

INCLUSIVE INNOVATIONS

Meeting the Sanitation Needs of the Poor with Serviced Toilets

Waterless toilets provide a sanitary solution to people in urban and peri-urban communities who are not connected to the sewerage system

HIGHLIGHTS

- Waterless and diverting toilets offer improved sanitation options suited for unserved urban slums.
- Aspirational name, branding, and design help make toilets attractive for users.
- Low costs and innovative payment models make units affordable.
- Waste is removed in portable containers and often used to make fertilizer or briquettes.



Summary

Millions of people at the bottom of the pyramid live in communities that are not connected to the sewerage system. Most of them use pit latrines or engage in open defecation. To address the problem, dozens of social enterprises (SEs) have devised innovative toilets that require no water. These low-cost in-home or community units represent a huge improvement over unimproved sanitation and create jobs for people who install and service them.

Development Challenge

Most of the world's population—almost 4 billion people—now live in cities. The pace of urbanization has been most rapid in developing countries and emerging economies, where it has helped create deep pockets of urban poverty. According to the World Bank, more than a third of people living on less than USD 2 a day reside within city perimeters and UN-Habitat estimates that at least 40 percent of urban dwellers worldwide live in slums (World Bank 2013)

Globally, urban sanitation coverage stood at 82 percent in 2014. It was only 40 percent in low-income countries, 40 percent in Sub-Saharan Africa, and 64 percent in South Asia (World Bank, 2016).

Lack of sanitation infrastructure is one of the greatest barriers to increasing access to basic sanitation services. In dense urban areas where there are no public sewerage connections, traditional options—pit latrines, “hanging toilets”, “flying toilets,” and open defecation—are unsanitary. Pit latrines in urban areas fill up rapidly, are poorly maintained, and are often emptied by hand by unprotected workers. Hanging toilets—makeshift structures placed over a moving water stream—dump untreated waste into water bodies. Flying toilets are plastic bags that are filled with excrement and then thrown as far away as possible.

All of these options spread disease. More than half of the hospital beds in Sub-Saharan Africa are occupied by patients with preventable diarrheal diseases (UN Water, 2008). Open defecation also exposes people to shame, ridicule, and, in the case of women and girls, danger.

Improved sanitation has huge health benefits. But the benefits go beyond health. Healthy children are more likely to attend school (girls in particular are more likely to go to and stay in school if the school is equipped with a toilet for girls). Improvements in sanitation also protect water resources, keep rivers and coastal seas clean, and reduce the degradation of productive land and fisheries.

Serviced toilets are compact toilet units that can be used in homes and communities without access to centralized sewerage systems. Clients usually pay for using the toilets but do not own them. The company that owns the toilets empties them, treats the waste and converts it into fertilizer or fuel.

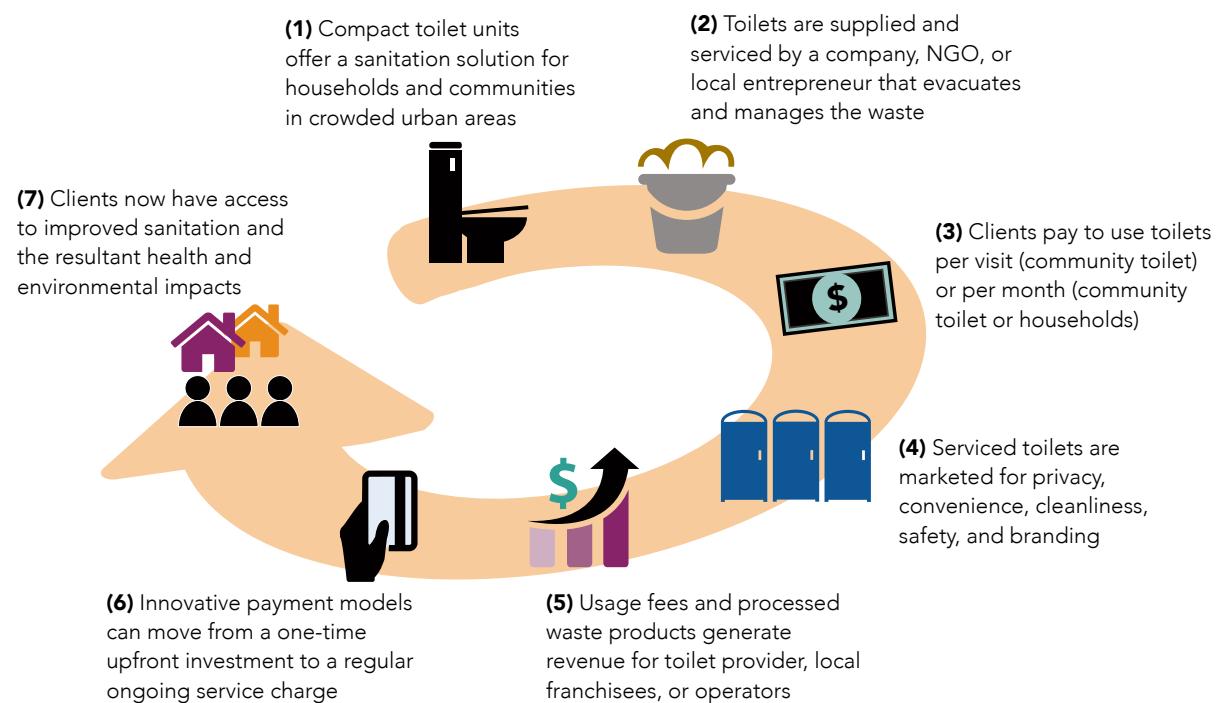
Business Model

Under a typical serviced toilet model, the enterprise supplies and installs the toilet and evacuates and often processes the waste. For community toilets, local franchisees or operators usually service the toilets, keep them clean, collect fees, and sell other services at the toilet site. Ecotact in Kenya, for example, operates “toilet malls,” which also serve as retail outlets for basic necessities such as prepaid mobile cards, snacks, and shoe cleaning services (Karugu 2010).

Components of the Model

Some companies produce the toilet units themselves, others purchase them from domestic or foreign suppliers. The units are then either rented or sold to franchisees and installed in the household or public space. The toilets come in various shapes and designs (squat plate or sitting). Waste is stored in containers in the ground and then evacuated into portable containers (one to four times a week for home units, daily for community toilets). Most toilets are designed to channel solid and liquid waste into different containers, which reduces odor and facilitates waste processing. Chemicals and sawdust are also used to reduce odor. Once removed, the waste is brought to a local waste treatment plant or processed at in-house facilities. (Some enterprises collect and treat waste on site, using chemicals. That model is not covered here.) Some companies use the recycled waste to produce goods, such as fertilizer (Sanergy) and charcoal briquettes (Sanivation). Figure 1 depicts features of the model.

Figure 1. Features of the serviced toilets business model



Cost Factors

Toilet design and construction are funded through capital investment (at least initially), which comes from public authorities (domestic or foreign) and/or private investors and philanthropic organizations. To keep the cost down, construction often takes place in-house, using locally available materials and workers from the local community. The number of users and their location density determines the cost-efficiency of distribution and servicing networks. Toilet installation and evacuation/servicing is usually covered by user fees to ensure affordability of the sanitation services. Depending on individual model, waste processing is covered through external grant/investment, user fees, or through revenues generated by sales of the recycled product.

Revenue Streams

Revenues come from two main sources: user fees and the sale of goods produced from treated waste. Some companies also sell or rent the toilets themselves, although most provide them for free, charging only for servicing. Some community toilets generate additional revenues from the sale of other goods and services, similar to those offered at convenience stores.

Users pay for use of a clean and serviced toilet either per month (for installation and use of a household toilet) or per visit (for use of a community toilet). Some models set prices based on willingness to pay surveys, sometimes reducing prices in response to lower demand or customer feedback. Some community toilet models leave it to the toilet operator to set prices, so that operators can offer services that are priced competitively in different areas.

Financial Viability

Given the availability of free, albeit unsanitary, options such as open defecation and latrines, there is heavy pressure for enterprises to keep prices low. Scale is critical to achieving financial viability, particularly at the franchisor level.

All models analyzed required initial financial and/or technical support; many pilots were fully grant funded. The businesses plan to eventually break even, however. Clean Team in Ghana expects to reach breakeven at 1,500 toilets installed at each central processing facility; X-Runner in Peru estimates that production of 1,500 toilets would allow it to cover all its costs. In some models development of a second revenue stream from the sale of processed waste byproducts is key factor in achieving financial sustainability. Companies take time to break even. In contrast, individual franchisees can start earning profits on their investments in about six months.

Partnerships

Models are set up and run by a mix of private companies, SEs, NGOs, local entrepreneurs, and, in some cases, local government agencies. These organizations play three key functions: supplying and installing the toilet, servicing toilets and serving clients, and disposing off and/or using waste.

Sanergy supplies prefabricated toilets and evacuates and processes waste. Its sister organization (a nonprofit called Fresh Life) operates the toilet network, provides training, and supports more than 300 local entrepreneurs, who earn steady incomes from their business. Local municipalities may get involved in waste management in models that dispose of the waste at local plants.

Implementation: Delivering Value to the Poor

Awareness

Companies' marketing strategies vary, leveraging positive and negative incentives. Positive incentives focus on hygienic toilets as an aspirational product. Clean and attractive design is an important feature for this message. Interestingly, promotion of the health benefits associated with improved sanitation is not necessarily a primary objective of the outreach strategy of many companies. Although some businesses have set up operations in areas where NGOs are actively promoting hygienic practices,

others distance themselves from such awareness-raising campaigns, which are perceived as “NGO-talk” and not directly relevant to the business brand and bottom line (Hystra 2014). Negative incentives focus on promoting behavioral change through peer group condemnation of open defecation as an antisocial behavior. Ecotact’s strategy in Kenya, for example, is based on such model of community-led sanitation (Karugu 2010). Promotion is handled mainly by sales agents at community events, through education in schools, and by word of mouth.

Acceptance

Customer feedback indicates that the safety, dignity, and cleanliness of the toilet and the surrounding areas are highly valued. Convenience is also an important driver of usage. The fact that serviced toilets are compact and can therefore be located in the heart of densely populated areas is a major advantage (Narracott 2013a). Branding plays an important role in building acceptance. To maintain it, franchisors close down franchisees that do not adhere to their standards. The fact that community members service the toilets helps drive adoption.

Accessibility

The toilets can be assembled on-site and placed inside or close to homes. They can be located in densely populated areas because portable waste containers can be carried by hand or wheelbarrow (obviating the need for access to roads).

Affordability

Public toilets are very rarely free, even when operated by the government or a charitable organization. Many people in developing countries are thus used to paying for toilets. Typical serviced toilet clients are slum residents with regular and predictable incomes, ideally with a separate space available where to install the toilet (such as a small courtyard or a separate room).

Results and Cost-Effectiveness

Scale and Reach

Serviced toilet companies target slum residents who have some disposable income. Some entrepreneurs who serve the bottom of the pyramid argue that in order to set up a sustainable business, companies need to start with the most profitable segment of the unserved market—more affluent households in low-income areas. Once business systems are functioning well, the businesses can innovate to bring costs down to serve customers farther down the income scale (Narracott 2013b).

The level of maturity of businesses and the numbers of people reached vary widely. Some pilots, such as Banza, Sanivation, and X-Runner, have fewer than 100 toilets each. Other community models operate several hundred toilets, reaching thousands of people a day (Sanergy, for example, operates more than 700 toilets, serving 31,000 users a day, World Bank 2015).¹

Improving Outcomes

The scale of operations is still too small to have a measurable effect on community or child health, as measured by such indicators as parasitic infection, diarrhea, and stunting. Service toilets have had an impact on individuals’ lives, however. All models examined in this study cite consumer satisfaction and increasing demand. “Fresh Life Operators”—people in informal settlements in Kenya who work for Sanergy—report having created a cleaner local environment. Schools with Sanergy toilets report higher student attendance. Women using Saraplast toilets report greater security and dignity.

¹ Companies such as Saraplast and DMT, which serve construction sites and public events, operate several thousand toilets. These figures are not considered here because these companies do not focus on people at the bottom of the pyramid.

Serviced toilets have also had a positive impact on operators' lives, generating revenue and employment. In the slums of Makuru and Mathare, in Kenya, for example, 321 residents now work for Sanergy as Fresh Life Operators, earning about USD 10 a week.

Cost-Effectiveness

Serviced toilets offer a cost-effective form of sanitation in places without public sewerage systems. Monthly household payments range from a few dollars (for daily usage of a community toilet) to USD 20 (for higher-end household toilets in certain regions) (table 1). Such expenditures represent a sizable portion of a poor household's monthly budget and about 5 percent of total income. (Sy, Warner, and Jamieson 2014).

A survey of 600 households in informal settlements in Bangalore, Delhi, and Pune, India revealed that half of all households were willing to pay for bathing and washing facilities. Willingness to pay across the three cities ranged from USD 0.70 to USD 1.90 a month—more than respondents were spending on existing facilities. Willingness to pay was not directly correlated with income (Sinroja, 2013). Thus, there exists a substantial opportunity in the market for serviced toilets.

Table 1. End-user costs of selected serviced toilet models

Provider/country	Monthly cost	Description
Household toilets		
Banza (Kenya)	USD 1.75 for households, USD 3.50 for institutions	Cost is twice the cost of a basic public toilet, about the same as an electricity bill, five times more than weekly garbage collection, more than three times more than public tap water (Hystra 2014).
Clean Team (Ghana)	USD 10–20, depending on frequency of service	Monthly public toilet fees for household of two adults and two or three children would run USD 3–USD 8.
Sanivation (Kenya)	USD 7	Servicing is biweekly.
SOIL (Haiti)	USD 5	Cost represents about 5 percent of household income. Regular public toilet use costs USD 1.50–USD 2 a month. Price set based on initial surveys on willingness to pay. People pay USD 2.30–USD 4.60 a month for cell phone usage (Hystra 2014).
X-Runner (Peru)	USD 14 for removal of waste and provision of sawdust (an odor neutralizer)	Cost is equivalent to 3 percent of average household income (Hystra 2014).
Community toilets		
Bio-Centers (Kenya)	USD 1.50	Fee is USD 0.05 per household per day. Weekly or monthly pricing with unlimited access for all household members is available. Packages also offer water, bathing, and cooking fuel (Unmande 2015).
DMT (Nigeria)	USD 46.50	Fee is USD 0.31 per visit (Iwuoha 2013).
Ecotact (Kenya)	USD 9.50	Fee is USD 0.063 to use toilet and USD 0.125 to take a hot shower (Karugu 2010).
Sanergy (Kenya)	USD 6	Toilet franchisees set fees. Recommended price is USD 0.03–USD 0.05 per visit (phone interview with Medora Brown, communications manager, Sanergy, April 2015).

Note: Some models (such as SOIL and Sanergy) offer both household and community solutions. They are categorized here based on their primary focus.

Scaling Up

Challenges

Clients have shown their willingness to pay a premium for improved sanitation. Sanergy, which operates in Kenya, reports that customers rarely leave. The challenge is to acquire customers in the first place. Sanitation expenditure remains a low priority for many low-income households (Sy, Warner, and Jamieson 2014). A study for SOIL in Haiti found that people are willing to pay more for their monthly cell phone bills than for improved sanitation (Hystra 2014).

Achieving financial sustainability is another critical challenge many companies face when scaling up the serviced toilet solutions. On the cost side, the toilet design and servicing can be prohibitively expensive (for instance, some models use imported chemicals to reduce odor, which is required primarily in tropical climate with very warm weather). Further, the waste treatment can be an expensive process as well. Finally, companies may face marketing and sales difficulties when trying to sell products made of recycled human waste matter. The waste briquettes made by Sanivation in Kenya, which burn longer and at lower temperature, have found a niche market in bbq restaurants.

The serviced toilet model, as it involves complex logistics for distribution, sales, servicing, and cash collection, requires a certain degree of client/population density—and therefore is currently restricted to urban and peri-urban areas.

Role of Government and Public Policy

Given the health and environmental externalities serviced toilets yield, there is a strong rationale for the governments to support this model. In fact, only a small number of governments have been directly involved in a setting up build-operate-transfer models of community toilets. Under this model, a private contractor builds a toilet on land provided by the government, operates it for a number of years, and then turns it over to the municipal councils for management or leasing out.

Governments can help scale up serviced toilets in several ways. One is by providing information. They can initiate and support awareness-raising campaigns promoting sanitary practices, in partnership and collaboration with civil society institutions, NGOs, and schools. They can use public data and information to provide market intelligence, identifying areas where the water table is so high that pit latrines are problematic but serviced toilets would be more appropriate, for example. They can help foster cost savings throughout the value chain by reducing tariffs on chemicals and other substances and/or providing subsidies to reduce the cost of toilet production.

Public resources can also be used to support waste treatment. Alternatively, the government could simplify the process by which companies are authorized to sell products made from human waste. Sanergy, for example, can produce fertilizer from bio-waste, but it has not been able to sell its products because it has not yet received government clearance to do so. For their part, companies should enter into public-private partnerships and/or focus more sharply on evaluating and demonstrating the public benefits from increased access to sanitation, in order to make themselves eligible for government grants.

Table 2. Example of SEs providing serviced toilets

Company	Country	Description
Banza	Kenya	Manufactures compact, waterless, portable toilets with biodegradable bags for collection of waste. Banza rents the toilets to its customers and services them daily for a fee. Bags are currently disposed of in the main sewerage line, with permission from local authorities, but Banza is developing partnerships with organizations (such as Sanergy) that can treat and process the waste. Biobags are expensive, as they are imported.

<u>Clean Team</u>	Ghana	Charges monthly subscription fee for in-house portable toilet with waste collection service two to four times a week.
<u>Dignified Mobile Toilets (DMT)</u>	Nigeria	Rents and sells mobile public toilets for events, construction sites, and other commercial uses; franchise model to rent toilets to microentrepreneurs in low-income communities. Advertisements on outside of facilities provide additional source of income.
<u>Eawag, EOOS, and Makerere University</u>	Uganda, Kenya	Works with local franchisees from low-income communities as salespeople to rent toilets to households, landlords, and communities. Local franchisees also collect the waste and transport it to off-site resource recovery plants, where it is converted into fertilizer.
<u>Ecotact</u>	Kenya, Tanzania	Runs Ikotoilet, which builds and operates blocks of public pay-per-use sanitation facilities. Each block contains a toilet, shower facilities, shower taps, soap, tanks for rainwater harvesting, taps with treated drinking water, baby changing areas, and trash cans, as well as shops and a shoe shiner, to create a central meeting place. Local governments provide land in urban centers to make project affordable and part of the community.
<u>Eram Scientific Solutions Pvt. Ltd.</u>	India	Produces compact electronic public toilet using mobile technologies to control entry, usage, cleaning, payment, and remote monitoring. Solar panels can be built in to treat waste biologically on site, without electricity. Advertisements on outside of units provide additional source of income.
<u>Peepople</u>	Kenya	Produces Peepoo, a single-use, biodegradable, self-sanitizing bag for urine and feces that is easy to use when fixed to a small bucket or container.
<u>Samagra</u>	India	Works with franchisees who manage community toilets in slums through operators and cleaners. Users who pay monthly fee receive ID card that can be used at any Samagra toilet. Rewards program offered for users. Company also offers other services, such as phone recharging and savings accounts.
<u>Sanergy Inc.</u>	Kenya	Provides low-cost toilets to microentrepreneurs, who further rent/sell and service the units to the end customers. Waste is processed into fertilizer.
<u>Sanivation</u>	Kenya	Rents and services in-home solar-powered toilets, collecting waste once a week and bringing it to a local treatment site, where it is treated using solar power and turned into fuel briquettes. Briquettes are then sold as cheaper alternatives to charcoal for cooking and other uses at home. Company operates in refugee camps as well as residential communities.
<u>Saraplast</u>	India	Manufactures portable restrooms made from recyclable materials and provides total sanitation and waste management services. Services cover installing restrooms in places like construction sites or cultural events and cleaning and treating sewage.
<u>Sustainable Organic Integrated Livelihoods (SOIL)</u>	Haiti	Rents portable, waterless, urine-diverting toilets for use in homes and public areas. Waste is treated centrally and processed into compost.
<u>Umande Trust</u>	Kenya	Operates 52 biocenters, which convert human waste into clean energy (biogas) and fertilizer for urban greening.
<u>X-Runner</u>	Peru	Rents mobile, water-free toilets to households and collects waste weekly, converting it into fertilizer.

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Profile: Clean Team Ghana

Leasing serviced ceramic household toilets to urban slum dwellers in Ghana



Challenge

Just 14 percent of Ghana's population had access to improved sanitation in 2012, the 10th lowest percentage in the world. In the country's urban areas, 72 percent of the population uses shared sanitation solutions, such as unhygienic public toilets, which often have long waiting lines, and 7 percent practices open defecation (WHO/UNICEF n.d.).

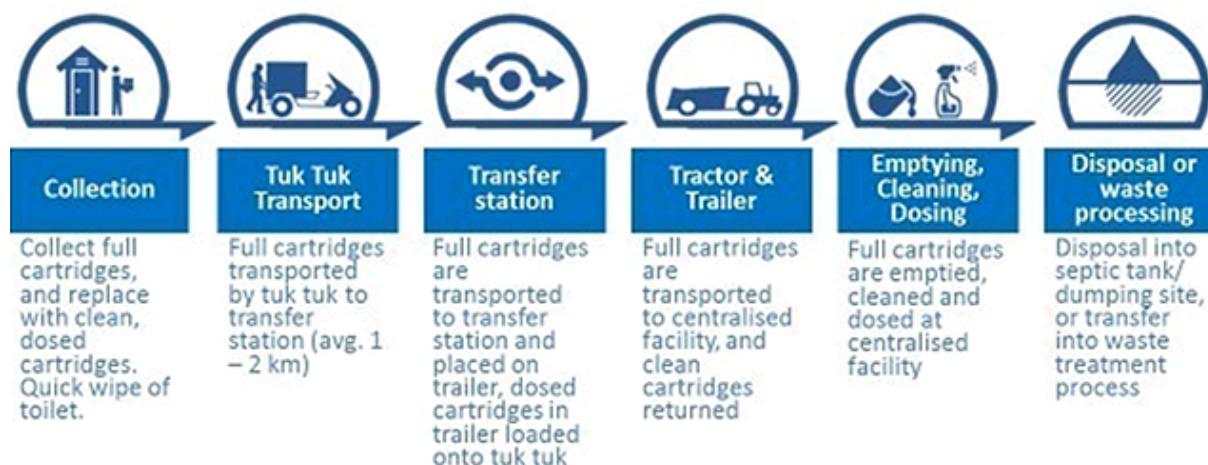
These sanitation methods can lead to health problems, leave women and vulnerable people open to sexual violence, and increase pollution of water systems and the urban environment. A key challenge is how to provide affordable, improved sanitation to people in slums that are inaccessible to large vehicles for waste removal.



Clean Team toilets look like ceramic toilets, but they use no water. They are installed outside people's homes.

Innovation

Clean Team (www.cleanteamtoilets.com) has developed a unique service-based model and urine diversion toilet for households and schools in urban Ghana. It rents toilets to customers based on a monthly subscription fee of 15 cedis (USUSD 10) per month, including twice-weekly emptying; this compares with up to 45 cedis per month for public toilet use by a 5-person family. This makes toilets accessible to the more affluent households in the target area who rent their homes and cannot make large investments. Based on market research, the toilets were designed to look like ceramic toilets and marketed as an aspirational good. Local staff go door to door selling the product and promoting hygienic sanitation practices. The toilets are delivered to people's homes. Clean Team collects the waste via tuk-tuks and transports it to a central facility, where it is stored before being transported to the municipal waste plant for treatment.



Source: www.cleanteamtoilets.com

Impact

As of May 2015, Clean Team had sold 990 toilet contracts, servicing 6,900 users in 28 communities in Kumasi, the capital of Ashanti. Among the company's customers are two schools. This market is perceived as having significant potential for growth.

Customers are the slightly more affluent households in the slum area, who have the means and space to rent a toilet. About half of customers state that they now spend less on sanitation than family members using public toilets. The other half report spending more but believe that the convenience of having a toilet at home is worth paying for.

The toilets are environmentally friendly—and highly suitable to the semi-arid area of Kumasi—because they do not use water. Since 2012 Clean Team has prevented 760+ tons of sludge from being deposited in the street, where it can pollute water ways and the urban environment.

Scaling Up

Kumasi provides a conducive environment for Clean Team's model because slum residents there have sufficient income to afford the service, a local waste treatment plan is accessible, and the local government is engaged in promoting sanitation. These factors affect where the model can scale and what further innovation is needed. Several external economic issues constrain the business model, including the high cost of land (on which to store waste before it is treated), the cost of fuel, inflation, and the unfavorable exchange rates against the British pound, which affects the cost of the imported toilet additive. An informed and educated staff—to promote the brand and ensure customer retention—are key to the business model, however finding and retaining them will prove more challenging as expansion moves outside major urban centers.

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Profile: Sanergy

Improving access to hygienic sanitation in informal settlements in Kenya through a systems-based approach



Challenge

Eight million residents of Kenya's informal settlements lack access to improved sanitation. In urban areas, the main sanitation alternatives are shared toilet blocks, other unimproved solutions, such as "flying toilets" and open defecation. All of these alternatives increase the risk of spreading disease, are unsafe at night, and release untreated waste into the water system.

One of the key challenges in providing improved sanitation in informal settlements is safely removing waste in areas not connected to a sewerage system and often inaccessible to large vehicles.



Workers remove the sealed portable containers that hold solid waste from a brightly colored Fresh Life Toilet in Nairobi.

Innovation

Sanergy (www.sanerg.gy) produces prefabricated, low-cost, high-quality, waterless toilets known as Fresh Life Toilets. It tackles the challenges of slum sanitation by producing toilets that are easily transported and assembled and collect waste in sealed portable containers. It builds its client base through aspirational branding and a network of local operators.

The company keeps prices low by processing the waste it collects and selling it commercially. A urine-diverting squat plate enables solid and liquid waste to be collected in two separate containers under the toilet. This separation reduces odor, which allows toilets to be located closer to people's home than traditional toilets. Sanergy employees empty the containers on a regular basis. Using hand carts, they transport the solid waste to Sanergy's central waste management facility, where it is processed into organic fertilizer and other byproducts for commercial sale.

The company operates three distribution models. It sells commercial toilets to local community members, known as Fresh Life Operators (FLOs), who run them as businesses. It sells residential toilets to landlords, who offer them as a value-add service to tenants living on plots housing 10–15 households. It sells community toilets to institutions (schools, clinics, and churches) that reach underserved populations.

The focus has been on the operation of commercial toilets by the network of FLOs in Nairobi's informal settlements. Individual FLOs set the prices they charge per visit, which average about USD 0.02 per child and USD 0.05 per adult. They build demand for the toilets, collect fees, and keep the toilets clean. Sanergy trains the FLOs, who become franchisees, purchasing toilets and business services from Sanergy. For about USD 500, they receive their first toilet, business support services, and first year's servicing (the fee is lower for subsequent units). Kiva, the online microlending platform, finances their investment with 12- or 24-month loans. (Franchisees who pay cash receive a discount.) Once they own the toilet, franchisees pay an annual servicing fee of about USD 90.

Impact

Sanergy increases access to improved sanitation facilities in informal settlements, improving the health of residents and the urban environment. As of May 2015, five and a half years after it was founded, the company has installed 1,000 Fresh Life Toilets in informal settlements, where the network is used about 50,000 times a day. It has safely removed and treated more than 10,986 tons of waste. Waste is also converted at a centralized facility into useful end-products such as organic fertilizer and renewable energy. Schools that have Fresh Life Toilets report that enrollment rates have risen by 20 percent, according to the company.

Sanergy creates jobs throughout its supply chain. It employs about 250 staff and has a network of 650 FLOs. In addition, some operators hire an employee to run daily business operations; Sanergy estimates that FLOs hire about 175 people.

Franchisees typically recover their initial investments within 12–24 months. Once they repay their loan, they can earn about USD 20 a week—almost as much as the average weekly income in Kenya.

Scaling Up

Cooperation of FLOs is essential to the business model for community toilets. Sanergy therefore invests time and resources training operators, gaining their feedback in regular meetings, managing their loans and telling their stories. Although a few struggle—and some have had their operations shut down because they failed to meet compliance standards—the vast majority remain engaged, driving the brand forward.

Sanergy engages engagement community councils and elders within the slums, in an effort to gain community support. It also works with county and national government officials on community health training, particularly in schools. In collaboration with WASH United, it launched a train-the-trainer curriculum for hygiene awareness in schools. Every school that receives a Fresh Life Toilet must participate in the training; schools that do not have Fresh Life Toilets are also welcome to attend.

The FLO model can be expanded incrementally, but it rests on community acceptance; it can therefore be challenging to introduce to a new target area. Alternative distribution models being developed—including working with schools and churches or groups of 10–20 households sharing a single toilet—may be easier to introduce to new areas.

Consumer adoption is critical. The toilet are designed for 100 uses a day, but many see fewer than 75 uses a day. A study of the program identifies two likely factors constraining use: cost and distance to the nearest Fresh Life Toilet (Esper, London, and Kanchwala 2013). Sanergy is investing in improving its understanding of consumer drivers and behavior patterns in order to address both issues.

Kenyans are used to paying for toilet services; community buy-in and creation of demand were therefore not key challenges in Kenya. Elsewhere in the world, where consumers are not used to paying for sanitation, more investment in awareness raising may be required.

Sanergy is exploring new ways to optimize waste collection and processing. The pace at which markets for waste products are secured will be a driver of success. The Kenyan Ministry of Agriculture issued a directive that favors organic fertilizer over chemical fertilizer. This move should benefit Sanergy, especially as very little organic fertilizer is produced domestically.

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