

Registration of groundwater consultants in Uganda: rationale and status

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Abstract/Summary

There is heavy reliance on groundwater in most of Uganda for rural and urban water supply due to its wide distribution and general good quality. While groundwater development is on the increase water supply coverage has not increased substantially despite increased funding. This is attributed to a number of reasons including poor performance of groundwater consultants. Groundwater consultants play a big role in the success of borehole drilling in terms of selection of drilling sites, supervision of drilling activities and general guidance of drilling operations. There is therefore need to improve the professional conduct of groundwater consultants. It's planned to register individual groundwater professionals and groundwater companies. Evaluation of applications for registration is ongoing and the list of registered groundwater consultants will be issued out in June 2016 and will be updated and issued out annually. Improved regulation of the drilling industry will ensure efficiency and effectiveness in groundwater development.

Introduction

There is heavy reliance on groundwater in most of Uganda for rural and urban domestic water supply due to its wide distribution and general good quality. Groundwater development started in the 1930s, for domestic rural water supply through deep boreholes and springs. Since early 1990s there has been a rapid increase in groundwater development for both rural and urban water supply due to the need to have water supply systems that can easily be operated and managed by the users. There are approximately 40,000 deep boreholes, 30,000 protected springs and 16,000 shallow wells in Uganda. Currently over 250 small towns and rural growth centres have operational groundwater based water supply systems from deep boreholes and over 30 more systems are under construction. There is also an estimated 860 sub-county (local government) headquarters in the country which are targeted for piped water supply and almost all of them will be based on groundwater. Private companies and individuals are focusing also on groundwater development especially in urban areas (over 400 private motorized boreholes/wells in Kampala alone). Boreholes and shallow wells with yields <1 m³/hour are installed with hand pumps for rural water supply while boreholes with yields >3 m³/hour are normally installed with motorized pumps for piped water supply. An average of 1200 deep boreholes and 900 shallow wells are constructed annually in Uganda. In order to achieve 100% access to safe drinking water by 2040 it is estimated that an additional 40,000 boreholes for rural water supply and over 350 production boreholes for piped water supply in small towns and rural growth centres will need to be constructed.

Groundwater development concerns

While groundwater development is on the increase in Uganda there has been concern that water supply coverage has not increased substantially despite increased funding to the water sector. The following are some of the reasons advanced for this concern:

- Water sources are being constructed in areas with very low groundwater potential resulting in

low drilling success rates and also water sources are yielding inadequate quantities of water

- Water sources are being constructed in areas with poor water quality leading to either abandonment or limited use
- Resources are being spent on very expensive water supply options when cheaper options are available
- Quality of boreholes is poor leading to high failure rates after construction. It is reported that boreholes drilled over the last 10 years are failing faster than those drilled before.
- The capacity of key players in the drilling industry from the central government, local governments, Non- Governmental Organisations, private sector etc is limited
- Some boreholes are drilled close to each other and to existing boreholes despite the recommended distance between hand pumps and between motorized boreholes being 500m and 1000m respectively
- Some boreholes are drilled too deep even when there is no water and this has implications on the costs of boreholes. It is reported that the cost of boreholes is much higher now and way beyond the estimated costs based on standard unit costs. Costs of some production boreholes have reportedly doubled over the last 10 years.
- Performance of many groundwater consultants is reported to be poor and this is reflected in the poor quality of borehole siting reports and low drilling success rates. Information available indicates that some contracts for groundwater investigations are awarded to unqualified individuals/companies
- Many private groundwater developers have no technical knowledge and so depend on the good will of groundwater consultants who tend to do poor quality work for unsuspecting clients.
- There is reduced focus on use of standards in the drilling industry such as standard Terms of References, specifications, well designs, bidding documents, evaluation criteria, drilling and supervision guidelines etc). For example the nature of contracts some groundwater developers issue out are found not to promote cost effectiveness in borehole drilling. These include the no cure no pay contracts, lump sum contracts, lumped drilling and supervision contracts etc

Ongoing/planned activities to improve the drilling industry

In order to improve the general performance of the drilling industry a number of activities are either being implemented or planned to be implemented very soon. These include among others (i) strengthening regulation and supervision of the industry, (ii) developing a licensing systems for groundwater consultants/hydrogeologists, (iii) developing a performance monitoring system for drillers and groundwater consultants, (iv) using groundwater mapping outputs to develop/update drilling guidance documents (Bills of Quantities, cost estimates etc), (v) continued and integrated capacity building of key players in the drilling industry (central government, local government, NGOs, private sector etc), and (vi) establishment of a Water Institute to handle continued capacity building, applied research and documentation in the water sector in Uganda. Licensing or registration of groundwater consultants/hydrogeologists is one of the activities that have been given priority by Uganda government over the next few years.

Justification and status of licensing or registration of groundwater consultants

A number of concerns regarding the borehole drilling industry are attributed to the poor performance of

groundwater consultants. Groundwater consultants (individuals and companies) play a big role in the success of borehole drilling in terms of selection of borehole drilling sites, supervision of drilling activities and general guidance of drilling operations. There is therefore a need to improve the professional conduct of groundwater consultants if the borehole drilling industry is to produce the required quality of work. Registration or licensing of groundwater consultants will be done to supplement similar efforts already done for borehole drilling contractors which have greatly contributed to improvements in borehole drilling.

Registration will be done for individual groundwater professionals/hydrogeologists and groundwater companies. An advert was run in late 2015 requesting groundwater consultants (individuals and companies) to apply for registration with Ministry of Water and Environment and evaluation of applications is ongoing. A list of registered groundwater consultants (individuals and companies) will be issued out in June 2016. A list of registered groundwater consultants (individuals and companies) will be updated and issued out annually as new applicants come on board. Groundwater consultants (individuals and companies) will have to comply with certain conditions as will be spelt out in their registration certificates. Compliance to these conditions will determine annual renewal of registration. One of the key condition to be considered is professional performance.

The evaluation criteria developed for evaluation of applications for registration as either an individual groundwater consultant or a groundwater consulting company are as follows:

a) Evaluation criteria for individual groundwater consultants

Individual groundwater consultants/hydrogeologists will be grouped into categories namely: Junior hydrogeologists/consultants, hydrogeologists/consultants and Senior or Expert Hydrogeologists/consultants. Evaluation criteria involves: Education (to assess the knowledge of applicants), Experience (to assess the skills) and examination-exercises that will be undertaken to assess the technical competence of the consultants. A group to which a hydrogeologist/ consultant will be registered will depend on the combination of the above 3 criteria items.

b) Evaluation criteria for groundwater consulting companies

Criteria used to evaluate applications for registration as a groundwater consulting company include: Company registration and ownership, staffing (number and qualifications), equipment (ownership or leased), experience (number and nature of projects handled), references from previous clients etc. Whether a company is registered or not depends on fulfilling the above criteria items.

Conclusions and Recommendations

There are challenges facing the drilling industry in Uganda that need to be addressed if the quality of boreholes has to be improved. Regulation and supervision of the industry needs to be strengthened. Regulating the drilling industry benefits the water users as well as the drilling permit holders and consultants, and should therefore be embraced by all. Improved regulation of the drilling industry (drillers and consultants) will ensure efficiency and effectiveness in groundwater development. Continued and integrated capacity building of key players in the drilling industry (central government, local government, NGOs, private sector etc) is strongly needed. All key players in the drilling industry are requested to cooperate and support these initiatives.

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References

DWRM (2014). Mapping of Groundwater Resources in Uganda. Final Project report to the Government of Uganda and European Union

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