Lessons From Scaling Cartridge-Based Sanitation (CBS)

Working Towards Viable Service Provision In Dense Urban Settings

FSM3

resource

Problems with each current solution
We know from research by Jenkins and others that users care about prestige, convenience and social status.
“People don’t buy what is good for them, they buy what they want”

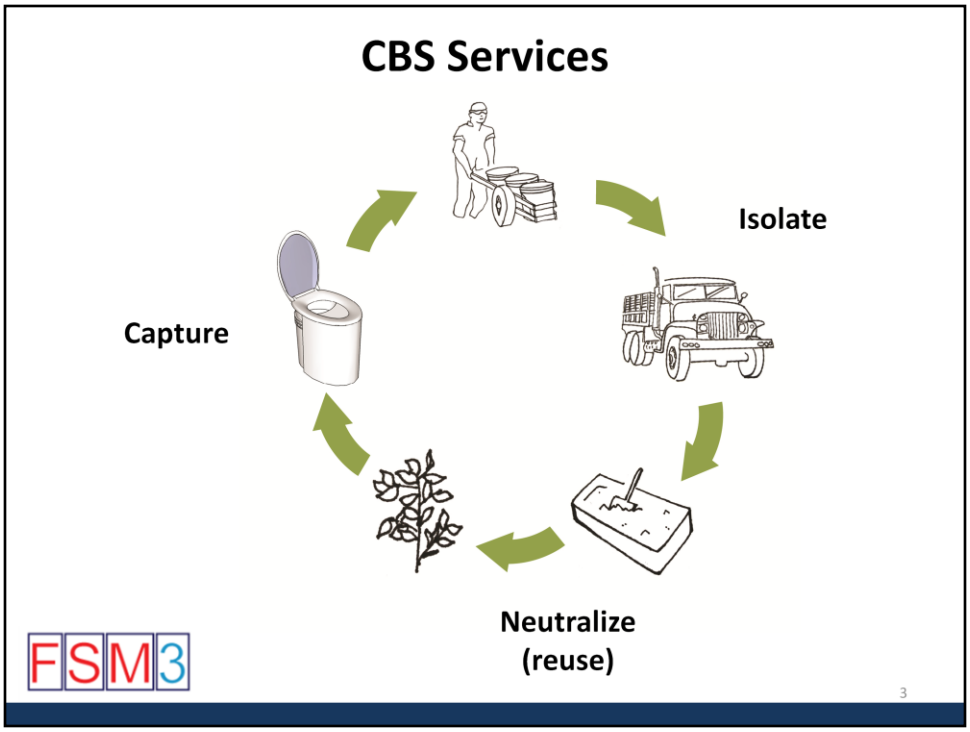
I’m talking about Cap Haitien, but this is a problem world wide in rapidly growing cities.

According to the JMP: (Joint Monitoring Project)

In 2012 almost a billion people used shared toilets in urban areas up from half a billion in 1990
Another half a billion people in urban areas open defecate or use flying toilets today.

By 2030 the number of people living in slums world wide will double to over 2 billion people greatly exacerbating this issue

Punchline: Current options are not meeting the need of the users



Cognizant of the fact that this will remind some people of “bucket latrine” and the negatives that are associated with such a system.

However, this system addresses many of the shortcomings inherent this former system

1.) User sign up and pay monthly fee, toilet cost are integrated into that fee reducing or eliminating upfront costs. In our study the service was provided free of charge.

2.) Collector twice a week, fresh container with cover material, seals and removes full container

3.) placed on a truck at the nearest road access

4.) taken to a compost facility, 170 degrees F in the center, melts PVC

5.) sold or used in projects, helps reduce user fees.

Capture

- Public toilets
- Private in home toilets
- Sitting and squatting interfaces
- Permanent structures, mobile structures, temporary or no structures

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Isolate

- Feces isolated from the user in a cartridge that is transported to a location where it can be processed
- Cartridge, container, bags, dry cover material

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Neutralize (reuse)

- Placed in traditional waste water treatment facilities
- Composted, biodigester, biochar or any number of new novel methods for resource recovery

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Business

- Opportunity for two revenue streams
  - user fees
  - resale of end products
- Creates incentives to provide a complete service chain model

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Participating CBS Services

- x-runner (Peru),
- Clean Team (Ghana) ,
- Loowatt (Madagascar),
- SOIL (Haiti),
- Sanergy (Kenya)

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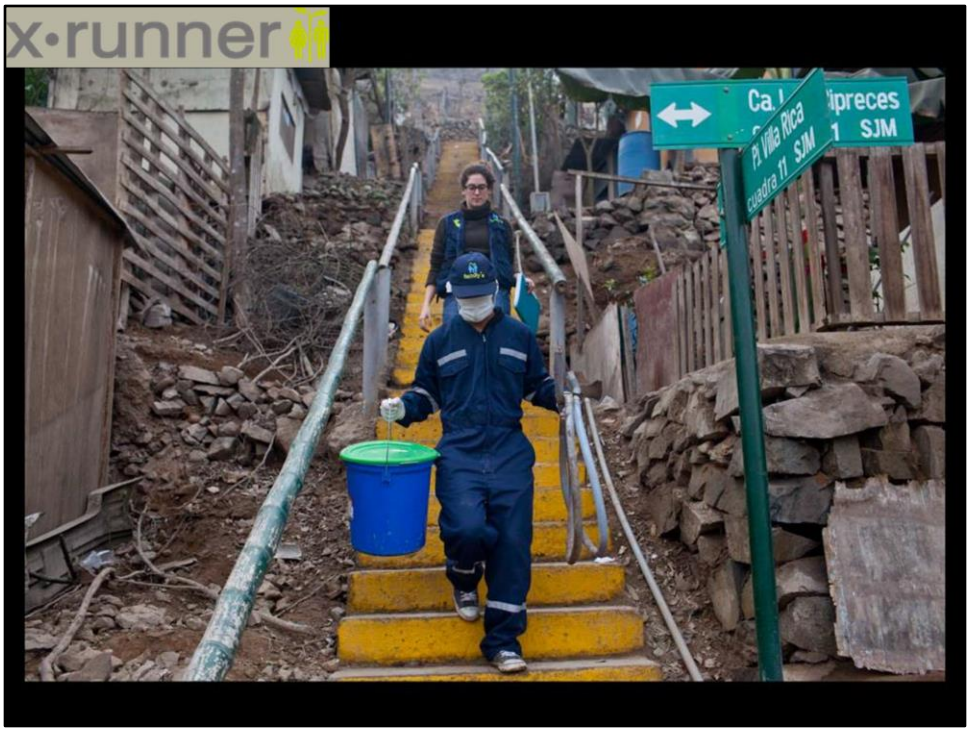
http://www.xrunner-venture.com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Clean Team
FSM3
UPDATE

Our Journey

Discovery YR1 → Efficiency YR2 → Scale YR3

How Did It All Start?

- Co-Creation – WSUP, UNILEVER
- Key Resources – Ideo.org
- Kumasi Pilot – 100 Customers
- Technology Agnostic – All about the Service Model
- Introduce comfortable, affordable, and hygienic in-home sanitation experience for low income communities

Improving the Business Model:

- Focus on operational challenges.
- DFID, Unilever, WSUP funding, key expertise & advocacy
- Operations

Top 3 Challenges:

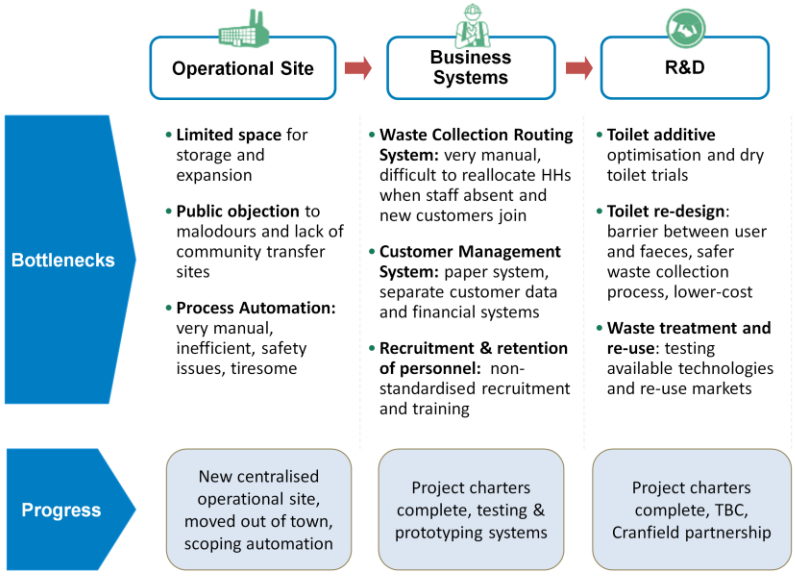
i. Operational Site
ii. Rationalising Input Costs
iii. Recruitment & Retention of Personnel

- 737 toilets with 5159 users, 41 staff, removing 5814Kg of Sludge from community each week

Scale to 2500 Toilets:

- Focus on scaling across Kumasi
- Growing customer numbers whilst improving customer experience
- Sales ninja
- Establishing governance for trials in other territories
- Establish clear view of B/E
- Introduce process automation
- Exploring propositions for lowest income households

Bottlenecks identified and 13 projects launched to overcome them

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PARTNERSHIPS

Containment → Emptying → Transport → Treatment → Reuse

UNIVERSAL CORE TECHNOLOGY

$ Energy

$ Fertiliser

LAB AND FILED EXPERENCE, RELATIONSHIPS

PILOT 2015:
DATA COLLECTION AND CHARGING METHODS

HOUSEHOLD TOILETS – DEC 2014

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HHT service provider in Haiti

- HHT service **started in 2013** as a paid service
- # of customers: > 270 HHs

Portable & locally made

Portable & locally made

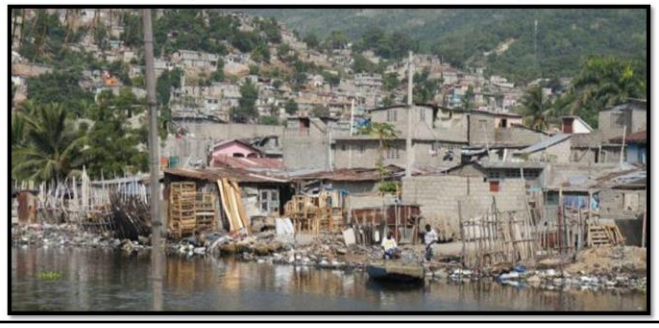
Collection

Transportation

Composting

Market segment: **BOP families**

- Average: 7.8 HH members
- No access to sanitation infrastructure (and no running water)
- Low and variable revenues
- Average expenditure: US$ 150-200 /month/HH
- Usually pay for basic services, e.g. telecommunication
- Women are usually key in HH decision taking



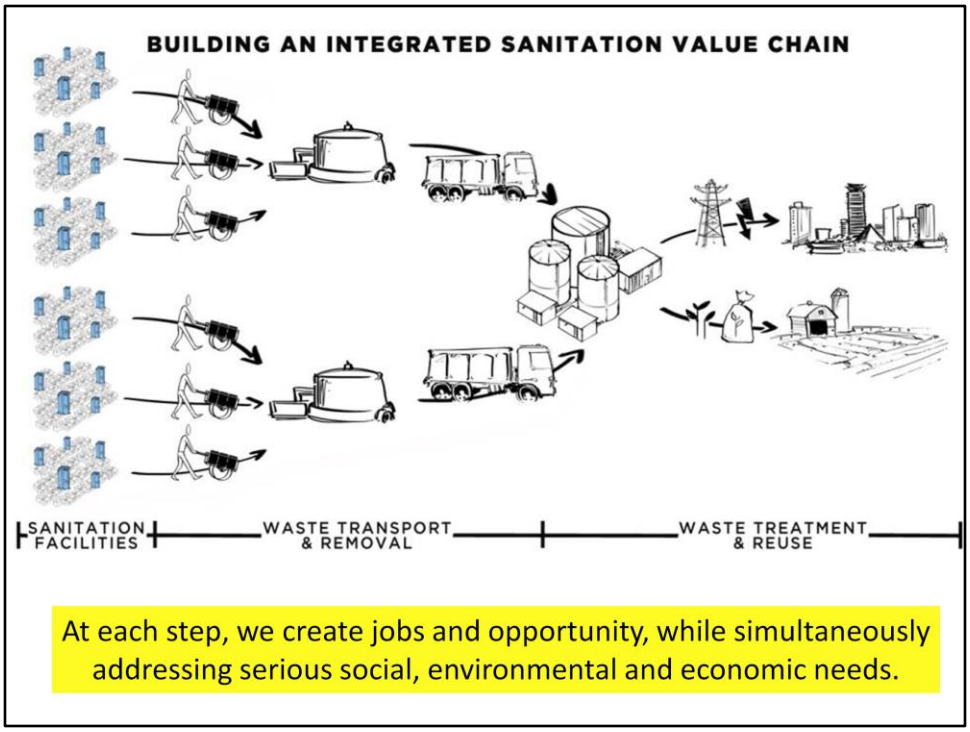
Potential & objectives

- **Potential**
  - >270 HHTs
  - Demonstrations of interest and demand
- Ambitious **objectives** for 2015!
  - 1000 HHTs
  - Refined business model

Challenges for scale-up

- Payment
- Quality assurance & management

(safety and customer relationships)



At Sanergy, we take an innovative **systems based** approach to tackling the sanitation crisis in 3 parts: build, collect, convert.

1) Build. We franchise a dense network of low-cost sanitation centers throughout the slums to local micro-entrepreneurs who run them as viable businesses. These sanitation centers are known as Fresh Life Toilets. The micro-entrepreneurs who run the Fresh Life businesses are known as Fresh Life Operators.

2) Collect. On a daily basis, Sanergy's Fresh Life Frontline collects the waste from each Fresh Life Toilet and safely transports the waste from the community to our central waste processing facility.

3) Convert. Sanergy converts this waste into saleable by-products like renewable energy and organic fertilizer, which we sell to farms.

East Africa currently imports 1m tonnes of fertilizer every year. Because of transportation and tariffs, farmers pay twice the global average price for fertilizer. Similarly, East Africa faces a 4GW shortage for power. The government is turning to independent power producers with attractive offers of guaranteed feed-in tariff rates of $0.12/KwH through long-term power purchasing agreements.

Each Fresh Life Toilet can meet the needs of 100 visitors per day. When full, each cartridge weights 30 kilograms.