



Project author or developer:

**David Auerbach, Nathan Cooke, Lindsay Stradley, Ani Vallabhaneni**

Where:

**KE / Kenya / Nairobi**

Website:

**saner.gy**

2.5 billion people lack access to hygienic sanitation. Inadequate and unhygienic sanitation is the second largest cause of disease in the world. It leads to contaminated waterways and food supply, as well as infections like diarrhea, caused by direct contact with human waste. Diarrheal disease kills nearly 1.6 million children each year. Children under age 5 suffer more from diarrheal diseases than HIV/AIDS, malaria, and tuberculosis combined. This effects not only individual families, but entire economies. Developing countries lose ~2% of GDP each year due to lost worker productivity from sanitation-related diseases. The problem is particularly acute in slums, where over 1 billion people live. By 2030, this population will double to over 2 billion people worldwide. The high population density in slums, combined with the lack of physical space, infrastructure, and resources exacerbates the sanitation crisis. Kenya's 8 million slum residents are forced to rely on unsanitary options such as "flying toilets" (defecating into plastic bags that are then tossed onto the streets) and pit latrines that release untreated human waste into the environment. These sanitation solutions are not only undignified, but also cause immense environmental damage. Pit latrines are emptied every few months by poorly trained and equipped service employees. These "frogmen" jump into the pits of human waste, manually empty the pit latrines using buckets, and then haul the overflowing buckets of waste through the community to the nearest waterway or field, where the buckets' contents are released into the environment. In sum, 4 million tons, or 90% of faecal sludge from Kenya's slums are discharged into waterways and fields every year. BuildWe design and manufacture low-cost, high-quality sanitation facilities. Developed by our engineers, the Fresh Life Toilet is pre-fabricated at our local workshop. Our FLT features qualities users value most: Hygiene: FLT are made of high-quality materials that are easy to keep clean and maintain. Accessibility: FLT have a small footprint that enables us to install them close to homes. Affordability: FLT are cost-effective and include essential features like hand-washing facilities. Franchise. Through informal settlements, we build a network of Fresh Life Operators "local residents who purchase and operate our hygienic sanitation facilities. The operators become franchise partners: we provide our FLT, training, access to financing, ongoing operational and marketing support, and a daily waste collection service. The FLO generates local demand and ensures that the FLT is kept clean. Collect. We collect the waste on a daily basis. Our Fresh Life Frontline is trained and properly equipped to remove the filled cartridges and replace them with clean empty cartridges. The waste is safely removed from the community by wheelbarrow, handcarts, and/or truck. The wheelbarrows and handcarts ensure that we can install FLT deep in informal settlements where there are only narrow, unpaved roads as access points. Convert. We convert the waste at a centralized facility into useful by-products such as organic fertilizer and renewable energy. To produce the fertilizer, we co-compost the waste with sawdust, other carbon sources and effective micro-organisms, which eliminates pathogens. Then, we let the compost mature in windrows. Once ready, we test every batch of fertilizer by third parties to ensure compliance with World Health Organization standards. We also find ways to re-use the urine and capture the biogas released by the waste. 100% of the waste is safely treated. Transfer. In East Africa,

