

How smart water solutions could help solve Africa's water challenges

Africa is not readily associated with water but, due to its varying geography, it is both a dry continent as well as a wet continent.



Image source: www.pixabay.com

As a result, solving water in Africa is tricky, explains Xylem Africa's engineering manager, Vinesan Govender: "Africa is not a very water-rich continent. We have pockets of water in parts of Africa, and the other parts of Africa really struggle with regards to two large bodies of water. In some areas, there is plenty of water, but you need to cover large distances to reach communities. In other areas, water is very scarce, and you need special interventions to reach it at all. It's easy to fall into a first-world mindset where you see a big lake and you think it means people have access to a lot of water. But it's not nearly that simple."

These issues apply to the macro and micro scales. For example, people living in Uganda's capital Kampala have access to water infrastructure. But what happens when you go out into the rural areas and the big farmlands, where people are very sparsely situated? Pipes rarely get that far, as is evident from the high number of boreholes on the continent. This, in itself, creates challenges in Africa that need African solutions.

Improving water access

The situation for water access on the continent demands serious attention. More than 40% - 783 million people - in sub-Saharan Africa don't have access to an improved source of drinking water. What solutions will help change this picture?

Decentralised, low-maintenance infrastructure is a keystone for Africa's water future, Govender explains: "The 20th-century mindset expects infrastructure to be big and central. But that's changing - solar power is an example of how grids are being decentralised. Water can operate in the same way, especially when managing wastewater. It has become cost-effective to have more and smaller sites to manage water, and it's much more efficient because you can calibrate that infrastructure to reflect the needs of the surrounding community. This improves performance and the longevity of the equipment."

Benefits from water technologies

Africa can benefit from quantum leaps in water technologies which deliver much more efficiency, control and cost-management. Examples can include smart technologies that help spot leaks and inform planning. There are also vastly-improved water infrastructure designs and management philosophies.

These can address the many different scenarios found across Africa, each requiring a blend of international expertise and local context. But are there solutions that could be effective anywhere on the continent? Yes, says Govender: “The water management in Africa is extremely poor and, in most cases, non-existent. We are not looking after our aquifers, which have become contaminated. For example, here in Gauteng, borehole water can contain heavy metals due to the surrounding mining activities. We can manage those aquifers responsibly and even make them part of water recycling. The same counts for other water resources, such as the great lakes. These are renewable resources, but they are not infinite without the right water management culture.”

Chemical-free disinfection

Chemical-free disinfection of water is another pivotal solution that can disrupt water in Africa. Technologies such as UV and ozone are not yet as cost-effective at large scales as chlorine. But the picture is very different for smaller applications, such as community water supplies, water in tanks or water used for cleaning. An enormous amount of chemicals enter Africa’s water ecosystems. Applying chemical-free disinfection at strategic points can massively improve quality of life, and fight infections such as cholera and E. coli, without harming the same environment many subsist on.

The above examples are less about technology than they are about addressing the continent’s water culture. The water evolution can happen through new ways of thinking, with technology to support them. Govender sees this relationship as a pyramid: “It is a pyramid effect, and smart technology sits at the very top of the pyramid. If you do not have the base of the pyramid in place, which is mindset, education and infrastructure, smart technology is not going to add any value.”

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