April 2021

KWIA Project Concept Note

Good Groundwater Governance Support Unit

Overview – Status and Needs of Groundwater in Kenya

Digitisation: This is a digital age; for years now courier packages are digitally traced from despatch to delivery and carrier vehicles/planes are tracked by transponders. It is ironic that whilst the performance of borehole production pumps can be monitored and controlled via the internet by personal PCs, mobile phones etc, yet the governance of the groundwater resource itself is not yet digitised. Borehole drilling capacity has grown significantly in recent decades and the number of boreholes in Kenya has about doubled since the millennium. In Kenya, it is estimated that the proportion of access made to safe groundwater abstraction is presently at some 17%; approximately half of which has been drilled this century and thus growing by almost 0.5% per year; Kenya has >200 operational drill rigs. In certain areas, such as Karen west of Nairobi, the density of boreholes penetrating a relatively fragile aquifer which has dropped by some 60m, thus effectively mining of water, well beyond safe abstraction levels. For present and future generations, in Kenya, as indeed in Africa at large, it is of crucial importance and urgent, that good groundwater governance is secured and safeguarded. The proper digitisation of the resource will promote this goal.

Institutional Support: Currently groundwater governance in Kenya is deficient and is not keeping up with rapid sector development. Whilst the legislative framework for the good management of groundwater resources is in place, it is perceived that the actual practice by Ministry of Water Sanitation and Irrigation (MWS&I) and its delegated Water Resource Authority (WRA) is challenged and implementation is weak at best. There exists widespread unregulated drilling, thus unrecorded boreholes and unreported abstraction; it often takes overly long to process groundwater authorisations which permits drilling; the proper reporting, data recording, transitions and follow up of authorisations to abstraction licences is haphazard. Albeit incomplete, MWS&I does have historic hard copy information on old boreholes, but an accessible digital database remains lacking. In recent years there was a World Bank supported project to

support digitisation in WRA, which came to nothing. It is considered that the groundwater sector in Kenya is in crisis and present institutions need external provision of consultants. Given the central importance of groundwater to the socio-economy of Kenya, positive intervention for such support is surely warranted.

Borehole Mapping and Rig Tracking: In 2017, with the support of the Kenya Water Industry Association (KWIA) and German funds under the Support for Water Associations Project (SWAP), a pilot project was successfully undertaken by consultants KIPYA Africa Ltd for the digital mapping of boreholes, with respective reports and data, in some four counties which was uploaded to the internet for open access. This private initiative must now be extended, in liaison with government to cover the whole nation; at the same time the processes of groundwater applications for authorisations and licences can be fully digitised. Transponders can be fitted on all drill-rigs as a condition of drillers licence annual renewal and thus the capacity for monitoring rig activity can be established.

Digitised Abstraction Monitoring: Generally, there is little regard for the application of "safe abstraction" production pumping rates, the guideline for which is set in the WRA Codes of Practice to be 60% of tested yield. This is practiced haphazardly, and also is not applied to high production boreholes as practically there is no capacity for Pump Testing at such high rates. In consequence, there is impact on aquifers and there are diminishing pumping water levels in some areas. Digitised information and thus routine monitoring of licensed abstraction rates will enable better protection of the resource.

Project Concept Description:

This concept is for the establishment in public-private-partnership to establish a "Good Groundwater Governance Support Unit" (GGGSU) to provide both physical and human resources, thus the hardware and software required in order to bring necessary support to effectively digitise the sector. The GGGSU will enable significant improvements both to sector governance per se, and to aquifer management. The unit will be managed by a board which will include senior groundwater experts, who will meet monthly

to overview GGGSU activities and act as an advisory capacity to government in consideration of problematic topics as become identified.

The GGGSU will have expert staff and software capacity for the following summary terms of reference:

(i) Collate digitized national groundwater data and borehole mapping;

(ii) Digital tracking of groundwater authorisations, reporting (BCR) and licences;

(iii) Transponders on licensed drill rigs and capacity to monitor rig location

(iv) Design/apply media use for national data input directly by drillers and WRA; and

(v) Popularise public knowledge of groundwater and best practices.

This unit will work closely with the Water Resources Authority (WRA) to augment and assure fundamental activities for digital data collection/collation, to strengthen sector regulation and monitoring. Presently there continues to be an apparent mismatch between MWS&I who continue to issue/register Borehole "C" numbers and collect borehole completion reports (BCR), and WRA which assigns each borehole authorisation with a file number and subsequent abstraction licencing from the constructed asset. The Institutional Section will be run and staffed by a consultancy, with counterpart staff from MWS and WRA.

For mapping, this GGGSU will build on the 2017 pilot project which was under the auspices of KWIA, which was undertaken by a private consultancy company and KWIA member, KIPYA, which had modelled the collation, digitising and placement on a website of several hundred boreholes of four counties. It is proposed that the details of any borehole can be accessed after payment on line of a reasonable fee,

Initially it is intended that the GGGTSU will first undertake a desk audit, registration, and mapping etc of the boreholes of all 88nos Water Service Provider (WSP). It is a concern, particularly to the Regulator, that too little is known about the status of these assets, vital to the water supply of most urban populations. Nakuru for example has 24 high-capacity boreholes, many of which are colonial. The functional condition, efficiency, water levels, yields, test pumping & recovery data, changes over time,

production pump design, protection etc is not well recorded. The audit will recommend further investigation, rehabilitation or other actions for each borehole.

Outline Budget Costs

Good Groundwater Governance Support Unit - 30 months

0 Initial Project for Mapping and Registration of WSP Boreholes:
$75,000

1. Collate and digitize national groundwater data and borehole mapping:
$1,250,000
2. Digital tracking of Groundwater Authorisations, Reporting and Licences:
$220,000
3. Transponders on licensed drill rigs and capacity to monitor rig location:
$300,000
4. Design/apply media use for direct national data input by drillers and WRA: $150,000
5. Popularize public knowledge of groundwater and best practices:
$100,000
6. Management Cost (15%): 30months $12,000pm
$360,000
7. Contingency
$45,000

TOTAL: $2,500,000