

Title: A Citizen Science and Crowdsourcing Framework for Community-Led Water Security Monitoring

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INTRODUCTION

In this research, we propose a novel citizen science approach that fuses crowdsourced citizen data from a **co-designed mobile platform with satellite remote sensing and in-situ sensors**. Our research utilizes a Participatory Action Research approach to co-develop a mobile platform with community participants. This grassroots data will be integrated with in-situ sensor measurements and satellite remote sensing products (e.g., **MODIS, Sentinel-2**) to improve the spatiotemporal accuracy of hydrological risk models that will help to produce **high-resolution** hydro-climate information for the community and develop an integrated hydrological and WASH Risk Index at the village scale.

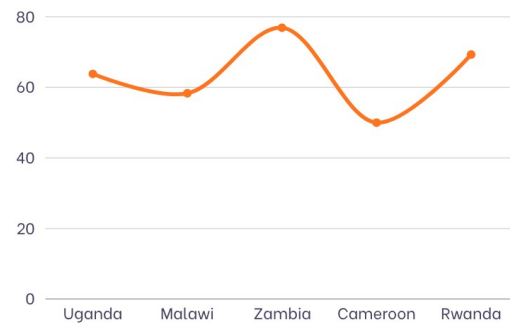
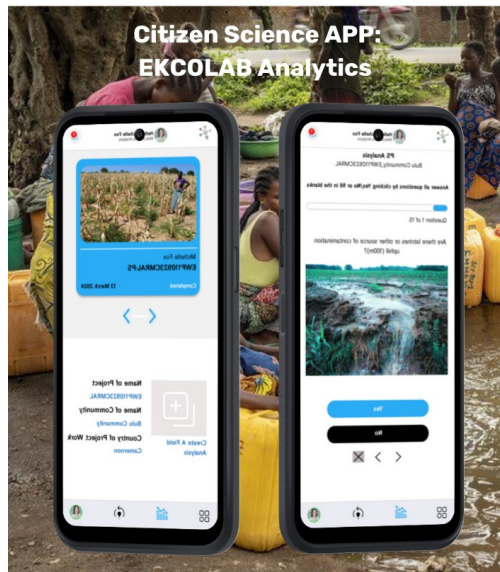


OBJECTIVE

To improve the accuracy of **risk models and create a scalable, community-led system** for managing water resources for **agriculture**, monitoring water quantity and quality in climate-vulnerable regions.

RESULTS/FINDINGS

Data and research from citizen data shows that some rural communities in Africa have **high risk to water water contamination thereby increasing health challenges**. The maximum risk index is **76.9% in Zambia**. After our findings, there was national cholera outbreak in Zambia in December 2023.

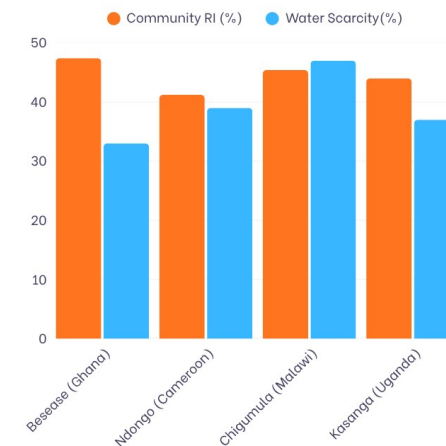


Max Risk Per Survey Area Across 5 African Countries



Average Max RI (Index) Across All Countries

Title: Citizen Outputs for 2023



Title: Comparison of RI and Water Scarcity: Citizen Outputs for 2025 (76 data points in 4 communities, 4 Countries)