

The quest to address the global sanitation crisis



Almost 250 years have passed since the invention of the modern flush toilet. With nearly half of the world's population still lacking access to safely managed sanitation, it is time to accelerate change.

Despite substantial efforts and progress over the last decades in increasing the number of people who have access to safely managed sanitation, 3.5 billion people are still lacking¹. Safely managed sanitation can be either sewer or non-sewer (on site). Households connected to sewers are classified as having safely managed services if the wastewater is transported to a treatment plant with secondary or higher-level treatment. Households with improved on-site facilities that can store and treat excreta, such as septic tanks, improved pit latrines, and decentralized wastewater treatment systems, are also classified as having safely managed services if the facilities effectively separate excreta from users and the environment and the excreta are either removed and treated off-site or treated and buried locally.

On-site sanitation was long seen as a temporary solution while waiting for sewers to be implemented. However, it has become clear that sewers and centralized treatment systems are no silver bullets. Sewerage services come with large capital and operating costs and may be unpractical in low-density settlements and where the utilities are not technically or financially viable. There are currently around 594 million people with sewer connections that don't count as safely managed because they don't receive sufficient treatment².

The use of both on-site and sewer sanitation is growing globally, but on-site is growing faster. And in 2020, for the first time, more people used on-site sanitation than sewer. Yet despite their importance in large parts of the world, conventional on-site technologies such as pit latrines and septic tanks also come with their share of challenges. In high-density urban areas, for example, high usage and limited access to faecal sludge removal services can lead to unusable technologies due to pit filling or septic tank overloading. And poorly designed and maintained pits and septic tanks can contaminate water bodies,



resulting in both environmental and human health hazards.

As mentioned by Doulaye Kone in his [World View](#), the Bill & Melinda Gates Foundation and other initiatives have accelerated the development of a variety of new technologies to better treat wastewater and faecal sludge at the decentralized level while recovering valuable resources such as energy, clean water, and nutrients. These new technologies are named non-sewered sanitation systems. In her [World View](#), Sonia Grego writes about the need for such non-sewered sanitation systems that can treat wastewater to a higher standard than conventional on-site technologies while enabling reuse of the non-potable water. Such systems could help provide safely managed sanitation in rapidly expanding cities in water-scarce areas and remote and geographically challenging locations. However, commercialization of new technologies takes time. While core technologies and processes have been developed, there are still a range of challenges to overcome for broad deployment at scale. Social and cultural acceptance of blackwater reuse is one example.

In 2021, 539 million children lacked basic sanitation services at their school. This includes 240 million children whose school has no sanitation services and 299 million where the school has improved facilities but which are not single-sex or not usable³. While much work is going into improving access to sanitation, both in general and in schools, there are relatively few studies focusing on the sustained cleaning of

toilets in schools once access has been achieved. In their [Perspective](#), Fiona Vande Velde and colleagues summarize the existing literature on the impacts of unclean school toilets in low-income settings on child health and discuss methods that have been trialled to achieve school latrine cleaning programmes.

The 19th of November, World Toilet Day 2023, is about accelerating change. This is needed in both low-, middle- and high-income countries. While the mainstream perception may be that all residents in high-income countries have access to safely managed sanitation, Jillian Macey-Brown and colleagues write in their [Review](#) about important and persistent sanitation deficits in the US. To accelerate change in the sanitation sector, the public and private sectors need to collaborate. We need policies that encourage the use of new technologies, we need the technologies to be affordable in low-income settings, and we need visionary companies to get involved in everything from manufacturing to distribution to service providers.

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References

1. *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2022: Special Focus on Gender* (UNICEF and WHO, 2023).
2. *Progress on Household Drinking Water, Sanitation and Hygiene 2000–2020: Five Years into the SDGs* (UNICEF and WHO, 2021).
3. *Progress on Drinking Water, Sanitation and Hygiene in Schools: 2000–2021 Data Update* (UNICEF and WHO, 2022).