

PIONEERING HOUSEHOLD CONTAINER BASED TOILETS IN LOW INCOME URBAN SETTLEMENTS

Location: Nairobi, Kenya.

Timeframe: 2010 – 2021

Project Status: completed

1. PROBLEM/GAP BEING ADDRESSED:

Over 2 million people live in informal, low income, settlements in Nairobi and the majority lack access to a safe sanitation facility. Existing approaches to address the sanitation crisis have focused on improving coverage through construction of latrines at plot (several households sharing) or community level (public toilets). These conventional approaches are constrained due to high population densities, insufficient land, short life span of latrines, cost and safety issues. Latrines are generally not open at night and require frequent manual desludging which commonly ends up in rivers and open drains, further exposing residents to public health risks. As a consequence residents are often forced to resort to open defecation or use of potties, make shift containers and plastic bags in their home (particularly at night), which are subsequently emptied into open drains, rivers or tossed away (“flying toilets”). Women and children tend to spend a greater proportion of their time within settlements and consequently are disproportionately affected by this problem.

2. SOLUTION:

This project set out to confirm whether a household container based toilet (CBT) could provide an effective, 24-7, sanitation solution which addresses issues of convenience, safety, hygiene, privacy and dignity. . Container based sanitation (CBS) differs to improvised containment of urine and faeces widely practiced in camps and urban slums by offering a dignified and hygienic, “closed loop” solution, as faeces and urine is safely contained prior to disposal at an agreed site ensuring public health risks are safely managed. The absence of suitable¹ toilet products for the bottom of the pyramid market, meant that designing and production of a toilet was a key element of the project.

3. RESULTS:

The toilet underwent several iterations based on feedback from users and operators servicing the toilets. Prototype 1, the “jitegemee” toilet produced in India was field trialled in 2011 across 100+ HHs in 2 settlements of Nairobi. Feedback was positive confirming an interest in the concept of CBTs but the low cost design was considered crude and odour was a significant barrier and deterrent to siting a toilet inside dwellings. Consequently version 2 was a urine diversion toilet which utilised readily available recycled vessels for waste collection. In 2013 Oxfam took the idea to a Nairobi based start-up – Sanergy – a social enterprise focusing on developing a sanitation franchise which explored waste to value by products. Sanergy had independently developed its own communal level CBT and they had business, sales & marketing and product design skills that Oxfam lacked. Increasingly as the project developed from 2014 onwards, Sanergy have led the process which has included several prototypes using fibreglass and 3-D printing under the development name ihud (in home urine diversion). User centre design principles have been followed with regular consultation with users/customers and service operators being instrumental in refining the design. The final product now being produced by a commercial manufacturer in Nairobi is version 5. The toilet is a high quality product which should last several years. It consists of 5 components – the base (which is also the urine tank) and body are rota moulded, an injection moulded lid, a faeces container is produced from recycled metal and faeces bags (reusable or biodegradable).

Uptake remains slow, at the start of 2021 Sanergy had ordered 3,000 toilets but only 100+ HH toilets were in operation under its “freshfit” brand name. This complements the larger communal “Freshlife” toilets where there are several thousand operation units in Nairobi.

This project initiated and hosted a [Toilet Summit](#) in 2016 in UK for leading global specialists of container based sanitation, which led to the formation of the Container Based Sanitation Alliance, which has been instrumental in convincing WHO/UNICEF Joint Monitoring Programme to recognise CBS as improved sanitation.

¹ The commercial market for container or cartridge toilets is driven by demand from camping, caravans and boats and products tend to be chemical based so are not suitable to a humanitarian context.

The cost of the toilet at £65 is above the initial target price of \$50 that the project was aiming for. It is available to purchase through the Oxfam [Supply centre](#).

4. LEARNING/APPLICABILITY ELSEWHERE:

Container based toilets are an additional option to address sanitation needs where conventional means are not appropriate – e.g. difficult ground conditions (rock, collapsible soil, flood prone areas) or where there are restrictions for digging or permanent structures. Although designed for urban slum contexts, there are many similarities with displacement camps. Practically toilet units stack and nest for ease of transport so lend themselves for rapid deployment in a humanitarian context. As a household level toilet, it potentially provides a dignified solution for people who are unable to access, or afraid using, shared sanitation facilities, e.g. elderly, people living with special needs, women and children.

CBS has not been proven at scale in a humanitarian context. Before considering whether container (CBS) is appropriate it is essential to consider how waste will be managed. On a small scale CBS may be appropriate as self supply/management with users being responsible for emptying waste in nearby latrines. As numbers increase so does public health risk through unsafe disposal of waste by some individuals. At relatively low numbers (50+) it may become viable as a livelihood opportunity to service toilets. It is worth noting that it has taken Sanergy almost 10 years to establish their business and get to a point where they are now able to take CBS to scale.

5. ADDITIONAL INFORMATION:

Project documents ([Box link](#)), [CBS implementation guide](#); [World Bank evaluation of CBS](#). A critical factor for the success of this project was time and flexibility afforded by the WIF funding. Innovation also takes time, in this case ten years from conceptualisation to completion (and it is still ongoing). Oxfam identified a very strong Kenyan partner (Sanergy) and gave them space to lead the project. Several funding streams have enabled this project: WIF £25K (2010-2011), HECA innovation fund £35K (2012-13), £62,588 (2016-17), \$US30,000 Emergency Sanitation Project (2018)

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The final toilet product being modelled by a Sanergy employee