REPORT OF THE WORKSHOP FOR GROUNDWATER PROFFESIONALS IN UGANDA

HELD ON

25TH AUGUST 2006

KIREKA SPORTS VIEW HOTEL

SEPTEMBER 2006

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Introduction

A one day Workshop for Groundwater Professionals in Uganda was held on the 25th August 2006 at Kireka Sports View Hotel in Kampala. It was attended by a cross-section of groundwater professionals from different backgrounds and included Social Scientists, Engineers, Hydrogeologists, and Chemists, representatives from NGOs, the Directorate of Water Development, World Bank, and others. A total of 65 participants attended this workshop as indicated on the attached participants list.

The overall objective of the workshop was to raise awareness of the role of groundwater as a resource in the development of Uganda.

The specific objectives were

- To appreciate the role of all stakeholders in groundwater. These stakekeholders are:
    - Hydrogeologists
    - Engineers
    - Socio-economists;
    - Community mobilisers
    - Chemists;
    - Donors;
    - Beneficiaries.
- To appreciate the contribution of groundwater towards achieving the national Poverty Eradication Targets and MDGs
    - Alleviating poverty;
    - Eradicating extreme hunger.
    - Enhancing health
- To appreciate the need to network as professionals and stakeholders in our attempts to achieve the above goals

Opening Remarks:

The opening remarks were made by the Director, Directorate of Water Development on behalf of the Minister of State for Water. In the remarks the Honorable Minister welcomed the idea of groundwater professionals coming together to discuss issues of groundwater management and development. The Minister pointed out that the sector was made up of different players and it was important to highlight the role of the various groundwater professionals so that their contributions can be appreciated.

The Minister highlighted the important role groundwater plays in the socio-economic development of Uganda. It was pointed out that the water and sanitation sector was an important component of the Poverty Eradication Action Plan and part of the Millennium Development Goals. Safe water coverage was at 61.3% and that government planned to install at least 70,000 new handpumped water sources to meet the shortfall.

The Minister pointed to some problems that would need addressing, including ineffective construction supervision and non functionality of water sources which stood at 30% which are undermining efforts to reduce poverty. Groundwater resources are also under threat from overexploitation and pollution, calling for sustainable development and management.

The Minister hoped that this meeting would not be the end but the beginning of working together, and advised on the need to set up an association for groundwater professionals, with clear objectives, activities, linkages and avenues of funding for its sustainability.

Overview of Groundwater Resources Management in Uganda

By Commissioner, Water Resources Management Department

In the presentation, the Commissioner indicated that water resources management is essential for sustainable and optimum water resources development. Water resources monitoring, assessment and data management have been going on in Uganda only in the last 8 years. He highlighted some groundwater issues of concern as:

- Limited yields of sources
- Impact of increased abstraction
- Pollution
- Unreliable information
- Limited groundwater potential and recharge

He indicated that there are a number of opportunities for sustainable groundwater management which include the favorable legal and institutional framework, decentralization of implementation of water development activities from the centre to the district level, privatization of construction and service delivery leading to the growth of the private sector, and stakeholder involvement at all levels.

The constraints to sustainable groundwater management include complex geology, limited knowledge of groundwater resources, limited technical capacity, limited financial resources and poor quality of groundwater data.

He concluded by indicating that there is need for raising awareness of the vulnerability of groundwater to overexploitation and pollution and hoped that the groundwater professionals will address these issues in their deliberations now and in future.

Overview of Groundwater Resources Development in Uganda

By Commissioner, Rural Water Supply Department

In his address, the Commissioner indicated that groundwater forms the major source for safe water supply in Uganda. It is usually abstracted using handpumps in rural areas and motorized pumps for more concentrated settlements and is mostly used without treatment.

He proceeded to give the history of groundwater development in Uganda. Drilling of boreholes started in 1930s using private companies, then government took over from the 1960s and implementation through the private sector resumed in 1996. Currently 26 firms are licensed to carry out drilling operations in Uganda.

Under decentralization and privatization, local governments and communities plan for water supply whilst the private sector implements the projects on their behalf. A number of NGOs and CBOs are involved in groundwater development. The government carries out a facilitative and regulatory role.

The main technology options for rural water supply are deep wells, shallow wells and springs. The trend shows that the number of springs and shallow wells being constructed is decreasing over time, while that of the more expensive deep wells is increasing. In order to significantly increase the safe water coverage focus is on groundwater development using low cost, simple water supply technologies.

Role of Groundwater in Socio- Economic Development and Poverty Alleviation

Presented by Callist Tindimugaya, Assistant Commissioner, Water Resources Regulation

In his presentation, Mr Tindimugaya started by saying that groundwater is the lifeblood of development. Its benefits include potable water, water for irrigation and industry, and it sustains the environment.

Uganda presently has 61.3% of the population with safe drinking water and thus alsot still needs to be done to improve this situation. Although Uganda has abundant water resources presently, by 2025 it is projected to be water scarce. This thus calls for monitoring the present use, and addressing conservation and regulation issues.

He pointed out that groundwater is a finite resource and plays a crucial role in socio-economic development in relation to sustaining livelihoods, food security, and sustaining the environment.

Groundwater contributes to the achievement of many of the Millennium Development Goals as it sustains life, improves livelihoods, is time saving if conveniently located and is essential for general health. Access to groundwater promotes good health and welfare and generates economic development benefits.

He mentioned concerns in groundwater management and development which include degradation of the resource base, inadequate funding, limited understanding of its linkages and vulnerabilities and its dispersed nature of occurrence.

He therefore concluded that it is important to invest in scientific understanding , governance systems and management partnerships to protect groundwater resources.

Introduction to the International Association of Hydrogeologists and groundwater related organizations

By Ms Caroline Nakalyango, Hydrogeologist/ Groundwater Specialist

Ms Nakalyango gave an introduction to the mission, functions and priorities of the International Association of Hydrogeologists (IAH) and related groundwater organisations.

International Association of Hydrogeologists (IAH)

The mission of IAH is to promote understanding of groundwater and its proper management and protection to the benefit of humankind and the environment.

IAH was founded in 1956 and has about 4000 members today.

Its priorities include:

- Worldwide professional forum
- High level advocacy
- Technology transfer
- Science commissions

The membership fee is depends on development status of one's country of residence.

website: **www.iah.org**

International Groundwater Resources Assessment Centre

Is an initiative of UNESCO and WHO founded in 1999.

Aims

1. Global groundwater information system
2. Guidelines and protocols for assessment of groundwater resources
3. Participation in global and regional projects in need of groundwater related inputs

International Atomic Energy Agency (IAEA) – Water Resources Programme

Aim is to provide science based information and technical skills to improve understanding and management of water resources, through isotope hydrology.

UNESCO

The IAH Burdon Groundwater Network

By Ms Charity Kisirisa, Hydrogeologist/ Groundwater Specialist

Ms Kisirisa indicated that the purpose of the Burdon Network is to provide support to those involved in helping to implement the MDGs for water and sanitation in developing countries with initial focus being on sub-Saharan Africa.

Objectives are:

To support and extend networks of African groundwater expertise

To offer information support through improved distribution of publications and the internet

Achievements:

Distributed free groundwater books to members

Funded conferences

Developed policy papers on groundwater

Established website: http://burdon.www.org

Plans:

Hold more regional meetings

Produce newsletter

Collating and facilitating access to gray literature

Overview of World Bank Briefing Notes Series on Groundwater

By Stephen Wandera, Hydrogeologist/ Groundwater Specialist

Mr Wandera gave an overview of World Bank Briefing Notes Series on Groundwater.

The series gives concise introduction to the theory and practice of groundwater resource management and protection, especially in a developing nation context.

The series is produced by Groundwater Management Advisory Team, a core group of specialist in the multidisciplinary and multifaceted area of groundwater management.

Objectives of GW.MATE include supporting and strengthening WB projects, providing leadership on management and protection issues, facilitating implementation of management systems, harvesting and evaluating global experience and disseminating best practices.

Contents of briefing notes currently include papers in series of 0 – 15 on appropriate role for government in promoting sustainable management and approaches and priorities for implementation, groundwater management and groundwater systems characterization, management practice for major aquifers under stress, protection of groundwater users and resources and management of smaller scale water supply development in the rural environment.

Other GW.MATE products include guides, books and flyers, case profile collection, groundwater in urban development, groundwater in rural development and arsenic contamination of groundwater.

Experiences and Challenges of Groundwater Development in Uganda -Technical Perspective

By Eng. Ahmed Sentumbwe, Rural Water Division, Directorate of Water Development

Eng Sentumbwe presented experiences and challenges of groundwater development in Uganda from a technical perspective.

He indicated that the intensity of drilling activities has increased from late 1980s, with related problems of design and construction that need attention. Some designs are not appropriate, aspects of technical specifications are not being implemented while some need revision, Bills of Quantities are either unrealistic or being manipulated, there are conflicts between clients, contractors and consultants in cases of unsuccessful boreholes, apportioning liability on turnkey projects is problematic and quality assurance mechanisms are inadequate.

He made suggestions for improvement which include reviewing designs, BoQ and technical specification preparation and management basing on work done and field observations, network of groundwater professionals to give professional guidance, set up vocational training institution, tackle contract management issues through discussion, field inspections and develop quality assurance plans by the client, contractor and consultant.

Experiences and Challenges of Groundwater Development in Uganda - Software perspective

By Khasifa Nantaba, Community Development Specialist, Private Sector

Ms Nantaba presented experiences and challenges of groundwater development in Uganda from a software perspective

She indicated the benefits of community management as:

- Enables communities to establish their own priorities
- Creates sense of ownership
- Leads to greater sustainability
- Reduces O&M costs
- Improves cost recovery
- Promotes community self reliance

- Leads to project effectiveness and efficiency

She highlighted a number of government Interventions to address management issues as:

- Circulation by DWD of steps in implementation of software activities
- Piloting involvement of NGOs in implementing software activities
- Increased expenditure on software in Rural Water Supply and Sanitation Programmes from 3% to 12%
- Dissemination of National Framework for O&M of rural water supplies to all stakeholders
- Creation of District Water and Sanitation Coordination Committees

The challenges to Community Management are:

- Inadequate time for community mobilization, especially in regard to sanitation and community contribution to capital cost
- Community poverty constraints, leading to inability to meet critical requirements which are a precondition to implementation
- Unwillingness of some communities to meet the critical requirements
- Lack of prioritization of software
- Inadequate capacity for software implementation
- Inadequate follow up support to communities
- Political influence especially in allocation and meeting critical requirements

Experiences and Challenges of Groundwater Development in Uganda -NGO perspective

By Mr Paito Obote- Senior Programme Manager, WaterAid Uganda

Mr Obote_presented experiences and challenges of groundwater development in Uganda from NGO perspective.

He started by giving the characteristics and challenges faced by NGOs in Uganda as:

- Most NGOs multi-sectoral, few are WES focused.
- Most are funded by external donors and account directly to them.
- There are good sector policies, laws and guidelines in place but enforcement is weak.
- Appropriate technologies for water development promoted but safe hygiene practices not adequately addressed.
- NGO technical capacity in service delivery sometimes limited
- Roles and responsibilities of NGOs and Government are recognized but seldom respected
- Procurement guidelines by government do not consider NGOs in many cases

Key lessons and issues from work of NGOs

- Contamination from surface runoff common because of poor designs and quality of construction
- Drought in the last 2 – 3 years has raised sustainable issues as springs and shallow wells have dried.
- Quality of work is mainly related use of inappropriate materials and omission of critical specification
- Implementation costs are inflated by double taxation and over deployment of staff.

Guiding thoughts/recommendations

- Regulatory measures for NGOs may work to strengthen management and governance
- Appropriate low cost technologies can be developed and promoted within community means – self supply model

- Community water resources management can boost sustainability of water sources

DISCUSSIONS

The presentations were followed by general discussions and the following issues emerged:

- O&M starts getting high on more than 10 pipes. It is important that the optimum number of pipes is chosen carefully to reduce on O&M costs
- Water resources monitoring by WRMD is going on. There are a number of observation wells all over the country, but these are not enough.
- Provision of safe water is the desired objective, not provision of improved although poor quality water.
- Calculation of water supply coverage should take into account non functional sources (broken down, rejected, etc) and population distribution (Many handpumps are not used by 300 people e.g. in sparsely populated areas)
- Community's role in protection of constructed water sources should be emphasized, eg prevention of construction of latrines close to water sources.
- IAH membership open to both individuals and organizations
- Inadequate power supply has strained urban water supply, leading to strain on peri urban and rural water supplies.

Remarks by Sam Mutono, Water and Sanition Specialist, World Bank

Mr Mutono who is an experienced water and sanitation specialist currently working with the World Bank and based in Uganda gave a historical perspective of groundwater development and challenges that have been faced. He particularly talked about the problem of water quality. He indicated that Interim Water Quality Standards were developed to address this problem and that these standards are generally lower than those of WHO. If WHO standards were adopted they could lead to disqualification of many sources.

He gave a brief about the Water and Sanitation programmes of the World Bank in Uganda. He indicated that the programme is presently addressing Hygiene Education and Sanitation and currently the World Bank and NETWAS (Network for NGOs involved in Water and Sanitation) are working on package of publications on Hygiene Education and Sanitation.

Groundwater siting equipment

By Rani Golan, Hydrogeologist

Mr Golan, a hydrogeologist from Israel and working in a number of African countries introduced equipment for hydrogeological investigations based on the sonar system. The technology, from Israel, is said to give the position of subterranean layers, quality and quantity of water in them.

He indicated that the equipment has been tried out in northern and northeastern Uganda with 100% success. He asid that similar equipment is under use in Algeria and Ghana.

The equipment costs about US$70,000 was thought to be beyond reach of most Ugandan groundwater professional. The computer card alone costs about US$70,000.

There was general agreement that the equipment needs to be field tested further before its usefulness can be fully ascertained.

Formation of national groundwater network and discussion of preliminary activities of the network

Discussion coordinated by Callist Tindimugaya

It was generally agreed that there was need to network, and in this regard a body should be formed. An 8 man task force was formed to study and discuss the issues that arose, including objectives, form of body or association, frequency of meeting, scope of activities, funding sources, management structure, membership and registration, etc.

The task force chaired by Mr Tindimugaya includes representatives from the Directorate of Water Development, academic institutions, the private sector, NGOs and World Bank.

A feedback to the participants of the workshop would be given in the 1st week of October 2006. The form of dissemination would be decided upon by the task force.