



NILE BASIN INITIATIVE
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THE KAGERA AQUIFER **GROUNDWATER PROJECT**

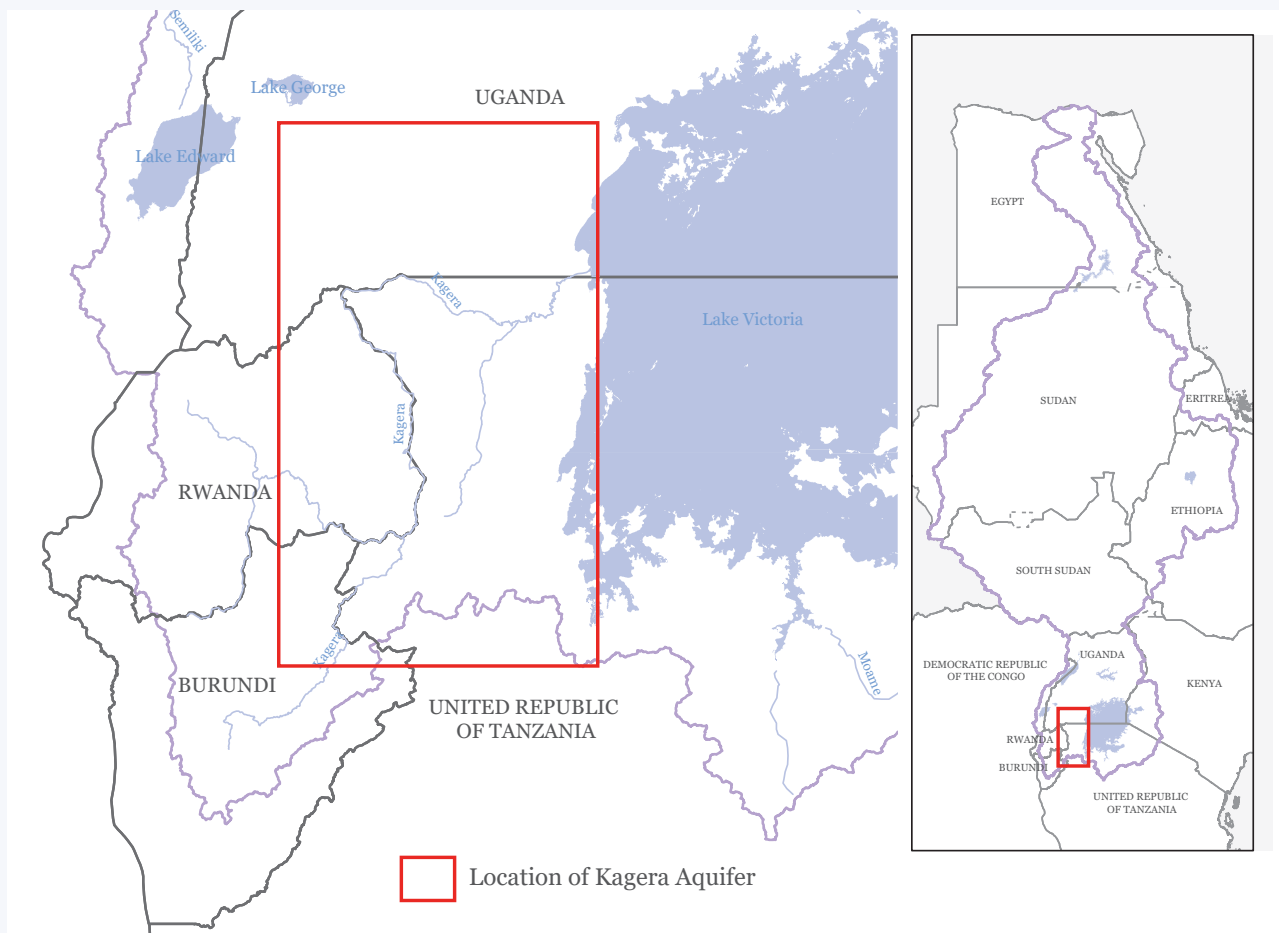
THE KEGRA AQUIFER

The Kagera river Basin forms the headwater of the river Nile. The river is the largest tributary of Lake Victoria. The Kagera shared aquifer is one of the three transboundary aquifers selected as a case study under the Nile Basin Initiative (NBI)'s Groundwater Project – ‘Enhancing Conjunctive Management of Surface Water and Groundwater Resources in Selected Transboundary Aquifers: Case Study for selected Shared Groundwater Bodies in the Nile Basin. The other two are Mt Elgon and Gedaref-Adigrat aquifers respectively.

The Kagera aquifer is shared by Burundi, Rwanda, Tanzania and Uganda.

Total aquifer area: 5,800 Km²

Aquifer area in the Nile Basin: 5,218 km² (90%)



Management issues and threats/problems to be addressed by the project

- * Lack of harmonised monitoring systems
- * Absence of harmonised working groundwater database
- * Insufficient knowledge of the aquifer including its extent, sustainable yield and trends
- * Salinization owing to increase in evaporation and water logging
- * Vulnerability to extensive abstraction owing to small storage capacity of basement aquifers
- * Degradation of groundwater dependent ecosystems (wetlands and lakes)
- * Microbial contamination of drinking water sources
- * Poor water quality as a result of contamination by Uranium

Barriers to effective utilisation and protection to be addressed by the project

- * Insufficient knowledge on the aquifer system and its connectivity to surface waters
- * Lack of governance mechanism for shared aquifers
- * Policy differences among Burundi, Rwanda, Tanzania and Uganda or different administrative jurisdictions in the aquifer system
- * Lack of appropriate policies, legislation and management institutions
- * Capacity gap to address technical groundwater issues at the national and regional levels
- * Low awareness and sensitization among the relevant institutions and the public at large on the environmental issues and the threats of climate change on the ecosystem and biodiversity
- * Improve water governance through the development of action plans on groundwater resources governance, management and protection, for inclusion in national, sub-basin frameworks: – also including consideration of conjunctive usage of surface and ground water resources
- * Improve policy legislation
- * Targeted pilot projects to explore conjunctive use of surface and ground waters and links to biodiversity conservation and climate change adaptation
- * Improve operational and technical capacity through targeted local, national and sub regional trainings as well as through South-South and North-South exchange programmes and awareness raising workshops incorporating women and marginalised groups

Project focus areas

- * Undertake studies to generate knowledge and enhance understanding about availability of groundwater resources in the Kagera aquifer's
- * Communication and awareness raising about the benefits, challenges, opportunities of groundwater as well as the environmental issues and the threats of climate change on the ecosystem and biodiversity

Relevance of the project to national development priorities

Burundi	<p>The project is supportive of the various regulations and practices such as:</p> <p>a) National guide for determining perimeters for the protection of water catchments intended for human consumption, August 2014.</p> <p>b) The decree No 100/185- Procedures for determining and setting up perimeters for the protection of water catchments intended for human consumption.</p> <p>c) Ministerial Order No. 770/1590 which lays down the technical rules and requirements for the issue of the authorization of drilling, well digging and sounding exercises for the purpose of research, abstraction or exploitation of groundwater.</p>
Rwanda	<p>The National Water Resources Master Plan (2015-2040) incorporates groundwater aspect.</p> <p>Rwanda intends to ensure a better understanding of the trends in groundwater use and availability for the future Annual Water Status Reports through investigations supported by installation of groundwater monitoring infrastructures, inventorying groundwater wells and geophysical.</p>
Tanzania	<p>The Water Resources Management Act 2009 requires the classification of water resources considering both surface and groundwater sources.</p> <p>The National Five-Year Development Plan 2016/17 – 2020/21, “Nurturing Industrialization for Economic Transformation and Human Development” plans to increase groundwater development.</p>
Uganda	<p>The Water Policy, Water Act and Water Resources Regulations have clear provisions for the management of surface and groundwater.</p>

Expected benefits

- * Reduced demand through the application of measures to use the aquifer's water resources more efficiently
- * Reduced pressure on other national and transboundary water resources where available (e.g. River Nile)
- * Flow of data including on water levels, abstraction rates and water quality
- * Assessment and sensitivity to the fragile ecosystem
- * Experience sharing on common issues
- * Enhanced capacity of personnel from Burundi, Rwanda, Tanzania and Uganda in multi-disciplinary fields
- * Improved awareness among the relevant institutions and the public at large on the environmental issues and the threats of climate change on the ecosystem and biodiversity
- * Better institutional and legal system to achieve a rational management of the shared groundwater resources
- * Suitable agricultural practices and water conservation technique
- * Environmental protection particularly in the groundwater recharge zones
- * Contribution to other multi-lateral environmental agreements including the RAMSAR Convention, Agreements on the Conservation of African-Eurasian Migratory Water Birds
- * Contribution to gender equality and equity

Groundwater project - Background and rationale

The importance of groundwater in the Nile Basin countries is reflected in the proportion of population (>70% of rural population) that is dependent on it in many parts of the Nile Basin. Groundwater is one of the most important sources of drinking water for people as well as livestock and wildlife watering. There is an increasing usage of groundwater for other economic activities including in irrigation agriculture, fisheries, mining, industries, etc.

The resource also plays a key role in addressing the Sustainable Development Goal 6 targets for drinking water and accessed through multiple delivery mechanisms (e.g., boreholes, springs, reticulated systems, dug wells) has a vital role to play.

Groundwater holds the promise of closing the growing gap between water demand and water supply as well as buffering the effects of climate change and variability in the Nile Basin.

Regardless of its importance and the promise it holds however, the resource is under human or naturally induced climatic and non-climatic pressures. There is ample evidence that groundwater is under threat from unsustainable exploitation; climate change (affecting aquifer water levels, recharge and changes in groundwater storage), and pollution (urban - e.g., heavy metals and sanitation contaminants pollution and issues associated with high fluorides or salinization). These in turn are impacting safe water availability, causing changes in quantity and quality of groundwater-dependent ecosystems and affecting groundwater-surface water interaction.

The threats on transboundary aquifers are more severe because of lack of common groundwater governance and management mechanisms.

The pressure is felt more in the small transboundary constellation of aquifers of critical local importance such as the Mt Elgon (shared between Kenya and Uganda), Kagera (shared among Burundi, Rwanda Tanzania and Uganda), and Gedaref-Adigrat (shared between Ethiopia and The Sudan).

Overall project objective

To strengthen the knowledge base, capacity and cross-border institutional mechanisms for sustainable use and management of selected transboundary aquifers in the Nile Equatorial Lakes and Eastern Nile sub-basins.

Specific project objectives

- * Improve knowledge and understanding of groundwater resources in the Nile Basin;
- * Strengthen overall water resources management nationally and basin-wide;
- * Respond to climate change impacts through effective risk-reduction adaptation measures - e.g. conjunctive use and management of surface water and groundwater;
- * Ensure a healthy ecosystem and strengthened livelihood.

Quick Facts

Executing agencies

- * Nile Basin Initiative (Nile-SEC, ENTRO and NELSAP CU)
- * United Nations Development Program (UNDP)
- * The Geographic Institute of Burundi (IGEBU), Ministry of Environment and Livestock – Burundi
- * Groundwater Directorate under the Basin Development Authority, Ministry of Water, Irrigation and Energy - Ethiopia
- * Transboundary Waters Department, Ministry of Water, Sanitation and Irrigation - Kenya
- * Rwanda Water and Forestry Authority, Ministry of Environment - Rwanda
- * Water Resources Technical Organ (WRTO), Ministry of Water, Irrigation and Electricity – The Sudan
- * Directorate of Water Resources under Ministry of Water - Tanzania
- * Directorate of Water Resources Management, Ministry of Water and Environment – Uganda

Project Duration: 2020 -2025

Overall Project Budget: USD 31,179,452

Project financing:



Burundi



Ethiopia



Kenya



Rwanda



The Sudan



Tanzania



Uganda

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