

Supporting Effective Delivery: CSIR Research on and Advocacy of Infrastructure Management

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ABSTRACT

In support of effective delivery, the CSIR has undertaken extensive research into the state of and sustainability of municipally-owned engineering services infrastructure in South Africa, and has been a foremost advocate of improvement. The poster sets out issues of concern that arise when infrastructure management policies and practices do not meet acceptable standards, and it describes the research results. Finally, it summarises the plan and programme necessary to support effective delivery.

RESEARCH QUESTIONS BEING ADDRESSED

Since 1994, government has transformed service delivery, funding in the order of R75 billion in engineering infrastructure including new works, upgrading and rehabilitation, that has become the responsibility of municipalities to manage (i.e. operate and maintain).

This infrastructure supports quality of life and the economy, and alleviates poverty, if it delivers the services that individuals and institutions need, and if it does this in such a way that they are able to access the services. Access implies *inter alia* that the service must be sustainable and reliable – if not, the infrastructure (water pipes, for example) may continue to exist, but the service will cease (the water will no longer flow).



“Delivery” needs to be understood as embracing not just the construction of infrastructure but the operation and maintenance of that infrastructure throughout its intended life.

Elements of built infrastructure, including engineering infrastructure such as railway lines, water pipes, treatment works, roads, etc – as well as buildings themselves – are designed to last for a minimum number of years (usually measured in decades) and, during that time, to deliver the services intended of them. However, delivery of the intended services can only be expected if the infrastructure is properly operated and maintained, and if it is not overloaded or otherwise abused.

While there is a significant emphasis by government on enhancing delivery of infrastructure, “delivery” of services does not end with completion of construction and commissioning of the infrastructure or the building. The activities necessary to ensure that infrastructure performs to specification for the whole of its designed life must be carried out – such as the retention or appointment of the necessary staff, and the approval and appropriate spending of the necessary budgets.

Investing in infrastructure operation and maintenance offers outstanding opportunities for economic stimulation: jobs are created, capital expenditure goes further, and sustainable delivery can be achieved, while political imperatives and community aspirations can be met.

The importance of the **provision** of infrastructure to supporting economic growth and quality of life is well recognised, but the potential of infrastructure **maintenance** as a powerful tool for economic growth and service delivery is not.

Chronic under-maintenance of the engineering infrastructure owned by municipalities has long been an issue of concern. The then CSIR Boutek commenced research and advocacy on the topic in 2003, and this work is being continued in CSIR Knowledge Services.

The principal questions addressed by the research are:

- What is the state and performance of South African municipal infrastructure?
- What is the state of its management, and the reasons for this state of management?
- What needs to change in order to improve the state and performance of the infrastructure?
- How can this change be achieved?



The infrastructure management performance of South Africa’s municipalities ranges from very good to inadequate. Generally there is a strong correlation between performance and the proximity of the municipality to the metropolitan areas, but this is not always the case.

If a municipality has to spend on fixing infrastructure only after it has already broken down, then it is effectively throwing away a large proportion of its budget – funds that could rather have been used elsewhere to improve the quality of life of its citizens.

The objectives of the CSIR are:

- To document the current situation, and to identify change issues; and
- To press for and facilitate change.

RESULTS ACHIEVED

Results include:

- The compiling of descriptions of the state and performance of South African municipal infrastructure, and descriptions of the state of municipal infrastructure management, and analysis of the reasons for this state of management; and
- The identification of that which needs to be done in order to improve the state and performance of the infrastructure, and how this change can be achieved.

The CSIR is increasingly a foremost resource to authorities such as national government departments that have the power to effect change.

Much of the infrastructure, of both pre- and post-1994 vintage, is not being properly maintained by the municipalities that own it, and older infrastructure is not being refurbished and renewed when it needs to be. The municipalities face structural challenges as well as core operational and systemic failings.

If these are not addressed, existing services will continue to fail, while the cost of repairs and unplanned replacements will balloon. Ultimately, funds to address this will have to be sourced from capital budgets, and this in turn will severely limit the programme for expanded service delivery.

THE NEEDED PLAN AND PROGRAMME

Sustained service delivery through sound maintenance of municipal infrastructure needs to be addressed through a holistic plan and programme, the major elements of which are:

- Improving municipal financial sustainability;
- Awareness raising and stakeholder consultations;
- Prioritising strategic infrastructure;
- Capacity audits and skills development;
- Nurturing the maintenance sector;
- Introducing new delivery models;
- Establishing norms and standards and appropriate practice guidelines;
- Legislation enhancement;
- Conditional infrastructure investment;
- Improving performance management;
- Monitoring and evaluation; and
- Linking infrastructure and maintenance budgets.

The “blueprint for a new South African Economy”, the “Accelerated and Shared Growth Initiative”, places maintenance high on the developmental agenda as a key to sustainable development and economic growth.

“Looking after both old and new infrastructure is a challenge and an opportunity. ... We have tended not to put maintenance high on the agenda not only are we putting it high on the agenda now ... we can launch it as an industry in its own right.” Deputy President Phumzile Mlambo-Ngcuka – November 2005

A new paradigm needs to be considered in which infrastructure maintenance is regarded as a strategic tool to promote improved service delivery and to unlock funding to extend infrastructure to historically disadvantaged communities and to support the nation’s economy. Maintenance of existing infrastructure should not be viewed as competing for the available resources, or neglected in favour of superficially more attractive prospects.