issue brief

Managing Water for Climate Change Adaptation in Addis Ababa, Ethiopia

Photo credit: J. A. Meyer.

City managers need new urban planning and water management approaches to safeguard community health, water resources and physical infrastructure under conditions of unprecedented urban growth and environmental change.

- In 2007, the official population of Addis Ababa was 2.74 million. Today, it is estimated to have reached 3.1 million. Every day, an additional one million people move in and out of Addis Ababa.
- In 2002, 57% of the city consisted of built-up areas. The cityscape of Addis Ababa has changed dramatically in the past three decades.
- The current urban water system struggles to ensure equitable and safe access to water resources and to protect urban communities from weather-related disasters

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THE CHALLENGE

- How can we meet the water demands of Addis Ababa's population when forecasted patterns of urban growth and rise in temperature suggest that the supply-demand gap will increase further?
- The city already generates more than 100 million cubic meters (Mm^3) of runoff annually. What can we do to reduce the risk of flooding, more so in areas with poor quality housing, and inadequate sanitation and drainage infrastructure?
- How can we reduce pollution in the Akaki River system, when wastewater generation in the city is expected to triple by 2030?

ADAPTATION

A paradigm shift

- ***Conservation***: Reduce water loss through infrastructure maintenance, water use through demand management and water consumption through a tiered tariff structure.
- ***Conversion***: Recycle floodwater and wastewater for beneficial use.

POLICY IMPLICATIONS

Water supply:

- Plan for water supply from more distant sources, implement water conservation measures and capture urban runoff through distributed water harvesting structures.
- The above will complement ongoing efforts to source water from the Gerbi Dam and to exploit groundwater.

Flooding:

- Put in place integrated urban flood management. This combines best practices in city planning, drainage design and flood retention.
- Upgrade drainage design practices of the past by taking into account the effects of climate change and built environment.

Wastewater:

- Implement demand management to reduce wastewater generation.
- Reduce pollution entering the Akaki River system by applying industrial wastewater monitoring and control, enhancing sewer coverage and introducing decentralized treatment systems.

Photo credit: Peter Essick.

For more information

For more information on this and related projects, you can contact Semu Ayalew Moges at semu.moges@aait.edu.et or semu_moges_2000@gmail.com

URAdapt was a three-year project which aimed to reduce the vulnerabilities of Addis Ababa, Ethiopia, and Accra, Ghana, to climate change through improved and integrated urban water management. The project placed the city within its broader basin context, thereby focusing the research on urban-rural connectivity. URAdapt brought together climate change and water management experts, decision-makers and representatives of vulnerable communities to collectively design adaptation strategies for the water-use sectors in Addis Ababa and Accra. This project, which was implemented under the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), was facilitated by the International Water Management Institute (IWMI), the University of Addis Ababa, Ethiopia, and the Council for Scientific and Industrial Research (CSIR), Ghana.

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