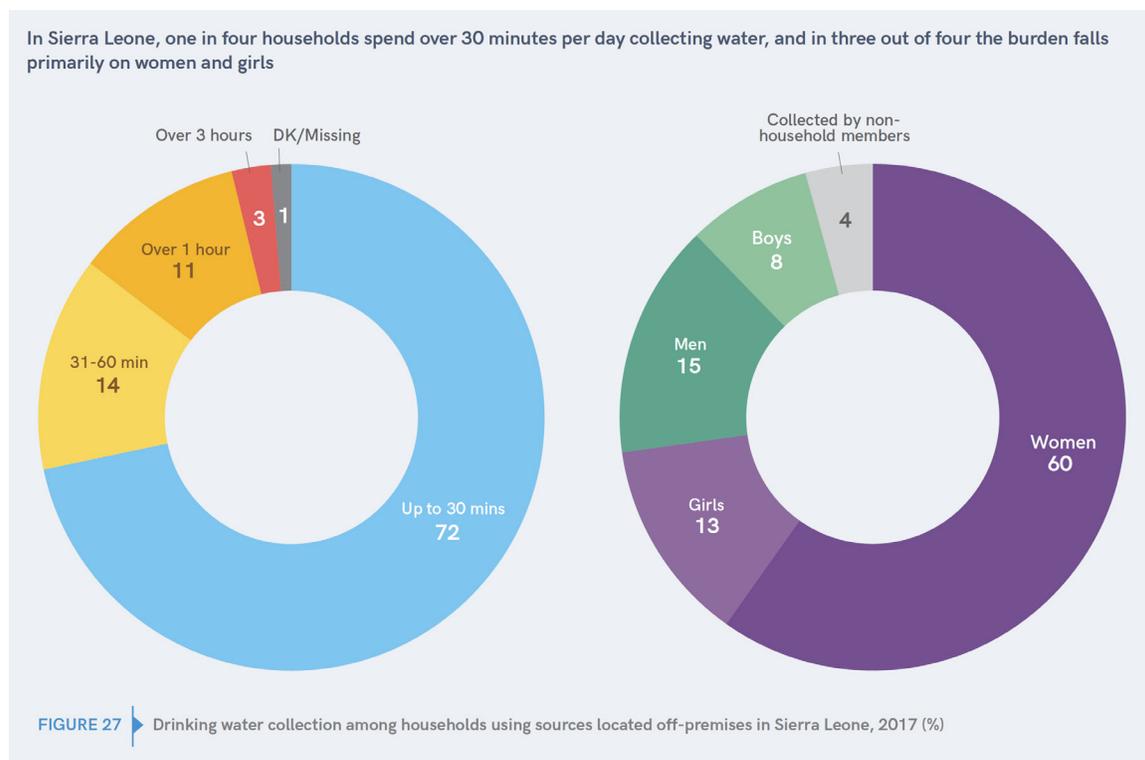


THE SAFE WATER CHALLENGE:

Maintaining Clean Sources in Sub-Saharan Africa

case study | water resources unit

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 half of the 771 million people worldwide who lack basic drinking water services. Furthermore, over 864 million sub-Saharan Africans lack basic sanitation facilities, a quarter of whom practice open defecation. This proves an additional threat to water cleanliness and compromises human health and well-being.¹



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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.

By 2020, 84 countries had already achieved universal access (>99%) to at least basic drinking water services

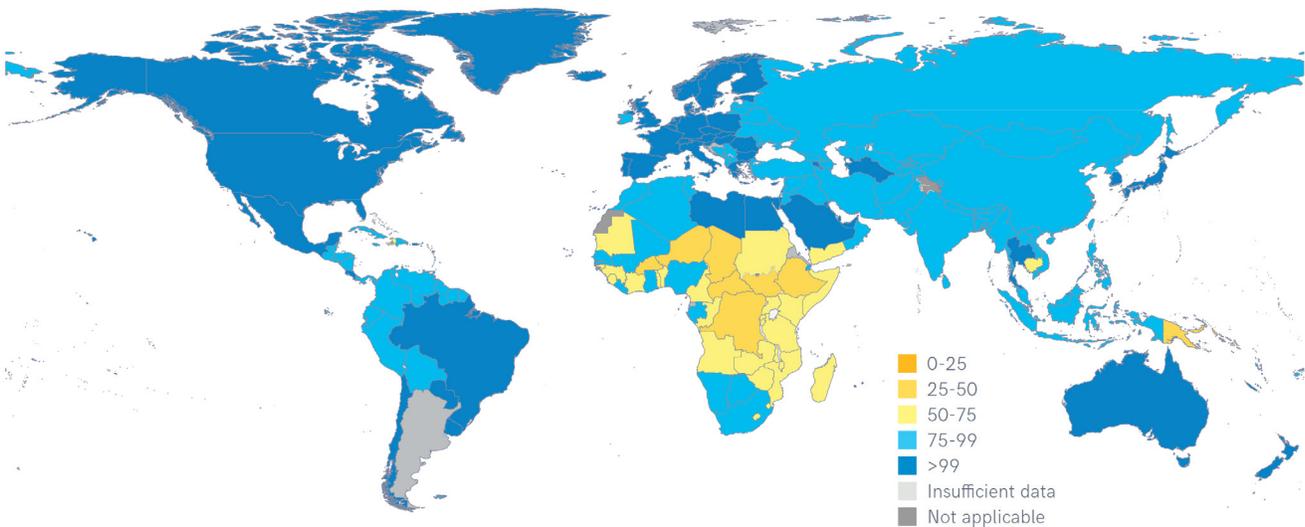


FIGURE 38 Proportion of the population using at least basic drinking water services, 2020 (%)

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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 as of 2020, 250 million still rely on unimproved sources, including surface water and unsafe wells.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) indicated 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. In 2016, an estimated 50,000 water supply points that had recently been created across rural Africa failed due to 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, they need replacing, yet new parts and the skills to install them are in short supply. This is compounded by the lack of standardization in pump models. Moreover, 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 50-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 the 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, measured by how often the system breaks down and water service disappears.



Photo credit: Yoshi Shimizu/yoshishimizu.com

Community members benefit from clean water from the water spring built by the Ethiopian Red Cross in Arsi, Ethiopia.

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 2021, the group claims to have funded over 64,000 projects in 29 countries, providing water to 12.8 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 online.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. In addition, the UN launched the Global Acceleration Framework in July 2020 to further advance progress in achieving SDG 6, availability and sustainable management of water and sanitation for all, by 2030. 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 make universal water and sanitation a reality.

Author: Janet Larsen (2017); Updated 2021.

^{1,2}United Nations Children’s Fund (UNICEF) and World Health Organization. (2021). Progress on Household Drinking Water, Sanitation and Hygiene 2000-2020: Five Years into the SDGs.

³IRC International Water and Sanitation Centre. (2011). Scanning the 2020 horizon: An analysis of trends, sanitation and hygiene sector. Occasional Paper Series 45. The Hague, Netherlands.

⁴Jamie Skinner, communication with the author, August 2016; International Institute for Environment and Development. (2009). Where every drop counts: tackling rural Africa’s water crisis. IIED; Kelly, A. (2009). Money ‘wasted’ on water projects in Africa. (Katine Chronicles blog). The Guardian. Retrieved October 25, 2017 from <https://www.theguardian.com/society/katineblog/2009/mar/26/water-projects-wasted-money>; Kristof, N. and WuDunn, S., (2014). A Path Appears: Transforming Lives, Creating Opportunity (New York: Knopf).

⁵Skinner, J. (2012). Clean drinking water is about people, not pipes. IIED. Retrieved from <http://www.iied.org/clean-drinking-water-about-people-not-pipes>

⁶Videos can be found at <https://www.youtube.com/user/wateraid>

⁷IRC About Us, <http://www.ircwash.org/about-us>; IRC WASHCost, <http://www.ircwash.org/washcost>

⁸Charity:Water website, <https://www.charitywater.org/our-work>

⁹Charity:Water; Truth-out; Kristof.

¹⁰Charity:Water. Retrieved 2017 January 10 from <https://my.charitywater.org/donate/10-year>

¹¹Hutton, G. and Laurence Haller. (2004). Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level. WHO. Geneva, Switzerland.

¹²United Nations Department of Economic and Social Affairs. Water and Sanitation. Retrieved 2021 July 7 from <https://sdgs.un.org/topics/water-and-sanitation>