FUTURE CLIMATE FOR AFRICA

Impact Stories

Novel climate science used to improve water resources planning in Uganda

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Project:
HyCRISTAL

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IMPACT

The development of quantified estimates of the impacts of climate change on groundwater and surface water resources has important long-term implications for catchment management planning in Uganda. Future water resources assessments and catchment plans will be able to use this information to gain a better understanding of the future balance of water supply and demand. This in turn will support MWE to make more informed interventions to meet any supply-demand deficits.

Assuming the expected model adoption by MWE, the hydrological models developed in HyCRISTAL will have a long-term legacy with MWE and can be used in the future for both long-term strategic planning (assessment of climate change impacts and scenario analysis) and for operational purposes (eg. seasonal forecasting of river flows). The Ugandan catchment management approach is an exemplar of the adoption of integrated water resource management in Africa, giving important exposure to the work of the HyCRISTAL project.

Within MWE, there has been a recent recognition that climate change needs to be better incorporated into catchment management planning, as noted in the updated catchment management planning guideline. This context has given impetus to the HyCRISTAL collaboration between MWE and BGS.

THE CHANGE STORY

HyCRISTAL aims to integrate hydro-climate science into policy decisions for climate resilient infrastructure in East Africa. Within East Africa, HyCRISTAL is working in Uganda to develop use of climate information in water resources planning. Specifically, the British Geological Survey (BGS) is working in partnership with the Ugandan Ministry of Water and Environment (MWE) to improve the use of climate information in catchment management planning.

BGS collaboration with MWE has explored how state of the art climate science can inform catchment resource allocation for both surface water and groundwater.

MWE is in the process of developing the management plan that will set out the measures to be undertaken in the Katonga catchment. BGS and MWE have developed hydrological models to simulate historic observations of river flows in the catchment. The Katonga is a relatively understudied catchment in comparison to others in Uganda, with little information on impacts of climate change on river flows. The outputs of the BGS/MWE hydrological model will help define these measures. BGS has used novel climate model outputs provided by HyCRISTAL climate scientists to drive the model, to help quantify the impacts of climate change on river flows. Building on the Katonga study, BGS and MWE are now regionalizing this approach to quantify climate change impacts on river flows across the Lake Victoria Basin.

HyCRISTAL

FCFA area of change 3:

Increasing the capacities of users/decision making bodies/institutions to appropriately integrate climate information within medium-term decision-making.

LEARNING

The conference was successful in bringing together an international community of stakeholders working on climate change issues in Africa, with over 350 participants from 53 countries. The principal factor for improving the use of climate information in water resources planning was having a strong working relationship with MWE. This allowed BGS and MWE to co-produce the modelling approaches and ensure the outputs would be relevant for water resources planning in Uganda. Within HyCRISTAL, strong links between climate scientists and BGS was also essential to ensure that both the climate information and hydrological models were robust and up to date.

Most interventions in the catchment management planning process are dealing with existing problems in the catchment associated with land use change and environmental degradation (e.g. soil erosion and wetland degradation). Incorporation of estimates of climate change impacts into the planning process strengthens the case for no-regret interventions which address existing issues but also provide climate resilience in the future. Across FCFA, improved links between existing stakeholder plans to deal with current issues and climate change impacts would be of benefit.

FURTHER RESOURCES

Understanding future river flows in Lake Victoria Basin

Future Climate for Africa's Areas of Change are:

1. Enhancing scientific knowledge and prediction of African climate and new understanding of the resulting impact on the robustness of future climate change scenarios.
2. Strengthening scientists' capacities to develop decision-relevant climate information.
3. Increasing the capacities of users/decision making bodies/institutions to appropriately integrate climate information within medium-term decision-making.
4. Approaches that support co-production of decision-relevant climate information and enable channels for on-going dialogue between the providers and users of climate information.
5. Identifying social, political, behavioural and economic barriers to the use of climate information in long-term decision-making, working to elicit solutions which support effective integration of climate risks within decision making across scales, sectors and social groups.
6. Approaches to climate science research and climate-sensitive risks within medium-term decision making which enable active participation and address the specific concerns of women and marginalised groups.

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