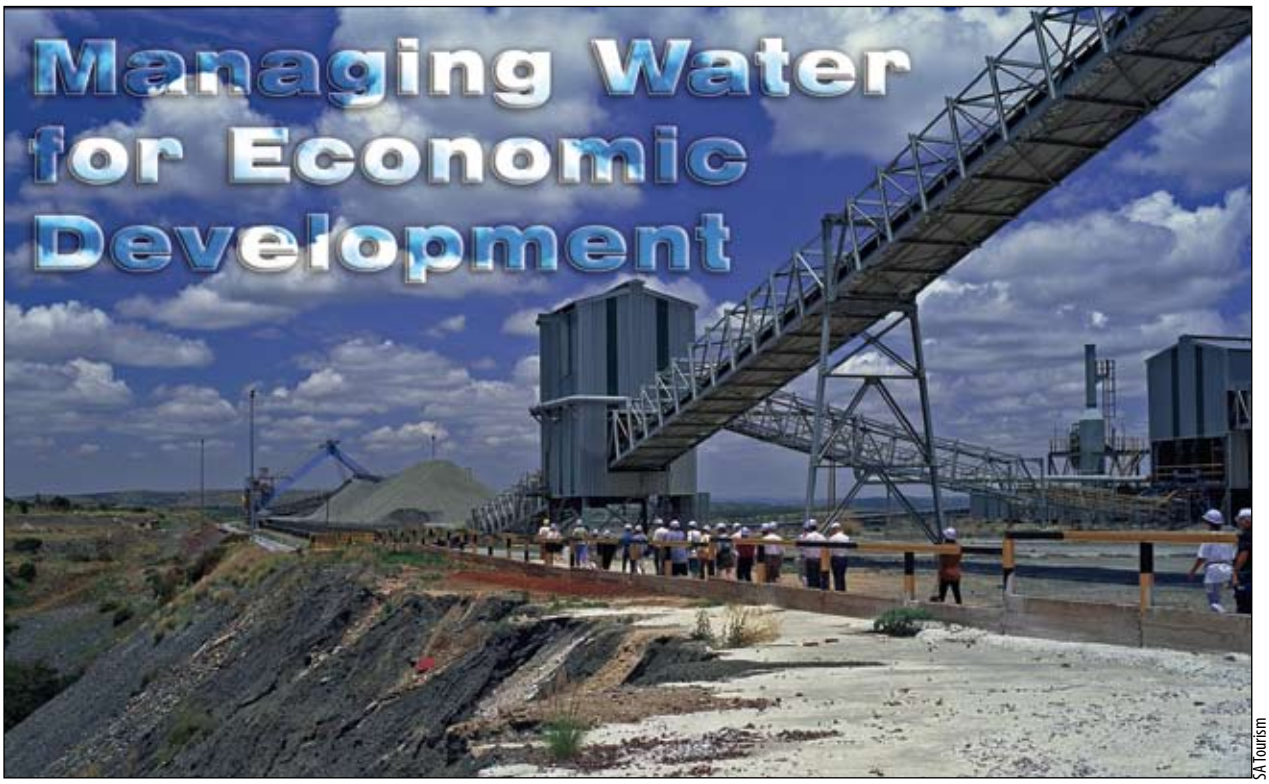

SA Tourism

The recent completion of a strategic investment framework has provided new impetus to the Water Research Commission (WRC)'s research area focusing on the interaction between water and the economy.

Government's strides in growing the South African economy have resulted in an increase in the demand for water and underscored the role of natural resources in building national wealth. However, the country's potential water yield (i.e. water supply) is finite and options to develop feasible new water schemes are limited.

The implementation of the National Water Act (NWA) in 1998 has to date not been able to significantly reverse the water use efficiency trend, hence, management of the existing supply and demand for water is a major obstacle of water policies in South Africa and in need of supporting research.

Existing scarce resources are further reduced by poor water quality as a result of industrial, agricultural and domestic pollution. Many of the country's river systems have become waste sinks for dissolved salts, nutrients, bacteria and industrial pollutants such as inorganic materials, metals and organic compounds.

Salinisation and eutrophication are two of the major water quality problems the country faces. Another is bacteriological contamination as a result of poor maintenance of sanitation facilities, which not only impedes economic development, but also risks human health and well-being.

The WRC has funded valuable research on the economics of water management in South Africa. A stage had been reached to review what had been done and to evaluate it within the context of national needs and priorities. The outcome of such an evaluation would provide the WRC with strategic guidance concerning the investment strategy it should adopt up to 2010 for water and economy-related research.

Consultant De Wit Sustainable Options was contracted to compile the strategic document. Based on an evaluation of national research needs, existing WRC-funded research, a literature survey and an expert opinion survey, three overarching thrusts for the period 2007-2010 have been identified: the role of water in economic development, the use of economic instruments in the management of water, and research on the complex inter-relationships of water-economy systems.

WATER AND ECONOMIC DEVELOPMENT

The ever-mounting scarcity of freshwater in South Africa within the context of an expanding economy and, thus, increasing demand will need informed choices on water allocation between competing needs. There are two general choices to address this problem: either increase supply or reduce demand.

With a renewed focus on public infrastructure development in South Africa the question needs to be answered through research what the best possible economic allocation of scarce resources to, or costs and benefits of alternative shorter and longer term water management options are, including enhancing supply and managing demand. A second and related question is whether South Africa's water resources are sufficient to support planned economic developments and what the sensitivity of such economic development plans are to changing assurances of supply, changing water prices and implementation of water conservation regulations and technologies.

A third and fourth question relate to the role of water in the alleviation of poverty (such as the evaluation of the economic viability of emerging and small business in the water sector) and to evaluate the economics of water service delivery, including water supply and sanitation.

MANAGING WATER WITH ECONOMICS INSTRUMENTS

The next key element of the strategic framework is the question of how to apply economic instruments in the management of water. The first research question is at what (volumetric) levels water tariffs should be set to influence use and how sensitive water demand is to changes in water tariffs, moving beyond single-point estimates on water valuation (elasticity).

Also, through research, non-market valuation techniques need to be applied to estimate the demand for those water-related ecosystem goods and services not traded in markets. Estimating the benefits of healthy water-related ecosystems and applying these to estimate the economics of the Reserve are two topics in need for further research.

A third question is what the economic benefits of clean water and the cost of addressing polluted water are. To achieve levels of water pollution that do not cause long-term damage while leaving space for development; research on the damage costs and unit control costs for key pollutants and key polluting sectors is needed.

Further research is also required on the prerequisites for efficient water allocation, specifically the accurate and cost-effective measurement of water use as well as the institutional economics of water rights and licenses. In addition, the framework identified a need an economic evaluation of water policies and the application of economic policy instruments to water management.

"Economic appraisal, the economics of demand-side management and the use of economic instruments for water management should receive higher priority then in the past."

Lastly, a regulatory impact assessment on the NWA is proposed, as well as practically focused research on the feasibility of water markets and (waste) water charges.

WATER-ECONOMY SYSTEMS

It has been recognised that the causal relationship within complex water-economy systems needs to be explicitly recognised and their sensitivity to bio-physical and socio-economic change tested. Water needs to be managed for multiple uses in a sustainable manner. Integrated assessment and multidisciplinary modelling approaches are needed to provide a systems-wide perspective on the management of water resources.

Proposed research topics include investigating sensitivity of socio-economic activities to extreme events and/or gradual changes on water resource availability and quality (e.g. climate change and changes in assurance of supply, droughts, floods, longer term salinity build-up, impacts of invasive species) and to develop a prototype integrated economic model accounting for supply and demand for water in stressed catchments.

The proposed investment framework was further compared to existing research in the WRC's water and economic domain. A clear fit was found between existing work and planned future work, minimising disruptions to existing programmes. The WRC runs a diverse water and economy research portfolio. Present research includes determining the value of estuary services, producing an econometric model to predict the effect that various water resource management scenarios would have on South Africa's economic development, development of a model to assess the costs associated with eutrophication, examining financial sustainability of sanitation services, and investigations into productive use of domestic water for sustainable livelihoods, among others.

Existing work has been reorganised into the investment framework for 2007-2010, providing a clearer focus on practical outcomes that will support the further implementation of the NWA and associated initiatives (e.g. the water reallocation process).

It was also found that no earlier economic research has been done on complex water-economy systems and that economic appraisal, the economics of demand-side management and the use of economic instruments for water management should receive higher priority then in the past. The critical scarcity of water resource economists South Africa is experiencing at present, which limits existing research capacity, has also been emphasised.

It is hoped that this strategic investment framework will provide the context for research on water and the economy that is sufficiently practical to inform the decisions on South Africa's chosen road of water reform, while employing the theoretical principles and applied techniques in the subject field of economics.