



ClimDev-Africa

MANAGING WATER SUPPLY UNDER CLIMATE CHANGE: THE CASE FOR SMALL WATER UTILITIES

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Lake Victoria Basin – the context

Basin Area: 283,168 sq.km.

Forest: 9%

Population Density: 160 people per sq.km.

Cropland: 40%

Urban Growth Rate: 4.7%

Cropland Irrigated: 0%

Large Cities: 4

Developed: ~1%

Total Fish Species: 343 (introduced 5)

Shrub: 10%

Fish Endemics: 309

Grassland: 37%

Threatened Fish Species: 26

Barren: 2%

Endemic Bird Areas: 4

Loss of Original Forest: 89%

Deforestation Rate: 7%

Protected Areas: 17%

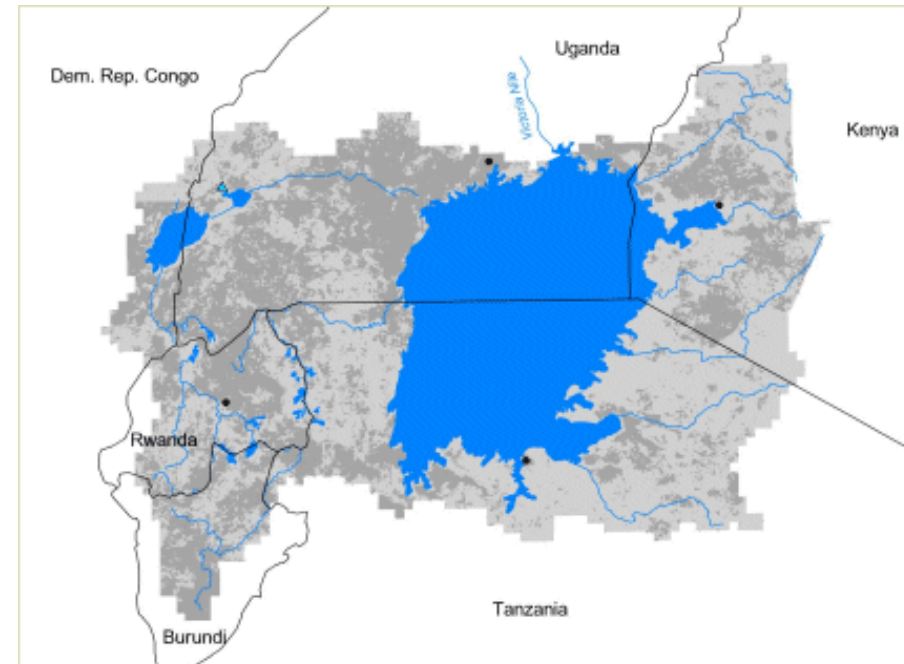
Eroded Area: 8%

Wetlands: 31%

Large Dams: 1

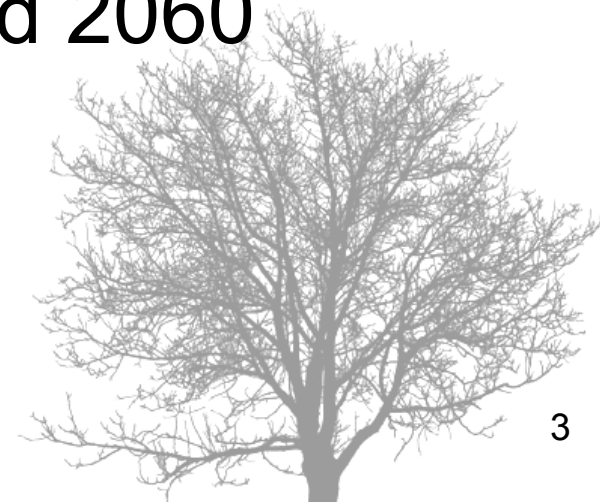
Arid: 26%

Water demand coverage is ~70% in Masaka and Bukoba, and less than 50% in Kisii.



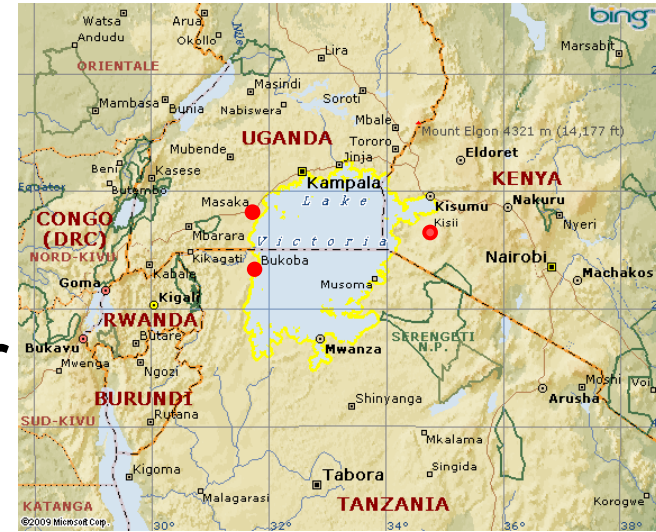
Key Climate Findings

- ↑ - Increase in annual average temperature of $3.2 \pm 1.8^{\circ}$ Celsius by 2100
- ↑ - Increase in net annual rainfall of 7% between 2030 and 2060
- ↑ - Increase in monthly variation of lake water levels between 2030 and 2060



Climate change impacts

- The effects of climate change in the L. Victoria region are pervasive and challenging to overcome. For water utilities in Bukoba (Tanzania), Masaka (Uganda) and Kisii (Kenya) the myriad effects of climate change make it difficult to approach it as a stand-alone issue.





Road where uncontrolled stormwater flows in high rainfall events

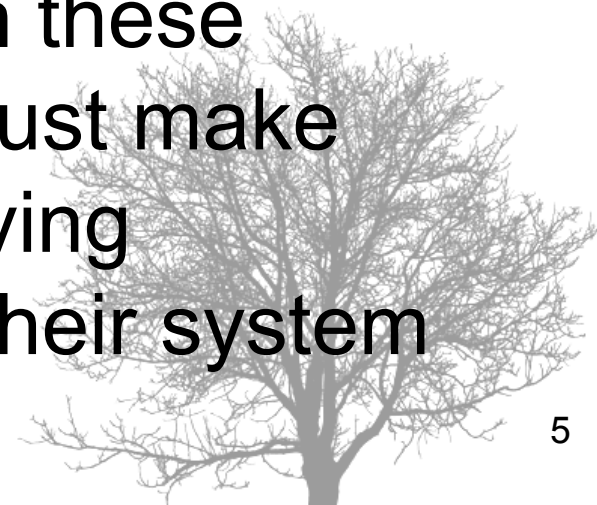


Soil erosion from uncontrolled stormwater run-off

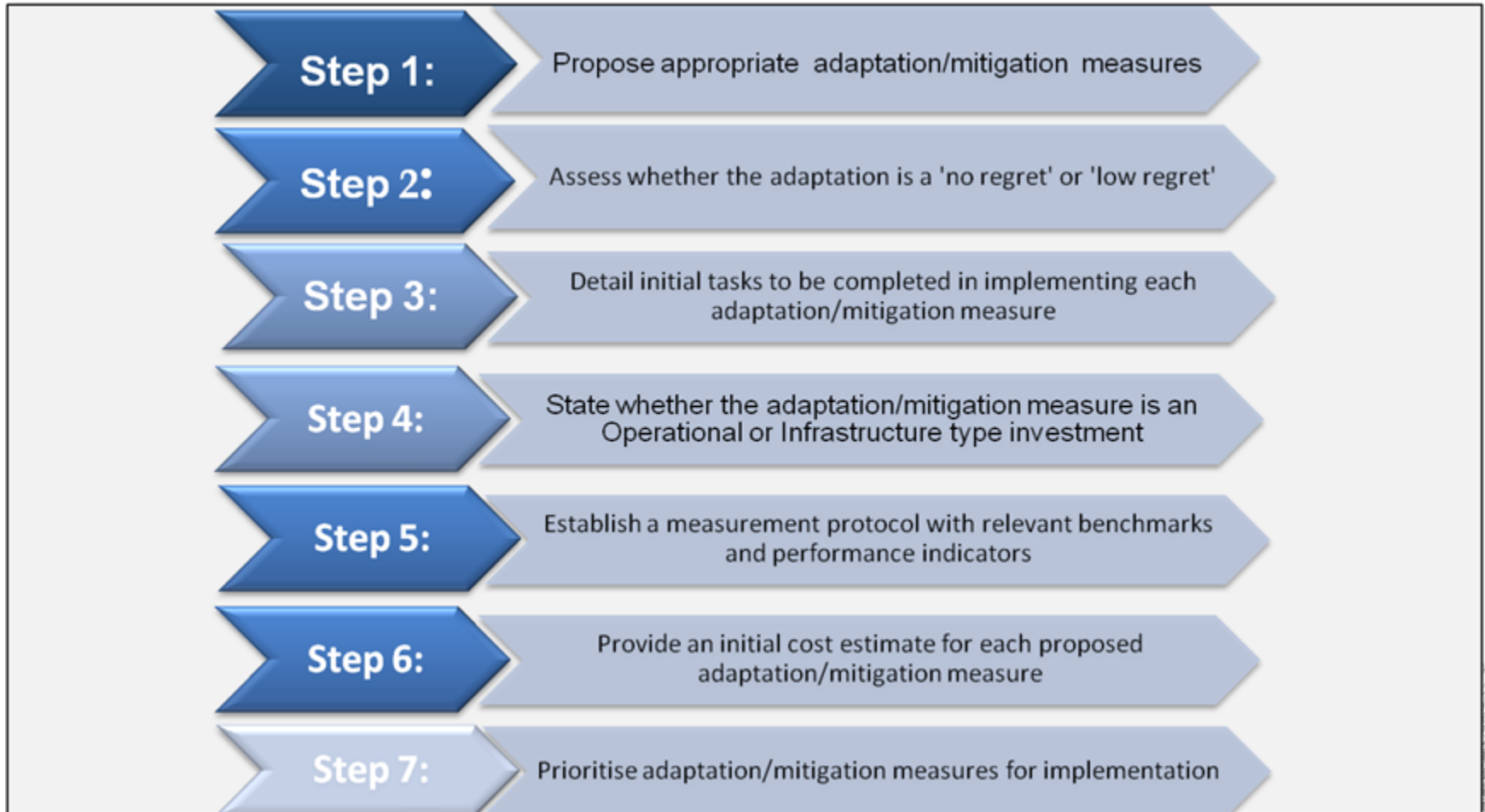


Attempts at stormwater control

- Climate change brings added costs: energy bills are high; extreme weather events damage infrastructure; and degraded water quality challenges the capabilities of water treatment facilities. Faced with these challenges, utility operators must make strategic choices about improving infrastructure and expanding their system to meet water demands.



Adaptation/Mitigation Measures





Thank you! Merci! Asanteni!
Wa Caleykum salaam!

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