

Increasing climate resilience of water and sanitation services in cities

Climate change is already having a huge impact in many parts of the world. In countries where WSUP works, poor water availability poses serious risks to society, and as extreme weather events become increasingly frequent, this challenge is worsening.

Water scarcity in cities, driven in part by rapid urbanisation, is on the increase, and climate change is making the problem worse. The World Bank predicts that by 2050 water availability in cities could be two-thirds what it was in 2015.¹ Cape Town's 2018 crisis demonstrates that we are approaching a point where a city could run out of water.

Water scarcity will have a major impact on the poorest - exacerbating inequalities, worsening health and trapping people in a cycle of poverty. Water rationing, a common response to water shortages, can further impact health, as intermittently operated water systems can transmit waterborne pathogens.²

Flooding is also intensified by climate change, and again it is the poorest who suffer most. Pit latrines, often used in communities with limited access to sewers, can easily overflow in heavy rain. As a result, flooding can spread faecal matter into the urban environment, compromising water quality and increasing the likelihood of the spread of diseases such as typhoid and cholera.

Cities therefore need to build water and sanitation services that are climate resilient. To achieve this, WSUP focuses on two key areas: strengthening service providers, and building more effective regulation and financial planning.

These two elements will improve the likelihood of the poorest receiving safe water and sanitation services even as droughts and flooding continue to increase in frequency.



Image: Flooding in Antananarivo, Madagascar.
Credit: Tsilavo Rapiera

In **Bangladesh** 80% of households feel they have been affected by natural disaster within the past 5 years.³

Madagascar has one of the highest cyclone rates among African countries, with an average of 3-4 cyclones affecting the country every year.⁴

Mozambique's vulnerability to climate change is a function of its location and geography: large areas of the country are exposed to droughts, tropical cyclones and river/coastal storm surge flooding. Low-lying and densely populated cities like Maputo and Beira are particularly vulnerable.⁵

¹ <http://www.worldbank.org/en/topic/water/publication/high-and-dry-climate-change-water-and-the-economy>

² <https://waterandhealth.org/safe-drinking-water/drinking-water/problem-intermittent-water-delivery-developing-countries/>

³ <https://openknowledge.worldbank.org/handle/10986/29450>

⁴ <http://documents.worldbank.org/curated/en/93666151600441146/pdf/121945121-2018-11-21-5-WorldBankMadagascarClimateChangeandHealthDiagnosticJan.pdf>

⁵ https://www.climateinsights.org/sites/default/files/asset/document/2018_USAID-ATLAS-Project_Climate-Risk-Profile-Mozambique.pdf

How WSUP works to support climate resilience



Image: Flooding in Beira, Mozambique. Credit: WSUP.

Kenya has experienced both prolonged droughts and intense flooding every year since 2000.⁴

Over the last forty years, floods have affected over four million people in **Ghana**, notably in urban areas such as Accra.⁵

Zambia sits in the bottom 20% of countries in terms of climate risk preparation and is also one of the countries with the highest poverty risk in 2030.⁶

Making best use of scarce water resources

In many cities, around 50% of water can be lost before it even reaches customers. This so-called non-revenue water has a crippling effect on the availability of water, as well as utilities' income streams.

As droughts become longer and more frequent, utilities must take steps to reduce leakages and make better use of the water that they have available. In Antananarivo, Madagascar's capital, WSUP supports the city's utility, JIRAMA, to reduce water loss and improve water availability for hundreds of thousands of low-income residents. As a result, JIRAMA has been able to save around three million m³ of water – enough to serve an additional 300,000 people per year.

Reducing contamination caused by poor sanitation

Encouraging low-income residents to empty their pit latrines prior to the rainy season reduces the amount of faecal waste flowing into streets and spreading through communities during periods of flooding.

In Lusaka, WSUP created a toilet database to provide information on when pit latrines need to be emptied, helping city authorities implement climate-resilient measures that prevent the spread of cholera in the event of flooding.

In addition, WSUP helps communities to improve the design of toilets so that they are raised from the ground and are less likely to overflow in times of heavy rains.

Strengthening governance

The right national policies, regulation and financing can make a significant difference to water and sanitation service coverage in low-income communities. In Kenya, we helped the water regulator introduce new measures to ensure that serving low-income customers is no longer a choice for utilities, but a regulatory requirement. And in Bangladesh, we supported the national government to introduce a new framework determining who is responsible for delivering non-sewered sanitation services, impacting how City Corporations prioritise action in this area.

Improving drainage to minimise impacts of flooding

By better managing heavy rainfall in a city, we can avoid the damage to communities caused by floodwater particularly in low-income communities where infrastructure can be weak. In Maputo, we have worked with the city council, CMM, to improve drainage around low-income communities.

Research to support climate resilience

Our research also has a role to play improving climate resilience. A recent study assessed the impact of extending services to low-income communities on city-wide water demand. Importantly, findings of the study suggested that many thousands of low-income consumers in Nairobi and Accra could benefit from an improved level of service – a yard tap connection – with only a small increase in demand at the city level; in other words, water scarcity is not an excuse for limiting services to low-income communities.

To find out more about how we can work together, please contact us at partnerships@wsup.com.

⁴ <https://www.unicef.org.uk/publications/climate-change-in-kenya-focus-on-children/>

⁵ <http://documents.worldbank.org/curated/en/949241495793834492/pdf/115296-REPLACEMENT-PUBLIC-Accra-v5-highres-nocutmarks.pdf>

⁶ <https://www.irishaid.ie/media/irishaid/allwebsitesmedia/30whatwedo/climatechange/Zambia-Country-Climate-Action-Report-2016.pdf>