



NSBE (SA)

NATIONAL SOCIETY OF BLACK ENGINEERS OF SOUTH AFRICA "BRIDGING THE ENGINEERING SKILLS GAP"

The NSBE's Position on the Reported Dysfunctional Municipalities in South Africa

Overview

The national Department of Cooperative Governance and Traditional Affairs ("CoGTA") reported in 2018 that 7% of the country's municipalities are classified as functional, 31% of the country's municipalities reasonably functional, 31% of the country's municipalities almost dysfunctional and the remaining 31% dysfunctional or distressed. The reported dysfunctionality emanates from wide range of complex issues facing municipalities amongst them are low revenues, lack of accounting and engineering skills, political interference thus leading to the failure to deliver infrastructure and basic services. This in turn leads to community discontent and instances where the frustration bursts into service delivery protests. This report was commissioned by the National Society of Black Engineers ("NSBE") and the scope will be limited to analysis on the failure to deliver infrastructure and basic services. The ultimate objective of the NSBE is to partner with CoGTA and help the ministry to come up with solutions to overcome the current challenges.

Municipalities are responsible for ensuring that people in their localities receive at least the basic services. The most immediate needs by the community are potable water supply, sanitation, health centers, electricity, roads, storm water management, solid waste disposal and sports and recreational facilities. There appears to be a complex set of problems as to why municipalities are failing to deliver infrastructure & basic services. This requires a comprehensive approach to deal with various elements which means there are no quick fixes.

The analysis contained in this report is limited to the performance of engineering departments within municipalities in the delivery of infrastructure & basic services. Efficient engineering teams are the core for timeous delivery of infrastructure & basic services to unlock local economic development and job creation. The key element for

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efficient and successful technical teams is the overall governance system that is put in place to manage the municipal engineering function. The failure to deliver infrastructure & basic services and MPFMA violations are merely consequences of non-functional engineering departments in municipalities. What is presented in this report are investigative findings of the current situation in municipalities, the root causes and the resulting complication. Remedial actions that can be taken to resolve the challenges are also presented in this report.

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Situation	Apparent Cause	Complication	Resolution
<p>1. Shortage of engineering skills, i.e. poor and inadequate project engineering, planning and management skills</p>	<ul style="list-style-type: none"> • Lack of accountable technical skills • Structure and staffing levels of engineering departments are inadequate for the required output • Engineering is not treated as a core function • Lack of properly structured Engineer-In-Training ("EIT") and Technician-In Training ("TIT") training programs to prepare junior engineers and technicians for professional registration • Poor remuneration of engineers • Inadequate to non-existent continuous professional development • Lack of professional registration amongst technical staff • High technical staff turnover 	<ul style="list-style-type: none"> • Failure to spend Municipal infrastructure budget allocation • Delays in project delivery • Poor local economic development & job creation which leads to community unrest and service delivery protests • MPFMA violations due to excessive cost escalations during construction • Community unrest and service delivery protests 	<ul style="list-style-type: none"> • Develop properly structured EIT & TIT training programs in municipalities • Develop a mentorship program which will drive effort towards professional registration with the Engineering Council of South Africa ("ECSA") • Develop continuous professional development programs for municipal engineers and technicians • Ensure technical skills pipeline planning • Ensure that engineers and technicians are properly remunerated in line with the industry standard • Give bursaries to engineering students • Enforce professional registration and give special recognition to registered professional engineers and technicians • Review Job Profiles of Municipal Managers, Technical Services Managers, Head Of Maintenance, Head Of Projects & Head Of Planning to make sure that the appropriate engineering qualifications and experience are specified as a minimum requirement. • Come up with creative incentive schemes to attract and retain technical skills

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<p>2. High engineering skills turnover</p>	<ul style="list-style-type: none"> • Remuneration packages are not competitive in line with industry standard • Working environment is not conducive for professionals due to political interference • The corporate world in South Africa has created a market which competes for technical skills. They pay engineers well and create a conducive environment for them to stay. • Some municipalities are located in remote areas where established professionals would not want to reside (professionals tend to target jobs in metropolitan areas) 	<ul style="list-style-type: none"> • Failure to spend Municipal infrastructure budget allocation • Delays in project delivery • Excessive cost escalations which may cause MPFMA violations • Failure to plan and execute infrastructure projects & maintenance • Over reliance on external consultants to perform basic engineering functions, leading to MPFMA violations 	<ul style="list-style-type: none"> • Review municipal technical skills remuneration policy to make salaries competitive with the industry standard • Special allowance to be paid to attract and retain technical skills in remote areas • Develop EIT & TIT training programs for municipalities • Ensure technical skills pipeline planning • Political deployments of unqualified and incompetent people to STOP
<p>3. Inadequate structure of engineering departments</p>	<ul style="list-style-type: none"> • Apartheid legacy structures based on segregation planning and service delivery to white suburbs only • Lack of a standardized technical governance system 	<ul style="list-style-type: none"> • MPFMA violations • Failure to spend Municipal infrastructure budget allocation • Delays in project delivery • Failure to plan and execute maintenance 	<ul style="list-style-type: none"> • Review engineering structures and capacitate accordingly, i.e. improve engineer-to-population ratio to enhance the delivery of basic service • Standardize and align the technical department structures with required output (first leg : basic services delivery , second leg: Infrastructure delivery)

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<p>4. Poor to non-existent technical governance systems</p>	<ul style="list-style-type: none"> • Lack of accountable, experienced and skilled work force • Technical leadership void • Unskilled and underqualified engineering management that is not professionally registered with the ECSA. • Deployment of unqualified and unskilled political cadre, leading to lack of accountability. • Lack of an information technology technical governance system 	<ul style="list-style-type: none"> • Municipal infrastructure frequent failures • Over reliance on external consultants to perform basic engineering functions, leading to MPFMA violations 	<ul style="list-style-type: none"> • Establish an auditable technical governance system linked to information technology controls comprised of key engineering pillars i.e. <ul style="list-style-type: none"> ○ Engineering leadership (Engineering management and engineering training) ○ Management of asset and design base (asset design base, reliability optimization, asset change management) ○ Optimization of asset performance (asset age analysis, monitor and trend asset health data) ○ Asset failure investigation (derive preventative and corrective actions) ○ Asset life cycle management • Establish a technical governance index linked to information technology controls that should be monitored live at provincial and national level (this will be used to give real time data to enable national or provincial intervention early rather than late or reactive basis) • Political deployments of unqualified and incompetent people to STOP

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<p>5. Municipal infrastructure degradation</p>	<ul style="list-style-type: none"> • Lack of skilled and competent operational and maintenance staff • Poor maintenance practices (in most cases maintenance is done on a reactive maintenance basis rather than proactive) • Lack of asset life cycle planning • Lack of use of advanced analytics (condition monitoring, periodic structural analysis, water online instrumentation etc.) 	<ul style="list-style-type: none"> • Municipal bulk debt for water and electricity • Huge water losses due to old and poorly maintained infrastructure • Community unrest and service delivery protests due to frequent water and power cuts 	<ul style="list-style-type: none"> • Establish technical audits to establish status of municipal infrastructure maintenance • Establish and rollout an engineering analytical skills framework across to all municipalities to better enhance the delivery of basic services (Reliability maintenance programs, condition monitoring programs and analytical tools) • Upskill operational and maintenance staff • Introduce and entrench proactive maintenance
<p>6. Corruption and political interference</p>	<ul style="list-style-type: none"> • Lack of ethics and integrity in municipal staff • Regional political dynamics • Lack of accountability • Lack of professional registration by technical staff (professionals are bound by a code of ethics with the professional registration body one is affiliated with i.e. ECSA for engineers and technicians) 	<ul style="list-style-type: none"> • Fruitless and wasteful expenditure • Irregular expenditure • Municipal infrastructure backlog due to delays in infrastructure delivery as money that is intended for infrastructure delivery is looted 	<ul style="list-style-type: none"> • Convert MISA from being a Municipal Infrastructure Support Agent to a Central Infrastructure Delivery Unit ("CIDU"), reporting directly to the Ministry of CoGTA (This will do away with the political interference at municipal level and increase governance and oversight leading to a substantial decrease in MPFMA violations at municipal level) • Deal decisively with corrupt staff and weed them out of the system • Encourage professional registration and give special recognition to registered professional engineers and technicians

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