



## Barriers that Constrain Municipal Infrastructure Service Delivery & Professionalization of Civil Engineers in the South African Local Government Sector

Reginald Sethole Legoabe

Email: rlegoabe@hotmail.com

**Abstract:** The objective of study was to identify barriers affecting professionalization among civil engineers working in South African local municipalities and to quantify key predictors of job satisfaction as well as recommend policy interventional measures to promote professionalization. In assessing the barriers affecting civil engineering professionals, the study explores the assumptions behind the institutional entrepreneurship role of municipal Infrastructure / Technical Directors as public entrepreneurs in the service delivery role.

The study was conducted against the background of shortage of suitably qualified, adequately motivated and skilled civil engineers working in local municipalities. Mixed methods of data analysis were used, the design of study was cross-sectional, descriptive and evaluative. A combination of quantitative and qualitative methods of data collection and analyses were used in the study. As part of the quantitative aspect of study, data was collected from a stratified random sample of size 250 civil engineers working in various South African local municipalities. The degree of job satisfaction of Respondents was assessed by using a composite index developed by Turkyilmaz, Akman, Ozkan & Pastuszek (2011) for conducting a similar study.

As part of the qualitative aspect of study, individual in-depth interviews were conducted with 78 civil engineers working in various local municipalities. Four focus group interviews were conducted as part of the study. Respondents who took part in the study came from municipalities in KwaZulu-Natal, North West, the Free State, Eastern Cape, Western Cape, Gauteng, Limpopo and Mpumalanga provinces. No responses were received from local municipalities in the Northern Cape Province.

Four focus groups were used in the study in which focus groups were established in Gauteng (Pretoria), North West (Rustenburg), the Free State (Bloemfontein) and Mpumalanga (Middleburg). Data was collected by using a structured, pretested and validated questionnaire of study. Quantitative data analyses were conducted by using methods such as frequency tables, cross-tab analyses (Pearson's chi-square tests of associations) and binary logistic regression analysis. The results showed that of the 171 respondents who took part in the study (68.40%) were not satisfied with the job that they were performing in the various local municipalities, whereas 54 (31.60%) were satisfied with their jobs. Based on results obtained from cross-tab analyses at the 5% level of significance, the degree of job satisfaction of civil engineers at the workplace was significantly and adversely affected by too much workload, poor working conditions, lack of budget for construction projects, low salary and remuneration, lack of training opportunities, lack of cooperation and appreciation, too much bureaucracy and red tape, short duration of service, and poor relationship with supervisors, in a decreasing order of strength.

Results obtained from binary logistic regression analysis showed that the degree of job satisfaction of civil engineers at the workplace was significantly and adversely affected by 3 factors namely high workloads, poor working conditions, and lack of budget for construction projects in a decreasing order of strength. Results obtained from individual and focus group in-depth interviews led to similar findings. From the study findings, professionalization of municipal civil engineers is constrained by:-

- Lack of interest in professional registration due to a perceived lack of benefits
- Perceived lack of "power" by ECSA over unregistered engineers & municipalities employing unregistrable persons
- Little or no financial subsidy assistance provided for CPD and annual membership fees
- Appointments of underqualified, inexperienced and unregistrable "deployees"
- Compromised supply chain management (SCM) practices
- Removal of PMU and Infrastructure Asset Management functions / budgets
- Political Appointments of underqualified / inexperienced Consultants and Contractors
- Poor Support from other municipal functions
- Hostile Politicised Work Environments
- Underfunding and Low Salaries
- High costs of family relocation to rural workplaces
- Poor career growth and frustrations
- Perceived unfair recruitment and promotion Practices
- Lack of study opportunities
- Lack of functional design offices
- High Workloads and Lack of Exposure (only project management work)
- Workplace unwillingness by registered persons and municipalities to undertake compliance
- Lack of / poor respect for professional integrity and work ethics by senior municipal management and Councillors

**Keywords:** Local Municipalities, Civil engineering, Municipal Service Delivery, Institutional Theory, Structuration Theory, Infrastructure Asset Management; Professionalization, Job satisfaction, Odds ratio

## Introduction

Municipal service delivery has always generated significant public interest due to the frequent service delivery protests occurring throughout the country as well as risks generated by infrastructure breakdowns to public health, environmental integrity and municipal financial sustainability. According to the Department of Cooperative Governance and Traditional Affairs (CoGTA 2012:4) and Municipal IQ Hotspot Monitor (2012:1), the primary causes of service delivery protests throughout the country remains the delivery of basic municipal services such as running water, electricity and toilets especially in informal settlements.

The above is exacerbated by high unemployment, high levels of poverty, poor and failing infrastructure and the lack of housing. Indeed, empirical studies in the domain of local government have identified several underlying causes of poor service delivery in the form of:-

- Nepotism; political interference & political cadre deployments (Nealer, 2007)
- Cronyism (Ntliziywana, 2009)
- Lack of formal qualifications, expertise and experience (SALGA, 2006:1)
- Rivalries between Councillors and officials (Naidoo, 2010)
- Poor infrastructure management (Water Research Commission, 2007)
- Lack of responsiveness to community needs; low staff morale & service ethics - (Mafunisa, 2001)
- Poor performance management systems; financial irregularities and adverse audit outcomes - (Josie, Khumalo and Ajam, 2006)
- Malpractices & Corruption - (University of Western Cape, 2012)

Alongside an increase in infrastructure backlogs, it is now over a decade since the establishment of the Municipal Infrastructure Support Agency (MISA) as the “*Consulting Engineer of government*” under the Department of Cooperative Governance and Traditional Affairs (CoGTA) on the 1 April 2012.

The objective of MISA’s establishment was to support municipalities to conduct effective infrastructure planning to achieve sustainable service delivery; build municipal technical capacity and support municipalities with operations and maintenance of municipal infrastructure.

Since the establishment of MISA however, the state of local government infrastructure has deteriorated, communities are still using bucket toilets and living in unhygienic sanitation, more municipalities are dysfunctional or under administration with qualified audits, several dysfunctional municipalities have been judicially taken over by local communities and ratepayers associations and poor communities are still consuming raw untreated water with cattle and wildlife in rural areas whilst connected political intermediaries live off large from conveyor belt of corrupt tenders.

The strategic link between municipal service delivery, professionalisation and the civil engineering profession has long been established.

Pillay and Watermeyer (2012: 46) pointed out that a major portion of the work undertaken by civil engineers involves public infrastructure. According to Pillay and Watermeyer (2012), the civil engineering discipline currently accounts for just less than half the number of professional engineers and technologists registered with the Engineering Council of South Africa (ECSA) and is involved in the following:

- The detailed planning, design, construction and optimisation or condition assessment of infrastructure;
- The development of short-, medium- and long-term infrastructure plans at both a portfolio and project level, and the administration of works contracts for the acquisition, refurbishment, rehabilitation and maintenance of infrastructure;
- The strategic planning and management of the operation and maintenance of infrastructure; and
- Specific duties relating to health, safety and environmental aspects of infrastructure as provided for in legislation.

Civil engineering is part of the regulated professions within the built environment professions regulated by statute in South Africa. There are other regulated built environment professions such as construction managers, construction project managers, architects, quantity surveyors, property valuers and landscape architects which are regulated by their own statutory professional bodies and also fall within the regulatory domain of the Council for the Built Environment (CBE).

The Council for the Built Environment (CBE) is the overall statutory body established by legislation in terms of the CBE Act 43 of 2000 which mandates the CBE to oversee and coordinate the activities of its six professional councils (including the engineering profession) and fulfils the following regulatory functions.

The South African civil engineering profession is regulated through the Engineering Professions Act 46 of 2000 which enables the establishment of the Engineering Council of South Africa (ECSA), a statutory professional registrations body which has been statutorily mandated to set professional standards and enforce these standards for the benefit of the civil engineering practitioners, the country and the profession.

ECSA fulfils the following regulatory functions namely:-

- Identification of professional work
- Setting guidelines on professional fees
- Ensuring continuous professional development (CPD)
- Accreditation of qualifications offered by universities
- Setting a code of conduct for the respective professions
- Overseeing professional registration standards
- Recognition of voluntary associations
- International agreements
- Recognition of prior learning
- Generating and ensuring compliance with professional standards
- Overseeing appeals and tribunals

Within the context of this study, civil engineering local government built environment practitioners refers to the officials employed by a municipality for infrastructure management,

service delivery and maintenance in the water, electricity, solid waste, roads and sanitation sectors.

## Background of Study

There is paucity in empirical data on the reasons behind the high turnover of local government built environment practitioners out of the sector and why some choose to operate outside the regulated provisions of their profession.

The scarcity of requisite qualified and experienced municipal engineers is indirectly linked with the challenges relating to poor infrastructure asset management, collapsing infrastructure and its related public health and safety problems as well as service delivery community protests that infrastructure collapses typically elicits.

In order to be able to address the challenge or poor infrastructure institutional capacity besetting municipal infrastructure departments and utilities, it is important that an in-depth study that focuses on the root cause analysis of the problem be implemented.

## Literature Review

Since the advent of a new democratic dispensation in 1994, the South African government has focused its budgets on the rollout and delivery of new infrastructure and related services to previously unserved and /or underserved communities (DBSA, 2009).

The unintended consequence has been the widening of infrastructure maintenance where the poorest municipalities have, proportionate to their capacity for asset management acquired the greater volume of new infrastructure. Such municipalities have the least resources and readiness to adequately maintain both new and existing infrastructure (CoGTA, 2011).

Due to the scarcity of the relevant infrastructure management skills due to amongst others, inadequate operations and maintenance of municipal infrastructure, community service delivery protests have been on the rise due to constant failure of infrastructure services as a result of poor operations and maintenance.

Poor municipal service delivery and more specifically the inadequate operations and maintenance of municipal infrastructure poses potential for disasters; compromises public health, environmental integrity, and financial sustainability of municipalities (*Public Works/ CSIR National Infrastructure Maintenance Study, 2006*).

South Africa has a well-developed municipal infrastructure with an estimated total national asset value in excess of R1000 Billion of which about 40% is municipal infrastructure (National Treasury & GiZ, 2015).

Municipalities hold a wide range of infrastructure asset portfolios including electricity networks, water and sanitation systems, roads, bridges, stormwater, solid waste infrastructure and social amenities such as parks, cemeteries, community halls / centres, and sports / recreation centres with the estimated

replacement cost of all municipal immovable asset portfolios estimated to be in the order of R1.261 trillion employed for service delivery purposes as at 30 June 2014 (National Treasury & GIZ, 2015).

Failing municipal service delivery capacity is not a new phenomenon however. As far back as 2009, the CoGTA's own *State of Local Government Report (2009)* found that municipal technical and institutional management capacity is a major shortcoming in particularly rural municipalities.

As early as 2006, the *Public Works / CSIR National Infrastructure Maintenance Study (2006)* found that South Africa is facing major challenges in infrastructure maintenance and asset management and concluded that taking net asset value and complexity into cognisance, the municipal infrastructure maintenance strategies used in the last decade by South African municipalities "have been largely inadequate" (CIDB, CSIR & DPW, 2006).

The Department of Cooperative Governance and Traditional Affairs (CoGTA) has over the years inaugurated several flagship strategies over the years in the form of the:-

- *Five-Year Local Government Strategic Agenda (1999 – 2009)*
- *Project Consolidate (2004 – 2006)*
- *Local Government Turnaround Strategy (LGTAS, 2009 – 2014)*
- *Back to Basics (2014 – Current)*

All of the abovementioned strategies emphasised the Development and Maintenance of Infrastructure Services; Financial Viability; Local Economic Development; Institutional Capacity and Good Governance.

Whilst there has been various support interventions ranging from private sector funders to international agencies aimed at supporting the sector ranging from short-term to long-term gap filling and targeted support in governance, administration; infrastructure project planning, service delivery, the strategic impact of such interventions appears quite negligible (CoGTA, 2011).

In reference to critical infrastructure management skills critical for service delivery, the National Planning Commission (2011) highlighted how amongst others, poor municipal service delivery, technical skills insufficiency and poor operations and maintenance of municipal infrastructure constrained the capacity of the South African economy to grow.

A plethora of studies most notably the *SA Institute of Civil Engineers (SAICE); Municipal Demarcation Board (MDB)* further found that the scarcity of relevant infrastructure management skills and experience has led to municipal vacancy rates as high as 40% in some local municipalities and how as a result of chronic understaffing and lack of internal staff and management capacity, municipal infrastructure departments:-

- Suffer from high vacancy rates as high as 35% - 40%
- Are unable to spend their Municipal Infrastructure Grant (MIG) allocations

- Are unable to cope with the demands of municipal operations and maintenance, resulting in sewage spills, water quality problems and refuse non-removal
- Do not have asset registers or maintenance plans in place
- Suffer from very high losses in water and electricity supply due to poor metering management
- Suffer from significant turnover and retrenchments of older qualified and experienced staff

In the water & sanitation sector, the Department of Water Affairs & Sanitation (DWS) *Water Sector Leadership Group*, (2009) also cited the shortage of infrastructure management skills in the water and electrical sectors related to professionally registered Engineers, engineering Technologists and Technicians.

The scarcity of requisitely qualified and experienced municipal built environment professionals is directly linked with poor municipal infrastructure asset management, tendering irregularities, collapsing municipal infrastructure, lack of operations and maintenance as well as its related public health and safety problems leading to community service delivery protests that infrastructure collapses typically elicits.

It is clear that the scarcity of requisite qualified and experienced municipal officials in the water; sanitation; electricity (energy); construction (housing); roads; town planning; waste management and engineering (civil & electrical) professions is directly linked with poor municipal infrastructure asset management, tendering irregularities, collapsing infrastructure and its related public health and safety problems leading to community service delivery protests.

The *Public Works / CSIR National Infrastructure Maintenance Study* (2006) highlighted the following key facts that:-

- The most common causes of poor water quality standards from water treatment works is a breakdown of plant and / or the length of time that it takes to have the same plant repaired satisfactorily for it to resume working correctly.
- The most common problem experienced with water reticulation systems is leakage of water with the usage of incorrect procedures at the time of laying the pipes, damage due to excavations, usage of inappropriate pipe materials (and consequent corrosion), inappropriate repair procedures, the ageing of the pipes and illegal connections as the key contributors.
- Municipalities are usually responsible for maintaining the waterborne sanitation piped network and pumping facilities
- The most common problems being sanitation spills from system overloading, blockages by roots of trees, foreign objects, breakages and network deterioration.
- The most common causes of the electricity reticulation systems failures are faulty operating procedures, lack of planned maintenance, damage to underground cables, overloading, and equipment ageing exacerbated by cable theft and illegal connections.
- The most common cause of the failure of roads is neglect of routine maintenance, neglect to repair damage without delay and vehicle overloading

Lawless (2005; 2016) charts the migration patterns of older more experienced civil engineers out of the South African local government sector and how municipal infrastructure departments find themselves staffed by more younger but relatively inexperienced engineering professionals; have vacancy rates ranging from 35% - 50% and highlights how municipal infrastructure service delivery workloads have increased whilst staffing levels have been steadily declining over the years.

Lawless (2005; 2016) charts how, as a result of chronic understaffing and lack of internal capacity, municipal infrastructure departments:-

- Are unable to spend their Municipal Infrastructure Grant (MIG) allocations
- Are unable to spend and access other sources of development funding
- Are unable to cope with the demands of municipal operations and maintenance, resulting in sewage spills, water quality problems and refuse non-removal
- Are unable to cope with developers and large projects such as housing developments due to a lack of bulk services and support bylaws
- Suffer from very high losses in water and electricity supply due to poor metering management
- Are unable to improve their revenue income streams and collection rates

Lawless notes that inefficiencies in municipal infrastructure grant (MIG) expenditure generally coincided with the absence of skilled technical staff and/ or the lowering age profiles of civil engineering professionals employed at the particular municipality.

Further studies by Van Veelen (2012: 5) indicates that another key constraint affecting South Africa (and its municipalities) is the lack of civil engineers trained to design, construct and manage infrastructure; proper operational systems to maintain infrastructure and the lack of general capacities for planning, financial management (ensuring proper costing, budgeting and management) and governance (including the procurement of the right capabilities).

Van Veelen (2012) highlights that:-

- There is a declining number of engineers
- South Africa's average of 3 civil engineering staff per 100,000 is inadequate
- Only 41% of Technical Service Managers have a degree
- 50% of municipalities have had their Infrastructure Director / Head of Technical Services in place for less than two years.

Proper municipal service delivery in the form of access to clean safe water, access to energy and quality reliable housing and roads remains a Constitutional right and is not a privilege.

Despite the establishment of Municipal Infrastructure Support Agency (MISA) as the “Consulting Engineer” of government in April 2012, the Auditor-General’s 2017/2018 report noted an overall decline in the quality of audit outcomes and deteriorating quality of infrastructure services of municipalities indicating that municipalities have in many instances disregarded, previous audit recommendations by the Auditor-General.

According to Makwetu (2017), the trickle-down effect of governance and financial management failures is glaringly evident across a number of municipalities, large and small in the form of “largely incomplete projects, unsupervised projects, lack of maintenance of significant service delivery infrastructure and haphazard road maintenance projects and infrastructure.”



Figure 1: Graphic courtesy of Auditor-General (2017/ 2018) Report

In the 2017/2018 financial year, of the 257 municipalities and 21 municipal entities audited, only 18 municipalities managed to produce quality financial statements and performance reports, as well as complied with all key legislation, thereby receiving a clean audit.

Under road infrastructure 41% of municipalities did not have an approved road maintenance plan; 26% did not approve priority road infrastructure maintenance projects; 23% did not do any condition assessment on their roads.

Under sanitation infrastructure, 40% did not have an approved policy on sanitation maintenance; 31% did not conduct any condition assessment of sanitation infrastructure. Under water infrastructure, 48% did not have any water maintenance policy whilst 29% did not conduct any condition assessment with 39% of municipalities with high water losses above 30%.

In the Auditor-General’s 2018/2019 financial year results, the Auditor General found that only 21 municipalities achieved a clean audit with more than R1-billion spent on Consultants and over R32-billion in irregular expenditure.

In the 2018/2019 report, the Auditor-General noted that although the majority of municipalities hired Consultants to assist in financial reporting services resulting in R741-million in total expenditure, only R51-million of this cost was as a result of vacancies in municipal finance units.

Moreover, 59% of the statements the Consultants worked on (R437 million rands of work) included material misstatements.



Figure 2: Graphic courtesy of Mail & Guardian (2020)

### Objectives of Study

The objective of study was to identify and quantify key predictors of job satisfaction as well as barriers affecting professionalization among civil engineers working in South African local municipalities. The study has the following three specific objectives:-

- To investigate the barriers preventing the attainment and maintenance of professionalization by municipal civil engineering practitioners.
- To develop interventional measures to promote professionalization of municipal civil engineering practitioners in the local government sector.
- To develop interventional measures to ensure the development of institutional capacity by municipalities and the local government sector in general.

### Research Questions

The research questions of the study are:-

- What are the impediments constraining the attainment and maintenance of professionalization by municipal civil engineering practitioners?
- Which interventional measures are required to promote professionalization of municipal civil engineering practitioners in the local government sector?
- Which interventional measures are required to ensure the development of institutional capacity by municipalities and the local government sector in general?

### Data Collection

A combination of quantitative and qualitative methods of data collection and analyses were used in the study. As part of the quantitative aspect of study, data was collected from a stratified random sample of size 250 civil engineers working in various South African local municipalities.



A total sample of two hundred and fifty (250) Respondents from eighteen (x18) low-capacity local and district municipalities (excluding high capacity metropolitan municipalities) were selected through stratified random sampling targeting Infrastructure Directors, Project Management Unit managers as well as junior officials employed as engineers irrespective of experience; professional registration status (Professional Engineer, Technician, Technologist, Candidate or unregistered); level of management experience and seniority and irrespective of the civil engineering sub-functional area of work (water, sanitation, roads and storm water, solid waste, housing, asset management, designs, energy).

Functional Area	Percentage
Water and Waste Water management	23.0%
Sanitation	16.6%
Solid Waste Management	7.6%
Roads and Storm water management	17.9%
Electricity	5.1%
Project Management	14.1%
Asset Management	3.8%
Housing Construction	11.5%

Figure 3: Functional Area of Respondents

Respondent Responses by Levels of Current Job Title	Junior Level	Skilled Level	Junior Management	Senior Management	Total
Technician					
PMU Technician					
PMU Officer					
PMU Manager					
Technical Director					
Infrastructure Manager					
Technical Manager					
Manager: Roads & Stormwater					
Water Services Manager					
Manager: Waste Management					
Water & Sanitation Officer					
Assistant Director: Water & Sanitation					
Technologist					
Manager: Construction & Building					
Senior Superintendent					
Manager: Water Services					
Senior Engineer: Infrastructure Services					
Director: Technical Services & Infrastructure					
Technical Assistant					
Asset Management Officer					
Total					172
Percentage	6.41%	24.36%	42.3%	26.9%	100%

Figure 4: Respondents by Current Job Title

The Respondents with the highest work experience has worked for more than 11 years in total whilst the Respondents with the lowest working experience have worked for the municipality for less than 2 years.

Out of the total questionnaire responses received from municipal engineering Respondents, 37% of Respondents indicated that they are indeed professionally registered with the Engineering Council of South Africa (ECSA) either as Candidates (15.4%), Professional Technicians (8.9%), Professional Technologists (6.41%) as well as registered with Other Councils (1.28%).

Four focus group interviews were conducted as part of the study. Data was collected by using a structured, pretested and validated questionnaire of study.

### Data Analysis

Quantitative data analyses were conducted by using methods such as frequency tables, cross-tab analyses (Pearson's chi-square tests of associations) and binary logistic regression analysis.

The Pearson Chi-square test of association (Hair, Black, Babin and Anderson, 2010) was used for performing a preliminary screening of influential factors that were significantly associated with job satisfaction by 250 Respondents who were sampled to participate in the study.

The degree of job satisfaction of respondents was measured by using a composite index developed by Turkyilmaz, Akman, Ozkan & Pastuszak (2011) for conducting a similar study.

Y: Degree of job satisfaction of employee

$$Y = \begin{cases} 1 & \text{if employee has no job satisfaction} \\ 0 & \text{otherwise} \end{cases}$$

### Findings of Study

The results showed that 171 of the 250 Respondents who took part in the study (68.40%) were satisfied with the job that they were performing in the various local municipalities, whereas the remaining 79 of the 250 respondents in the study (31.60%) were not satisfied with their jobs.

Based on results obtained from cross-tab analyses at the 5% level of significance, the degree of job satisfaction of civil engineers at the workplace was significantly and adversely affected by too much workloads, poor working conditions, lack of budgets, low salary and remuneration, lack of training opportunities, lack of cooperation and appreciation, too much bureaucracy and red tape, short duration of service, and poor relationship with supervisors, in a decreasing order of strength.

Factors adversely affecting job satisfaction	Observed chi-square value	P-value
Too much workload	12.084	0.000***
Poor working conditions	10.1257	0.000***
Lack of budget for construction projects	9.8224	0.000***
Low salary and remuneration	8.1077	0.000***
Lack of training opportunities	7.3257	0.000***
Lack of cooperation and appreciation	6.4114	0.000***
Too much bureaucracy and red tape	5.9454	0.003**
Short duration of service	4.2116	0.004**
Poor relationship with supervisors	3.2039	0.007**

Legend: Significance at \* P<0.05; \*\* P<0.01; \*\*\* P<0.001 levels of significance

Figure 5: Significant Associations from Cross Tab Analyses

Results obtained from binary logistic regression analysis showed that the degree of job satisfaction of civil engineers in the municipal workplace was significantly and adversely affected by three (3) factors namely too much workload, poor working conditions, and lack of budget for construction projects in a decreasing order of strength. Results obtained from individual and focus group in-depth interviews led to similar findings.

Variable	P-value	OR and 95% Confidence Intervals of Odds Ratio
Too much workload	0.000	4.24 (2.28, 7.66)
Poor working conditions	0.000	2.68 (1.89, 5.89)
Lack of budget for construction projects	0.001	2.57 (1.74, 5.56)

From the abovementioned findings of the study, it becomes clear that the majority of municipal Respondents hold a pessimistic view of the local government workplace and do not see the sector as suitable for the development of the civil engineering profession or as a workplace to make a career out of as compared to all other sub-sectors of the public sector.

The professionalization of municipal civil engineers is constrained by the following factors:

- Lack of interest in professional registration due to a perceived lack of benefits to the registered professional
- Perceived lack of “power” by ECSA over unregistered engineers and municipalities employing unregistered / unregistrable persons
- Little or no financial subsidy assistance provided by municipalities for CPD and annual membership fees
- Appointments of Underqualified, Inexperienced and Unregistrable “Deployees”
- Compromised Supply Chain Management (SCM) Practices
- The Removal of PMU and Infrastructure Asset Management Functions and Budgets from the Infrastructure / Technical Director’s Duties
- Political Appointments of Underqualified and Inexperienced Consulting Engineers and Contractors
- Poor Support from other municipal functions such as Supply Chain Management (SCM) and HRM
- A Hostile Politicised Work Environment with Lack of Support
- Low Salaries on offer
- High costs of family relocation to rural workplaces
- Poor Career growth
- Perceived Unfair Municipal Recruitment and Promotion Practices
- Lack of Study opportunities

- Lack of Functional Design offices
- High Workloads;
- Unwillingness by Registered persons and Employer Municipalities to undertake Statutory Compliance
- Underfunding & Lack of budgets
- Professional Integrity and Work Ethics not protected and respected by Senior
- Municipal Management and Councillors (the Executive)
- Career Frustration & Lack of Exposure (only project management work)

The majority of municipal engineering Respondents have cited lack of interest in professional registration due to a perceived lack of benefits deriving from professional registration for the both municipal engineers as well as the employer municipality as well as hostile work environment as the key underlying reasons for poor professionalization.

Other contributory factors is a lack of understanding of the profession; lack of political support; poor support from other municipal functions such as Supply Chain Management (SCM) and HRM; low salaries on offer; high costs of family relocation to rural workplaces; poor career growth; perceived unfair recruitment and promotions; lack of study opportunities; lack of functional design offices; high workloads; unwillingness on the side of the registered persons and employer municipalities to undertake statutory compliance with the Engineering Professions Act of 2000; a lack of resources as well as little or no financial subsidy assistance provided by municipalities to its registered engineering professionals to comply with Continuing Professional Development (CPD) and the payment of annual membership fees.

Municipal Respondents indicate that their professional integrity and work ethics are not being protected and respected by senior municipal management and Councillors (the Executive); many civil engineering professionals only do project management work and are frustrated at not being able to do the actual full value chain of civil engineering work beyond infrastructure project management work and that when municipal engineers are not protected from political interference, engineering professionals would rather leave the municipal workplace structurally coerced into unethical behaviour.

Municipal engineers hold an adverse view of the local government workplace and perceive the workplace environment as not favouring personal improvement and development due to political influences and perceived favouritism in the recruitment, remuneration and employment of engineers as well as the effect of so-called “political deployees” who are in most cases junior, inexperienced non-registered engineering persons but sometimes unregistrable persons such as teachers, university dropouts and matriculants who are appointed in senior management roles outside the regulatory provisions of the Engineering Professions Act of 2000.

Whilst the majority of Respondents do acknowledge and cited work flexibility; career fulfillment in terms of the impact of work on communities on the ground as well as the overall workplace satisfaction of confidence by a municipal Council in the professional’s abilities and professional standing, a significant cohort of registered persons who were initially registered have opted to lapse their professional registration

status due to a perceived lack of benefit in maintaining professional registration with ECSA as the statutory body perceived to have no regulatory powers over unregistered engineers as well as municipalities who elect to employ unregistered engineers.

The expensive nature of CPD activities coupled with indirect costs of travel and accommodation to and from CPD activity sites located mostly in urban areas often implies that registered persons find it expensive and difficult to attend courses, conferences and seminars and this results in most municipal engineers failing to maintain their ongoing professional registration due to noncompliance with CPD and / or due to non-payments of annual membership fees, thus causing registered municipal engineers to opt to lapse their professional registration in the process.

Municipal engineers state that their independent decision-making relating to the prioritization of municipal infrastructure projects, timing, location of infrastructure projects, contracting, supply chain management as well as the appointment of Consultants has increasingly been removed from their functions by senior municipal management and / or Councilors.

Municipal engineers state that their duties relating to forward planning on infrastructure planning (PMU) and infrastructure asset management have been structurally diluted and / or removed often through internal restructuring processes to the Municipal Managers or Chief Financial Officer (CFO)'s offices.

Due to the non-standardized structure of municipal infrastructure functions, the PMU roles and duties which correctly belong to the Municipal Technical/ Infrastructure Director have in some municipalities, been subsumed by the Municipal Manager who makes final determinations regarding future infrastructure planning in the absence of the Municipal Infrastructure Director who is expected to respond to the daily operational challenges of service delivery.

When PMU functions of an Infrastructure Director are exercised by the Municipal Manager to the exclusion of the mandate holder, often the quality of decision making favours the provision of new infrastructure to the detriment of operations and maintenance planning including infrastructure asset management.

The gazetting of Notice 578 of 2015 / *Total Remuneration Package Payable to Municipal Managers and Managers accountable to the Municipal Manager* (Notice 578 in Government Gazette 38946 dated 1 July 2015) which prescribes minimum pay scales to Section 57 Managers has capped municipal salaries available to Infrastructure Directors and has caused scarce critical vacancies in the municipal infrastructure departments to remain unfilled.

Municipal engineers feel that infrastructure delivery is systematically neglected through the frequent unilateral cutting and reallocation of infrastructure operations and maintenance budgets which as cut or reallocated to departments or municipal mandates not directly linked to service delivery or the municipality's Constitutional mandate.

Municipal engineers believe that there is a resource allocation bias by municipal Councils and Municipal Managers in giving

priority to the training and development of the municipal Finance function due to the legislative requirements of the Municipal Finance Management Act (MFMA) Minimum Competency Regulations which are demanded by National Treasury as part of the municipal infrastructure grant (MIG) funding conditions.

There exists a fundamental lack of understanding by both employer municipalities and civil engineering Respondents of the differences in membership of a voluntary association as opposed to ECSA whose membership as a statutory body is compulsory by law as opposed to membership of voluntary associations. Municipal engineers appear to prioritise membership of voluntary associations above professional registration with ECSA as a statutory body.

Municipal engineers feel that Councilors often interfere through amongst others influencing incorrect classification of indigent registers and the incorrect classifications of households which can afford to pay for rates as indigents. Due to the above-mentioned as well as the resultant poor income collection rates, many municipal infrastructure projects are either delayed until additional funding is available or the scope of work of infrastructure projects is reduced.

Ward Councilors also influence the timing and location of infrastructure projects by demanding the appointment of local Contractors and /or the employment of local communities and influencing communities to invade construction sites and driving off Contractors in cases of noncompliance with their demands.

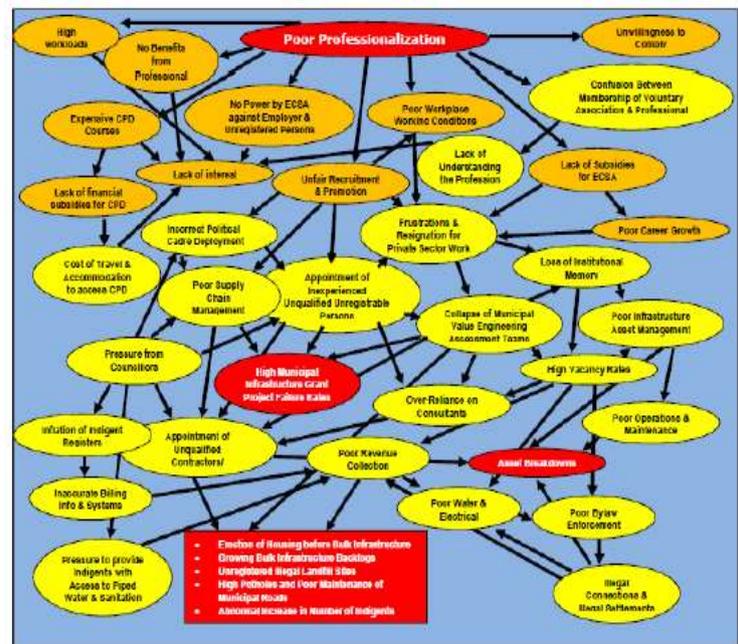


Figure 6: Respondent Mindmaps

**Which interventional measures are required to promote professionalization of municipal civil engineering practitioners in the local government sector?**

Municipal engineers have suggested making the local government more attractive to registered persons through offering more remuneration, reducing political interference in operational duties of Infrastructure / Technical Directors as well as ensuring that registered persons takes more control of their

work to ensure that Ward Councillors do not interfere in the management of infrastructure projects.

The role and independence of municipal engineering practitioners should be respected and Technical Directors should be provided with more financial and labour resources to ensure the elimination of critical vacancies, have adequate budgets for fully functional internal design offices with adequate training and development opportunities as well as strategic support to ensure the effective procurement of qualified and experienced service providers / suppliers and Consultants and Contractors.

More emphasis should be placed on municipal engineers since engineers operate on the coalface of municipal service delivery. Remuneration should be based on job performance plus experience.

Officials occupying senior management roles such as Infrastructure / Technical Directors of municipalities should be highly qualified and possess at least a Bachelor of Science (B.Sc) or Bachelor of Technology (B.Tech) academic qualification as well as an additional financial management qualification.

Municipalities should be strongly regulated by ECSA to ensure that the Engineering Professions Act of 2000 is implemented without any deviations and that municipalities hire adequately experienced, qualified and skilled staff as opposed to hiring unqualified inexperience and sometimes unregistrable job candidates.

The training and development of municipal Infrastructure / Technical Directors should receive equal priority as the development of municipal Chief Financial Officers (CFO's) through legislative amendments to the Municipal Finance Management Act (MFMA) to include the development and professional registration of engineers as part of the Technical Minimum Competency Regulations which are demanded by National Treasury.

Further quality assurance steps should be taken by government to ensure that only qualified Contractors/ Consultants/ service providers are appointed to construct infrastructure projects and that municipalities are able to access more counter-funding tools to assist the speedier completion of bulk infrastructure projects funded through the Municipal Infrastructure Grant (MIG) and Rural Bulk Infrastructure Grant (RBIG).

With regards to the removal of future forward planning of municipal infrastructure projects performed under the PMU function from the Infrastructure/ Technical Director's functions, it is proposed that the structure of municipal infrastructure departments be standardized to ensure that the structure, ideal size and reporting lines of municipal Infrastructure departments are standardised to avoid any internal restructurings and subsuming of PMU functions away from the Infrastructure / Technical Director's functions.

After all, a Technical Director assumes the responsibility and professional liability of signing off on all construction and infrastructure delivery and should be directly involved in all forward planning decision making relating to the location, funding and prioritization of municipal infrastructure projects.

### **Which interventional measures are required to ensure the development of institutional capacity by municipalities and the local government sector in general?**

Municipal engineering Respondents indicate that shared services models between neighbouring municipalities can assist in the development of more engineers. Respondents suggest that municipalities located in areas of poor revenue base be merged with municipalities which are self-sustainable to further consolidate internal engineering capacity.

As a result of the absence of municipal Value Engineering Assessment Teams municipalities have lost their internal infrastructure delivery quality assurance and review mechanisms to oversee and regulate the services provided by contracted Consulting Engineers and Contractors and are currently price-takers at the mercy of contracted Contractor/ Consultants who are known to undertake shoddy engineering practices such as selling similar infrastructure designs to municipalities and contracting without procuring any professional indemnity insurance.

### **Institutional Entrepreneurship role of Municipal Engineers**

Since the advent of Institutional Theory, theorists such as Baez & Abolafia (2002: 525) have identified and emphasized the entrepreneurial role of public administrators serving the public interest.

In terms of the empirical differences highlighted by Teske & Schneider (1994: 331) between political entrepreneurs (politicians) and bureaucratic entrepreneurs (public servants), municipal Infrastructure Directors can accordingly be seen as agents, role-players or actors fulfilling a bureaucratic entrepreneurship role in the local government sector.

The role of bureaucratic entrepreneurs in public administration has always been highlighted through empirical studies by amongst others Behn (1998: 209), Kobrak (1996: 205); Moe & Gilmour (1995: 135).

Eisenstadt (1980: 840) and DiMaggio (1988) later developed the notion of institutional entrepreneurship to recognize the role of actors / agents who serve as catalysts for structural change and the development or loss of institutional capacity.

The role of institutional entrepreneurs namely individual and / or collective actors who "*deliberately work to transform institutional arrangements to advance a set of interests*" has been explored by Meyerson and Tompkins (1997: 307).

Within the South African local government sector, the role of municipal officials as institutional entrepreneurs in utilizing entrepreneurship and innovation in the municipal service delivery role (Naidoo, 2010: 4) has long been identified.

Institutional theory asserts that institutions are created, maintained and changed through the actions of various actors (agents or role-players) where institutions are seen as sites of mutually reinforcing representations and legitimating structures where institutions are reflected and sustained through the allocation and accumulation of power and resources by agents/ role-players or actors.



Within Institutional Theory, Normative Isomorphism explores professionalization in terms of *“relations between the management policies and the background of employees in terms of educational level, job experience and networks of professional associations”* (Paauwe & Boselie 2003).

For institutional practices to survive and be observed at organizational level, there needs to be an ongoing interaction of reinforcing rules and resources as a result of knowledgeable human action. Should one element be lost in time however, de-institutionalization takes place (Dillard et al. 2004: 521).

Utilising the Normative Isomorphism approach therefore, municipal Infrastructure / Technical Directors, as part of the local government civil engineering corps, find themselves in the midst of competing interests for institutional power by various agents, actors and role-players in the municipal infrastructure space namely the statutory body with its statutory regulations and expectations of statutory compliance as well as elected Mayors, Municipal Managers (senior municipal management) and Councillors who want to control and direct the application of municipal infrastructure resources towards service delivery for identified communities in line with their newly acquired political mandates.

On the other hand, there are private sector Consulting Engineers and Contractors as well as former municipal infrastructure employees who wish to access and /or maximise their commercial profit interests by forming part of the delivery, operations and /or maintenance of municipal infrastructure services value chain.

Since 1994, the institutional power of Councils and Councillors has been consolidated into the institutional matrix of municipalities by the Municipal Systems and Municipal Structures Acts of 1998.

The exercise of Councillors' institutional power within the new municipal structure setting, egged on by overwhelming political mandates as well as genuine post-1994 service delivery frustrations has seen the steady alignment between urgent service delivery considerations and the commercial interests of private sector Consulting firms,

Contractors and former municipal civil engineering practitioners increasingly see municipal infrastructure resources and services and the lack of / poor internal management capacity and regulatory oversight as an opportunity to further consolidate commercial interests.

Local government has thus become a proverbial feeding trough of competing commercial and political interests where commercial and political interests have in some cases coincided into a convenient state of mutual symbiosis resulting in the perennial utilisation of external Consultants for infrastructure work and services even for dedicated internal infrastructure functions of municipalities which from the core duties of existing municipal employees.

This has over the years created a norm of dependence and fuelled an organisational culture of ignorance and disregard for the Engineering Professions Act of 2000 thus fuelling the increased recruitment and appointment of younger relatively

unregistered engineering “professionals” with minimum or poor practical engineering work experience into the sector as well as the latent appointment of a politically connected cohort of non-built environment practitioners outside the regulatory requirements of the Engineering Professions Act of 2000.

This has over the years resulted in the steady decline of the institutional power wielded by registered engineering professionals in the sector as characterised by the lack of financial subsidies for CPD activities and / or professional membership fees, the unbundling of the old powers of the Town Engineer's role alongside the amendments made by the Municipal Structures Act of 1998, and the steady migration of critical service delivery functions such as infrastructure-related supply chain management, the appointment of Contractors, PMU and infrastructure asset management from the office of the Infrastructure / Technical Director to other functions within the municipality.

Municipal asset management and the management of infrastructure asset registers has now increasingly become the domain of the municipal finance management function as opposed to infrastructure management.

At an institutional and sectoral level, this has seen the collapse in municipal Value Engineering Assessment Teams as well as the rise in the institutional power of external Consultants as well as an increase in the failure rate of municipal infrastructure grant funded projects, the appointment of Consultants without professional indemnity insurance, the undue retention of municipal infrastructure maintenance manuals and plans, selling of similar designs to municipalities as older more experienced municipal engineers leave or retire from the sector for private sector Consulting work alongside the relevant institutional memory loss in the various municipal workplaces across the country.

The reservoir of professional commitment by registered persons entering the sector was also adversely affected as previously registered persons adopted the organisational culture of the sector and over the years proceeded to see a lack of value in continued professional registration.

In an organisational culture of non-compliance, professional registrations has proven to be an unnecessarily onerous and risky exercise since registered persons risk assuming overall professional responsibility in the absence of any other registered persons in the workplace.

This has created tensions and in most cases, experienced and qualified engineering professionals are compelled to leave the sector due to ongoing conflicts and are displaced by younger more politically connected cohort of post-1994 PMU Managers and Infrastructure Technical Directors mostly operating outside the regulatory requirements of the Engineering Professions Act of 2000.

Institutional theorists such as Paauwe & Boselie (2003: 59); Meyer & Rowan (1977:1-55) state that the institutional environment is a source of legitimisation, rewards, incentives for, as well as constraints or sanctions on organizational activities which are *“either a direct reflection of, or response to, rules and structures built into their larger environment”* (Paauwe & Boselie 2003:59).

When the statutory body (ECSA) over the years neglected to and or failed to exercise its statutory oversight over registered practitioners in the local government sector and having further being constrained by additional regulatory forces in the form of the rejection of the engineers' Identification of Work (IDoW) by the Competition Commission as well as the 2013 statutory attempts by the Department of Cooperative Governance and Traditional Affairs (CoGTA)'s to re-write the regulations regulating municipal engineers in the *Local Government Regulations on Appointment and Conditions of Employment for Senior Managers* as gazetted in Notice 167 Gazette No 36223 of the 7<sup>th</sup> March 2013, the perceptions regarding perceived lack of "power" by ECSA and other built environment professional Councils over registered and unregistered engineers in the local government sector as well as over employer municipalities and municipal entities were entrenched in the sector.

This has over the years resulted in the steady decline of the institutional power wielded by professionally registered engineering professionals in the sector as characterised by the lack of financial subsidies for CPD activities and / or professional membership fees, the unbundling of the old powers of the Town Engineer's role alongside the amendments made by the Municipal Structures Act of 1998, and the steady migration of critical service delivery functions such as infrastructure-related supply chain management, the appointment of Contractors, PMU and infrastructure asset management from the office of the Infrastructure / Technical Director to other functions within the municipality.

Municipal asset management and the management of infrastructure asset registers has now increasingly become the domain of the municipal chief Financial Officer as opposed to infrastructure management.

There is also the emergence of new roleplayers such as ratepayers associations and rightwing political groupings wishing to take power by undermining or hollowing out the institutional capacity of the state by in effect collapsing municipalities. When dysfunctional municipalities fail to deliver infrastructure services, these roleplayers or agents will take institutional power often through legal avenues.

Institutional & Structural theorists state that for institutional practices associated with professionalism to exist and persist at the organizational & sectoral levels, there must be an ongoing, reproductive interaction of rules & resources through reflexive human action by roleplayers (Pauwe & Boselie 2003: 59).

Whilst Mayors, Municipal Managers (senior municipal management) and Councillors want to control and direct the application of municipal infrastructure resources towards service delivery for identified communities in line with their political mandates as an expression of their political mandate, the exercise of institutional power over infrastructure assets and resources has over the years not been congruent with the national interests in the form of the protection of public health and safety and the maintenance / enforcement of professional standards for the benefit of civil engineering practitioners, the country and the profession.

Further, the conflation of political / service delivery and commercial interests has seen the profit maximisation interests usurping and undermining the more vital national public interests namely statutory regulation and the professionalization of the civil engineering profession in local government.

According to both institutional and structuration theorists, institutions are seen as sites of mutually reinforcing interests and structures, values and norms not associated with enactment or resource acquisition / distribution by actors/ players or agents will eventually be abandoned. Dillard, Rigsby & Goodman (2004: 521) further emphasize that if one institutional factor is lost over time, latent de-institutionalization occurs.

Based on the abovementioned, it is clear that the professionalization of the civil engineering profession is critical for the maintenance of service delivery to communities as well as the maintenance of institutional and management capacity of municipal infrastructure departments to deliver quality infrastructure services that communities deserve.

Municipal civil engineering professionals and their voluntary associations as agents, players and actors in the sector need to take advantage of the institutional and sectoral fragmentation and contradictions inherent in the local government sector in the form of the demands for quality service delivery by communities and take advantage of the opportunities presented for institutional and sectoral change (Thornton, 2004) and choose to actively further the professionalization interests (Fligstein, 1997: 397) of the profession.

Public sector built environment professionals (*including civil engineers*) have the responsibility of representing the interests and concerns of communities (Ahmet et al, 1998).

According to Garud et al (2007: 09), "*dominant actors in a given field may have the power to force change but often lack the motivation; while peripheral players may have the incentive to create and champion new practices, but often lack the power to change institutions*".

Municipal Infrastructure / Technical Directors "*must break with existing rules, practices or logics*" (Battilana, 2006: 653) by embedding change to the structural arrangements of local government through "*intense political involvement*" (Seo and Creed, 2002: 222) by "*imposing the institutional change they promote*" (Naidoo, 2010; 4) on "*dissenting actors without having to win them over*" (Dorado, 2005: 383). Alternatively, municipal civil engineers as institutional entrepreneurs need to "*mobilise allies*" (Boxenbaum and Battilana, 2005: 01); "*develop alliances and cooperation*" (Fligstein, 2001:261) and mobilise "*key players such as highly embedded agents in the sector*" (Lawrence et al. 2002)

Municipal engineers need to take advantage of communities' awareness and increased demands for service delivery and proper management of infrastructure to hedge their interests.

Municipal civil engineers need to realise that the process of change and transformation for the attainment of professionalization in the sector will not happen overnight nor will the process take place on its own.



Municipal engineers need to appreciate that “institutional entrepreneurship is a complex political and cultural process” (DiMaggio, 1988: 03) and civil engineers need to “mobilise diverse social skills depending on the kind of institutional project they tend to impose” (Perkmann and Spicer, 2007: 23).

The professionalization process will entail a series of negotiations with other agents or roleplayers in the sector, careful balancing of interests and if required, the direct exercise of institutional, statutory and structural power that civil engineers wield individually in their municipalities and collectively within the sector by compelling their own subordinates to register professionally with the statutory body.

Based on the above-mentioned, it is clear that unless the Engineering Council of South Africa (ECSA) and other built environment professional Councils strengthen their regulatory oversight role over municipal engineers whether registered or unregistered, that the quality service delivery interests of communities and the professionalization of the local government civil engineering profession will forever remain a neglected key consideration resulting in declining quality of municipal service delivery and further agitations by disgruntled communities.

### Recommendations of Study

The following recommendations are proposed:

#### Supporting Municipal Infrastructure Officials through Continuing Professional Development (CPD)

Municipalities should be encouraged to provide financial subsidies to all its registered civil engineering professionals to assist engineering professionals to maintain their professional registration with ECSA through compliance with the continuous professional developments (CPD) regulatory requirements of the Engineering Council of South Africa (ECSA).

Financial support to also support the annual professional membership fees as well as registration fees of registered civil engineers is also proposed. The implementation of the measures will ultimately help develop “a body of professional practice within the local government sector” (Legoabe, 2013: 15).

#### Increase the Qualification Levels of Infrastructure / Technical Directors

The qualification levels of municipal Infrastructure / Technical Directors need to be increased through concerted statutory interventions similar to the approach followed by the National Treasury in enforcing the development of municipal Chief Financial Officers (CFO's) through the statutory avenues such as the Municipal Finance Management Act (MFMA) since municipal Infrastructure / Technical Directors play a very critical service delivery role in municipalities and are responsible for public health and safety of millions of citizens.

Those Infrastructure / Technical Directors who currently do not have the minimum academic qualifications and experience requirements to comply with the Engineering Professions Act of 2000 need to be assisted to comply through the implementation of secondment programmes to the private sector for additional exposure or additional study programmes to plug the academic

knowledge gap within set compliance timeframes.

Municipal Infrastructure/ Technical Directors who currently do not comply with the Engineering Professions Act of 2000 and are not prepared to study further or obtain the requisite experience required in terms of the Engineering Professions Act of 2000 should leave the sector, be retired or given more junior alternative roles by municipalities due to non-compliance with statutory provisions governing the civil engineering profession.

The above-mentioned measures should apply also to unregistrable persons such as teachers, other professionals, matriculants, university dropouts and other “political deployees” who were appointed to infrastructure roles outside the regulatory provisions of the Engineering Professions Act of 2000.

#### Bursary Funding To Create Pipeline of New Professionals for Local Government

The civil engineering profession needs to fund a bursary programme to fund new students who wish to study civil engineering in order to create a pipeline of graduates into the local government sector to stem the attrition rate of retiring civil engineers leaving the sector.

Bursary holders who complete their studies must be given Experiential learning placement in municipalities and can also be placed to complete their professional Candidacy with municipalities.

#### Support Municipal Officials Through Provision of Mentoring

Those municipal Infrastructure / Technical Directors who currently do not meet the minimum experience and full career exposure requirements to comply with the Engineering Professions Act of 2000 need to be assisted to comply through the implementation of secondment programmes to the private sector for additional exposure as well as structured mentoring support to municipal officials to ensure the professional registration with professional registering bodies.

#### Ring-Fence the Recruitment Processes of new Municipal Infrastructure Directors

There is a need to centralize and ringfence the national recruitment, selection and appointment processes of new municipal Infrastructure / Technical Directors to ensure that the correct quality of qualified, experienced and professionally registered civil engineering officials are recruited, interviewed and selected by municipalities.

It is proposed that a provincial recruitment panel be convened by municipalities under the banner of the employing municipality, provincial departments of CoGTA and SALGA including recognized unions to vet all newly appointed municipal Infrastructure Directors before they are employed by municipalities to strengthen the management capacity of Infrastructure / Technical Directors to ensure that qualified and experienced engineering professionals enter the sector.

## Review Cadre Deployments in the Municipal Infrastructure Space

In lieu of the abovementioned recommendations, there is a further need to confront the proverbial elephant in the room in the form of politically connected cadre deployments taking place in the municipal infrastructure space, a statutorily regulated profession regulated by law in terms of the Engineering Professions Act 46 of 2000.

Whilst cadre deployment is an accepted international norm globally, the deployment of unqualified, inexperienced or “pseudo-engineering” professionals such as teachers, priests and matriculants is not only unlawful in terms of the Engineering Professions Act 46 of 2000 but also compromises public health and safety, causes proliferation of diseases, degrades the environment, undermines the institutional and management capacity of the state at local government level and further causes collapsing public infrastructure and related services thus sparking community service delivery protests.

Until authorities accept that municipal engineers fulfill the same life and death critical societal roles in the same vein as medical doctors who are also regulated by statute in terms of the Health Professions Act 29 of 2007 and that political deployments in these regulated professions is not only unlawful but a recipe for further disaster, then the deployment of unqualified inexperienced municipal infrastructure officials will proceed unabated.

## Stronger Compliance Monitoring and Enforcement by ECSA

In light of the findings of the study relating to a lack of interest by registered persons in professional registration due to a perceived lack of benefits to the registered professional as well as the perceived lack of “power” by ECSA over unregistered engineers and municipalities that choose to flout the Engineering Professions Act of 2000 by employing unregistered / unregistrable persons, it is hereby recommended that the Engineering Council of South Africa (ECSA) with the support of municipalities, SALGA, the unions and all relevant roleplayers such as the Department of Labour (DoL) amongst others, embark on a public more active compliance monitoring process in the local government sector involving site visits, workplace compliance reviews as well as workplace inspections to monitor and enforce the provisions of the Engineering Professions Act of 2000.

In order to address perceptions of lack of regulatory powers as well as to reinforce the mandate of ECSA, it is important that other roleplayers in the infrastructure and construction field such as the Construction Industry Development Board (CIDB) be also included in a nationwide municipal compliance enforcement campaign aimed at both registered and unregistered municipal engineers as well as all municipalities, Water Boards and their entities especially those who have chosen to flout the law and employ unregistered/ unregistrable municipal engineers outside the regulatory requirements of the Engineering Professions Act of 2000.

Municipalities also need to ensure focused compliance enforcement process through the Municipal Systems Act of 2000 Regulations for the Appointment of Section 56 Managers. The Local Government Municipal Systems Act of 2000 amendments states that to be appointed as a Section 56 Manager, infrastructure municipal officials must have the requisite academic qualifications and experience setting out the minimum competence requirements and recruitment.

Any appointments in contravention of the minimum competences and to the recruitment process will be invalid. In terms of the above-mentioned minimum regulations, Infrastructure/ Technical Services Directors as Section 57 senior managers are expected to possess the requisite:-

- Academic qualifications in compliance with the statutory body requirements (ECSA)
- Minimum 5 years work experience of which 3 – 4 years must have been at a professional engineering management level
- Professional registration with the relevant statutory body (ECSA)

If no suitable job candidate can be found through the municipal recruitment process, the municipality may ask the MEC for Local Government to second a qualified infrastructure official.

If the MEC is unable to second someone, the municipality may ask the Minister responsible for Local Government to do so.

According to the Local Government Municipal Systems Act of 2000, if a person is appointed in contravention of the Act, the relevant MEC for Local Government must enforce compliance by the municipalities by applying to court for a declaratory order on the invalidity of the appointment or by taking any other legal action against the municipality failing which the Minister of Provincial and Local Government has to intervene.

## Review the Efficiency of MISA programmes

There is a need to urgently review the operations and programmes of the Municipal Infrastructure Support Agency (MISA) to ensure greater efficiencies and increased statutory powers to MISA to ensure statutory interventions in cases of municipal non-compliance or adverse municipal dysfunctions to enable MISA to appropriate and direct of municipal infrastructure budgets and projects.

MISA should also be further capacitated with the requisite institutional and management capacity to urgently intervene in cases of failing municipal infrastructure free from political policy vacillations by respective Ministers responsible for local government.

MISA needs to further ensure that structured partnerships are in place to ensure the enforcement of municipal infrastructure regulations and to also ensure that municipalities employ qualified, experienced and professionally registered Infrastructure Directors to enable effective infrastructure planning to achieve sustainable service delivery; possess the requisite institutional and management capacity and are able to implement operations and maintenance of municipal infrastructure.

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