



Kenya Groundwater Mapping Programme

Unlocking the potential of groundwater to combat water scarcity for resilience and sustainable livelihood

About KGMP

The KGMP is building a knowledge base of Kenya's groundwater resources by improving the scientific knowledge on the nation's groundwater wealth. The activities include a groundwater resources assessment and building the capacity of local and national actors by delivering tools to effectively and sustainably manage groundwater resources. It also strengthens the drought preparedness of local and national actors and aims to facilitate improved access to clean drinking water for emergency situations and for long term development needs.

The programme covers the full scope of the national territory of the Republic of Kenya and targets county governments by providing each a package of maps, analysis, tools and capacities for groundwater management. The programme provides preliminary estimates of groundwater quantities and distribution of groundwater in each county. Sets of high resolution groundwater maps are tailored to development priorities of each county. The programme also delivers a package of tools such as GIS-based groundwater databases, groundwater navigation equipment and training. Each county will also receive technical and policy advice on how to optimize groundwater development and management. This initiative takes forward the overall approach adopted by the recent UNESCO survey of groundwater resources of central Turkana County (2012-2013), and contributes towards the Kenya Vision 2030, national and county development priorities.

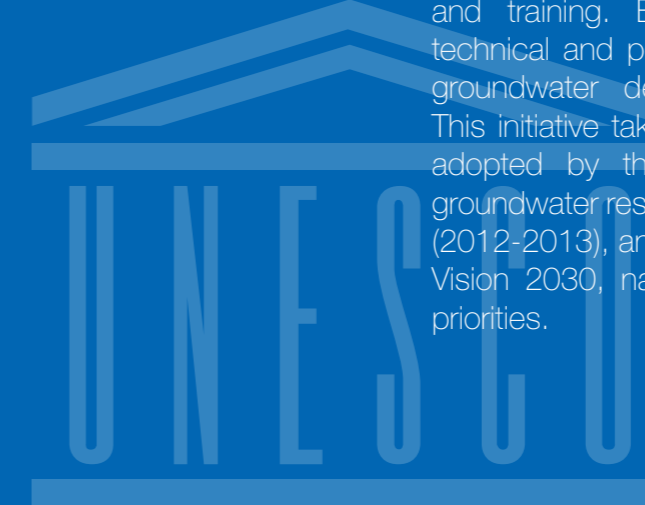
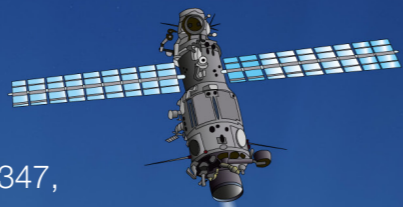
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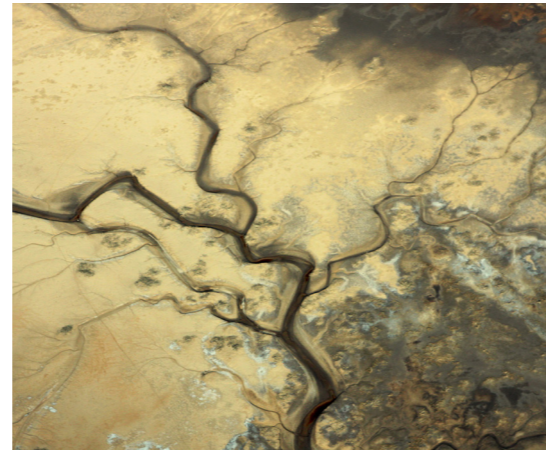


BACKGROUND STATEMENT

The programme addresses a number of critical challenges facing Kenya.

Increasing reliance upon groundwater as a source of life and prosperity

Kenya has seen a rapid depletion of traditional water supplies in recent years causing a shift towards a greater reliance on groundwater countrywide. Identifying and assessing Kenya's groundwater wealth is now a critical imperative. Although sometimes located just a few meters below the ground's surface, groundwater remains a hidden and unknown resource in many parts of Kenya. Improving access to safe drinking water is among the top priorities for the populations affected by drought and water scarcity, particularly in the most vulnerable areas of Kenya such as the 20 counties in northern and coastal Kenya. The identification, assessment and development of groundwater resources that are of low vulnerability to drought and that can be used in emergency situations is therefore of crucial importance, both for immediate emergency relief and for long-term drought preparedness particularly in view of climate change and variability which are expected to have severe impacts on the arid and semi-arid Horn of Africa.



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 couple of puddles ©UNESCO/Masakazu Shibata



Kenya has seen a rapid depletion of traditional water supplies in recent years causing a shift towards a greater reliance on groundwater countrywide ©UNESCO



Developing Kenyan skills to manage groundwater in both emergency and long-term development situations ©David Malan

Need for greater capacity to manage groundwater supply

Existing maps and studies of groundwater are not good enough to avoid errors in drilling wells and boreholes, resulting in the loss of millions of Shillings every year in failed drilling operations. Existing maps at the national and county scales do not show the precise location and amount of underground resources, making it difficult to ascertain Kenya's groundwater wealth at any scale – locally, regionally or nationally. Mapping and assessing groundwater potential at the national scale will provide a sound scientific basis for the design of national policy instruments, such as the National Policy on Groundwater Management currently being drafted.

BENEFITS

The programme targets the Government of Kenya, providing direct services to the National Government and all 47 County Governments. Other national stakeholders from the water resources management community such as scientific institutions, academia and civil society organizations are also targeted. Ultimately, the socio-economic benefits of the programme such as improved access to water resources and gains in economic sectors are expected to have a wide-ranging, transformative impact on all livelihoods and segments of Kenyan society, and particularly on the less fortunate and vulnerable populations.

The programme contributes to a number of national and constituent plans, strategies and visions, namely by building the capacity of government to deliver effective basic services and by enabling water to be utilized most effectively for economic and social development across the nation. Furthermore, the programme's specific focus on providing practical groundwater maps, tools and information for both Central and County governments helps consolidate the devolved functions of improving delivery of basic services to constituents. In their first term, the new County Governments will rely on the information that KGMP will deliver in order to develop appropriate plans for the management of their water resources.

KGMP will assist the government agencies, such as the Ministry of Water and Irrigation and Water Resources Management Authority (WRMA) in reforming the water sector. These agencies are currently elaborating a new National Groundwater Policy, which can benefit from new maps and assessments. At catchment level, the programme will provide a critical input to the Regional Catchment Management Strategies of the six Water Catchment Regions of Kenya and assist in the development of the Sub-Catchment Management Plans (SCMP) across the country.

KEY ACTIVITIES

Turkana Survey Result Validation:

A follow-up study is undertaken to improve the knowledge base of the identified aquifer systems in the Turkana region. Although the survey results contribute to successful boreholes drilling for shallow aquifers, more work still remains in understanding deep aquifers. The five aquifers: Lotikipi, Lodwar (confirmed) and Kachoda, Nakalale, and Gatome (to be confirmed) all require drilling, hydrogeological investigation and aquifer characterization including quantity and quality.

Nat'l Groundwater Resources Hydrogeological Survey:

A hydrological survey and the mapping of groundwater will be conducted to all 47 counties with priority given to ASAL. Key output will improve knowledge on aquifers, including their location, nature (quality and quantity) and dynamics, via an inventory of physical groundwater occurrence. The finalized product of the Groundwater Atlas will be comprised of secondary thematic development layers based on sub-catchment levels, prioritized by each county.

Managerial Plan Development for Aquifer System:

A socio-economic analysis of groundwater resources will be conducted under IWRM principles to ascertain the impacts of groundwater on individuals, communities, institutions and nature. Its findings are translated into aquifers management action plans for the national and county government and authorities. The individual and institutional capacities will be also strengthened on surface and groundwater hydrological process and their response to climate change, land use and water demands, enhancing their policy development capabilities.

FRAMEWORK FOR DEVELOPMENT

The five year support of KGMP to Kenya's Vision 2030 was launched and will be elaborated into the new National Groundwater Policy and Regional Catchment Management Strategies. It is also in line with the UNDAF 2014-2018, calling for effective and integrated management of water resources.

MOBILIZATION AND COORDINATION

UNESCO and GoK (Ministry of Environment, Water and Natural Resources) are responsible for the mobilizing, coordinating and monitoring of the partners contribution and strengthening of KGMP network. The Programme Steering Committee (comprised of representatives from GoK, UN, and Donor community) shall be established. A joint UNESCO/GoK Technical Support Team will monitor the implementation of the programme. A resource mobilization strategy will also be developed by UNESCO/GoK to support its implementation, together with a special Funds-In-Trust framework established by UNESCO.



Harnessing groundwater potential on all aspects of development ©UNESCO/Masakazu Shibata



Groundwater Navigation Device (GND) being used to locate groundwater in Turkana ©UNESCO

Of Kenya's 41 million inhabitants, 17 million lack access to safe water and 28 million do not have adequate sanitation. The impact of water on all aspects of development is undeniable and can help change the lives of millions.