Utilising Water Services Vulnerability Assessments to Support Effective Planning And Efficient Investment

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Abstract: The challenges faced by South Africa in terms of providing sustainable, effective, and efficient municipal water services provision during a period of economic and population growth, urbanisation, environmental challenges, lack of skilled personnel, and inappropriate use of funds are challenges common to most of the developing world. The Municipal Strategic Self-Assessment (MuSSA) tool supports improved business management and performance by the municipal utilities by conveying the current overall business health of water services and indicating the future likely performance of water services provision (early warning). Identified key vulnerabilities are addressed via the Municipal Priority Action Plans (MPAPs), which is facilitated by the national Department of Water Affairs (DWA). The MPAP process supports effective and appropriate planning, and this is a key requirement for efficient implementation of solutions (especially considering limited resources). Importantly, the combined MuSSA/MPAP process allows national government to proactively provide support to municipalities showing signs of extreme distress, and furthermore to also proactively resolve adverse situations before they arise.

Keywords: municipal priority action plans; municipal vulnerability; sustainable water services

Introduction

Water services provision in South Africa is the responsibility of municipal Water Services Authorities (WSAs), whom collectively face the challenge of rapid urbanisation, ageing municipal infrastructure, insufficient refurbishment, deteriorating operations and maintenance, and a lack of skilled personnel. An additional challenge to WSAs is the prioritised apportionment of scarce resources across the municipality's broader services delivery mandate, and how this decision making is arrived at by *inter alia* elected political officials, administrative staff and technical staff. This complexity often hampers WSAs in delivering efficient and sustainable services to consumers. Growing social protests against poor services delivery, increasing from 10 in 2004 to 173 in 2012 (Naidoo, 2014), were a major feature of the 2014 National Elections and have drawn strong attention to the need to support effective planning and efficient investment in municipal water services delivery (DWA, 2014a).

South Africa's Department of Water Affairs (DWA) facilitates an annual process across all 152 municipal WSAs of establishing the baseline vulnerabilities affecting water services performance, via a Municipal Strategic Self-Assessment (MuSSA), and supports the resolution thereof via a Municipal Priority Action Plan (MPAP), with the key objective of rectifying weaknesses via a collaborative sector supported process.

This paper seeks to highlight the value of this national government facilitated supportive engagement and as to how the outputs thereof are both identifying and addressing municipal water services vulnerabilities.

Material and Methods

The Context: Supporting Governance Based Performance Success Factors

Municipal performance monitoring and self-management via facilitated Self Assessments are recognized as useful and effective drivers supporting improved water utility efficiency (Saskatchewan Ministry of Municipal Affairs, 2010). In South Africa DWA has been using the MuSSA to good effect, initially in support of sustainable roll out of municipal water quality management (Wensley *et al*, 2008) and later in amended format in support of sustainable water services delivery (Wensley *et al*, 2011).

Critical analysis of the progress made with MuSSA over the last 3 years has shown that whilst nearly all municipal participants and sector support partners (including DWA, National Treasury, Office of the Presidency, etc.) find the outputs of the MuSSA to be accurate and of significant value, many municipal water services entities are often taxed to positively harness the outcomes of the MuSSA, and a risk exists that below par performance will continue despite the exercise. What has become evident is that, in the current South African context, for such performance monitoring to be effective, the extension of the M&E component to include a complimentary "supported planning process" is required in many instances to ensure the desired continual improvement cycle, i.e. the MPAP (see Figure 1 below).

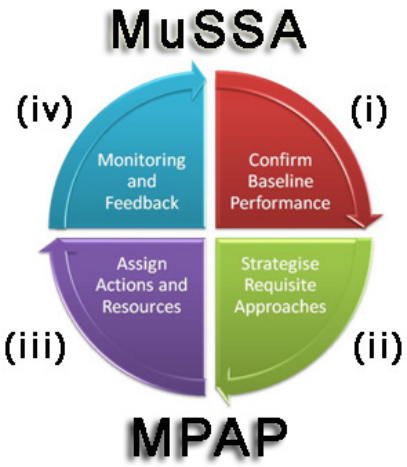

Figure 1: The combined MuSSA / MPAP supported planning approach

In stage 1 the WSA confirms its current situation and key vulnerabilities (via the MuSSA). Thereafter, in stages 2 and 3, via the complimentary MPAP process, a set of strategies and associated actions to mitigate prioritised vulnerabilities are agreed to. Finally, stage 4 monitors and provides feedback to all parties via updated MuSSA.

A key benefit arising from the MPAP component of the activity is that the MPAP encourages aligned decision making across appointed and elected municipal officials, the Sector Leader and Regulator (DWA), and other key stakeholders such as South African Local Government Association (SALGA) and National Treasury. The process thereby supports key governance success factors which have been shown to have strong influence in water utility efficiency (Mugisha, 2011), including the following (see Figure 2 overleaf).

- ***Managerial Autonomy:*** strengthening of empowered decision making by technical management improves efficiency of service and supporting aspects, including O&M.

- ***Political Support:*** Political support is a necessary enabler without which reforms cannot be implemented swiftly and efficiently. It is, therefore, imperative that political stakeholders and community leaders are informed regularly on both progress and challenges facing the delivery of services.
- ***Performance Accountability:*** regular performance review and accountability is key to improved service delivery, noting that both success and failure must be viewed in a positive manner to learn from and to improve strategies and implementation.
- ***Strong Leadership:*** Committed and aligned top management providing clear leadership is a strong enabler which can be used to address and overcome poor performance. It also allows creativity which requires pro-active benchmarking to cross-fertilize best practice and build a desire for peer excellence.
- ***Use of Incentives:*** Adopted by some WSAs, incentives linked to key performance areas can support enhanced performance (recognition, awards, rewards, etc.).

Figure 2: Key Governance related Success Factors enabling WSA Performance

The Methodology

Stage 1: Establish Baseline Vulnerabilities and Calculate Vulnerability Index

The Municipal Strategic Self-Assessment (MuSSA) focuses on assessing the overall "business status" of the WSA and in particular seeks to determine the "business health" thereof.

Business health is considered across 16 key areas of municipal water services performance, via 5 "essence questions" per each area. The 16 "legs of sustainability" cover the full "business" of the WSA. Based on the response, a vulnerability level per category is calculated and the results are displayed via a "spider diagram" (see Figure 3 below). Furthermore, the individual vulnerability scores per leg are combined with equal weighting to determine an overall Vulnerability Index score for the WSA.

This quick and high level "business health check" has the ultimate objective of flagging "business vulnerability" such as to timeously facilitate and support the development of local, provincial and national strategies and actions relating to measures that should be put in place to resolve WSA "performance sustainability gaps". The MuSSA therefore compliments regulatory based programmes, such as Blue Drop (DWA, 2012a), Green Drop (DWA, 2012b), No Drop (which is currently being deployed), and planning processes (such as Municipal Water Services Development Plans), by assisting municipalities, water services sector partners, and DWA to identify critical areas requiring attention and remediation.

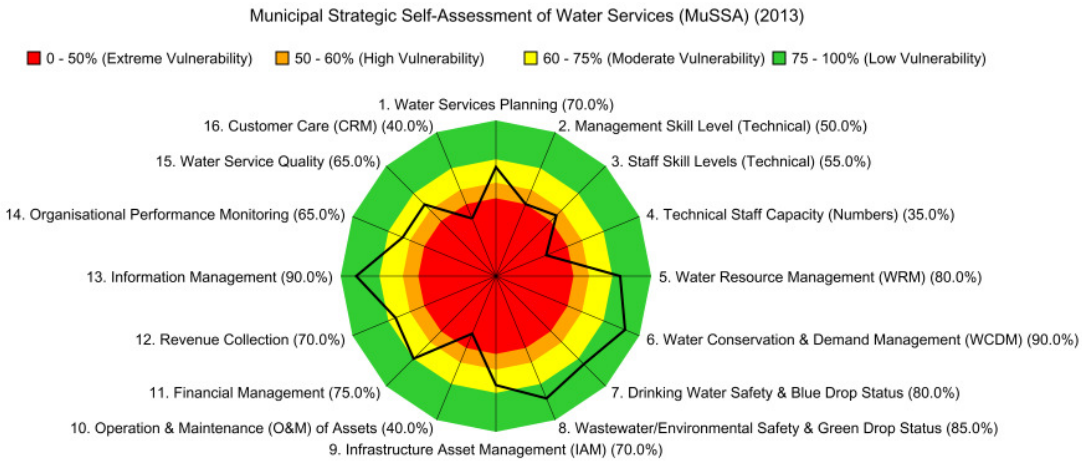

Figure 3: Example of MuSSA "Spider Diagram" indicating Vulnerability

Stage 2: Strategize Requisite Approaches

Following the consolidation of the MuSSA findings and formal feedback thereon to the WSA, the next phase of the MuSSA/MPAP cycle requires the development of strategic approaches to resolve the identified vulnerabilities via a DWA facilitated workshop. The MuSSA / DWA team arrange for an MPAP workshop with the WSA, securing participation of key municipal stakeholders across the organisation; Water Services Authority, Water Services Provider (or Utility), relevant interdepartmental officials of Financial Services, Human Resources, Information Technology, etc.

On a case by case basis, the MPAP team will consider the involvement of additional key stakeholders, including:

- DWA National: Planning and Information
- DWA Water Services Development Plan Team
- DWA Regional: Water Sector Support
- National and Regional SALGA
- National and Provincial Treasury
- National and Regional CoGTA and MISA

At this meeting key areas of poor business health / vulnerability are discussed, and an agreed set of Proposed Strategic Actions addressing each of these is captured (see an example thereof in Step 3 in Table 1).

Stage 3: Assigning of Actions and Resources; Capturing Commitments

Assigning of Actions and Resources

Building on from the joint decisions taken in Stage 2, actions and resources necessary to effect the prioritised strategic actions are made actionable to the level at which responsibilities, duration and costs are assigned. This mostly transpires at the same joint meeting (see Step 4 in Table 1).

Council Interaction and Acceptance

As a final action, during this stage the awareness and commitments of senior elected officials are ratified through an appropriate forum, typically to secure the formal commitment of officials such as Executive Mayor, Municipal Manager, relevant Councillors/Portfolio Councillors, and relevant interdepartmental officials.

Table 1: Example of a draft MPAP Proposed Strategic Approach / Actions (costs in South African Rands) (DWA, 2014b)

		Step 1	Step2	Step 3	Step 4			
2. Management Skill Level (Technical) 45%		**MuSSA Status**	**WSA Comments and Current Interventions**	**DWA Proposed Strategic Approach**	**Agreed Strategic Action**	**Responsible (Who)**	**Completion (When)**	**Proposed Budget**
2.1	Key posts within your (council approved) technical management organisational organogram are filled (e.g. Technical Director, Water Services Manager, Superintendent of Water Works).	Most filled (i.e. >75%)	The Municipality is currently going through institutional review process.	WSA to investigate the filling of outstanding posts.	The process approved by council to fast track critical appointments/positions must be implemented	HOD and HR	2014/06/01 (on the existing organogram)	R100 million for all staff vacancies on water & sanitation organogram
2.3	Technical management staff have the correct skills/qualifications and experience (e.g. PrEng, PrTech, and CPM).	Some (i.e. > 50%)	Skills audit is currently in process to identify the skills gaps and requirements.	HR to be engaged to formalise standardisation of qualifications for technical positions.	Institutional Review will introduce Graduate Trainees, mentoring and skills transfer. A process needs to be developed in order to track the progress.	HOD and HR	Jun-15	No budget yet (rough estimate of R2,5 million to start)
6. Water Conservation & Demand Management (WCDM) 70%		**MuSSA Status**	**WSA Comments and Current Interventions**	**DWA Proposed Strategic Approach**	**Agreed Strategic Action**	**Responsible (Who)**	**Completion (When)**	**Proposed Budget**
6.2	Please indicate your percentage Non-Revenue Water (NRW) by volume. ***NOTE:*** Although the limitations of this indicator are known, the indicator still provides valuable insight regarding current status.	Less than 40%	At June 2013 it was 39,3% and efforts on-going to reduce	WSA to track improvement changes in NRW subject to the implementation of WCDM interventions.	Implement WCDM strategy to a target of 20% in the next 5 years	HOD	Jun-18	R2,8 billion
6.4	Please indicate what percentage of all connections are metered and billed (residential and non-residential (commercial, industrial, etc.)).	75% - 98%	There are a number of new developments that are not metered (human settlements); strategic action plan is in place	Non-metered connections to be investigated for meter installation and billing procedures.	Oversee development of action plan and track progress	HOD	5 years	R63 million

Results and Discussion

The MuSSA process generates multiple outputs and actions at local, provincial and national level thereby (i) highlighting areas of municipal water services vulnerability and (ii) supporting guided efforts to address such. Examples are presented below.

Figure 4 shows a MuSSA "spider diagram" for a major municipality, Ekurhuleni Metro, reflecting business health trends for a period of three financial years.

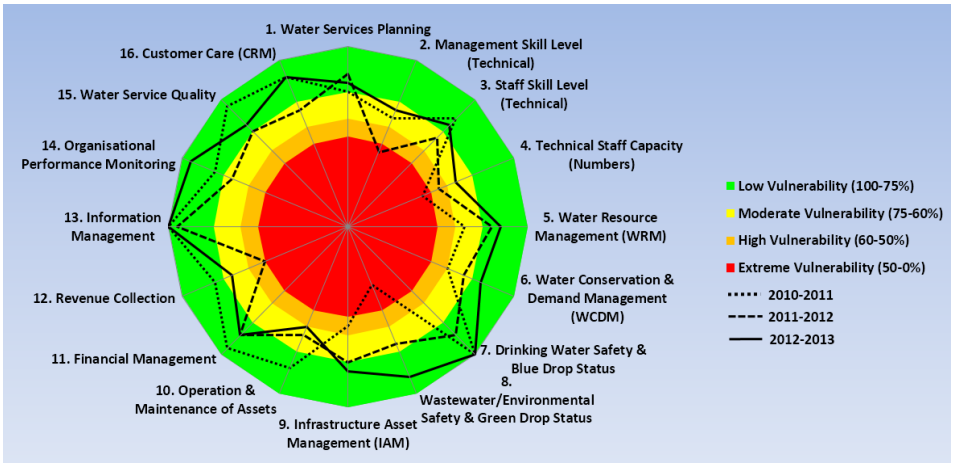

Figure 4: Ekurhuleni Metro's MuSSA "Spider Diagram" indicating Business Health and Vulnerability

Clear indications as to where vulnerabilities exist / have existed, and the extent to which these have been addressed are readily visible and tangible to all role-players, both technical, financial and political via the MuSSA spider diagram. In this example, good progress can be seen to have been made in alleviating areas of extreme vulnerability (management skill, technical staff capacity, revenue collection, wastewater/Green Drop status).

The MuSSA based Vulnerability Index is also tracked and reported on, and becomes useful as an overall indication as to the relative status of municipalities. In Figure 5 below, the overall improvement in business health of Ekurhuleni Metro relative to its peers in Gauteng Province can be clearly seen.

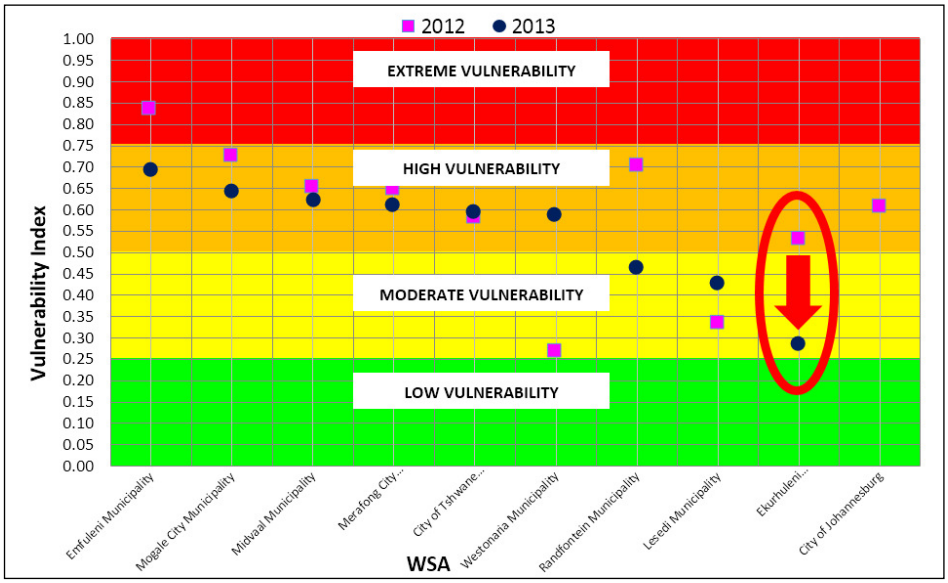

Figure 5: Regional Vulnerability Index for Gauteng Province for the years 2012/2013 and 2013/2014 showing movement by Ekurhuleni Metro (note: City of Johannesburg is outstanding at time of writing).

The individual municipal Vulnerability Indexes are rolled up to generate a population linked provincial and national Vulnerability Indexes, identifying provincial hotspots for closer attention (see Figure 6 below).

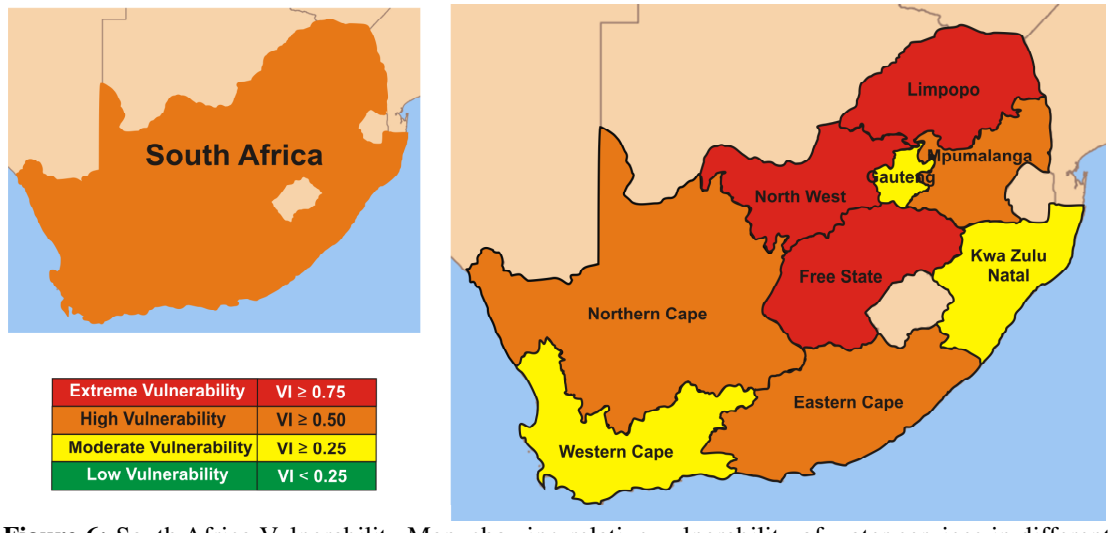

Figure 6: South Africa Vulnerability Map, showing relative vulnerability of water services in different provinces and for South Africa overall.

Tracking of key originators of water services vulnerabilities, and how these are impacted upon by provincial and national initiatives, provides useful trend analysis feedback for guiding of sector support. In Figure 7 below, the positive response to provincial and national initiatives to improve drinking-water (Blue Drop Programme), wastewater safety (Green Drop Programme) and Asset Management are shown to be bearing fruit. A disconcerting negative trend regarding Operation & Maintenance is shown to need attention**.**

Figure 7: MuSSA based trend analysis of key business areas affecting quality and sustainability of Water Services delivery for the Eastern Cape Province - Average per key business area

Conclusions

The combined MuSSA / MPAP municipal water services performance improvement process has proven to provide great impact in terms of meeting the following key objectives:

- Provision of an easily interpreted and understood suite of "common language" outputs clearly indicating the business health of municipal water institutions; for easy uptake and use by technical officials, administrative officials, and elected officials.
- Determination and communication of clear and unambiguous areas of prioritized local government needs such that municipalities and national government can take proactive steps to rectify adverse water services situations that exist.
- To enable national government (DWA, SALGA, NT, etc) to proactively provide support to municipalities showing signs of extreme distress.
- To provide high level insights to national government as to whether support and regulatory programmes are having the desired impact.
- Benchmarking of local government water services institutions status against local, regional and national levels.

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