

# Barriers to professionalising municipal civil engineers

Municipal service delivery has always generated significant public interest because of frequent service delivery protests and risks generated – by infrastructure breakdowns – for public health, environmental integrity and municipal financial sustainability. However, municipal service delivery is closely linked with professionalisation and the civil engineering profession. **By Reginald Sethole Legoabe\***

**T**HE SOUTH AFRICAN civil engineering profession is regulated through the Engineering Professions Act (No. 46 of 2000), which established the Engineering Council of South Africa (ECSA) – a statutory professional registrations body mandated to set and enforce professional standards for the benefit of civil engineering practitioners, the country and the profession. Empirical studies, however,

indicate that a significant majority of municipal engineers are not professionally registered with the ECSA.

## Poor maintenance and management

Since 1994, the focus of government has been on the roll-out and delivery of new infrastructure and related services to previously unserved or underserved communities.

The unintended consequence has been the widening of backlogs in infrastructure maintenance with the poorest low-capacity municipalities acquiring new infrastructure. Such municipalities have the least capacity to maintain both new and existing infrastructure adequately.

Municipalities indeed hold a wide range of infrastructure asset portfolios. As at 30 June 2014, the estimated replacement





## FINDINGS

The study found that the professionalisation of municipal civil engineers is constrained by:

- 1 Lack of interest in professional registration owing to a perceived lack of benefits.
- 2 Perceived lack of power by ECSA over unregistered engineers and municipalities employing unregistered/unregistrable persons.
- 3 Little or no financial subsidy assistance provided for continuing professional development (CPD) and annual membership fees.
- 4 Appointments of underqualified, inexperienced and unregistrable “deployees”.
- 5 Compromised supply chain management practices.
- 6 Removal of PMU and infrastructure asset management functions or budgets.
- 7 Political appointments of underqualified or inexperienced consultants and contractors.
- 8 Poor support from other municipal functions.
- 9 Hostile, politicised work environments.
- 10 Underfunding and low salaries.
- 11 High costs of family relocation to rural workplaces.
- 12 Poor career growth and frustrations.
- 13 Perceived unfair recruitment and promotion practices.
- 14 Lack of study opportunities.
- 15 Lack of functional design offices.
- 16 High workloads and lack of exposure (only project management work).
- 17 Workplace unwillingness – by registered persons and municipalities – to undertake compliance.
- 18 Lack of – or little – respect for professional integrity and work ethics by senior municipal management and councillors.

cost of all municipal immovable asset portfolios employed for service delivery purposes was estimated at R 1.261 trillion, as indicated in Table 1.

Measured against budgeted maintenance provisions, municipalities only managed to spend 57% of their budgets in the 2014 financial year, with deferred maintenance exceeding R8 billion. This caused infrastructure maintenance budget provisions to increase while actual expenditure dropped by 9%.

### Engineering skills shortage

A plethora of local government empirical studies have identified skills shortages as well as a lack of institutional and management capacity as key impediments leading to municipal service delivery challenges in South Africa.

The National Planning Commission (NPC) Diagnostic Report highlights how poor municipal service delivery, technical skills insufficiency and poor municipal infrastructure operations and maintenance constrain the capacity of the South African economy to grow. In its sector analysis study, the Municipal Demarcation Board Capacity Study found that the scarcity of relevant infrastructure management skills and experience has led to municipal vacancy rates as high as 40% in local municipalities.

Further studies indicate that key constraints affecting South Africa are 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).

A cross-sectional study – into the barriers constraining the professionalisation of civil engineering officials in local government – was conducted with 78 municipal respondents. These individuals are municipal infrastructure technical directors, project management unit (PMU) managers and other junior officials employed as civil engineers irrespective of experience, professional registration status, level of management experience and seniority in the respective civil engineering sub-functional areas.

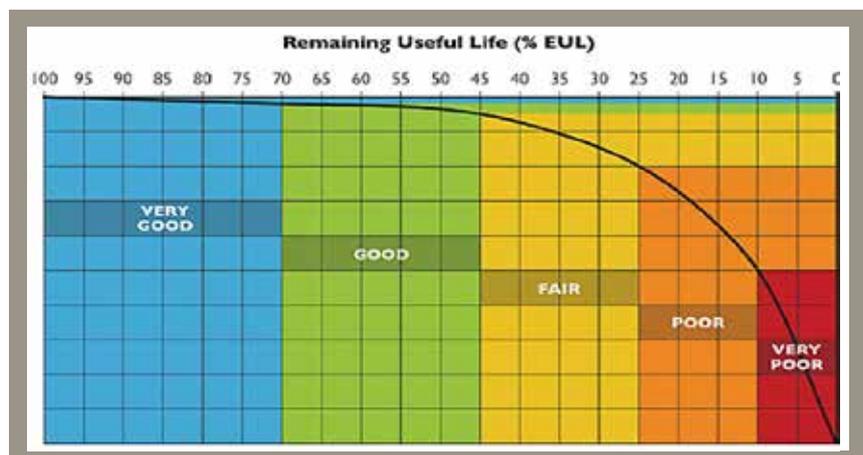
A 31.2% response rate from municipal respondents was received from 15 local municipalities in KwaZulu-Natal, North West, Free State, Eastern Cape, Western Cape, Gauteng, Limpopo and Mpumalanga.

The majority of municipal engineering respondents cited the following as the key underlying reasons for poor levels of professionalisation:

- lack of interest in professional registration owing to a perceived lack of benefits for both the municipal engineers and the employer municipality
- hostile work environment.

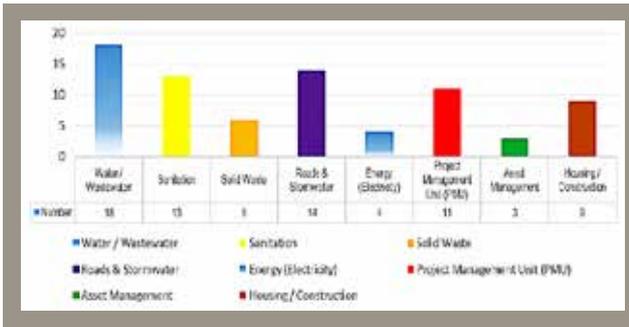
Municipal engineers hold an adverse view of the local government workplace and

**FIGURE 1** Deterioration curve of municipal infrastructure  
(Source: National Treasury and GIZ)



**TABLE 1** Estimated replacement costs of immovable South African municipal assets in ZAR (Source: National Treasury)

Asset class	Current replacement cost	Depreciated replacement cost	Accumulated depreciation	Annual depreciation
Roads and stormwater	416 096 860 873	210 537 676 236	205 559 184 637	14 563 390 131
Water and sanitation	293 954 084 853	147 319 398 525	146 634 686 328	6 466 989 867
Electricity	414 171 653 854	205 173 014 434	208 998 639 420	9 111 776 385
Community facilities and operational buildings	137 659 840 250	68 002 863 046	69 656 977 204	4 680 434 568
<b>Totals</b>	<b>1 261 882 439 829</b>	<b>631 032 952 240</b>	<b>630 849 487 589</b>	<b>34 822 590 951</b>



perceive the environment as unfavourable for personal development because of 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 and un-registered engineers. Sometimes unregistrable non-engineering persons – such as teachers, university drop-outs and matriculants – are appointed in senior management roles outside the regulatory provisions of the Engineering Professions Act.

While the majority of respondents do acknowledge work flexibility and the impact of work on communities, a significant cohort of respondents have opted to lapse their professional registration status because of a perceived lack of benefit in being registered with ECSA since the council is seen as having no regulatory powers over unregistered engineers as well as municipalities who elect to employ them. 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. This results in many municipal engineers failing to maintain their ongoing professional registration.

Municipal engineers state that their independent decision-making – relating to the prioritisation 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 councillors. Municipal engineers state that their duties relating to forward-planning for infrastructure and infrastructure asset management have been structurally diluted or removed, often through internal restructuring processes, and diverted to the municipal manager’s or chief financial officer’s offices.

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



**TABLE 2** Respondents by sub-functional area

Research strata	No	Category	Percentage
Respondent responses to questionnaire survey	250	Total selected respondents	100%
	78	Returned questionnaire	31.2%
	172	Questionnaire not returned	68.8%
	0	Withdrew from survey	0%
	0	Excluded - vague responses	0%
Research strata	No	Category	Percentage
Respondent responses to focus group interviews	250	Total selected respondents	100%
	37	Participated in focus group interviews	14.8%
	15	Agreed to participate, did not attend	6%
	26	Declined participation	10.4%
	172	No responses received	68.8%

managers – has capped municipal salaries available to infrastructure directors and has caused critical vacancies in the municipal infrastructure departments to remain unfilled for months.

Municipal engineers feel that infrastructure delivery is systematically neglected through the frequent unilateral cutting and

reallocation of infrastructure operations, and maintenance budgets are reallocated to departments or municipal mandates not directly linked to service delivery. Municipal engineers appear to prioritise membership of a voluntary associations above professional registration with ECSA as a statutory body. **3S**

**RECOMMENDATIONS**

The following are the recommendations of the study:

- 1** Supporting municipal infrastructure officials through CPD.
- 2** Increasing the qualification levels of infrastructure and technical directors.
- 3** Funding bursaries for new civil engineering professionals for local government.
- 4** Supporting municipal officials through provision of mentoring.
- 5** Ring-fencing the recruitment processes of new municipal infrastructure directors.
- 6** Ensuring stronger compliance monitoring and enforcement by ECSA.

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