

A NATIONAL WATER SERVICES ASSET MANAGEMENT STRATEGY FOR SOUTH AFRICA

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Abstract:

South African municipalities are required to “manage” (inclusive of operations and maintenance) their water services infrastructure, to ensure that services are delivered sustainably and to standards laid down by national government.

Unfortunately this does not always happen in practice. The national Department of Water Affairs and Forestry acknowledges that, as sector leader, it needs to investigate the water services infrastructure management situation and provide guidance to water services institutions. Accordingly, the Department is currently formulating a national "water services infrastructure asset management strategy".

The paper describes the problem statement and context, and scope of the work. The paper also describes progress made thus far with the strategy formulation. However the work will be complete by the time the conference takes place, and the presentation at the conference will describe the strategy.

Keywords:

Infrastructure asset management, maintenance, municipality, South Africa, sustainability

Introduction and problem statement

The water services sector in South Africa is responsible for infrastructure assets of a replacement value of several hundred billion Rand. (1 US\$ currently = R7) During the next decade a lot more infrastructure will be provided, yet, as noted by the national Department of Water Affairs and Forestry

(DWAF) "... many water services authorities do very little infrastructure asset management, and do not budget sufficiently for it." (DWAF 2005a)

Delivery of services does not end with the commissioning of the infrastructure. Once it has been commissioned, the activities necessary to ensure that it continues to perform its function must be carried out. "Delivery" needs to be universally understood as embracing not just the placing in service of infrastructure and facilities, but the "management" (including maintenance, repair and refurbishment, as well as operation) of that infrastructure or facility for its designed life.

The terms of reference for the project that is the subject of this paper strongly stated the case for infrastructure management. As follows:

"Money "saved" on management of assets is not a saving. This is a short-term outlook, often said to be due to political short-term imperatives and lack of capacity and know-how within the municipality. It becomes a vicious circle once infrastructure is allowed to deteriorate. Expensive refurbishment becomes necessary and there is even less money for ongoing maintenance. In addition, deteriorating infrastructure leads to poor service delivery and reduced payment by consumers, exacerbating lack of cost recovery. Government is facing a looming crisis unless something is done.

The Strategic Framework for Water Services requires water services authorities [the municipalities] to maintain a register of water services infrastructure assets and put in place a system to manage these assets in terms of a maintenance and rehabilitation plan. This plan must be based on the principle of preventative maintenance and must be part of the water services development plan. Assets must be rehabilitated and/or replaced before the end of their economic life and the necessary capital funds must be allocated for this purpose. Unfortunately in practice this does not happen." (DWAF 2005a)

The Minister of Water Affairs and Forestry, in her most recent budget speech (May 2006), reiterated that "there are disturbing indications of resource degradations in several parts of the country. [A recent study] revealed that there were significant inadequacies in all aspects of the management of [wastewater treatment works] -- operation, maintenance, rehabilitation and upgrading/extending -- at about two-thirds of the works studied. The result is that the effluent discharges are polluting the rivers into which they are discharged, with corresponding negative effects on the quality of water available to downstream users ..." "Many municipalities have indicated that without stronger regulation, budgets will not be spent efficiently and that sustainability of service delivery may be under threat, as functions like operation and maintenance may not be prioritised." (DWAF 2006)

Insufficient attention is being paid by the majority of South African municipalities to the ongoing commitments that they have incurred to manage their infrastructure. In addition, many have, due to years of neglect, built up a backlog of need in respect of maintenance and also refurbishment, renewal and replacement. The competing demands made on limited operational budgets, staff and other resources, severely constrain the proper management of infrastructure by municipalities. Thus DWAF concluded that "The Department, as sector leader, needs to investigate the infrastructure asset management situation and provide guidance to the sector; thus the need for this project." (DWAF 2005a)

Accordingly, during 2005 DWAF called for proposals to assist it with the formulation of a national "water services infrastructure asset management strategy". A team led by the Council for Scientific and Industrial Research (CSIR) and "in association with" Matingi and Associates, Makgaleng Projects and Pula Strategic Resource Management, was during the third quarter of 2005 appointed "to assist the Senior Manager: Water Services Policy and Strategy, with this [strategy] study."

Scope of the project

It was agreed to undertake the work in three phases, described in the CSIR's proposal as follows:

- Phase 1: a desktop strategic study, a "scan", of water services infrastructure asset management in South Africa.
- Phase 2A: a process of identifying the key factors that drive these states, and identifying elements needed for an enabling environment to ensure sound asset management. Followed by the preparation of a plan of action for the water services sector.
- Phase 2B: outline preparation of water services sector policy amendments.

Context

National government has made substantial progress on its promise to improve the lives of previously disadvantaged citizens. The expenditure on infrastructure has been considerable and there has been:

- An increase of 80% (1994-2004) in the number of people with access to a basic level of water supply; and
- An increase of 56% (1994-2004) in the number of people with access to a basic level of sanitation service.

Furthermore, the basic services programme is nowhere near complete, and it is clear that the government is intent on continuing to fund infrastructure until the backlog is eradicated. Municipalities and other infrastructure owners can thus expect that their portfolios of infrastructure responsibilities will continue to expand, as the effort continues to provide services to all, and especially to provide free basic services to the poor. (In terms of the "free basic services" policy, indigent households are not charged for services such as water, sanitation and electricity, provided that they stay within stated limits. In respect of water, for example, they are not charged for the first 6 kilolitres they use each month.)

The following infrastructure targets have been set:

- All people in South Africa have access to a functioning basic water supply facility by 2008;
- All people in South Africa have access to a functioning basic sanitation facility by 2010; and
- Investment in water services infrastructure in the sector totals at least 0.75% of GDP. (DWAF et al 2003, Section 2)

The "Strategic Framework for Water Services" (DWAF et al 2003) clearly sets out the sector's national goals with respect to access to basic water services, healthy living practices, accountability of municipalities, and regulation of services that are provided equitably, affordably, effectively, efficiently and sustainably.

The key challenges listed in the "Strategic Framework" deal with the need to extend coverage of water services, for water services to support economic development, and for the institutional reform of water

services provision. Most pertinently, however, "Services and the use of the water resource must be sustainable to ensure that we continue to make progress, and to ensure that future generations benefit from this progress. ... **Under-expenditure in maintenance and under-investment in rehabilitation is a significant challenge to overcome.**" (DWAF et al 2003, Section 1.1) (*Emphasis added*).

The "Strategic Framework" states that it is incumbent on municipalities to maintain a register of water services infrastructure assets and put in place a system to manage this infrastructure in terms of a maintenance and rehabilitation plan. This plan must be based on the principle of preventative maintenance and must be part of the water services development plan. Infrastructure assets must be rehabilitated and/or replaced before the end of their economic life and the necessary capital funds must be allocated for this purpose.

Phase 1: desktop strategic study

The objective of the Phase 1 report (DWAF 2005b) was not just to discover the state of water services infrastructure, but also the state of its management, and the background to and reasons for this state. Its findings have been the foundation upon which the work of Phase 2A has been built.

The first part of the Phase 1 report was an exploration of the environment of water services infrastructure in South Africa. This worked through the following, in order:

- discovery of order of magnitude of sector infrastructure;
- description of sector strategy;
- description of sector institutions, their policy, institutional framework and their planning; and
- sector legislation and regulation.

The second part of the report was a collation and interpretation of desktop information available on the state of water services infrastructure and the management thereof. A wide range of documents was scanned. Also, the project team members brought their own extensive collective knowledge to bear.

The third part of the report described infrastructure asset planning and management initiatives of national significance by bodies other than DWAF.

The fourth part of the report was the analysis. Here, systemic issues that have emerged from the preceding sections of the report were identified and discussed.

Finally, conclusions were drawn and brief recommendations made.

Phase 2: fact-finding to solution-identifying

Phase 1's findings have been the foundation upon which the work of Phase 2 is (at the time of writing) being built.

Phase 2A ("proceeding from fact-finding to solution-identifying", to quote from the proposal of the CSIR team) commenced with a process of identifying the key factors that drive the existing state of water services infrastructure and the state of its management, learning this from the Phase 1 work and from meeting with stakeholders and in particular with a reference group of sector experts. This phase involved not just problem identification, but also analysis and classification of problems. This work,

still in progress, is leading to identification of elements needed for an enabling environment to ensure improved infrastructure asset management.

Phase 2A will conclude with the preparation of a plan of action for the water services sector. "This plan must take cognizance of the Department's mandated responsibility and provide a plan of action for the Department and for other sector role-players. It must identify elements needed for an enabling environment to ensure that asset management happens. Whatever is proposed must take into account other asset management initiatives and the need to synergise with them." (DWAF 2005a)

Given what was revealed in Phase 1, this plan of action will no doubt embrace recommendations with respect to awareness raising, a funding formula, a legislative review, performance management review, improved incentives to the owners of the water services infrastructure to responsibly manage it, and a skills plan, among other recommended measures. These recommendations will incorporate prioritisation in terms of both urgency and importance. The plan will identify the "who, what and when" to be considered by DWAF in respect of each recommendation.

It is not envisaged that any of the elements that the plan of action will identify as needing development will be developed in terms of the current appointment -- for example, the budget has not allowed for the drawing up of norms and standards. It is understood that these will subsequently be developed by or on behalf of DWAF.

Phase 2B will comprise outline preparation of the necessary water services policy amendments, identified through close interaction with DWAF, to ensure fully integrated and co-owned revision to policy and a policy-enabling framework for implementation of asset management.

Progress with the project

Timeframe

The terms of reference called for a completion date within the 2007/2008 financial year. The CSIR team considered however that the strategy would be needed much sooner than that, and offered to complete the project around the beginning of 2007. This offer was accepted by DWAF.

Phase 1

The Phase 1 desktop strategic study, on the "state of water services infrastructure and its management", was completed in November 2005. This phase found that a very wide range of issues, impacting uniquely on each municipality or other water services institution, contributes to infrastructure management, ranging from best practice through to the unacceptable. Nevertheless there are common patterns, and it is clear that all or nearly all water services institutions have to contend with many of the same issues, chiefly:

- inadequate budgets;
- inadequate skills (especially technical skills) and experience; and
- a dearth of guidelines, norms and standards.

This is despite there being a very broad range in the capacity of water services institutions, the state of their infrastructure, and the state of the management of their infrastructure. And that therefore there

could definitely not be a "one size fits all" set of measures to improve the management of their infrastructure assets.

In many municipalities, budgets and staffing policies are severely inhibitive of sound infrastructure management, thereby placing much infrastructure (including a significant proportion of that commissioned since 1994) at risk. The great majority of municipalities are not making adequate provision for the long-term preventative maintenance, refurbishment and eventual replacement of their infrastructure. (Not just inadequate provision for water services infrastructure, it should be noted, but also for other infrastructure services for which municipalities are responsible -- in particular roads and stormwater.)

The Phase 1 report recommended that Phase 2A proceed, initially by identifying the key factors that drive the issues described and discussed in this status report, and then proceeding to identify elements needed for an enabling environment to ensure sound infrastructure asset management in the water services sector.

Phase 2

Phase 2A has progressed steadily during 2006. At the time of writing this paper, the back of the work had been broken. Problem identification, analysis and classification were complete. Preparation of the plan of action was well under way.

The work will be complete by the time the conference takes place, and the presentation at the conference will describe the strategy. Also by the time the conference takes place, a new appointment will have been made, of a consultant team to assist DWAF with the implementation plan – in effect a “Phase 3” of the management strategy.

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