

Background

Groundwater resources are of paramount importance in farming activities especially in the semi-arid climate of Southern Africa. Rainfall in South Africa in particular is minimal and only seasonal. This leaves groundwater resources as the most reliable source of water for farming activities as surface water resources are usually ephemeral.

As groundwater resources are increasingly developed and impacted by human development, understanding the sustainability of its use and implicitly the renewability of this resource is fundamental. Groundwater recharge processes (defined as the downward flow of water reaching the water table) and locations govern the replenishment of groundwater systems (also called aquifers). Recharge is a critical part of the overall water budget and is a part whose enhancement enables adequacy of groundwater resources particularly for farming activities. Suffice it to say that groundwater recharge study is essential for the betterment of farming activities in the Limpopo River Basin, which is reliant on farming activities. As the largest source of water and with year-round availability, groundwater is looked upon as a part of the solution to water security as well as food security in the Basin.

Against this background, the GRECHLIM project (2016-2018) addresses the most prevalent groundwater contexts in the catchment and the tools for better understanding and managing them sustainably and equitably, in order to enhance the water and food security for the majority of poor people in the Limpopo River Basin. The GRECHLIM project will investigate the groundwater replenishment and sustainable groundwater management options in the Limpopo River Basin across a range of different climatic, geological and developmental settings.



Groundwater use by rural community in Zimbabwe

Groundwater Recharge in the Limpopo River Basin (GRECHLIM)

Overall goal:

The project will contribute to the informed, sustainable, equitable and integrated development, use and management of groundwater resources in the Limpopo River Basin

Specific objectives:

To improve the understanding and quantitative assessment of groundwater recharge in the Basin

To increase the research capacity in South Africa and Botswana to assess groundwater renewability and sustainable use in the Basin

To provide guidance to policies regarding sustainable groundwater use, development and management in the Basin

To pursue strategic partnerships with stakeholders and entities involved in water resources management in the Limpopo River Basin

Development Impacts

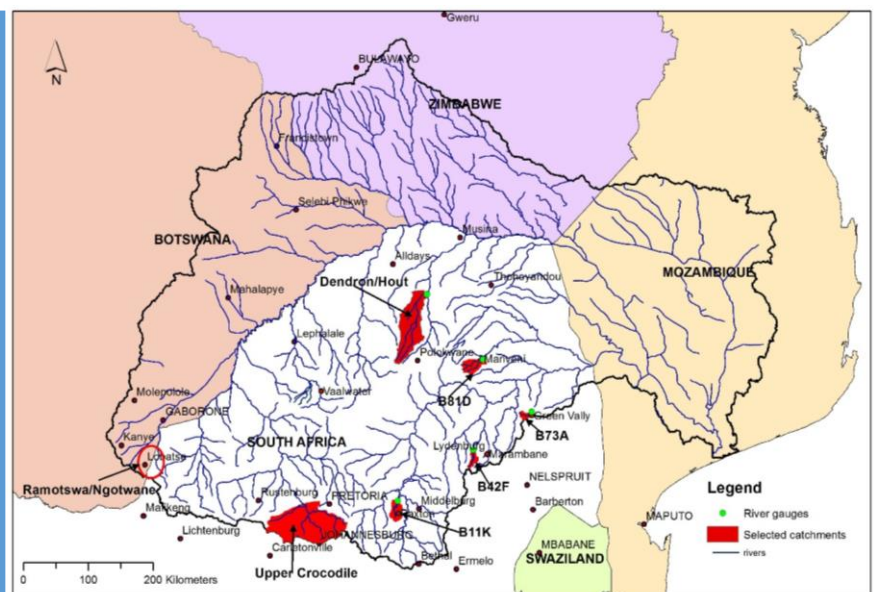
The key development impact of the GRECHLIM Project is to increase the capacity of young scientists as well as local and national authorities to assess groundwater recharge from applied field investigations carried out as part of the project and linked to ongoing initiatives

GRECHLIM collaborating partners and key stakeholders:

- International Water Management Institute, Pretoria, South Africa - project lead
- University of the Witwatersrand, Johannesburg, South Africa - project lead
- United States Geological Survey (USGS), USA. Richard Healy - project advisor
- University of Texas at Austin, USA. Bridget Scanlon - project advisor
- Department of Water and Sanitation, South Africa - uptake of training, results, methods, and recommendations
- Department of Water Affairs, Botswana - uptake of training, results, methods, and recommendations
- Limpopo Watercourse Commission - main stakeholder at the international level
- Water Research Commission in South Africa - dissemination of results
- Southern African Development Community Groundwater Management Institute (SADC-GMI) - to complement and contribute to their components on sustainable groundwater development and management and transboundary aquifer management under the Regional Strategic Action Plan on Integrated Water Resources Development and Management (SADC, 2016-2020).

Study Areas:

The project is structured around field investigations in a number of study sites in the Limpopo River Basin. The study sites include Dendron/Hout catchment, Ramotswa/Ngotswane catchment, the Upper Crocodile River Catchment, and several smaller quaternary headwater catchments. These areas represent different relevant issues related to recharge assessments, groundwater use and management.



Study sites in the Limpopo River Basin

Project Coordinators:

Prof Tamiru Abiye, School of Geosciences
University of Witwatersrand
E-mail: tamiru.abiye@wits.ac.za
Tel: +27 11 717 6586

Dr Karen G. Villholth, IWMI, Principal Researcher, Sub-Theme Leader (Groundwater and Underground Solutions)
E-mail: k.villholth@cgiar.org
Tel: +27 12 845 9100



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