

CLEAN TEAM



Project

Organization	Clean Team
Geography	Ghana (Kumasi city)
Areas	Urban
Solution	Individual
Date started	2012
Stage	Pilot
Scale	503 toilets (Dec2013), >2500



Clean Installation team with toilet on pushcart
Source: www.ideo.org

Project description

History of organization

Clean Team is a for-profit social business incorporated in urban Ghana since 2012, owned by Water and Sanitation for the Urban Poor (WSUP), a UK-based not-for-profit business. It started actual production and installation of toilets in early 2013, Clean Team has been developed in partnership with WSUP, Unilever and IDEO. Unilever provided technical assistance and seed funding while IDEO designed the business model and the brand strategy. In addition, Clean Team has received funding from the Stone Family Foundation, and DFID.

Value proposition and profile of customers

Clean Team charges a monthly subscription fee for a portable toilet with a waste collection service 2-4 times per week. There is no up-front toilet cost for the households, as the toilets remain the property of Clean Team²¹. Depending on the service level – waste collection can be done 2x a week (for households with less than 5 people, currently 43% of all customers), 3x a week (households of 5-10 people, currently 52% of customers), or 4x a week (more than 10 people, currently 4% of customers). The waste is then disposed of at the city's local sludge treatment plant, while the waste containers are cleaned for the following morning's collection round.

²¹ While ownership of the toilets is essential to the Clean Team model (revenue from services and assurance that waste is collected and disposed of properly), no current customer is asking to actually own the toilet.

Depending on the frequency of service, customers pay \$8.5, \$11.9 or \$15.3 per month respectively. This compares to \$3 per month for a very cheap and poorly maintained public toilet, \$5 for a better maintained toilet and \$8 for a nice one (assuming 2 adults per 4-5 person household would pay for use of a public toilet every day). Otherwise, the most widespread solution in this area until some years back was a system of night soil collection, which has been banned by the government. Anecdotally, about 50% of Clean Team customers state they now spend less money, and 50% say they spend more but that the added convenience is worth it. Besides of the economic argument, most consumers value the convenience (i.e. being able to use the toilet anytime, safely) and cleanliness of this solution (for instance many client households have elderly people at home with limited mobility), as well as the fact of being serviced by a professional team which brings status

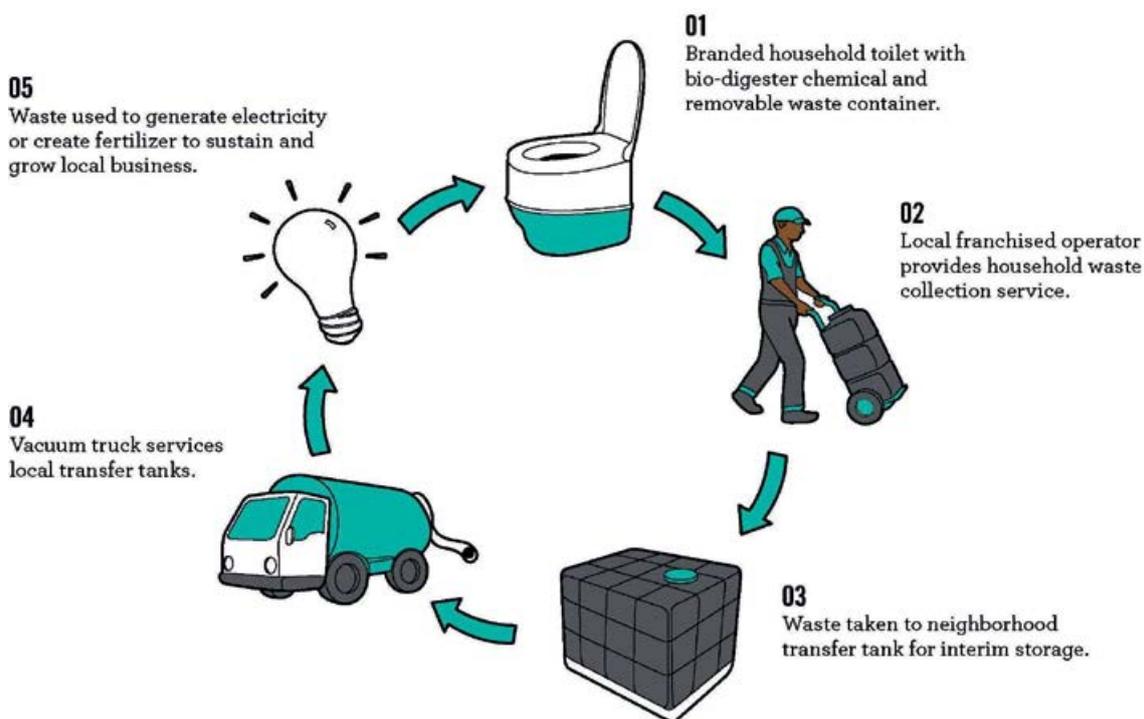
Interested customers sign a contractual agreement with Clean Team describing the service, outlining respective expectations and terms of the agreement. They also receive a booklet where payments are recorded. Payment terms are flexible and can be paid in a lump sum at the end of the month or collected in small amounts throughout the month.

Clean Team is present in a poor area of Kumasi, a city in South Ghana, which was chosen as it has a waste treatment plant, a very collaborative local government and both WSUP and Unilever had an established presence there. Most residents have irregular, informal jobs (e.g. hairdresser, food stall owner, market traders, tailors), and rent their dwelling (given that landlords manage to charge 5 years upfront rent, there is little incentive on both sides to actually improve the

infrastructure inside or outside the house). There is running water in the courtyard for a small proportion of customers, and houses are built in hard, with a room for bathing. An estimated 20-30% of customers live in a one-room shack, while 70-80% live in compounds with 2 rooms and a

small space for a storage or bathroom. Household income likely ranges from \$85 to 250. There is limited information available on what previous sanitation solutions Clean Team users were using until then.

Value chain



Manufacturing operations

The toilets are manufactured in China and imported. The cost of the toilet and shipping is of \$82 (import duties have varied a lot, but average a 15% on top of that). Unilever owns the molds. It hopes to bring down the costs of production to \$50 by manufacturing at scale and investigating local manufacture to reduce import costs.

Marketing & sales strategy and organization

Clean Team currently operates in North East Kumasi, and the sales territory is divided into five areas. Each area is serviced by one Sales Associate, one Waste Collector and counts about 100 client households.

Clean Team promotes its toilets via two main strategies:

- » It has a team of 5 uniformed door-to-door promoters, who are young men and women well connected in their neighborhood (no other specific requirement), who go and sell the toilet based on a photo book (they show the pictures and help customers do the math in

terms of public toilet savings) and leaflets. They act as referrals, and if a customer is interested, they register their details and the recruiter compiles a list which is then passed on to the Customer Registration Officer. They currently receive very little formal training.

- » Once a week, there are team promotions in the street (Clean Team regular team in uniform disseminate brochures, stickers and T-shirts to interested potential customers).

Both strategies seem equally effective in terms when balancing out time spent and number of people mobilized. Clean Team does not do any ATL campaign yet.

Once an initial client base is established in an area, word-of-mouth seems to play an important role, as penetration roughly doubled from August until December 2013. The main driver for word-of-mouth is the installations of actual toilets, which creates a buzz in the local neighborhood and is also an opportunity to connect with potential customers.

The **Customer Recruitment Officer** then goes through the list and checks/ confirms the interest of potential customers, arranges for the payment to the promoter, and coordinates for the toilet installation. This person is also in charge of market research. A short customer satisfaction survey is conducted monthly through the Service Associates to provide feedback on the service. Quarterly, the team hires external enumerators to complete a more detailed customer satisfaction survey to remove any bias from staff reporting. The Customer Recruitment Officer compiles a report of issues and recommendations for action to address these.

One of the 5 **Service Associates** (literate, numerate Clean Team staff) is present during the installation of the toilet. They explain the contract and agree on a payment schedule, even though payment is very much flexible, as customers often contribute towards to total amount each time the Service Associate – who is also in charge of money collection - visits them (and records payments in the customer pass book). Each Service Associate is in charge of roughly 100 customers (and they see in average 30-35 customers a day). They also get a commission if they bring a new client.

Installation

One plumber (Clean Team staff) does the installation of the toilet, which simply requires to assemble the few parts together and arrange for the urine diversion pipe (either into a container, whose content is then poured away, or diverted into the gutter). The toilets are actually delivered by a rickshaw driver and then pushed by hand cart to the home by the plumber.

Usage and hygiene

Toilet usage is explained during the installation and specified in the contract. Posters are provided to remind customers of how to use the toilet (this does not include hand-washing and standard hygiene practices). The Waste Collectors (see below) clean the toilet surface when they collect the cartridges. Otherwise, the household should be taking care of the toilet cleanliness. In a survey on hand washing practice completed by Cranfield University, 90% of respondents reported using soap for hand washing after using the Clean Team toilet.

Waste storage and collection

Waste is stored in cartridges under the toilet, which are sealed and removed from homes by one of the uniformed Waste Collectors (Clean Team staff), in the early morning, and then transport them to a local holding tank, where the cartridges are cleaned using water and bleach and fresh toilet additive is added. Each Waste Collector is in charge of roughly 100 customers (they see in average 30-35 customers a day).

Waste treatment, disposal and recovery

Clean Team hires a local vacuum truck to transport the waste to the municipal plant, where it is treated at the facility (reportedly the best of Ghana). The vacuum truck pays for the transport and the gate fee at the plant.

In addition, Clean Team is exploring new ways to use the waste as a fertilizer or an energy source, by testing the efficiency of 3 different anaerobic mid-size systems (2500 households' waste capacity).

Technology

Description of toilet-related technology

Key features:

- **Design:** Molded ABS & HDPE plastic (7 components) portable toilet. The toilet has a urine diversion compartment (linked to a urine diversion tube).
- **Durability:** Manufacturer estimates at 3 years lifetime. No need for specific maintenance.
- **Installation needed:** No installation needed but for the placing of the tube for urine diversion.
- **Water and energy efficiency:** This is not a flush toilet. Water can however be thrown in for personal hygiene. No electricity needed.
- **Malodors and safety:** There is no barrier between the faeces and the user. The toilet additive helps limit odors and bacteria growth. Malodor may however occur, in heavy use and high temperatures.
- **Waste storage:** Urine is diverted through a flexible tube for gutter/container collection. The faeces fall into a removable container under the toilet, which is filled with 4L of a toilet additive product which hides the faeces, limits odors and bacteria growth.
- **Waste collection:** The toilet has a removable sealable waste tank. Top half of toilet unlocks and hinges up, allowing tank to be hygienically sealed with a lid and removed by service person. Tanks stack up for transport and storage. Emptying and cleaning is done manually at a dedicated facility although this is planned to be automated.

Potential and limitations: Requires imported toilet additives, which were not designed for hot climates, although there is a product development activity underway to address this; toilet lacks a barrier between user and waste; urine is not currently collected but simply disposed of in the gutter by the user.

Social impact

- **Penetration:** So far 503 toilet contracts have been sold thus benefiting to around >3000 users. Planned scale-up once unit-level breakeven has been reached.
- **Acceptance and usage:** Over the past 10 months, Clean Team registered about 5% drop outs (temporary – if the family travels for a longer period of time, or permanent). The policy is to wait up to 2 weeks of non-payment before removing the toilet. The main reasons for permanent drop-outs are: the family moves outside of the current operational area or travels; changing financial circumstances/affordability.
- **Customer satisfaction:** Monthly surveys are conducted by the Service Associates. Independent surveys are conducted quarterly to follow quality of service. Main reason of complaint is related to malodor. In November 10% of the customers interviewed said pickup frequency did not fit their needs and so action was taken to ensure all waste collectors left early and had finished collections by 9am. 98% of customers say they were getting value for money.
- **Evidence of impact on health:** It is expected that health indicators will be measured in a study in 2014.
- **Promotion of related behaviors:** For now, related behaviors are not actively promoted. Sale of soap products through the Clean Team Sales Associates is being envisaged, and may act as an educational channel.
- **Waste collection and disposal strategy:** The toilets remain the property of Clean Team and are removed in case of non-payment or improper use.

Economic sustainability

End consumers

- **Affordability for end users:** Most user families pay between \$~8 and \$12, which represents roughly 2-4% of the estimated average household monthly income in the area. This is however roughly double the price of what the family adults would pay if they would go daily to a more expensive public toilet. The price was set lower during the trial and there was extremely high demand. Once all costs of the business were known, decision was taken to increase to current levels. Demand fell slightly, indicating right level.
- **End consumer financing:** No financing is required for the toilet. The frequency for the payments can be negotiated from twice a week to monthly (about 60% of family prefer to pay twice a week and 40% at the end of the month). It is estimated that about 30% households pay somewhat late, but no contract was discontinued so far due to non-payment.

Upstream organization

Clean Team aims to reach breakeven at 1500 toilets installed at each central processing facility. As of today, important variable cost elements are the additives employed within the toilets (the team is looking at ways to bring those significantly down), and labor. Relatively large amounts of capital are immobilized, with regards to the stock of toilets and additives. Clean Team installed about 400 toilets in 2013 (i.e. about 30 new toilets/month), but experienced peaks of 80-120 toilets/month, during those months where it experienced less operational challenges. The steady growth is encouraging, given that Clean Team keeps working in the same areas, pointing at the fact they have still not reached a first level of saturation.

Promotion agents act as referrals for their neighborhoods mostly, and earn a commission: \$0.67-0.89 per toilet depending on how many they sign-up each week. Given they sell in average 8-10 toilets a month (up to 20 toilets in good months), this results in an income of \$6-10, for a job that requires little of their time, for the period they are actively engaged in finding customers among the families living in their neighborhood.

The remuneration of the Clean Team field staff ranges from \$220-250 for the lower positions, to \$400-450 for the supervisor position. There is limited turnover among the waste collection team, as this represents a stable, full-time job for illiterate men, with little other opportunities. The turnover is slightly higher for the Service Agents, who essentially see this job as a springboard to continue studies or find better opportunities.

Innovations

- Convenient product adapted to households in dense, urban areas not connected to sewer, for whom the main alternative was expensive and often poorly maintained public toilets
- Service-based model ensuring regular revenues and avoiding end-consumer financing
- Aspirational brand, turning the functional into the desirable

Remaining hurdles and bottlenecks

- In order to evolve towards being a globally relevant business, Clean Team is exploring how it could ensure waste treatment in cities with no waste treatment facility, either by integrating technologies that would allow it to produce biogas and fertilizer
- Working capital management (given large amounts of cash immobilized in equipment and inventory); this and overall profitability could be dramatically improved if the total costs of the toilets could be brought down to the target \$50
- Clean Team is currently working on an alternative formulation and production of an effective and affordable toilet additive, with a view to reduce this significant variable cost item; Inconvenience of seasonal malodor.

Contact information

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Appendix

Sources: www.cleanteamtoilets.com; www.nextbillion.net; London School of Hygiene and Tropical Medicine in collaboration with Domestos, Mapping Sanitation Solutions; Interview with Lisa Hawkes, COO Clean Team on 21.11.2013

Exchange rate: 1 USD = 2.94 GHS
