POLICY BRIEF

December 2018
The WRC operates in terms of the Water Research Act (Act 34 of 1971) and its mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa.

Integrating business and water resources development: The Berg Water Management Area

There is increasing recognition that the combined effects of climate change, population growth and continued urbanisation are exerting pressure on limited water resources. At the same time, economic growth remains vital for alleviating poverty. The question is then how to allocate water optimally to enable economic growth, while also ensuring that human needs are met and ecological systems maintained. A Water Research Commission (WRC) study, undertaken in partnership with the Western Cape provincial government, developed solutions for integrated water resource and economic development planning, with a focus on the Berg River Water Management Area. The study focused particularly on the development of a series of decision-support tools to promote integrated planning.

Background

The Berg Water Management Area (WMA) is a heavily utilised system, supplying water to a number of local municipalities, including the City of Cape Town. It is also a 'constrained catchment', meaning all readily available water is already allocated.

The West Coast District Municipality (WCDM), the focus of this study, is supplied by water from the Western Cape Water Supply System (WCWSS), via the Berg River and Misverstand Dam, and in turn supplies water to Saldanha Bay Local Municipality (SBLM). The WCDM has exceeded its allocation since 2008

At the regional catchment level, allocations from the WCWSS should weigh up the potentially competing demands of industrial development in Saldanha versus agriculture in the Middle and Upper Berg, versus domestic and industrial supply to the Cape Town metropolitan area.

The overarching aim of the WRC project was to (through the tools to be developed, and through the process of their development) inform decision-making for economic development and water resources, promote or take steps towards change in the current approach to planning, and ensure research findings or proposed tools were implemented during the course of the project.

There is a growing recognition that to achieve this intention, research must be co-created by those it is intended to benefit (i.e. in this case decision-makers), at all stages including even the inception of such research, to ensure it is fit for purpose and is implemented. As such, the project team fostered close working relationships with decision-makers, directly connecting them with academic research.

Project methodology

The three-year study had a number of objectives, including developing a guideline for a planning approach that recognised the cyclical interdependency of economics and water resources; conducting a cost-benefit analysis of economic developments and water resources interventions; building a spatial hydro-economic tool to manage regional allocations in constrained catchments; and developing research products in close collaboration with decision-makers; and implementing research outcomes to address current development challenges.

Analysis was done on the (potential for) integration between development planning, water allocation and water resource development processes, with an emphasis on enabling implementation of the findings. The analysis aimed to understand how decision support tools could add value to existing legislated processes by filling knowledge gaps or by providing a collaboration mechanism.

Main results

The analysis highlighted how the Integrated Development Plan is the key integrated planning tool, but that it is not taking water resource availability sufficiently into account. Furthermore, that the municipalities, which are also the water service authorities (WSAs), do not have the capacity nor resources to develop their own local water resources, and are struggling to access water from the regional schemes, managed nationally by the Department of Water and Sanitation. In this context, provincial government has a critical coordinating and supporting role to play.

Although the research responded to the challenges in Saldanha Bay and Berg WMA, these challenges and the proposed interventions are common to other constrained catchments, hence the methods and lessons from this case study are transferable to other areas.

A regional hydro-economic GIS tool was developed to understand how water scarcity may constrain development in local economies in the Berg WMA, currently and into the future. The study modelled future water demand, focusing on the years 2025 and 2040, to assess whether demand may outstrip supply according to the current system yield.

These projected demands linked water usage to economic indicators (e.g. gross value add, jobs) to highlight where these constraints have the most significant economic implications, thereby allowing for the prioritisation of interventions to improve water supply to particular local economies.

The results indicated that under all climate change models, irrigated agriculture will require more water to remain sustainable. However, at the same time, urban centres will demand increasingly more water.

In the case of Saldanha Bay, where water is already a constraint to development, a Multi-Criteria Decision Analysis tool was developed that allows the municipality to prioritise new development applications on the basis of the socio-economic outcomes from the various projects in comparison to the water required, rather than just allocate water on a first-come-first-served basis. This tool allows for transparent and collaborative decision-making that assists the municipality in improving the livelihoods of the local community and increasing the productivity of water in the local economy.

Conclusions and recommendations

The project outcomes have been shared with local stakeholders responsible for development planning and water management. The tools have been favourably received with provincial government departments declaring their intent to adopt them.

The tools are easily replicable for other regions in South Africa that face similar challenges and wish to better integrate their water resource and development planning. Overall, the project has been beneficial in helping drive a dialogue among a number of stakeholders of the importance of water for development. It has elevated the consideration of water within provincial government from an environmental concern to one that enables growth and jobs. It has also helped substantiate the need for urgent intervention in certain areas for supply augmentation.

However, the project findings highlight the need for further action:

- The absence of a regional water utility for the Berg WMA is hampering the development of water resources, particularly at a local level, and the creation of either a regional water utility or water board should be explored.
- Coordinated planning for future water resource interventions for those WSAs supplied by the Western Cape Water Supply System must be strengthened. A feasibility study is proposed to estimate the economies of scale and efficiencies that could be gained in combining regional and local water resource development schemes across the Berg WMA.
- A regional (or national) fund that WSAs can access for off-budget water resource infrastructure, which leverages private sector funds, should be explored.
- All spheres of government need to be more cognisant of the local capabilities and water resource availability in the areas in which development is planned, crucially as it relates to the availability of water to support their development ambitions. If sufficient water is not available, then a careful consideration should be made about the suitability of a particular industry for the area (linked to its water intensity) versus the cost/benefit of developing new water resources.

Related report:
Managing water as a constraint to development with decision support tools that promote integrated planning: *The case of the Berg Water Management Area* (**Report no. TT 764/18**) Contact publications at Tel: (012) 761-9300; Email: orders@wrc.org.za or Visit: www.wrc.org.za.