



Technical Assistance: A groundwater management plan to support climate change adaptation strategies

Location: Drought-prone regions of Zambia

Solution: Advanced aquifer mapping to improve groundwater management, enhance climate resilience, and support sustainable water resource development

UNEP CTCN grant: USD 224,990



An aquifer in Zambia. © UNEP-CTCN

In Zambia, increasing droughts have worsened water scarcity. To tackle this, a project is exploring groundwater mapping technologies that will enable data gathering and analysis towards advanced aquifer modelling. The goal is to develop a groundwater management plan that monitors groundwater, strengthens water security and resilience during droughts, and builds capacity.



Objectives

- The primary objective is to conduct aquifer mapping and water balance studies in selected areas of Zambia, providing the data necessary to improve groundwater management.
- With better understanding of groundwater resources, the project supports sustainable water use and helps mitigate the negative impact of climate change on water availability.



Social Impact

- The project supported a total of 400 beneficiaries, including 40 direct beneficiaries and 360 indirect beneficiaries.
- Among both direct and indirect beneficiaries, 25% were women, and 15% were youth.
- Improved water resource management through this project has significantly enhanced agricultural productivity, health, and livelihoods, with a strong emphasis on gender equality and youth involvement.



Adaptation Impact

- **Enhanced Groundwater Management and Drought Resilience:** The project aims to support Zambia in managing its groundwater resources by increasing the available groundwater data. This increased evidence base supports better decision-making, planning and resource allocation, particularly in drought-prone areas, thereby increasing the resilience of local communities to climate variability.
- **Sustainable Water Resource Management:** By integrating advanced mapping and modelling techniques, the project supports the sustainable management of both surface and groundwater resources, ensuring that water is available for future generations.
- **Improved Decision-Making:** The project provides government agencies and water authorities with the tools and knowledge needed to make informed decisions about water resource management, helping to reduce the risks associated with water scarcity.



Other Co-Benefits

- Increased agricultural productivity.
- Reduced economic loss induced by droughts.
- Strengthened institutional capacity for water resource management.



Innovation & Technology

- **Advanced Geophysical Tools:** Use of state-of-the-art geophysical equipment to identify and characterise aquifers, providing detailed information on groundwater availability.
- **Water Balance Modeling:** Use of advanced modelling techniques to assess the balance between water supply and demand, supporting sustainable water management decisions.



Replication Potential

- The project demonstrates a high replication potential where stakeholders wish to improve groundwater management practices.
- The project demonstrates how advanced aquifer mapping technologies and water balance studies can provide data necessary for decision-making on water management.

Key Figures

- USD 224,990 project budget
- 400 people benefitted in total
- 25 government officers participated in project's training sessions
- 30 stakeholders participated in consultations held as part of the project
- The project contributed to the following SDGs:

