



Kenya Groundwater Mapping Programme

Unlocking the potential of groundwater

To combat water scarcity for resilience and sustainable livelihood



The shores of Lake Turkana, the largest perennial desert lake in Africa. Scientists believe that in just a few decades, it will be reduced to a remnant of puddles. ©UNESCO/Massetera Shabeta

Water scarcity involving water stress, water shortage, and water crisis is becoming the defining international crisis of the twenty-first century. Water beneath the earth's surface comprises over 97 per cent of the world's readily accessible freshwater. In Kenya, the full potential of groundwater is unknown. A lack of scientific information about location and volumes indicate only an estimated 5 per cent of the overall national water endowment. Meanwhile, the intensifying use and demand for water resource in Kenya reveals its strategic importance. Limited understanding of groundwater resources and inadequate monitoring systems, rainfall variability, seasonality of streams and lack of large reservoirs for water storage, all prove to hinder development. An intervention in groundwater can bring tangible change.

About GRIDMAP

In 2012 the urgent need to combat water scarcity in the drought prone region in east Africa following the 2011 drought in Horn of Africa, pressed UNESCO with a consortium of international, regional, national and local actors to launch the Groundwater Resources Investigation for Drought Mitigation in Africa Programme (GRIDMAP).

Turkana Groundwater Findings

In 2013, the first large scale GRIDMAP survey of groundwater resources in Kenya was conducted by UNESCO with funding from Japan in central Turkana County. The assessment identified groundwater resources in a 36,000 km² zone that includes the towns of Lodwar and Lokichogio, the Kakuma Refugee Camp and hundreds of thousands of pastoralist Turkana communities. Preliminary findings identified easy-to-reach shallow aquifers and five large deep reserves. The aquifers of Lodwar and Lotikipi were also confirmed through exploratory drilling.

Of Kenya's 41 million inhabitants, 17 million lack access to safe water and 28 million do not have adequate sanitation.



Groundwater map of northeast Kenya with aquifer-level and elevation points. ©GRIDMAP/UNESCO

Benefits

The maps, tools and information derived from the findings are now enabling water service providers in Turkana to tap into local resources with ease. Lodwar aquifer has been already tapped for supply to Lodwar city.

Since the introduction of groundwater maps to central Turkana, borehole drilling successes have increased for partners on the ground. This enables a significant cost reduction of groundwater development.

Central and county government authorities can also incorporate the new information to make strategic development decisions. By improving the knowledge base of Kenya's groundwater wealth as well as the skills to harness it, the initiative brings improved access to water for emergency situations and for long term needs as response to climate change.



GRIDMAP image produced in the same area shows the precise location and potential of both shallow and deep groundwater. ©UNESCO



GRIDMAP borehole drilling site: Revitalising community members gather to see the water extraction process. ©UNESCO



Kenya Groundwater Mapping Programme Unesco

Michael Hoelscher



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Table of Contents Kenya Groundwater Mapping Programme Unesco

1. Understanding the eBook Kenya Groundwater Mapping Programme Unesco
 - The Rise of Digital Reading Kenya Groundwater Mapping Programme Unesco
 - Advantages of eBooks Over Traditional Books
2. Identifying Kenya Groundwater Mapping Programme Unesco
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Kenya Groundwater Mapping Programme Unesco
 - User-Friendly Interface
4. Exploring eBook Recommendations from Kenya Groundwater Mapping Programme Unesco
 - Personalized Recommendations
 - Kenya Groundwater Mapping Programme Unesco User Reviews and Ratings
 - Kenya Groundwater Mapping Programme Unesco and Bestseller Lists
5. Accessing Kenya Groundwater Mapping Programme Unesco Free and Paid eBooks
 - Kenya Groundwater Mapping Programme Unesco Public Domain eBooks
 - Kenya Groundwater Mapping Programme Unesco eBook Subscription Services
 - Kenya Groundwater Mapping Programme Unesco Budget-Friendly Options
6. Navigating Kenya Groundwater Mapping Programme Unesco eBook Formats

- ePub, PDF, MOBI, and More
 - Kenya Groundwater Mapping Programme Unesco Compatibility with Devices
 - Kenya Groundwater Mapping Programme Unesco Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Kenya Groundwater Mapping Programme Unesco
 - Highlighting and Note-Taking Kenya Groundwater Mapping Programme Unesco
 - Interactive Elements Kenya Groundwater Mapping Programme Unesco
 8. Staying Engaged with Kenya Groundwater Mapping Programme Unesco
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Kenya Groundwater Mapping Programme Unesco
 9. Balancing eBooks and Physical Books Kenya Groundwater Mapping Programme Unesco
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Kenya Groundwater Mapping Programme Unesco
 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
 11. Cultivating a Reading Routine Kenya Groundwater Mapping Programme Unesco
 - Setting Reading Goals Kenya Groundwater Mapping Programme Unesco
 - Carving Out Dedicated Reading Time
 12. Sourcing Reliable Information of Kenya Groundwater Mapping Programme Unesco
 - Fact-Checking eBook Content of Kenya Groundwater Mapping Programme Unesco
 - Distinguishing Credible Sources
 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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