Achieving universal access to safe and affordable drinking water by 2030 is one of the United Nations Sustainable Development Goals. It goes hand in hand with the 2030 goal to provide access to adequate and equitable sanitation for all. Of all the regions in the world, sub-Saharan Africa has the farthest to go to meet these goals. It is home to nearly half of the 844 million people worldwide who lack access to improved sources of drinking water. Furthermore, close to 700 million sub-Saharan Africans do not use improved sanitation facilities, a third of whom practice open defecation. This proves an additional threat to water cleanliness and compromises human health and well-being.1

Many charities working on supplying water to people in need concentrate their efforts on drilling community wells, and for good reason. When used sustainably, groundwater can be dependable, less affected by weather and seasonal change than rivers or ponds. Groundwater is often not as contaminated as surface water, and in some places can be drunk without expensive purification. If groundwater resources are available, wells can be located close to communities, alleviating the burden and risk associated with faraway water collection, a chore carried out mostly by women and children.

Wells have great potential, but research shows that many do not survive beyond their first few years of use. Communities receiving wells often lack the capacity to maintain them. Fortunately the people involved with water and sanitation supply efforts (the sector known in the development community as WASH for Water, Sanitation, and Hygiene) are becoming more aware that they need to do more than drill a hole in the ground to fulfill their missions.

Drilling wells

Between 1990 and 2015, an estimated 348 million people in sub-Saharan Africa switched from using surface water as their primary source of drinking water to improved sources, like wells and springs. But still a similar number of people have yet to make the switch.2

Government agencies and non-governmental organizations (NGOs) want to bridge this gap. In the early to mid-2000s, donations to developing countries for water and sanitation projects started to climb. In sub-Saharan Africa, official government-to-government financial assistance was complemented by the work of many charities who came in to drill tens of thousands of wells, known as boreholes. This alone would be a major development and human health success story except for the fact that when visited two or three years after their installation, many of the borehole pumps were no longer working.3
Jamie Skinner of the London-based International Institute for Environment and Development explains that “while at an engineering level it is fairly straightforward to dig a well, it is much harder to ensure that it is still working ten, or even five, years later.” He authored a report in 2009 chronicling the tens of thousands of boreholes that had fallen into disrepair in Africa. For instance, of 43 boreholes examined in western Niger, 13 were abandoned, 12 were out of order for more than three days in a row more than three times a year, and 18 experienced occasional outages. Other data from the Rural Water Supply Network (RWSN) indicate that in Congo, two thirds of existing wells were out of order. In Mali’s Menaka region, as many as 80 percent were not functioning properly. For all of rural Africa, an estimated 50,000 recently created water supply points have failed due to of a lack of systemic planning for maintenance, representing a waste of up to $360 million. Worldwide, the well failure rate is thought to average about 40 percent.\(^4\)

**Wells are not enough**

A newly drilled borehole provides nice photo opportunities and is something tangible to count and report to donors, but more is needed to make sure that it continues to supply people with safe water long after the cameras leave. The hurdles to overcome are technological, geological, political, and sociological.

For sustainable water provision, the correct siting of the well is paramount. Pumps require regular maintenance. When pump parts break, replacements are needed, as is the mechanical know-how for repairs, both of which tend to be lacking, compounded, in part by a lack of standardization in pump models. Local coordination capacity is needed to manage village-level decision-making regarding the well. For a community that received a well as a donation without upfront consultation, this can be hard to come by. Clear communication and community buy-in at the start of a project are necessary. As Skinner notes, “clean drinking water is about people, not pipes.”\(^5\)
Compiling best practices

Experts cite WaterAid, a U.K.-based charity, as one group that does well-drilling thoughtfully, building human and institutional capacity to maintain water source points sustainably. The organization’s technical support manager Vincent Casey notes that all aid groups building wells could benefit from viewing water and sanitation provision more holistically and involving local stakeholders in every stage of a project. The group is partnering with RWSN, UNICEF, and the Resource Centre and Consultancies for Development (SKAT) to raise standards for water supply implementation. They have produced a series of practical videos for use in the field explaining the importance of careful well siting and supervision.⁶

A 45-year old international “think-and-do tank” called IRC develops and promotes best practice recommendations for WASH practitioners. Its extensive toolkit includes information learned from a $14.5 million project supported by the Bill and Melinda Gates Foundation to quantify the full life cycle costs of providing WASH services in select countries. Data on the costs associated with important step of the process, from construction, finance, and installation, to fuel, maintenance, repairs, and eventual replacement, can be used to better inform decisions, policies, and practices.⁷

IRC recommends looking beyond number of wells installed to determine whether a project is a success. They track four key indicators: water quantity, namely how many gallons per day are pumped; water quality, or whether the water is contaminant-free; accessibility, including how long it takes to get water out of the ground and also time spent in line waiting for access; and reliability, or how often the system breaks down and water service disappears.

Learning from mistakes

One relatively new organization making an effort to learn from mistakes that it has made and those of other WASH groups is called charity:water. Founded in 2006 by Scott Harrison, a young New York City nightclub promoter turned development advocate, charity:water relies on networks of engaged people to fundraise for water supply provision. Private donors cover all overhead costs so that individuals’ money goes directly to water provision. The organization has been touted for its innovation and transparency.

Rather than drilling wells itself, charity:water keeps its staff relatively small and partners with organizations who can carry out the work on the ground. As of early 2017, the group claims to have funded over 21,000 projects with 25 local partners in 24 countries, providing water to 6.4 million people. Funds came from over one million individuals, some giving as little as a few dollars. All receive photos and GPS coordinates for the projects their money is going to, which they can then look at on-line.⁸
Charity:water faces the same challenges as other WASH organizations, importantly the longevity of wells. To better track if wells are working, the group is investing in monitoring technology that can indicate in real time whether a well on the other side of the globe is functioning. They also have dealt with failure, some of it very public. For instance, in 2010 the group promised to mark its anniversary by broadcasting on the internet a video of a well-drilling they were financing in a remote part of the Central African Republic. Donors and other interested parties watched the drilling, but at what should have been the video’s triumphant climax, viewers saw that the well turned out to be dry.⁹

And while charity:water can learn from its mistakes, the rest of the development sector can learn from the organization’s successes. These include harnessing the power of social media, story-telling, and the contagiousness of altruism to rapidly mobilize large amounts of money. Poignant images and honest stories spread excitement virally through social networks. The group put ads on buses, displays in the windows of New York luxury shops, and campaigned for people to celebrate their birthdays with water service donations instead of gifts. This type of savvy marketing energized many who had never donated before, like seven-year-old Alex, who went door to door asking neighbors for $7 donations and turned in $22,000.¹⁰

A right to water

The World Health Organization estimates that every $1 invested in WASH efforts yields somewhere between $5 and $11 in benefits to society. These benefits include reduced infant and child death and illness from cholera, parasites, and other diarrheal diseases, lowered health care costs, increased school attendance, and time saved from fetching water. These gains make it clear that getting WASH right is not only important for humanitarian reasons, but also economically advantageous.¹¹

When the United Nations General Assembly and its Human Rights Council officially recognized the right to water and sanitation in 2010, it became legally binding under international law. There is little teeth to enforce the declaration, but aid agencies, charities, and everyday people are working to make sure that these rights are upheld. Changing the focus and metrics from counting the number of wells drilled to the number of people served with continuous access to a safe and affordable water supply will help get there. Multiplying successes can make universal water and sanitation a reality.

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7Videos can be found at http://www.wateraid.org/news/news/a-borehole-that-lasts-for-a-lifetime.


10Charity:Water; Truth-out; Kristof.