PhD Candidate in Hydrogeochemistry
Department of Earth and Climate Sciences, University of Nairobi

The University of Nairobi, in partnership with the Geological Survey of Denmark and Greenland as the project lead, and other collaborators – Turkana University College, Water Resources Authority, Regional Centre on Groundwater Resources, University of Copenhagen and Aarhus University, is implementing a project entitled: *Groundwater fluoride and salinity vs. equity in arid regions: Obtaining inclusive and sustainable resource management (GEM)*.

GEM is an interdisciplinary project that aims to enhance groundwater resource management for climate change resilience and adaptation in arid regions. The main project objectives are: 1) to understand drivers of groundwater fluoride concentrations and salinity under climate change and increasing groundwater demand, and 2) to explore equity in groundwater resource availability and quality and its impact on the local communities in Turkana County. The research is funded by the Ministry of Foreign Affairs of Denmark and managed by the Danida Fellowship Centre.

We are looking for a highly motivated PhD candidate that will generate novel knowledge on hydrogeological and hydrogeochemical processes influencing fluoride concentrations and salinity in alluvial aquifers under groundwater-surface water exchange. The research will be conducted in aquifers interacting with the Turkwel River and Turkana Lake in the areas of Lodwar and Eliye Springs. During the three-and-a-half-year study you will:

- Conduct field surveys, including geophysical mapping, monitoring of water levels and water quality, and investigation of hydrogeological conditions and groundwater-surface water interactions.
- Conduct fluoride adsorption and leaching experiments on aquifer sediments.
- Develop conceptual hydrogeological and hydrogeochemical models.
- Model water flow in the context of groundwater-surface water interactions using e.g. MODFLOW6.
- Model fluoride release and transport under varying salinity and hydrogeological conditions.
- Undertake an external PhD stay in Denmark.
- Publish at least three papers in international peer-reviewed journals.

You are also expected to collaborate actively with the project research team to achieve the project goals, and to disseminate research outputs to stakeholders and the broader research community through conferences and stakeholder meetings.

The ideal candidate is an early-career researcher with a background in aquatic chemistry or hydrogeology, and a strong interest in groundwater flow and reactive transport modeling to address environmental problems. The candidate should also have excellent analytical, communication, and writing skills, as well as a willingness to work in a diverse, multicultural team, and conduct field and laboratory work.

Requirements

- MSc degree in Hydrogeology, Hydrology, Geology, Geosciences or closely related degree in Earth or Environmental Sciences with strong geology components.
- Strong skills in hydrogeological and chemical data interpretation.
- Willingness to travel for work for extended periods to Turkana County and Denmark.
- Ability to work independently, as well as within a multidisciplinary research team.
- Excellent written and spoken English skills.

Additional Skills

- Experience in flow and/or hydrogeochemical modeling is an advantage.
- Experience in field and laboratory work is an advantage, though not required.

Terms of Employment

This is **a full-time PhD position** with a duration of three-and-a-half-years, starting on 1st September 2025 and ending in March 2029 (42 months). The candidate is expected to submit and successfully defend the PhD thesis within this period.

The PhD student will be enrolled at the Department of Earth and Climate Sciences, Faculty of Science and Technology, University of Nairobi, under the supervision of Professor Daniel Olago. The co-supervisor will be Dr. Jolanta Kazmierczak, Senior Researcher at the Geological Survey of Denmark and Greenland.

A monthly stipend will be paid to the student following successful provisional admission to the PhD programme. Full admission to the PhD programme will be granted upon the student presenting an approved research proposal - this process should be completed within the first six months of the programme. All research and travel expenses will be covered by the project.

Application Information

Interested applicants are invited to apply with an application containing 1) a one-page motivation letter, 2) a CV summarizing academic and professional experience, and publications, if any (maximum four pages), and 3) contact information of two referees. **The application deadline is midnight 6th August 2025**.

Applications should be sent to the following email: icca@uonbi.ac.ke with the subject heading: "**PhD Candidate in Hydrogeochemistry – Applicants Name"** and should be copied to jka@geus.dk. **Important Note!** The motivation letter, CV and contact information of two referees should be compiled in one pdf.

Women are strongly encouraged to apply.

For further information, please contact Professor Daniel Olago (dolago@uonbi.ac.ke) or Dr. Jolanta Kazmierczak (jka@geus.dk).