WATER ALLOCATION

Anticipating Shortages: Dams and Water

South Africa's portion of the Limpopo River basin is fed by more than 14 rivers that flow from south to north through the country's Northwest and Limpopo provinces. A center of rapid economic and population growth, this region is known for its rich farmland, deposits of valuable minerals and tracts of beautiful wilderness.

Water is an essential resource for the agriculture, mining and tourism industries in this region. Aware of the looming crisis in water supply to support economic growth, the South African government has been building a network of storage dams and water pipelines that is intended to ensure reliable water supply for industry and to meet the commitment in its Constitution to provide basic access to water -- 25 litres per person per day for drinking and bathing -- to all South African citizens. There are now more than 100 large dams in the Limpopo system. Where local dams do not provide enough water, bulk transfer schemes move water to the needed location. The Limpopo, once a perennial river whose water flowed all year around, now goes dry in places for some months of the year.

This has been caused by altering the flow of water in the tributary rivers of the Limpopo through damming and abstractions on the river's tributaries. While tourism's use of the water is mostly non-consumptive, irrigated agriculture and mining require increasing amounts. Climate change is predicted to considerably reduce the amount of

Middle Letaba Dam, South Africa

South Africa has a complex and sophisticated water planning and management system. The South African government is responsible for infrastructure, bulk supply and quality of surface and groundwater resources, while distribution and purification are in the hands of regional and local authorities. The entire system has been thoroughly studied and many forward-looking policies developed, including institutional realignment to ensure that Catchment Management Agencies are able to implement a range of water resource management functions. This provides LIMCOM's member states with excellent knowledge and models to follow, as well as the opportunity to increase transboundary engagement with South African water use that has a broader impact on the entire basin.

Water Use in Limpopo Province, SA

Number of large dams in SA basin: 160

Capacity of storage dams: 70%

Arable land: 16.9%

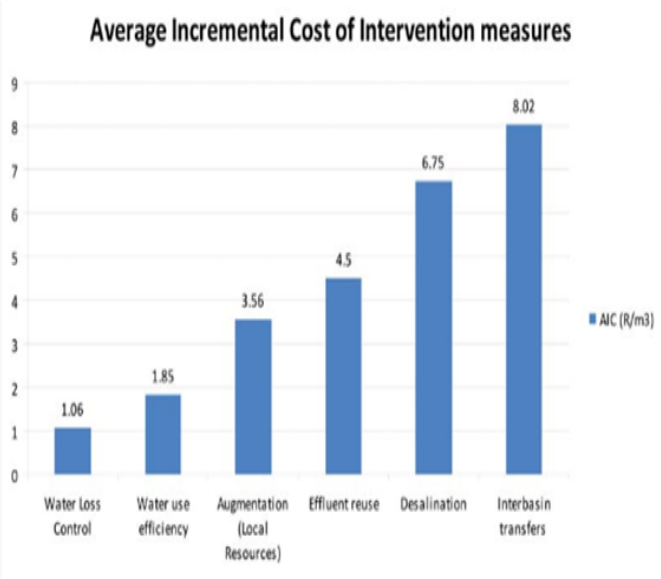
Groundwater used for irrigation: 59.5%

Population relying on groundwater for domestic use: 50%

The Science behind the Issue

The ecological reserve – the amount of water that must be used to maintain the natural environmental flows in the river system – has been enshrined in South African national water policy as a top priority. The reality, however, appears to be that in many cases these flows are not being maintained.

Restoration of natural capital -- the repair or rehabilitation of degraded or transformed natural areas through the reintroduction of indigenous biomass -- has been indicated as a priority in Limpopo Province's development strategy. This is important to the flow of rivers, as bare, overgrazed or cleared areas near the river increase destructive runoff during rainy periods. Also, when trees and other vegetation are removed from the river banks, residues of pesticides and potential toxins cannot be absorbed before reaching the river's water.



Average Incremental Cost of Intervention Measures

The building of dams in the Limpopo River basin has led to increased interaction between groundwater and surface water. This is because for long periods of the year the lower and middle reaches of the Limpopo River are dry (LBPTC 2010), with the water flowing instead in the alluvial aquifer of the river bed. Replenishment of groundwater takes long periods of time - for example replacement of deep groundwater may take as long as 1500 years.

The lack of consistent, basin-wide information about groundwater/surface water interactions is a major concern because abstraction of groundwater from an alluvial aquifer, or an aquifer located close to a river channel, has an influence on local water availability and an impact on downstream water users.

The USAID RESILIM Program supports the LIMPOPO Watercourse Commission (LIMCOM) in helping the people and ecosystems of the Limpopo River Basin to adapt to climate change through effective transboundary water management.

LIMCOM's Integrated Water Resources Management plan has identified Water Allocation as a key challenge in the Limpopo Basin.

This work is supported by LIMCOM international cooperation partners

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For further information contact: Lara Rall, Communication Specialist, RESILIM Program
email: lrall@resilim.com