Dry Toilets: An Approach to Provide Safe Sanitation and Sustainable Sewage Treatment?

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STORY HIGHLIGHTS

Dry toilets could pave the way to achieving SDG 6 (clean water and sanitation) by providing safe sanitation and sustainable sewage treatment.

One case example can be found in some regions of Haiti, where dry toilets have been implemented in cooperation with Sustainable Integrated Livelihoods, to combat the prevailing lack in water availability and sanitary infrastructure.

Dry toilets can also serve as an approach to secure appropriate hygiene for households and communities in water-scarce areas, and to use the management of sewage treatment to protect the environment and support

According to the 2019 World Water Development Report (WWDR), only two out of five people across the globe had access to safely managed sanitation services in 2015 (World Water Assessment Programme (WWAP 2019)). Combined with the increasing risk of water scarcity, this calls for solutions that can be implemented fast, are not cost-intensive, and are easy to operate and maintain. Dry toilets could pave the way to achieving SDG 6 (clean water and sanitation) by providing safe sanitation and sustainable sewage treatment.

Leaving No One Behind

In accordance with SDG 6, approaches such as Integrated Water Resources Management (IWRM) aim to turn water security into practice. As defined by the Encyclopedia of Sustainability in Higher Education, water security is achieved when water is available in terms of quantity, quality (sufficiently treated), and access (Schneider, Avellán, and Le Hung 2019).

Yet, about 4 billion people suffer under water scarcity for at least one month per year, indicating that there is not enough water to fulfil human demand (WWAP 2019).

One path towards water security is to increase the reuse and recycling of wastewater in certain regions to use the limited available water resources in a more sustainable manner by aiming at reducing the increase of freshwater withdrawals (Schneider, Avellán, and Le Hung 2019).

In industrialized countries and most urban regions, usually centralized wastewater treatment and sewage plants or localized systems are implemented and work by piped systems or sanitary trucks. But low- to medium-income countries often lack facilities, finances or capacity for the implementation of appropriately installed and maintained wastewater treatment plants (WWTP).

Dry Toilets to Provide People with Sanitation Facilities

To overcome global issues such as poverty and climate change that have dire

advantages offered by dry toilets (WWAP 2019). In several regions worldwide, dry toilets are already in use. One case example can be found in some regions of Haiti, where dry toilets have been implemented in cooperation with Sustainable Integrated Livelihoods (SOIL), to combat the prevailing lack in water availability and sanitary infrastructure.

In this case, as demonstrated in the chapter co-authored by the UN University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) and UN University Institute for Water, Environment and Health (UNU-INWEH) in the WWDR, households can rent compost toilets for about USD 5 per month. The toilets are collected by SOIL workers and brought to a treatment site, where waste is transformed into compost, and serves as organic fertilizer that is sold to support local agricultural and recreational projects (WWAP 2019). This benefits both the environment and the overall community (WWAP 2019).

Purifying water, that then gets mixed with urine and faeces in the toilet, and pumping wastewater to the WWTP to subsequently clean it for further use, puts high energy demand on most municipal WWTPs (Avellán 2017). Compost toilets skip this complex process by separating urine and faeces in different containers. In addition, due to high nitrogen content, urine could be used as fertilizer, and faeces could be composted and used for soil amendment in non-food plants under appropriate legal conditions with good training on management and handling of this waste. Thus, dry toilets also represent a sustainable way to combat the shortage of nutrients in 135 mega hectares of soil worldwide that are prone to nutrient exhaustion (Avellán 2017).

To advance SDG 6 by addressing global challenges regarding water as well as wastewater management and sanitation, dry toilets can serve as an approach to secure appropriate hygiene for households and communities in water-scarce areas, and to use the management of sewage treatment to protect the environment and support local agricultural and recreational projects (Schneider, Avellán, and Le Hung 2019; WWAP 2019).