



## CLEAN TEAM CONTAINER-BASED SANITATION SERVICE

# Waterless sanitation as a service

### KEY CONCEPTS

CONTAINER-BASED SANITATION, TOILETS, WATER TREATMENT, COMPOSTING, HYGIENE, DIGNITY, SAFETY, RESOURCE RECOVERY, WATER SCARCITY, ECO-SAN

One of the most enduring challenges globally, the lack of adequate sanitation facilities is particularly acute in Africa's informal settlements, where it compromises human and environmental health, the safety of vulnerable populations, and economic productivity. Clean Team Ghana Ltd, a social enterprise in Kumasi, Ghana, provides waterless portable toilets for those seeking the benefits of an in-home toilet in contexts unfriendly to installation of piped sanitation infrastructure. Creating jobs and improving sanitation, the service provides innumerable social, health, and environmental benefits.

**COMMUNITIES**  
203 communities in Kumasi

**POPULATION**  
1,7 million people in 2010

**DENSITY**  
8 075 inhabitants per km<sup>2</sup>

**INFRASTRUCTURE DEFICITS**  
Limited private sanitation, limited municipal solid waste collection, limited water inside dwellings

**CLIMATE**  
Tropical climate, mean low 21.1°C, mean high 34.4°C

**RISKS**  
Environmental pollution, disease outbreaks

## Introduction

In Kumasi—Ghana's second largest city and the capital of the Ashanti region—only 40% of families have in-house flush toilets connected to a septic (36%) or sewerage (4%) system. This means the majority of residents, many in high-density, low-income settlements, must use pay-per-use public toilets (39%), pit latrines (11%), and/or Ventilated Improved Pit (VIP) Latrines (7%). The practice known as the “flying toilet” or “take away”—using and discarding a plastic bag for defecation—is also common. While public toilets can reduce open defecation (a practice accounting for 3%), they come with challenges, including maintenance, proximity, and access: most close by 10 pm, and long morning queues make them inconvenient. Beyond questions of inconvenience, the benefits of in-home toilets connect directly to real issues of safety. A toilet in the home means one does not have to leave the compound at night—a fact particularly pertinent for the safety of women and girls, especially when menstruating. Finally, inadequate sanitation also has adverse cascading environmental, social, and economic ramifications. From pollution and disease to lost productivity, the costs of unsafe sanitation are massive, especially for women.

## How it works

Established in 2012, Clean Team Ghana Ltd aimed to address these challenges by providing container-based sanitation (CBS) using an empty cartridge for solid waste (and sawdust to cover), and a mechanism to divert urine (into a container that the homeowner empties into a drain or outside the home). Only containing solid waste, cartridges are taken biweekly to nearby collection points by tuk tuk (three-wheeler vehicle), before going to a processing facility, where they are emptied, cleaned, and prepared for reuse. Faecal matter is dried and landfilled. Using a mobile payment system and QR codes on the toilets, collections are tracked, with the system providing real-time information on collection frequency and payment status.

## Governance

Piloted in 2011 and launched operationally in 2012, the Clean Team toilet was designed as a partnership between Water and Sanitation for the Urban Poor (WSUP), Unilever, and IDEO.org. Funded by development partners and international funders, the units are currently manufactured overseas, and cost USD92 inclusive of fees, duties, and transport to Kumasi. The Kumasi Metropolitan Assembly (KMA) supports Clean Team by providing in-kind support in the form of free access to a part of Dompouse landfill (for emptying and cleaning cartridges). KMA also subsidises Clean Team's disposal of faecal matter by charging only for equipment rental.

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## The Impact

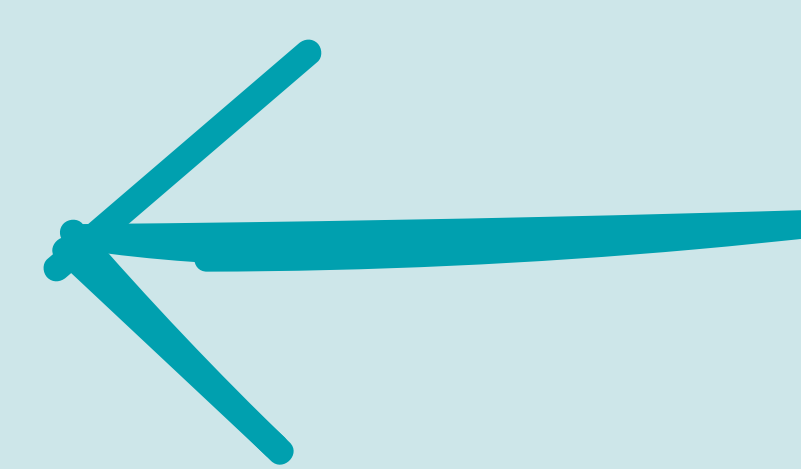
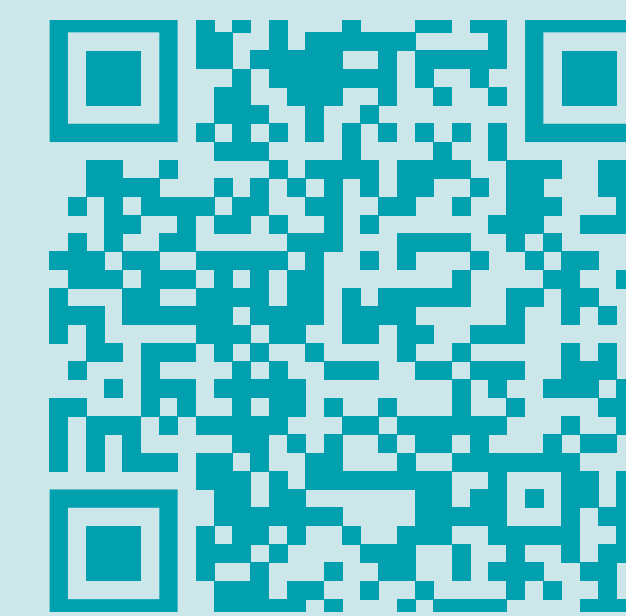
IMPACT	SOCIAL	ENVIRONMENTAL	ECONOMIC
Improved sanitation through private toilets in home	×	×	×
Urine separation facilitates the disposal of solid wastes		×	×
Improved safety in relation to faecal matter management	×	×	
Waterless sanitation option		×	
Job opportunities	×		×
Cheaper for some households than public toilets	×		
Convenient for women and elderly	×		
Portable so can be moved if the family moves	×		
Installation does not require earthworks or displacement of households	×	×	

## Looking Ahead

Clean Team is currently exploring cover materials other than sawdust (which would reduce collection frequency, and thus transport and operations costs), and trying to increase its customer base to service a denser (and thus more profitable) population. Exploring waste-to-resource opportunities, Clean Team has commenced a six-month pilot with Safi Sana Holdings to turn solid waste into compost by co-composting with market waste, and testing the quality and acceptability of resultant market waste.

## Learn More

SCAN THE QR CODE TO ACCESS THIS CASE STUDY



**Bibliography**  
 1. 2010 population and housing census: district analytical report. Kumasi Metropolitan. 2014. Ghana Statistical Service. Available at: [http://kma.govgh/ghna\\_metro/docs/945KMA12011.pdf](http://kma.govgh/ghna_metro/docs/945KMA12011.pdf) (Accessed 16 Nov. 2022).  
 2. Clean Team: A business tackling sanitation challenges in Ghana and beyond 2014. Available at: <https://www.youtube.com/watch?v=Qy45H-4P4A> (Accessed 16 Nov. 2022).  
 3. Anura, A. 2022. Email communication. November 2022.  
 4. Ganiyu, K., Ghosh, R.J. and Rowan, N. 2020. Opened inclusive sanitation—business as unusual: shifting the paradigm by shifting minds. *Frontiers in Environmental Science*. Doi: <https://doi.org/10.3389/fenvs.2019.00201>  
 5. Krutson, J.R. 2014. Evaluation of innovative decentralized sanitation technologies in Ghana Master's thesis, Massachusetts Institute of Technology.  
 6. Bani, K.C., Hughes, K., Raach, M., Auerbach, D., Fofie, A., Kramer, S. and Brindley, R. 2019. Taking container-based sanitation to scale: opportunities and challenges. *Frontiers in Environmental Science*. Doi: <https://doi.org/10.3389/fenvs.2019.00190>  
 7. Sanitation .nd. Available at: <https://www.worldbank.org/en/topic/sanitation> (Accessed 17 Nov. 2022).  
 8. SFD Promotion Initiative, Kumasi, Ghana. 2015. The SFD Promotion Initiative (online). Available at: <https://www.sasana.org/> (resources/documents/bsfau/25-2361-17447768686.pdf) (Accessed 16 Nov. 2022).  
 9. World Bank. 2019. Evaluating the Potential of Container-Based Sanitation. World Bank. Available at: <https://documents.worldbank.org/curated/en/60371507846944pdf/Evaluating-the-Potential-of-Container-Based-Sanitation-Clean-Team-in-Kumasi-Ghana.pdf> (Accessed 16 Nov. 2022).