

## Characterization of different water sources in the Lewa region, Kenya

### Context and objectives

Over the last decades, various hydrological and land use investigations have been carried on in the Ewaso Ng'iro Basin, north of Mount Kenya. This water stressed area has been experiencing surface water abstractions and increasing ground water and spring water use. However, too little is known about the hydrogeological conditions to manage the system sustainably. There are also widespread concerns that the significant abstraction of groundwater will damage the ecosystems in the lower parts of the basin.

Since 2017, three MSc studies have been carried out, with the goal to analyse the role of aquifers and the relation to spring and river water flows. The area between the Samburu highlands and the Laikipia-Mt. Kenya highlands - the Lewa Conservancy – was at the fringe of the investigation area so far. Towards the end of 2022, an investigation was started in collaboration with Rural Focus, CETRAD and the University of Neuchatel to do a detailed hydrogeological survey. In early 2023, samples for rivers, springs and groundwater were collected and sent for chemical and isotopic analysis to Neuchatel. Additionally, pointwise monitoring of the rivers, springs and groundwater tables was initiated. However, important knowledge gaps remain, both in terms of field data, as well as concerning the conceptual model of the system. The goal of this master thesis is to complete the available data sets in an additional and targeted field campaign to address open questions of the conceptual hydrogeological model.

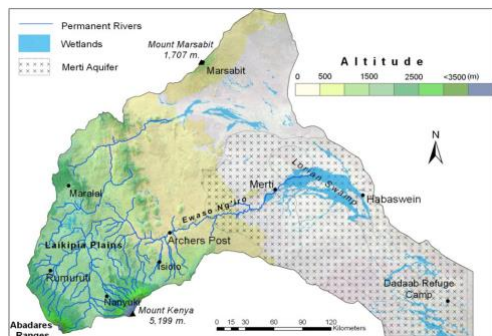
### Methodology

A broad range of field methods will be employed, covering hydrological, hydrochemical, isotopic and microbial parameters, as well as remote sensing.

An application to the fonds de donation of UniNe is required to cover the travel cost. This application will be written by you with our support.

### Supervision and collaboration

The project will be supervised by Philip Brunner, Daniel Hunkeler and Hanspeter Liniger (UniBern), as well as with partners in Kenya



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