Climate Action
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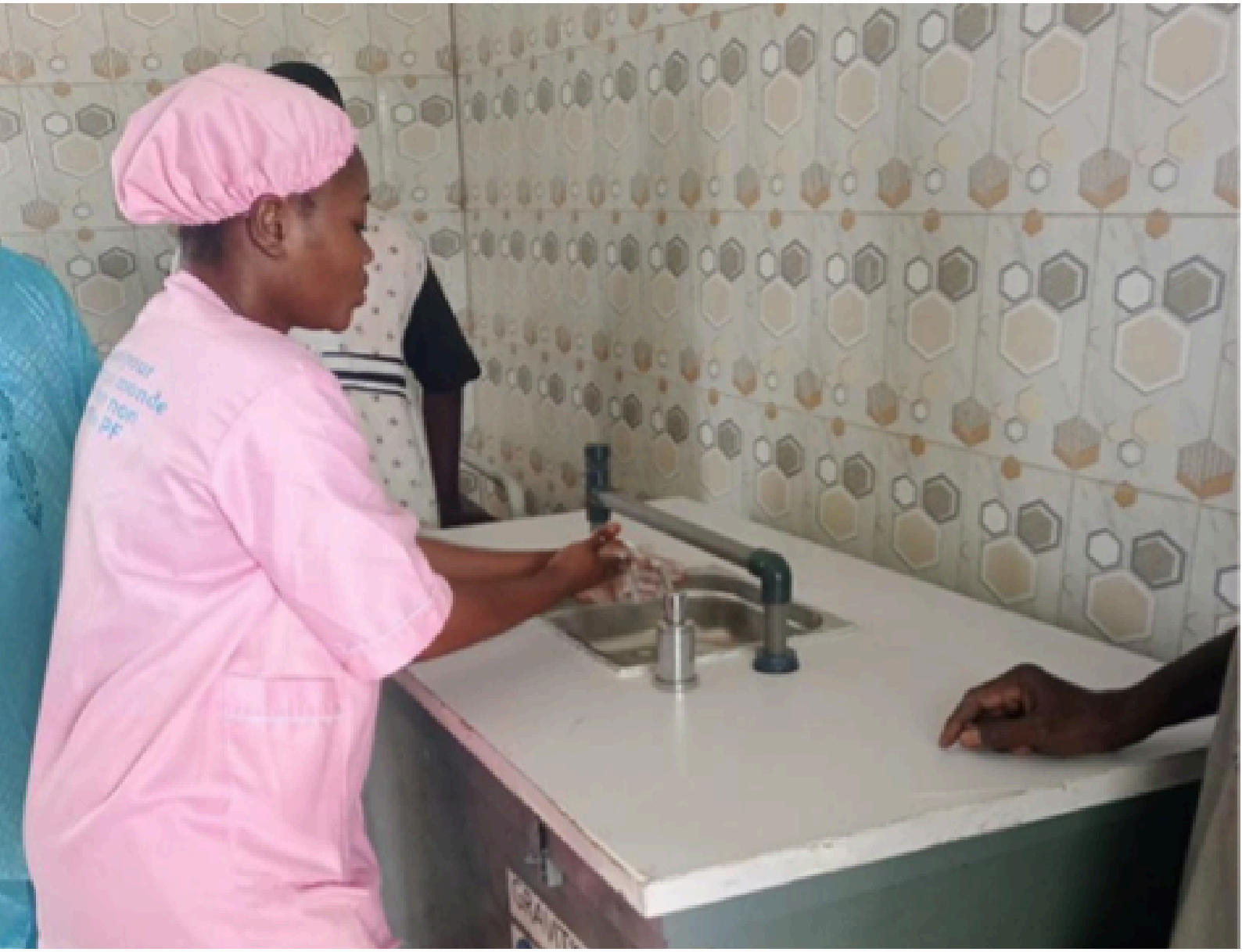
CASE STUDY

Terre des hommes & the Gravit'eau system



Terre des hommes: Improving the health of vulnerable populations by promoting access to handwashing

The Gravit'eau system, implemented by Terre des hommes and partners, provides mobile handwashing stations with an automatic water recycling mechanism. Its modular design, local manufacturing, and easy deployment make it a scalable, life-saving innovation in crisis settings facing severe water scarcity.

RESULTS

50% reduction in cases of diarrhea and pneumonia in children who washed their hands

3'000L of water are saved every 10 days in a school of 500 children.[1]

Refill needed only **every two to four weeks**.[2]

150 hand stations operational in 3 countries in 2023

[1] Gravit'eau, 'Water-recycling handwashing stations', *Gravit'eau,* https://www.graviteau.org/handwashingstation, (accessed on 8 August 2025).
[2] Gravit'eau, 'Water-recycling handwashing stations', *Gravit'eau*, https://www.graviteau.org/handwashingstation, (accessed on 8 August 2025).

SUCCESS CONDITIONS

- **Recycling system:** reduces the station's water requirements and operates without electricity.
- **Modular design**: adaptable to different needs and sizes.
- **Local manufacturing**: possible and essential in contexts of crisis and water shortages.
- **Limited maintenance**: The water needs to be changed only once a month, and the washing station requires very limited maintenance.
- **Training support**: videos and online materials available for deployment and use.

WHAT'S THE PROBLEM ?

Climate change is exacerbating droughts and changing rainfall patterns in different parts of the world, particularly in Africa. The decrease in rainfall and the scarcity of water have major consequences on the health of vulnerable populations already facing crisis situations. It is very likely that this water scarcity, aggravated by population growth and pollution of water resources, will increase massively in the coming years. According to a report published by the World Meteorological Organization in October 2021, the number and duration of droughts have increased by 29% over the past 20 years.[3]

In 2023, 2 billion people, or 26% of the world's population, did not have access to a safe water supply and 3.6 billion, or 46% of the population, did not have access to safe sanitation.[4] Every day, 1000 children die from diseases caused by lack of sanitation and hygiene. These diseases could be easily prevented if access to safe water and sanitation were provided.[5]

Recently, the COVID-19 pandemic has demonstrated the critical importance of sanitation, hygiene, and adequate access to safe drinking water to prevent and control disease. According to the World Health Organization, handwashing is one of the best ways to prevent the spread of pathogens and infections.[6]

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[3]World Meteorological Organization, 'Wake up to the looming water crisis, report warns', *WHO*, 2021, https://wmo.int/news/media-centre/wake-looming-water-crisis-report-warns, (accessed 8 August 2025).
[4]UNESCO, 'Imminent risk of a global water crisis, warns the UN World Water Development Report', *UNESCO*, 2023, https://www.unesco.org/en/articles/imminent-risk-global-water-crisis-warns-un-world-water-development-report-2023?hub=68313, (accessed 8 August 2025).
[5]United Nations, 'Sustainable Development Goals', *United Nations*, https://www.un.org/sustainabledevelopment/water-and-sanitation/, (accessed 8 August 2025).
[6]World Health Organization, 'Billions of people will lack access to safe water, sanitation, and hygiene in 2030 unless progress quadruples - warn WHO, UNICEF', *WHO*, 2021, https://www.who.int/news/item/01-07-2021-billions-of-people-will-lack-access-to-safe-water-sanitation-and-hygiene-in-2030-unless-progress-quadruples-warn-who-unicef, (accessed 8 August 2025).

WHAT'S THE SOLUTION?

To address the lack of water in crisis contexts, the Terre des hommes organisation, in partnership with Fachhochschule der Nordwestschweiz (FHNW), Graviteau Association, SKAT foundation, Swiss TPH, RANAS Limited, and EPFL, and financed by the ELRHA Humanitarian Innovation Fund, Swiss Solidarity, and the Swiss Agency for Development and Cooperation (SDC), deploys mobile hand-washing stations on its projects that use an automatic water recycling system.

The Gravit'eau system

Gravit'eau mobile handwashing stations use very little water thanks to an automatic recycling system. Ideal for crisis and water shortage situations, Gravit'eau safely reduces water consumption by up to 95% per handwash compared to other methods.

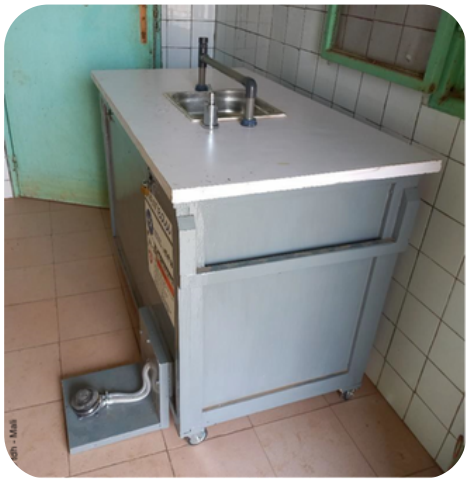
Water for hand washing is discharged by operating a foot pump. The wastewater is collected in a tank and automatically filtered by a membrane. The filtration membrane is extremely fine and does not allow bacteria or viruses to pass through. The whole system works by gravity. This technology allows water to be recycled without electricity, without complex maintenance and without continuous chemical input. In addition to hand washing, other uses for this filtration technology are being explored for larger quantities of water, including treatment of domestic wastewater used for cooking or personal hygiene.

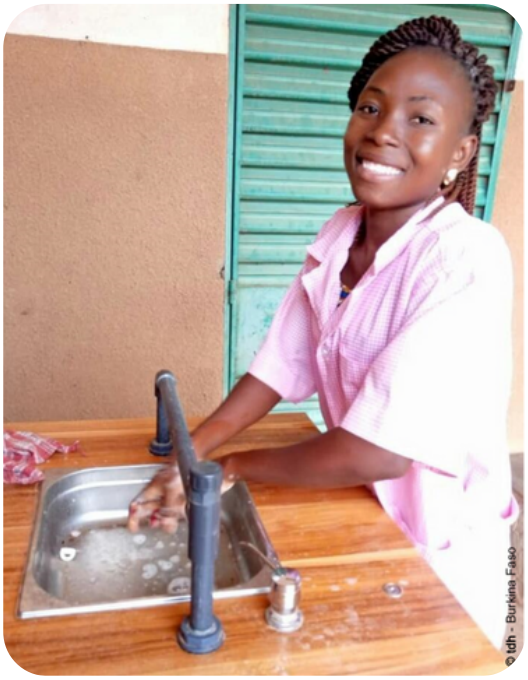
Deployed as part of a pilot project in a camp for displaced persons in Nigeria, this innovative idea has enabled more than 400 children to wash their hands every day, thereby reducing the spread of infectious diseases and limiting epidemics such as cholera or Ebola. Cases of diarrhoea and pneumonia were reduced by 50% in children who washed their hands, and 1,000 litres of water were saved each day. This experience was then replicated in other contexts (Mali, Burkina Faso) where access to sanitation facilities is limited, such as health centres, schools, and refugee camps.[7] By 2023, 150 hand stations will be operational in 3 countries.

[7]Terre des hommes, 'Gravit'eau: washing hands with recycled water', *Terre des Hommes*, https://www.tdh.org/en/projects/graviteau , (accessed 8 August 2025).

Modular design and local manufacturing

The Gravit'eau handwashing station has a modular design. It can be easily adapted to the needs of different user groups, in terms of size and context. The station can be manufactured with locally available materials and only a compact and lightweight hardware kit needs to be shipped from Europe. This kit includes a membrane module, foot pump and connectors, a basic tool kit and a liquid or foam soap dispenser. A detailed manual is provided with the kit developed by the Graviteau Association. Videos and online training are also available. In the field, the Gravit`eau team organises trainings and workshops to build the systems using locally available water containers as well as the wood, plastic or aluminium sheets commonly used for housing.





CONCLUSIONS

Handwashing is an essential activity in the prevention of contagious diseases and the spread of epidemics. The Gravit'eau system, implemented by Terre des hommes, is a major innovation that allows better access to handwashing and thus improves the sanitary conditions of the most vulnerable populations in contexts of crisis and water shortage.

RESOURCES

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- World Meteorological Organization, 'Wake up to the looming water crisis, report warns', *WHO,* 2021, https://wmo.int/news/media-centre/wake-looming-water-crisis-report-warns, (accessed on 8 August 2025).

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Contact us

Chemin des Mines 2
1202, Genève
contact@climateactionaccelerator.org

climateactionaccelerator.org