



GROUND WATER RELIEF

MEET THE MEMBER - SAMUEL GBENGA

Area of Expertise: Project Management, WASH, Shelter, Civil Engineering, Environmental Science

Years' Experience: 20

Nationality: Nigerian



PROFESSIONAL BACKGROUND.

Can you tell us a bit about your background in ground water?

My background in groundwater, stems from WASH projects carried out in affected communities during humanitarian support. Groundwater exploration and fixing of existing small and large scale water facilities was a gateway for me to experience groundwater projects. During the construction of various structures—particularly estate developments—I was involved in drilling boreholes to supply water to the communities. This experience provided a significant pathway for my initial encounter with groundwater. To deepen my understanding, I later pursued further studies and training focused on groundwater, which helped to strengthen and expand my expertise in the field.

What inspired you to pursue a career in groundwater?

In both civil engineering projects and the field of humanitarian support, one of the most pressing challenges faced by communities is access to water. Recognising water as an essential resource for human survival and a cornerstone of humanitarian efforts, I developed a strong interest in understanding the link between civil engineering and groundwater. Although my specialisation in civil engineering is structural engineering, my professional experience over the past 15 years has been closely connected to water-related projects. This has required me to undertake specialised training, supervise water infrastructure projects, and pursue further studies focused on groundwater.

INSIGHTS AND EXPERIENCES.

Can you describe a particularly challenging groundwater issue you've encountered and how you addressed it...

In my mission in South Sudan as WASH Delegate, the main challenge was access to clean and potable groundwater in the rural areas, which is limited, due to both natural conditions and the impact of conflict on infrastructure, leading to reliance on unsafe sources.

To find solutions, we partnered with NGOs and local governments to drill new boreholes and rehabilitate existing ones. This included geological surveys to locate viable aquifers and ensure sustainable extraction. We instituted regular water quality testing to ensure safety, especially important in regions where shallow wells might be contaminated by surface activities.



We established water committees in each community as well as providing training on borehole maintenance and management, to ensure sustainability. Local artisans were trained in repair techniques and began the process of upgrading existing boreholes to be flood resilient.

Likewise, in my missions in Nigeria, the challenge of over-extraction and pollution was one of the issues we had to deal with. To mitigate this challenge we collaborated with local communities and government authorities to carry out geological and hydrological assessments. This involved using remote sensing and GIS technologies to map aquifers and identify areas of over-extraction and contamination. We also worked with local authorities to develop and upgrade waste management infrastructure,

reducing pollution sources. This included construction of proper drainage systems and waste treatment and sanitation facilities.

We promoted rainwater harvesting and the development of surface water reservoirs as supplements to groundwater, to alleviate extraction pressure. These initiatives highlighted the importance of combining technical solutions with community involvement and policy support, to effectively address groundwater challenges in the context of local socio-economic and environmental conditions.

What do you think are the most pressing challenges related to groundwater and water supply today?

Groundwater and water supply issues present some of the most pressing environmental and socio-economic challenges globally. Some of the key challenges that are evident today are:

- Over-extraction and depletion;
- contamination and pollution;
- natural disaster impact such as flooding and drought due to climate change;
- ageing and inadequate infrastructures;
- increase population growth and pressure on existing facilities;
- land and boundary conflicts;
- water management.

Addressing these challenges (and many more) requires a multifaceted approach, combining technological, regulatory, community, and environmental strategies.

Fostering international cooperation, investing in infrastructure, and promoting sustainable water management practices are crucial steps toward ensuring the long-term viability of groundwater resources and equitable water access for all.



What is the best piece of advice you have ever received?

As I reflect on the best piece of advice given to me while working in a humanitarian context, it would probably come down to the importance of adaptability and community involvement. While it's tempting to focus purely on solving the technical or logistical challenges (and there are plenty of them), it's crucial to remember that the ultimate goal is improving the lives of people. You might design a beautiful structure or a well-functioning water system, but if it's not tailored to the community's needs, culture, or resources, it won't be sustainable. Listening to the community and getting their input is essential—not just for practical reasons but also for creating solutions they will value and maintain over the long term.

Another piece of advice I received, was that in normal civil engineering projects, you might have more control over schedules, resources, and environmental factors. But in a crisis or in post-disaster zones, everything can change quickly. Weather can turn, funding can fluctuate, or access to materials can become limited. Flexibility and quick thinking are key (meaning expect the unexpected.) Often, in humanitarian contexts, people have gone through trauma, displacement, and loss. The physical structures we build—whether it's a temporary shelter, a school, or a road—aren't just there to serve a function. They are also a statement of hope, resilience, and stability. The work is as much about rebuilding trust in institutions and community as it is about the physical structures themselves. This means being transparent, building relationships, and showing empathy. Don't just build—it's about rebuilding trust. Lastly, I'd add patience to the mix. Humanitarian engineering projects often take longer than expected, especially when there's a lot of red tape or you're working with limited resources. It's easy to get frustrated, but perseverance and seeing the bigger picture is key.

GWR INVOLVEMENT AND ADVICE



What motivated you to join GWR's membership?

This was an opportunity to explore the dynamics of flood management across its entire lifecycle. The project I worked on allowed me to engage with experts in the field, exchange ideas, and carry out on-the-spot assessments that contributed to developing context-specific solutions.

Do you have any memorable stories or experiences from your work with GWR that you'd like to share?

Imagine walking 15 km on foot to carry out assessments that will inform solutions for affected communities, all under extreme conditions of high humidity and temperatures exceeding 40°C. Despite the physical challenge, I remained committed to repeating this daily in order to gather accurate and meaningful data. This experience reflects just one of the many demanding yet rewarding moments during the project—challenging and exhausting, yet deeply fulfilling, knowing that my contribution helps build more resilient communities against flooding.



If you weren't a hydrogeologist, what alternate career would you have chosen?

Engineering is fascinating but the combination of its specialties and the environment makes it more interesting. I look forward to deepening my interest with another specialty related to the environment like hydrogeology or integrated water management.

What do you enjoy most about working in groundwater?

Firstly, it is that we are addressing a vital need for the people. Groundwater is a critical resource in many parts of Africa, where it often provides the primary or sole source of water for communities, agriculture, and industry.

Working in this area directly contributes to improving water security and quality of life, which can be incredibly fulfilling. It is so rewarding to see people happy and joyful to once again have access to safe drinking water.

Secondly, engagement with communities and stakeholders to develop sustainable water solutions often leads to direct and visible impacts, such as improved health outcomes and economic development, which can be highly motivating.

Finally, many groundwater projects involve international and regional collaboration, offering opportunities to work with a wide range of experts and organisations, which can enrich professional exchange and learning. Here is where working with GWR was tremendously rewarding. I have had the opportunity to partner with diverse experts, exchange ideas and collaborate, to find solutions to water and non-water related problems. These elements and many more combine to create a dynamic and impactful field of work, where professionals can make significant contributions to sustainable development and resource management, especially in Africa.

How has being a member of the GWR community benefited you professionally and personally?

I have had the opportunity to network, learn about things related to climate change and flood management in practice. I have had the privilege to coordinate a project that had a consortium of partners as well other humanitarian actors such as UN and the Government of South Sudan. Most importantly, interacting with the affected population has afforded me the chance to understand the root cause of the flood challenge and how a community based solution, is best suited for mitigation and, as a long-term solution to making the communities flood resilient.



What advice would you give to someone aspiring to get involved with GWR?

If you are looking to collaborate with experts from diverse fields, who are eager to share their knowledge, work in an organisation that develops practical, context-based solutions in challenging environments, and contribute your experience to support the need of vulnerable populations, I would say GWR is your right place.