

STRENGTHENING HYDROMET SERVICES IN LESOTHO

Tackling water scarcity in a changing climate

AT A GLANCE

Country Lesotho

Risks Heightened water scarcity due to climate change

Area of Engagement Strengthening hydromet services and early warning systems; building resilience at community level

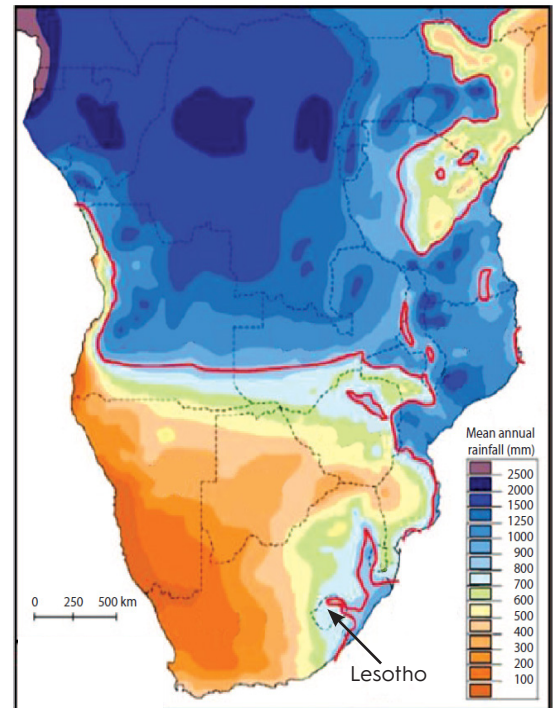
By taking a comprehensive approach to climate risk analysis, Lesotho is better informed to manage its water resources – a key part of its economy.

HIGH DEMAND FOR SCARCE RESOURCES

Water plays an outsized role in Lesotho, even though it is a landlocked country. In addition to being a basic need for the country's population of two million, water contributes approximately 8 to 10 percent to Lesotho's GDP, and 10 percent to total government revenues. Most of these revenues come from the Lesotho Highlands Water Project, a multi-stage infrastructure project that transfers water, through a vast system of dams and tunnels, from Lesotho's highlands to hydropower generation plants and industrial and mining operations in South Africa. The project complements the Lesotho Lowlands Water Supply Scheme, which offers access to clean water domestically while meeting agricultural, industrial, and commercial demand to generate revenue.

Situated in the Orange-Senqu River basin, Lesotho has abundant water resources. Nevertheless, the country remains vulnerable to the impacts associated with regular and recurrent floods and droughts. Climate change jeopardizes Lesotho's natural water sources, threatening to decrease the country's water supply. Recognizing this, the Lesotho Disaster Management Agency (DMA) instituted the first systematic analysis of Lesotho's water management system to assess the country's vulnerability to climate change.

Rainfall patterns in Southern Africa



Source: Lesotho Water Security and Climate Change Assessment, World Bank (2016)

ANALYZING FUTURE CLIMATE SCENARIOS

To support Lesotho's resilience initiative, the World Bank launched the Climate Risk Analysis and Early Warning System (EWS) Information Management Systems Project, with the support of a \$1 million grant from the Africa Caribbean Pacific-European Union Natural Disaster Risk Reduction Program, an initiative of the ACP Group of States, funded by the European Union and managed by GFDRR. The project produced the Lesotho Water Security and Climate Change Assessment, and improved the capacity of Lesotho's early warning system in collaboration with the World Food Programme.

The vulnerability assessment explored adaptation strategies under numerous likely scenarios related to climate change. The analysis was based on a water resource decision model, which evaluated how water supply systems are likely to perform in different climate scenarios. 121 downscaled Global Climate Model projections of future climate scenarios were assessed over two possible water demand scenarios, for a total of 244 scenarios up to the year 2050.

These scenarios examine the possible impact of climate change on various water users – including domestic, industrial, and agricultural users, as well as hydropower producers. The assessment also analyzed the effects of climate change on risks that could compromise Lesotho’s water management strategy, as identified by national experts, stakeholders, and policy makers. Capacity building exercises strengthened the assessment process by providing the knowledge and skills needed to use the models and analytical tools. With the active participation of local communities, the World Bank and Lesotho also installed improved Early Warning Systems, better preparing communities to respond to disasters.

LESSONS LEARNED

Adapting to future challenges, including climate change, is a long-term process.

The Lesotho Water Security and Climate Change Assessment found that proactive interventions can improve water security in the country across a range of climate scenarios. By using the model to produce a range of future scenarios based on numerous climate projections, disaster management agencies are better prepared to anticipate interventions.

Improving water management capacity can reduce risk from climate change.

Water management models allow for the assessment of water supply reliability across water users from the domestic, agriculture, hydropower, and industrial sectors. The models can also facilitate robust decision making, helping governments develop water management strategies that reduce the identified vulnerabilities.



Water resource impact assessed for **244** climate scenarios

WATER NEEDS QUANTIFIED

The project’s analysis allows the government to estimate resource needs and gaps in the coming decades. For example, over half of the climate scenarios predicted that more than 20 percent of domestic water demand from 2041 to 2050 would not be met. Water transfers to South Africa would not be met in approximately 40 percent of the climate scenarios. Agriculture, which is mainly rain fed, will also be more vulnerable to diminished precipitation.

ACCESS TO EARLY WARNING INFORMATION EXPANDED

The Lesotho Early Warning Information System, a web-based information portal, is critical for the domestic and industrial sectors of the Lesotho economy. Reliable forecasts will help suppliers meet rising demand from a growing domestic population, expand food production, and increase the volume and reliability of water transfers to South Africa.

GOVERNMENT CAPACITY INCREASED

With analytic support from the World Food Programme (WFP) and sector working groups, community and district-level officers have been trained on the monitoring and collection of EWS data, ensuring that information can be collected and transmitted from the bottom up. WFP will continue to provide technical support beyond the close of the project to bolster its long-term sustainability.

“We welcome this very important work. [The assessment] is the first of its kind and provides us with the evidence that will help us utilize our most valuable natural resource effectively in improving the lives of our people and to develop resilience against future climatic shocks.”

-- Ralechate Mokose, Minister of Water, Kingdom of Lesotho