Managing incidents within the water sector: The Corrective Action Request and Report System (CARRS)

POLICY BRIEF

1   Introduction

The Constitution of South Africa says that "*everyone has the right to have access to … sufficient … water*" (Section 27(1)(b)) (South Africa, 1996). The Water Services Act, the principal policy regulating water service provision in South Africa, legitimises the right to basic water and sanitation by articulating that (Section 3) (South Africa, 1997):

- Everyone has a right of access to basic water supply and basic sanitation.
- Every water services institution must take reasonable measures to realise these rights.
- Every water services authority must, in its water services development plan, provide for measures to realise these rights.
- The rights mentioned in this section are subject to the limitations contained in this Act.

The Constitution separates the powers of the different spheres of government (national, provincial, local), which all should cooperate, but not duplicate, their respective functions. The Constitution allocates the management of water resources to national government, and the management of water and sanitation

services for all citizens to municipalities (local government), thus an Act that deals with the sources of water (national responsibility) and an Act that deals with water services (local responsibility).

The UN General Assembly (United Nations, 2015) Sustainable Development Goals includes a specific focus and targets on water and sanitation. Sustainable Development Goal 6 prioritises ensuring availability and sustainable management of water and sanitation for all and is set out as follows:
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
6.5 By 2030, implement integrated water resources management at all levels, including through trans boundary cooperation as appropriate.

Outcome 12 of the National Development Plan provides that government must strive for an efficient, effective and development-oriented public service, Sub-Outcome 4 requires an efficient and effective management and operations systems including the use of IT and e-government to be used to make prioritised services more accessible, reduce the cost of accessing

services, streamline administrative processes and improve turnaround times, and strengthen accountability and responsiveness. The actions committed by the National Development Plan under Sub-outcome 4 requires that, systems be put in place to support programmes for departments to ensure supervisors and managers implement processes and systems which enable frontline staff to provide efficient and courteous services to citizens.

2 Project Description (Corrective Action Request and Reporting System - CARRS)

In line with its strategic objectives of using knowledge, evidence and learning to inform and influence how science and technology may be used to improve quality of life for all, the Department of Science and Technology appointed the Council for Scientific and Industrial Research to develop and pilot an ICT-based tool called the Corrective Action Request and Reporting System (CARRS).The CARRS project has the following objectives namely:

- To develop an ICT service system that could assist municipalities in improving the delivery of basic services;
- To contribute to the National ICT Roadmap in terms of;
  - o Modernizing government; and
  - o Improving e-participation of communities
- To create new and sustainable jobs
- To create sufficient capacity within municipalities in order to respond to planning for and operation and maintenance of infrastructure; and
- To monitor the performance of municipal infrastructure

Upon development of this CARRS, engagement was held with some municipalities to demonstrate this system as an ICT-based Incident Management System (IMS) that would assist in documenting water services incidents within the municipal services portfolio. The targeted incidents would include interruptions within the water supply and distribution networks such as leakages, broken pipes, loss in pressure or any lack of services thereof. Through this system the water service providers (WSPs) would be expected to respond within reasonable time to the incident and provide feedback to their consumers or communities they are mandated to serve.

This incident management system has three distinct functionalities. Firstly it serves as a communication tool through a specially developed two-way electronic communication mechanism between the customers and their respective task teams. The project utilizes already existing community structures such as the local water and ward committees in the formulation of task teams and constituencies to report service related disruptions. Secondly, the system serves as the receiver and processing centre of reported incidents. After verifying incidents, members of the task team log the reported incidents through internet enabled devices (i.e. computers) to the responsible WSPs.

The centralized system(i.e. CARRS system server) receives and processes incidents logged by the task team members and then generates electronic requests (i.e. email and SMS) that are sent to responsible persons within the municipality. Upon receipt of such requests and/or reports, the responsible persons within the municipality are then expected to assess the nature of the incident, prioritize, and prepare the necessary remedial actions in response. Thirdly, the system

provides feed back to the customer through the task teams on remedial actions to be taken by the municipality or the respective water service providers. This aspect is intended to foster transparency among the consumers, water service providers and all relevant stakeholders by tracking progress with regard to the reported incidents on the system in real time.

The hydraulic modelling and network analysis component serves to assist the municipalities or the respective water services providers in understanding the underlying causes of the incident. Investigations of the water services infrastructure and network backlogs in selected municipalities are conducted to point out causes of interruptions in the water distribution network. In instances where water services infrastructure data is not available (i.e. missing drawings and maps of infrastructure), the project seeks to map out the old infrastructure by triangulation and physical verification method. This would assist municipal engineers and water services managers in understanding network performance in line with the original design standards and norms.

A major issue that is well documented and contributes to increase in service interruptions is water losses within the distribution network. The smart water metering package will address water loss management whereby smart water meters will be installed in key points within the water network to monitor leakages, use patterns etc. Any irregularities will automatically be flagged through the CARRS system as possible incidents and will be forwarded electronically for the attention of the responsible persons within the municipalities.

The CARRS project is being implemented in eight (8) of the Priority Districts of South Africa, namely: Capricorn, Vhembe, Ngaka Modiri Molema, Dr Ruth Segomotsi Mompati, Bojanala Platinum, Ehlanzeni, Amathole and iLembe.

3   Lessons Learnt

Through CARRS, communities have been awarded an opportunity to report water-related incidents that affect their lives. The reports are routed electronically to municipal officials who in turn are expected to conduct assessments on the reported incidents affecting communities and to implement corrective action through improved turn-around times to water related incidents thus saving time and water.

To understand some of the issues faced by municipalities, an infrastructure performance audit was conducted to solicit typical water supply bottlenecks in selected sites. The reported incidents and water supply challenges were documented into the following broad categories;

Key Incidents:
- Vandalism, theft of equipment and illegal connections/ water theft;
- Ageing infrastructure (contributing to frequent breakdowns, leaks and pipe bursts);
- Eskom load shedding (causing interference with water supply programmes);
- Water quality management (e.g. in some instances municipalities cannot afford appropriate water treatment technologies); and
- Water deficiency (i.e. critical water shortage leading to intermittent water supply and thus introducing water tanker challenges).

4 Challenges

- Lack of technical data on some infrastructure (i.e. missing technical drawings, maps and plans);
- Lack of incident reporting systems (e.g. reliance on tradition call centre systems that do not provide feedback and incident tracking solutions to customers);
- Challenges in the implementation of cost recovery mechanisms (i.e. due to lack of capacity in enforcement of municipal bylaws);
- Lack of project and contract management skills (leading to failure of many projects implemented by municipalities);
- Challenges in planning (especially for operations and maintenance and budget planning);
- Water loss management challenges (i.e. lack of capacity to manage leaks and pipe bursts);
- Infrastructure and water supply systems monitoring challenges (e.g. lack metering systems, failure of telemetry systems, etc.);
- Community engagement challenges; and
- Challenges in the implementation of indigent policies.

Other cross-cutting challenges that were identified include high staff turnover, which deprives municipalities their hard-earned institutional memory. The challenge of migration of highly trained and experienced maintenance staff has resulted in some municipalities inadvertently being less inclined to invest more in skills programmes. The more rural municipalities also experience significant challenges in attracting and retaining highly skilled staff.

5 Recommendations and Policy Implications

It is clear from this assessment that certain challenges can be addressed by implementing and enforcing effective management practices. However, some challenges require approaches from (and the strengthening of) the inter-governmental and inter-municipal relations frameworks. Nonetheless, the following recommendations are made.

An establishment of a centrally managed local government sector-based information management system

To curb challenges in the loss and management of technical data, it is recommended that a centrally managed local government sector-based electronic information management system be developed. This system should be supported by the National Archives and Records Service of South Africa Act (Act No. 43 of 1996). The system shall host all technical and non-technical data, plans and reports that are produced by municipalities (and their respective consultants and service providers that are appointed to do work for the municipalities) at no cost to the municipalities. This should also be governed by good practices of intellectual property management with the understanding that all information generated using public funds shall belong to the state. In cases where consultants have been contracted to do some work for the municipalities, the contracting should elaborate on ownership of data. All data shall belong to the state for contracts that are awarded using public funds.

The revitalization of the local government skills programme and staff retention strategies

Attracting and retaining skilled personnel continues to be a daunting challenge to many municipalities, especially to those in the rural

areas. Government is currently implementing sector-based skills programmes supported by the Skills Development Act (Act No. 97 of 1998), and has established the Local Government Sector Education and Training Authority (LGSETA) to contribute to the national skills development strategy. However, the challenge of shortage of skills for many rural municipalities often relates to incumbents' lack of interest in working in rural environments. There is therefore a need to strengthen implementation of comprehensive skills development support programmes. For example, certain points [such as Continuing Professional Development (CPD), or Continuing Professional Education (CPE) points] could, as a recommendation, be awarded to staff that work for municipalities for a certain period after completion of the skills programme. Such points should be nationally recognized in order to create a value system and a market need. A professional body to regulate such point systems and merits thereof should also be identified accordingly.

Intensification of the inter-governmental and inter-municipal relations framework and implementation

As a result of differences in economic activities within municipalities, some municipalities tend to be better positioned to attract skilled staff for their service delivery mandate whilst others struggle. There is an existing inter-governmental (IGR) and inter-municipal relations framework that could be better used as a platform to source skills such as planning, and project and contract management from the more resourceful and successful municipalities to and by those that have challenges with such skills. The IGR framework could also be extended in special cases to cover issues of skills sourcing for operation and maintenance of critical infrastructure projects.

Putting more emphasis on community engagement strategies and platforms of engagement

One of the pillars of the Department of Corporative Governance (DCoG)'s Back to Basics strategy is putting people first and engaging with communities. Certain service protests are as a result of municipalities' lack of adequate and appropriate communication with communities. The substantive community involvement involves providing feedback to communities, creating platforms for engagement with communities, and being transparent and accountable. The CARRS project attempts to provide a platform through which communities can engage with municipalities through reporting incidents that affect them on a daily basis. There is therefore a need to make systems such as CARRS a standard requirement across many municipalities of South Africa in order to encourage the reporting of service delivery issues. This could result in a significant reduction of unnecessary service delivery bottlenecks and the related protests that municipalities tend to react to.

A revised focus on indigent policy implementation strategies to reduce non-revenue water

The indigent policy is intended to guide programmes to **improve** the lives of indigents and to improve access to Free Basic Services (FBS) by placing emphasis on local government in effectively addressing the needs of indigent households. A number of municipalities currently struggle with cost recovery on services they provide as a result of lack of capacity in implementing bylaws and their respective indigent policies. The targeting methods used in implementing municipal indigent policies often dictate whether or not the municipalities will be able to recover costs from services provided. Where service level and zonal targeting

methods are initially used, the population in the target area is assumed to be uniform in terms of socio-economic status. This later presents a challenge to the municipalities when indigent registers are updated. Ideally, where the previously indigent households have progressed, the means testing method should be applied and this may mean that such households may begin paying for services as they would no longer be indigent. Lack of credit control measures also contributes to the issue of non-payment of services, which affects most municipalities negatively as it means that they can only provide services through equitable share and not through revenue collected. The recommendation made in this regard is call for reconsideration of targeting methods used in identifying and providing services for indigent households. The approach should begin with all households as NOT indigent, and should progress to means testing as a gateway to determine each household's indigent status. Targeting methods should also be aligned with the Department of Social Development (DSD)'s social security policy and administration framework to ensure that Free Basic Services are provided to the most deserving.