

# CRIDF

Case study:  
Kazungula

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## CLIMATE-PROOFING WATER SUPPLY IN THE ZAMBEZI RIVER BASIN

Spreading across 1.4 million km<sup>2</sup>, the Zambezi River Basin is the largest river basin in Southern Africa. It is also among the most vulnerable to climate change, according to the Intergovernmental Panel on Climate Change. Over the next century, the Zambezi River is expected to experience increased temperatures (0.3–0.6°C) and decreased rainfall (10–15%), leading to a reduction in runoff of up to 40% by 2050.



The consequences for the eight countries in the Zambezi catchment are extremely serious. This is particularly the case for Zambia, which comprises 43% of the basin's geographical area. CRIDF has been working with the Intergovernmental Zambezi Watercourse Commission (ZAMCOM) to integrate climate resilience into the planning and development of water infrastructure. Two projects in Zambia exemplify the approach being taken to ensure water security for the rural poor.

### **Infrastructure for a water-secure future**

Water insecurity leads to lowered quality of life and constraints on livelihoods. This is particularly significant for the communities living in the Zambezi catchment area, where the opportunities afforded by economic change run up against the reality of climate change. The town of Kazungula, on Zambia's

border with Botswana, Zimbabwe and Namibia, is poorly serviced by water infrastructure, but its population and through traffic is set to rise dramatically with the completion of the Kazungula Bridge. The larger settlement of Livingstone, 60 km to the east, is a gateway to Victoria Falls, which receives a million visitors a year. CRIDF is supporting projects in both these communities with the objective of leading them to a water-secure future.

*“Infrastructure is at the core of any response to climate change. Without adequate infrastructure, the smallest climate impacts hit communities hard.”*

– Leonard Magara, Chief Engineer, CRIDF

## Better livelihoods, stronger communities

In Kazungula, the replacement of the ferry with a bridge will have a dramatic impact on through traffic (estimated at up to 255 trucks/day). To keep pace with increased economic opportunities, expansion of existing services is urgent.

With support from CRIDF, Kazungula's water treatment plant has been upgraded with a new lab, dosing equipment and water tanks. A new, solar-powered ablutions block is also open 24 hours a day for traders and truckers. Its placement at this crucial border point will improve sanitation and reduce the disease burden, boosting commercial activities across the sub-region.

John Mukatamwene, the entrepreneur who manages the block, says, "The customers are very happy. They've asked us to keep up the standards." He employs women workers to maintain the facility.

Not only will the increased volume of traffic be good business for the ablutions block, John is able to pay SWSC a regular management fee. The creation of such revenue streams is key to sustaining water supply systems. Helping people to move out of poverty while providing essential services anchors the type of climate-resilient infrastructure that CRIDF is known for.

According to Leonard Magara, Chief Engineer at CRIDF, "Infrastructure is at the core of any response to climate change. Without adequate infrastructure, the smallest climate impacts hit communities hard." While creating infrastructure to improve water security, CRIDF integrates climate-resilient measures. In the Kazungula Immediate Measures project, CRIDF has supported an improvement in the water quality by upgrading Southern Water & Sewerage Co. (SWSC) facilities and boosting water supply through expanded networks to reach over 5,000 inhabitants (eventually 22,300 by 2030). In Livingstone,

CRIDF is helping SWSC prepare a feasibility study as part of an application to the Green Climate Fund to climate-proof the city's water supply and sanitation network.

## Sustainable water strategies

Livingstone's water supply network was not designed for the low levels it has been experiencing recently. With demand increasing in the city of 134,000 inhabitants, SWSC has to be able to provide a steady, safe supply that does not vary with fluctuating river levels. The proposed project will improve the efficiency of the water supply network by reducing water losses and improving cost recovery. Greenhouse gas emissions will be reduced through the capture and use of methane as a source of affordable renewable energy. The project also aims to strengthen the institutional and technical capacity of SWSC.

The sustainability of a project depends on more than the inclusion of environmental components, however. Sustainability has to be considered from all angles, and CRIDF's feasibility assessments include social, technical, financial, economic, institutional and environmental assessments. In Kazungula, there was a strong socio-economic justification for water infrastructure development led by a potable water and sanitation component, but the project was not commercially viable. Capital investment was thus provided through a mixture of grant funding and long-term concessional loans.

Keeping in mind the specific context of Kazungula – a largely peri-urban town with heavy border traffic with many low-income groups (especially women) dependent on cross-border trading, it was decided to build and operate an ablutions block alongside the upgrading of water treatment facilities (see box). The ablutions block not only provides essential services at a border point under the 'user pays' principle, it generates income for the project and creates employment for local women. In contributing directly to Global Goal 6 on clean water and sanitation, as well as Global Goal 8 on decent work and economic growth, these projects improve the resilience of local communities to climate impacts, in alignment with Global Goal 13 on taking urgent action to combat climate change and its impacts.

## Contact us

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