

HOW CAN WE create access to clean water in rural Ethiopia?

SYNTHESIS

The practice of handwashing is essential in the combat against COVID-19. Unfortunately, in the rural parts of Ethiopia, clean water and sanitation services are often not available for people to wash their hands.

The communities in the rural parts of Ethiopia are going to be our main stakeholders. Those communities are hit the hardest by the lack of improved water services, but they have the least influence in improving their situation. Other groups that play a role in our problem are the government, the private sector including industry and agriculture, and external bodies including NGOs.¹

We will design in the context of rural Ethiopia. Rural Ethiopia is divided in the Highlands and the Lowlands. There are big inequalities between those two areas. In the Highlands almost 90% of the households use improved water surfaces. However, many of them spend more than 30 minutes to get to the water source, this means they have limited water service.

In the lowlands, only 27% use improved water surfaces. The rest uses unimproved water services or don't have water service at all, they use surface water.² Improved water services is defined as: located on premises, available when needed, and free of faecal and chemical contamination.³

In the Lowlands as well as in the Highlands there is a lack of (improved) sanitation services. Improved sanitation services include sanitation facilities that hygienically separate human excreta from human contact. Unimproved sanitation services are for example open pits latrines, hanging latrines or bucket latrines. Many people in the Lowlands do not have any sanitation service which results in open defecation.⁴ We will design a product that

will improve hygienic activities of our stakeholders like hand washing.

There are already existing technologies that could provide rural Ethiopia with cleaner water. Atmospheric water harvesting could be a solution. However, this is not widely used because there is a high energy consumption and high initial costs.⁵ Another technology is the rainwater harvesting, this is already used in schools with a large surface area on the roof to capture the rain.⁶

We want people to be able to have access to clean water supply. With this we provide our stakeholder with an improvement of the capability to live and to have a better bodily health. With improving the water and sanitation services for our stakeholders not only the risk for corona decreases, but there will also be a much lower risk of water-borne diseases like diarrhea. Therefore, we will improve the capability to live without being sick. It is also important to make a design that is appropriate for our stakeholders, our design should be sustainable and easy to repair by the communities themselves.

¹ Hailu, R., Tolossa, D., & Alemu, G. (2017). Water security: stakeholders' arena in the Awash River Basin of Ethiopia. *Sustainable Water Resources Management*, 5(2), 513–531. <https://doi.org/10.1007/s40899-017-0208-2>

² Unicef Ethiopia (2020) Summary Findings from sustainability checks for rural WASH in Ethiopia. Retrieved from: <https://www.unicef.org/ethiopia/sites/unicef.org.ethiopia/files/2020-07/TP11%20-%20Ethiopia%20rural%20sustainability%20checks.pdf>

³ World Health Organization. (2019, July 22). Monitoring drinking-water. Retrieved from: https://www.who.int/water_sanitation_health/monitoring/coverage/monitoring-dwater/en/

⁴ World Health Organization. (2016, August 29). Key terms. https://www.who.int/water_sanitation_health/monitoring/jmp2012/key_terms/en/

⁵ Notman, N. (n.d.). Atmospheric water harvesting. *Chemistry World*. <https://www.chemistryworld.com/features/atmospheric-water-harvesting/4011929.article>

⁶ Lifewater International. (2020, September 23). Five Types of Appropriate Technology for Water. <https://lifewater.org/blog/types-appropriate-technology-water/>