Fully funded PhD scholarship in water resources engineering and management: GIS, remote sensing, and hydrological modelling for sustainable water resource management

Part of the Ethio-Nature Project

Project Title: *Ethio-Nature: Enhancing groundwater resource management through remote sensing and ecohydrological nature-based solutions in Ethiopia*
Host Institution: Hawassa University, Institute of Technology
Program: PhD in water resources engineering and management

Project background

This PhD opportunity is embedded within the Ethio-Nature project, a multidisciplinary research initiative focused on strengthening groundwater resource management using remote sensing, GIS, and nature-based solutions. The project is designed to support evidence-based water resources planning in response to climate variability and increasing water demands in Ethiopia. The selected candidate will join an active research team working in the Lake Hawassa catchment, a nationally significant and ecologically sensitive area.

Research focus

The successful candidate will:

- Investigate surface water–groundwater interactions, emphasizing the identification of groundwater recharge areas and climate-informed water balance assessments
- Use satellite remote sensing data (Landsat, Sentinel, Spot, GRACE) and GIS techniques to assess spatial-temporal changes in surface water and groundwater resources
- Develop and apply hydrological models such as SWAT, MODFLOW, HYDRUS, or machine learning frameworks to simulate hydrological processes and evaluate nature-based interventions
- Integrate field observations, climate datasets, and geospatial tools for comprehensive water resources evaluation
- Disseminate findings through peer-reviewed publications and international conferences to contribute to both science and policy

Host institution

- The PhD will be hosted by Hawassa University, Institute of Technology, with academic and technical collaboration from Aarhus University (Denmark) and other local and international partners.

Eligibility Criteria

- Ok

Applicants must have:

Tafesse Matewos Karo (PhD)
Research & Collaboration
Vice President

- A Master's degree in Water Resources Engineering, Environmental Engineering, Hydrology, or GIS and Remote Sensing for Water and Environment
- At least one publication related to GIS and/or remote sensing for water resource assessment
- Demonstrated skills in:
    - GIS software (e.g., ArcGIS, QGIS)
    - Remote sensing tools (e.g., ENVI, Google Earth Engine)
    - Hydrological/hydraulic modelling (e.g., SWAT, MODFLOW, HYDRUS)
- Strong written and spoken English proficiency
- A valid NGAT (National Graduate Admission Test) score
- Admission/enrolment at Hawassa University

Financial support

The scholarship covers:

- Full tuition fees
- Monthly stipend for living expenses
- Research costs (including fieldwork, travel, and computing resources)
- A fully funded 3-month research stay at Aarhus University (Denmark) for training, knowledge exchange, and capacity building
- Additional targeted support for applicants with specific needs, including caregiving responsibilities
- An opportunity for a postdoctoral position upon successful completion of the PhD, valid until the end of March 2030.

How to apply

Please send the following documents in a single PDF to:

- mulugetadadi@hu.edu.et
- Email subject line: "PhD Application – Ethio-Nature Project"

Application documents:

1. Curriculum Vitae (CV) with academic background and publications
2. Motivation letter (max. 2 pages) describing research interests, relevant experience, and fit with the Ethio-Nature project
3. Academic transcripts (BSc and MSc; unofficial copies accepted initially)
4. Contact details of two academic referees
5. NGAT exam result

Diversity and inclusion

We strongly encourage applications from women and individuals from underrepresented backgrounds to promote inclusive research and equitable capacity building in water resources management.

Deadline: July 15, 2015

Tafesse Matewos Karo (PhD)
Research & Collaboration
Vice President