources for [municipal service], are present.
	Employees, with appropriate management skills and knowledge to acquire, deploy and control technological resources for [municipal service], are present.
	Employees, with appropriate abilities to think critically and illustrate leadership in managing technological resources for [municipal service], are present.
Institutional Capacity	Policies and regulations with appropriate content to acquire/procure and utilize technological resources for [municipal service], are present.
	Powers and functions, appropriately interpreted, designed and assigned to procure, utilize and manage technological resources for [municipal service], are present.
	Structures, appropriately designed to manage technological resources for [municipal service], are present.
	Systems, processes and procedures, appropriately designed to manage technological resources for [municipal service], are present.
	Performance management and reporting, aptly designed and implemented to measure the utilization, maintenance and management of technological resources for [municipal service], are present.
Environmental Capacity	An economic environment, enhancing the management of technological resources for [municipal service], is present.
	A social environment, enhancing the management of technological resources for [municipal service], is present.
	A technological environment, enhancing the management of technological resources for [municipal service], is present.
	Legislative and strategy frameworks, enhancing the management of technological resources for [municipal service], are present.
	A political environment, enhancing the management of technological resources for [municipal service], is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Planning
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Employees with the appropriate technical skills and knowledge to execute the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Employees with the appropriate management skills and knowledge to direct the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Structures, appropriately designed to direct the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Systems, processes and procedures, appropriately designed to direct the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	Performance management and reporting, aptly designed and implemented to measure the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
Environmental Capacity	An economic environment, enhancing the execution of the planning of [municipal service] infrastructure implementation, operations and maintenance, is present.
	A social environment, enhancing the execution of the planning of [municipal service] infrastructure implementation, operations and maintenance, is present.
	A technological environment, enhancing the execution of the planning of [municipal service] infrastructure implementation, operations and maintenance, is present.
	Legislative and strategy frameworks, enhancing the execution of the planning of [municipal service] infrastructure implementation, operations and maintenance, are present.
	A political environment, enhancing the execution of the planning of [municipal service] infrastructure implementation, operations and maintenance, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Designing
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the designing of [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the designing of [municipal service] infrastructure, are present.
	Employees with the appropriate technical skills and knowledge to execute the designing of [municipal service] infrastructure, are present.
	Employees with the appropriate management skills and knowledge to direct the designing of [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the designing of [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the designing of [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the designing of [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the designing of [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the designing of [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the designing of [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the designing of [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the designing of [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the designing of [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the designing of [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the designing of [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Documenting
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the documenting for [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the documenting for [municipal service] infrastructure, are present.
	Employees with the appropriate technical skills and knowledge to execute the documenting for [municipal service] infrastructure, are present.
	Employees with the appropriate management skills and knowledge to direct the documenting for [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the documenting for [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the documenting for [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the documenting for [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the documenting for [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the documenting for [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the documenting for [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the documenting for [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the documenting for [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the documenting for [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the documenting for [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the documenting for [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Procurement
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the procurement for [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the procurement for [municipal service] infrastructure, are present.
	Employees with the appropriate technical skills and knowledge to execute the procurement for [municipal service] infrastructure, are present.
	Employees with the appropriate management skills and knowledge to direct the procurement for [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the procurement for [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the procurement for [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the procurement for [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the procurement for [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the procurement for [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the procurement for [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the procurement for [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the procurement for [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the procurement for [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the procurement for [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the procurement for [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Financing
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the financing of [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the financing of [municipal service] infrastructure, are present.
	Employees, with the appropriate technical skills and knowledge to execute the financing of [municipal service] infrastructure, are present.
	Employees, with the appropriate management skills and knowledge to direct the financing of [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the financing of [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the financing of [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the financing of [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the financing of [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the financing of [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the financing of [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the financing of [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the financing of [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the financing of [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the financing of [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the financing of [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Construction
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the construction of [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the construction of [municipal service] infrastructure, are present.
	Employees with the appropriate technical skills and knowledge to execute the construction of [municipal service] infrastructure, are present.
	Employees with the appropriate management skills and knowledge to direct the construction of [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the construction of [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the construction of [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the construction of [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the construction of [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the construction of [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the construction of [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the construction of [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the construction of [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the construction of [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the construction of [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the construction of [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Maintenance
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the maintenance of [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the maintenance of [municipal service] infrastructure, are present.
	Employees with the appropriate technical skills and knowledge to execute the maintenance of [municipal service] infrastructure, are present.
	Employees with the appropriate management skills and knowledge to direct the maintenance of [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the maintenance of [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the maintenance of [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the maintenance of [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the maintenance of [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the maintenance of [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the maintenance of [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the maintenance of [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the maintenance of [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the maintenance of [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the maintenance of [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the maintenance of [municipal service] infrastructure, is present.

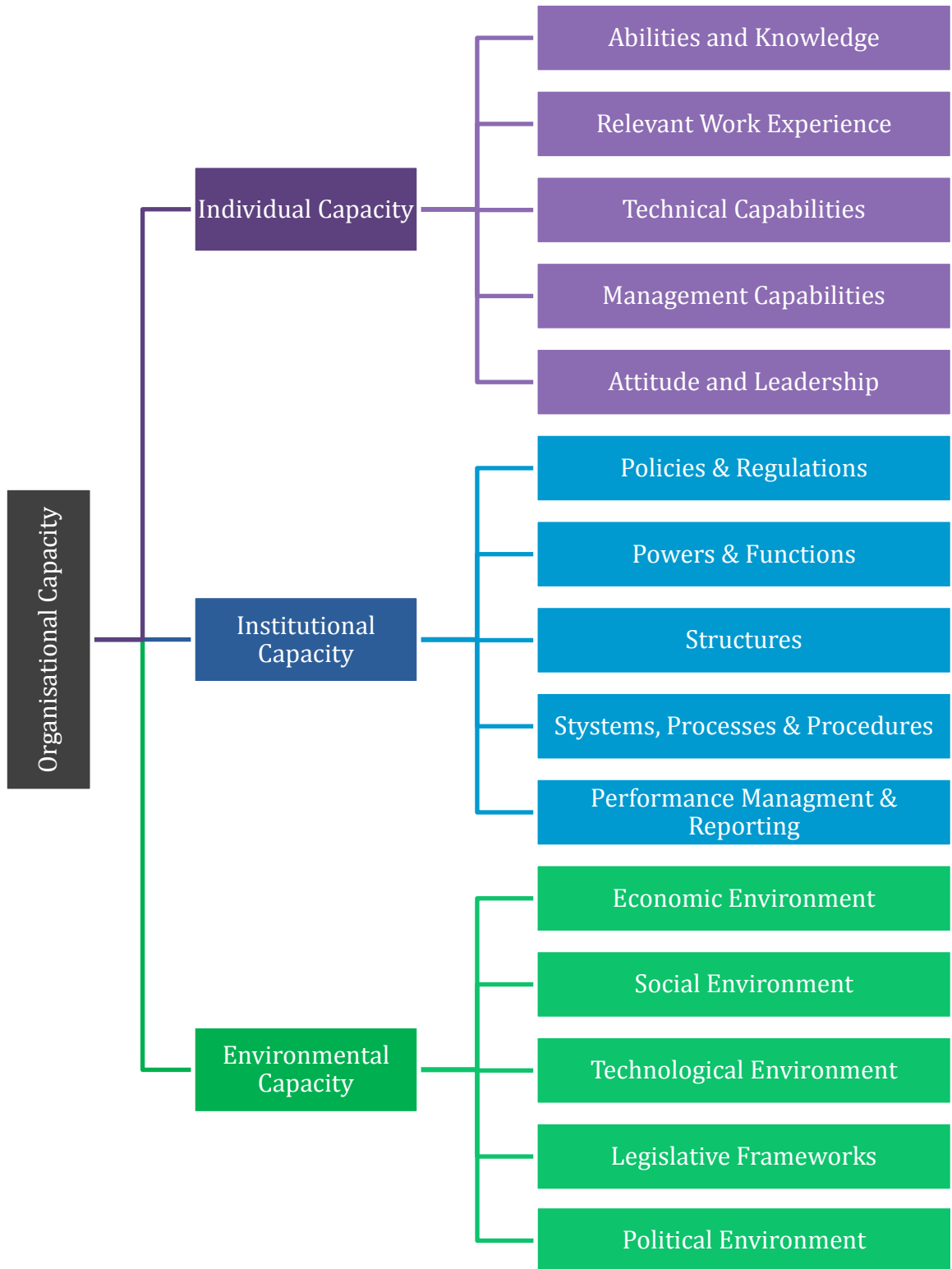
Capacity Dimension	Municipal Service Delivery Phase: Engineering Operations: Operations
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand the operations of [municipal service] infrastructure, are present.
	Employees, with appropriate relevant work experience to be aware of and understand the operations of [municipal service] infrastructure, are present.
	Employees, with the appropriate technical skills and knowledge to execute the operations of [municipal service] infrastructure, are present.
	Employees, with the appropriate management skills and knowledge to direct the operations of [municipal service] infrastructure, are present.
	Employees, with appropriate abilities to think critically and illustrate leadership around the operations of [municipal service] infrastructure, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to direct the operations of [municipal service] infrastructure, are present.
	Powers and functions, appropriately interpreted, designed and assigned to direct the operations of [municipal service] infrastructure, are present.
	Structures, appropriately designed to direct the operations of [municipal service] infrastructure, are present.
	Systems, processes and procedures, appropriately designed to direct the operations of [municipal service] infrastructure, are present.
	Performance management and reporting, appropriately designed and implemented to measure the operations of [municipal service] infrastructure, are present.
Environmental Capacity	An economic environment, enhancing the execution of the operations of [municipal service] infrastructure, is present.
	A social environment, enhancing the execution of the operations of [municipal service] infrastructure, is present.
	A technological environment, enhancing the execution of the operations of [municipal service] infrastructure, is present.
	Legislative and strategy frameworks, enhancing the execution of the operations of [municipal service] infrastructure, are present.
	A political environment, enhancing the execution of the operations of [municipal service] infrastructure, is present.

Capacity Dimension	Municipal Service Delivery Phase: Results: Outputs
Individual Capacity	Employees, with the appropriate academic qualifications to be aware of and understand [municipal service] outputs, are present.
	Employees with the appropriate relevant work experience to determine [municipal service] outputs, are present.
	Employees with the appropriate technical skills and knowledge to identify and generate [municipal service] outputs, are present.
	Employees with the appropriate management skills and knowledge to plan and control the delivery of [municipal service] outputs, are present.
	Employees with the appropriate ability to think critically and illustrate leadership around the identification and ultimate delivery of [municipal service] outputs, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to enable the identification and ultimate delivery of [municipal service] outputs, are present.
	Powers and functions, appropriately interpreted, designed, and assigned to enable the identification and ultimate delivery of [municipal service] outputs, are present.
	Structures, appropriately interpreted, designed, and assigned to enable the identification and ultimate delivery of [municipal service] outputs, are present.
	Systems, processes and procedures, appropriately designed and implemented to enable the identification and ultimate delivery of [municipal service] outputs, are present.
	Performance management and reporting, appropriately designed and implemented to measure the delivery of [municipal service] outputs, are present.
Environmental Capacity	An economic environment, enhancing the identification and delivery of [municipal service] outputs, is present.
	A social environment, enhancing the identification and delivery of [municipal service] outputs, is present.
	A technological environment, enhancing the identification and delivery of [municipal service] outputs, is present.
	Legislative and strategy frameworks, enhancing the identification and delivery of [municipal service] outputs, are present.
	A political environment, enhancing the identification and delivery of [municipal service] outputs, is present.

Capacity Dimension	Municipal Service Delivery Phase: Results: Outcomes
Individual Capacity	Employees, with the appropriate academic qualifications for the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Employees, with the appropriate relevant work experience for the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Employees, with the appropriate technical skills and knowledge for the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Employees, with the appropriate management skills and knowledge for the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Employees, with the appropriate ability to think critically and illustrate the necessary leadership around the identification and ultimate delivery of [municipal service] outcomes, are present.
Institutional Capacity	Policies and regulations, with the appropriate content to enable the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Powers and functions, appropriately interpreted, designed, allocated and appointed to enable the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Structures, appropriately interpreted, designed, allocated and appointed to enable the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Systems, processes and procedures, appropriately interpreted, designed and implemented to enable the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	Performance management and reporting, appropriately interpreted, designed and implemented to enable the needed identification and ultimate delivery of [municipal service] outcomes, are present.
Environmental Capacity	An economic environment, with the nature of favouring the necessary identification and ultimate delivery of [municipal service] outcomes, is present.
	A social environment, with the nature of favouring the enablement of the necessary identification and ultimate delivery of [municipal service] outcomes, is present.
	A technological environment, with the nature of favouring the enablement of the necessary identification and ultimate delivery of [municipal service] outcomes, is present.
	Legislative and strategy frameworks, with the nature of favouring the enablement of the necessary identification and ultimate delivery of [municipal service] outcomes, are present.
	A political environment, with the nature of favouring the enablement of the necessary identification and ultimate delivery of [municipal service] outcomes, is present.

Capacity Dimension	Municipal Service Delivery Phase: Results: Impacts
Individual Capacity	Employees, with the appropriate academic qualifications for identifying, enabling and achieving the necessary impacts of [municipal service], are present.
	Employees, with the appropriate relevant work experience for identifying, enabling and achieving the necessary impacts of [municipal service], are present.
	Employees, with the appropriate technical skills and knowledge for identifying, enabling and achieving the necessary impacts of [municipal service], are present.
	Employees, with the appropriate management skills and knowledge for identifying, enabling and achieving the necessary impacts of [municipal service], are present.
	Employees, with the appropriate ability to think critically and illustrate the necessary leadership around identifying, enabling and achieving the necessary impacts of [municipal service], are present.
Institutional Capacity	Policies and regulations, with the appropriate content to enable the identification, enablement and achievement of the necessary impacts of [municipal service], are present.
	Powers and functions, aptly interpreted, designed, allocated and appointed to enable the identification, enablement and achievement of the necessary impacts of [municipal service], are present.
	Structures, appropriately interpreted, designed, allocated and appointed to enable the identification, enablement and achievement of the necessary impacts of [municipal service], are present.
	Systems, processes and procedures, aptly interpreted, designed and implemented to assist the identification, enablement and achievement of the needed impacts of [municipal service], are present.
	Performance management and reporting, aptly interpreted, designed and implemented to assist the identification, enablement and achievement of the needed impacts of [municipal service], are present.
Environmental Capacity	An economic environment, with the nature of favouring the necessary identification, enablement and achievement of the necessary impacts of [municipal service], is present.
	A social environment, with the nature of favouring the enablement of the necessary identification, enablement and achievement of the necessary impacts of [municipal service], is present.
	A technological environment, with the nature of favouring the enablement of the necessary identification, enablement and achievement of the necessary impacts of [municipal service], is present.
	Legislative and strategy frameworks, with the nature of favouring the enablement of the needed identification, enablement and achievement of the necessary impacts of [municipal service], are present.
	A political environment, with the nature of favouring the enablement of the necessary identification, enablement and achievement of the necessary impacts of [municipal service], is present.

B. Hierarchy of Organisational Capacity



C. SMCSAM Results Interface: Assessment Matrix (Selection Variation)

3. CAPACITY SELF-ASSESSMENT RESULTS											
		68%	60%	46%	52%						
		Weighted Average	Weighted Average	Weighted Average	Weighted Average						
<div style="display: flex; flex-direction: column; gap: 5px;"> <div> Top 1% capacity concerns.</div> <div> Score is either 0 or needs to be rated.</div> <div> Score between and including 0 and 33.</div> <div> Score between and including 34 and 66.</div> <div> Score between and including 67 and 100.</div> </div>		Abilities and Knowledge		Relevant Work Experience		Technical Capabilities		Management Capabilities		Critical Thinking & Leadership	
		Legislation: Policies & Regulations		Powers & Functions		Structures		Systems, Processes & Procedures		Performance Management & Reporting	
		Economic Environment		Social Environment		Technological Environment		Legislative Frameworks		Political Environment	
		Organisational Capacity	Individual Capacity	Institutional Capacity	Environmental Capacity						
Basic Municipal Services		Basic Municipal Services Delivery Process									
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mandate		0%									
Integrated Development Planning		68%									
Service Delivery & Budget Implementation Planning		67%									
Human Resources		75%									
Financial Resources		72%									
Physical Resources		65%									
Technological Resources		70%									
Planning		68%									
Designing		75%									
Document		73%									
Procurement		77%									
Financing		74%									
Construction		77%									
Maintenance		75%									
Operations		77%									
Outputs		80%									
Outcomes		68%									
Impact		66%									

D. SMCSAM Results Interface: Spider Diagram (Selection Variation)



E. Questionnaire

Questionnaire: Subjective Municipal Capacity Self-Assessment Model (SMCSAM)		
Municipality/Organisation:		
Validator's Name and Surname:		
Validator's Position:		
Validator's Academic Qualifications:		
Validator's Signature:		
Date:		
Questions related to the user interfaces of SMCSAM		
1. Key Performance and Capacity Information	Yes/No	Score
Were you previously aware of the statistics provided with regards to water services backlogs?		
Were you previously aware of the statistics provided with regards to refuse removal services backlogs?		
Were you previously aware of the statistics provided with regards to sanitation services backlogs?		
Were you previously aware of the statistics provided with regards to electricity services backlogs?		
2. Consolidated Municipal Capacity Assessment Framework	Yes/No	Score
Is the matrix for the municipal service delivery phases and elements of capacity easily understandable?		
Are the capacity dimensions of Individual Capacity appropriately used?		
Are the capacity dimensions of Institutional Capacity appropriately used?		
Are the capacity dimensions of Environmental Capacity appropriately used?		
Are the capacity dimensions of Organisational Capacity appropriately used?		
Are the municipal services delivery processes overall appropriately used?		
Are the municipal services delivery processes, related to strategy, appropriately used?		
Are the municipal services delivery processes, related to resources, appropriately used?		
Are the municipal services delivery processes, related to operations, appropriately used?		
Are the municipal services delivery processes, related to results, appropriately used?		
3. SMCSAM Results	Yes/No	Score
Do the colour-coded cells aid your understanding of the results of SMCSAM?		
Do the weighted averages aid your understanding of the results of SMCSAM?		
Does the graphical representation aid your understanding of the results of SMCSAM?		

Questions related to outputs, outcomes and impacts of SMCSAM		
1. SMCSAM Outputs	Yes/No	Score
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s individual capacity?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s institutional capacity?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s environmental capacity?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s organisational capacity?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the basic municipal service delivery process: Mandate?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the basic municipal service delivery process: Strategy?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the basic municipal service delivery process: Engineering Operations?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the basic municipal service delivery process: Results?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery water provision services?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery refuse removal services?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery sanitation services?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery electricity provision services?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery municipal roads services?		
Do the outputs of the capacity assessment provide unique new insights to capacity strengths and weaknesses with regards to the municipality’s capacity for the delivery stormwater management services?		

2. SMCSAM Outcomes	Yes/No	Score
Could new insights affect future decisions regarding employment requirements in terms of the academic qualifications of employees?		
Could new insights affect future decisions regarding employment requirements in terms of the relevant work experience of employees?		
Could new insights affect future decisions regarding employment requirements in term of the technical skills and knowledge of employees?		
Could new insights affect future decisions regarding to employment requirements in terms of the management skills and knowledge of employees?		
Could new insights affect future decisions regarding employment requirements in terms of the critical thinking and leadership of employees?		
Could new insights affect future management decisions regarding to mentoring of employees?		
Could new insights affect future management decisions regarding to training of employees?		
Could new insights affect future decisions regarding adapting to a changing economic environment?		
Could new insights affect future decisions regarding adapting to a changing social environment?		
Could new insights affect future decisions regarding adapting to a changing technological environment?		
Could new insights affect future decisions regarding adapting to changing legislative frameworks?		
Could new insights affect future decisions regarding adapting to a changing political environment?		
Could new insights affect future decisions regarding formulation of policies and regulations?		
Could new insights affect future decisions regarding assignment of powers and functions?		
Could new insights affect future decisions regarding design of organisational structures?		
Could new insights affect future decisions regarding design of systems, processes, procedures?		
Could new insights affect future decisions regarding design of performance management and reporting?		
3. SMCSAM Impacts	Yes/No	Score
Could new insights affect current understandings of municipalities' Individual Capacity?		
Could new insights affect current understandings of municipalities' Institutional Capacity?		
Could new insights affect current understandings of municipalities' Environmental Capacity?		
Could new insights affect current understandings of municipalities' Organisational Capacity?		
Could new insights affect current approaches to internal municipal capacity building initiatives, as required by the Municipal Systems Act, 2000?		
Could new insights affect current approaches to external municipal capacity building initiatives, as performed by the MDB?		

F. Confirmation from Drakenstein Municipality


DRAKENSTEIN
MUNISIPALITEIT • MUNICIPALITY • UMASIPALE WASE
"A Place of Excellence"

DEPARTMENT : CIVIL ENGINEERING SERVICES
TELEPHONE : 8074715

REFERENCE : 4/7/5 (2817)
ENQUIRIES : G.S. du Plessis

28 November 2013

To whom it may concern

Hereby I acknowledge that Sarel van Baalen from Stellenbosch University implemented the subjective municipal capacity self-assessment model (SMCSAM) at Drakenstein Municipality.

Regards


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