NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

PROJECT TITLE: ENHANCING CONJUNCTIVE MANAGEMENT OF SURFACE AND GROUNDWATER RESOURCES IN SELECTED TRANS-BOUNDARY AQUIFERS

CASE STUDY FOR SELECTED SHARED GROUNDWATER BODIES IN THE NILE

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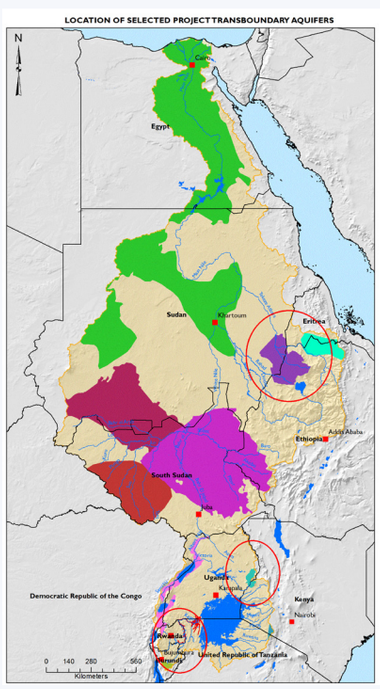
Reliance on groundwater is rapidly increasing due to the increased demand over water supply. There is ample evidence that groundwater recharge in the Nile basin is under threat. This is partly attributed to climate change, high rainfall variability, and land use/land cover changes leading to declining amount of surface/ground water interaction in different areas. Therefore Participatory approach management involving all stakeholders is es- sential in protecting groundwater resources

Three Shared Aquifers: Three aquifer areas have been chosen for the current intervention, namely the **Kagera** aquifer shared among Burundi, Rwanda, Tanzania and Uganda; the **Mt Elgon** aquifer shared between Kenya and Uganda; and the **Gedaref-Adigrat** aquifer shared between Ethiopia and Sudan. The aquifers are located in diverse ecological zones ranging between arid, semi-arid and tropical. This assignment will aim at fostering current mutual understanding for the groundwater flow regime and mechanism of recharge, policies, management systems, community engagement and sustainable development plans for effective utilization and protection from over abstraction, depletion and pollution.



Aquifer area	Management issues and threats to be addressed
Kagera aquifer	• Lack of harmonized monitoring systems • Lack of harmonized working groundwater database • Lack of 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 the result of contamination by Uranium
Gedaref Adigrat aquifer	• Lack of monitoring systems and standardized database • Demand (from non conventional water use sectors- e.g. mining, irrigation) rapidly catching up with available renew able groundwater resource, threaten ing water availability • Low degree of natural recharge owing to low rainfall in the area • Conflict over scarce water sources • Unsafe sources (unprotected hand dug wells, river bed excavations, haffirs) widespread source of domestic water in both countries • Water level decline in the aquifers and water quality degradation (mainly pollution from fertilizers and salinization)
Mt Elgon Aquifer	• Water accessibility and availability is diminishing particularly in the lower pastoral and agro-pastoral zones for both domestic and livestock consumption in both Uganda and Kenya. • Long queues for water are a permanent feature during dry season in the drier lowland areas and conflicts over existing water resources are common. • There have been changes in vegetation due to increase in the human population resulting in increasing conflicts in the area. • Based on an analysis of Mount Elgon, climate change is expected to have a number of impacts including: more frequent, prolonged, intense, and extensive floods and droughts; increased intensity of runoff; reduced or less reliable streamflow; warmer streams/rivers; reduced groundwater recharge and groundwater levels,and; increased water stress

With the financial support of the **Global Environment Facility (GEF)** and in collaboration with the **United Nations Development Program (UNDP)**, the **Nile-SEC** will implement its first groundwater study project with the objective of enhancing knowledge and capacity for sustainable use and management of trans-boundary aquifers and aquifers of regional significance in the Nile Basin.

Project objective

To enhance knowledge and capacity for sustainable use and management of trans-boundary aquifers and aquifers of regional significance in the Nile Basin. Reliance on groundwater is rapidly increasing due to the increased demand over water supply. There is ample evidence that groundwater recharge in the Nile basin is under threat. This is partly attributed to climate change, high rainfall variability, and land use/land cover changes leading to declining amount of surface/ground water interaction in different areas. Therefore Participatory approach management involving all stakeholders is essential in protecting groundwater resources

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Project components

Component 1: Furthering knowledge and understanding about availability of groundwater resources in the selected aquifers underlying watersheds in the sub-basins of the Eastern Nile and the Nile Equatorial Lakes.

Component 2: Development of action plans on groundwater resources governance, management, and pro-tection for inclusion in national, sub-basin frameworks: – also including consideration of surface water/groundwater resources conjunctive use.

Component 3: Targeted pilot projects to explore conjunctive use of surface and ground waters, and links to biodiversity conservation and climate change adaptation.

Component 4: Further strengthening capacity to address groundwater issues at the national and regional levels.

Component 5: Communications and awareness raising.

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Burundi Ethiopia Kenya Rwanda The Sudan Tanzania Uganda