SANERGY
Building healthy, prosperous communities

Safe containment of manually emptied pit latrine waste from Nairobi's urban slums

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Nairobi's population is rapidly growing. Densely populated urban areas require concentrated consideration to achieve SDG 6

Sanergy's full value chain approach to sanitation

Build & empty

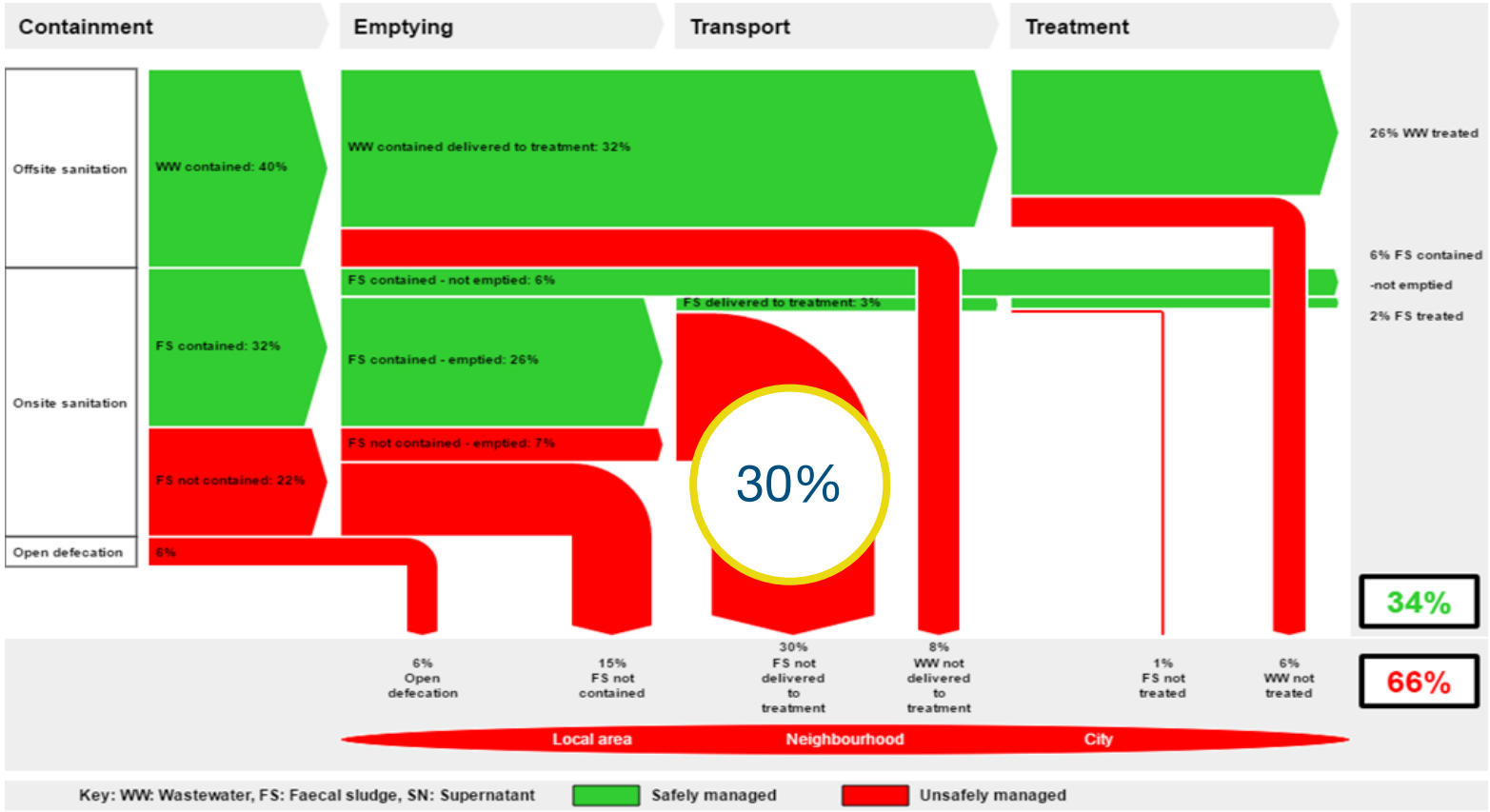
Transport

Treat & Convert

Our Impact

2,250 FLTs, serving 90,000 users per day

Nairobi County Shit Flow Diagram shows that 66% of waste generated is never treated



How can we safely redirect manually emptied pit waste back into the safe sanitation value chain?

Our Research Questions

Where is the waste we want to capture?

At what point in the value chain can we capture this waste?

Understanding the processes and challenges of collection, transportation, and treatment leakages - **our pit emptying service**

Establish baseline

1. Journey mapping
    - Observation
    - Interviews
2. Relationship mapping
    - Internal knowledge
    - Power and financial flows
3. Validation

Pilot 1

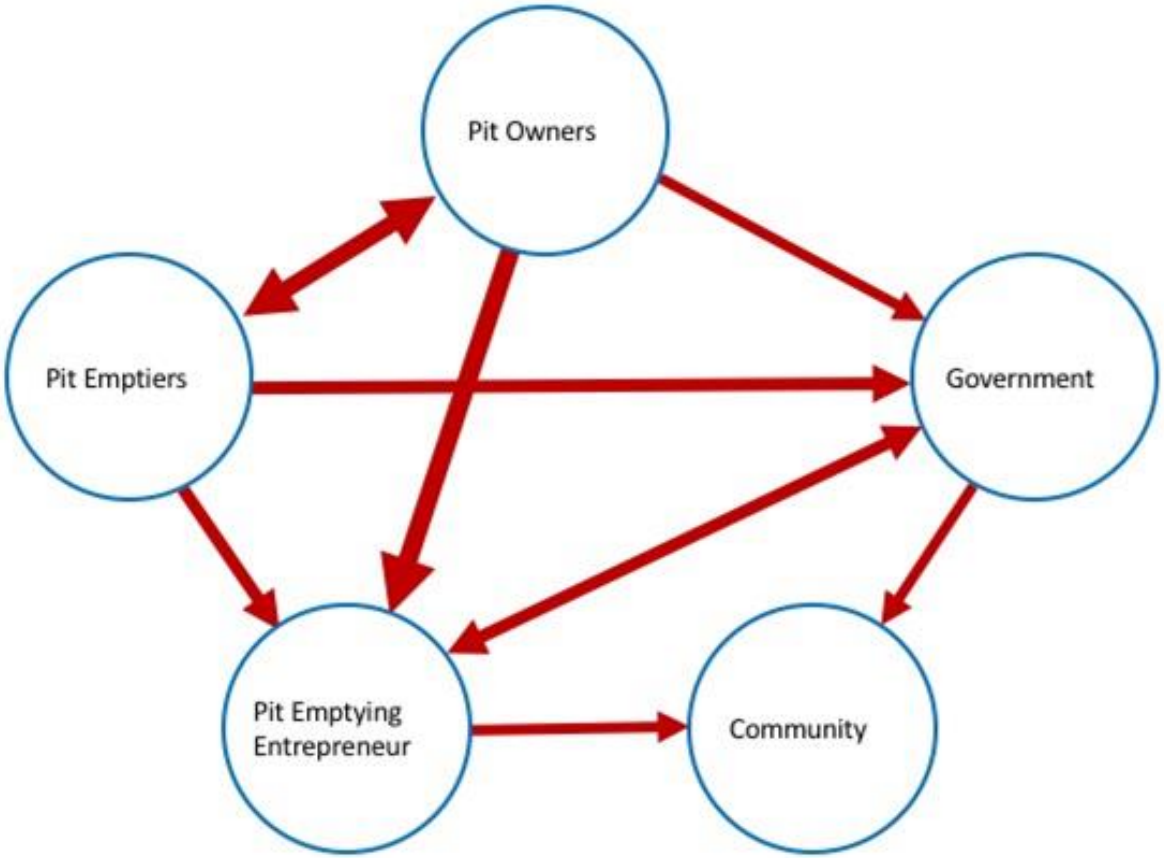
1. Site selection
2. Design & construction
3. Operation

Scale pilot

1. Site selection
2. Design & construction
3. Operation

At baseline, a system of “unofficially authorized” illegal manual emptying and dumping is thriving

Power Flows



Key Findings

- No designated dumping
- Working structure
- Pit emptier stigmatizatio n

Pilot 1:
If we build it, will they come?

Pilot 2: Can we convert the pit emptier into a paying customer?

Over 2M litres of sludge safely managed

- Over 2M litres of sludge
- $0.50 / barrel
- Licenced CBO with 40 members
- Personal protective equipment for Pit Emptiers
- Support from local government helping to enforce standards
- Managed to safely capture 99% of waste that would have otherwise ended up in the river

The unanswered questions

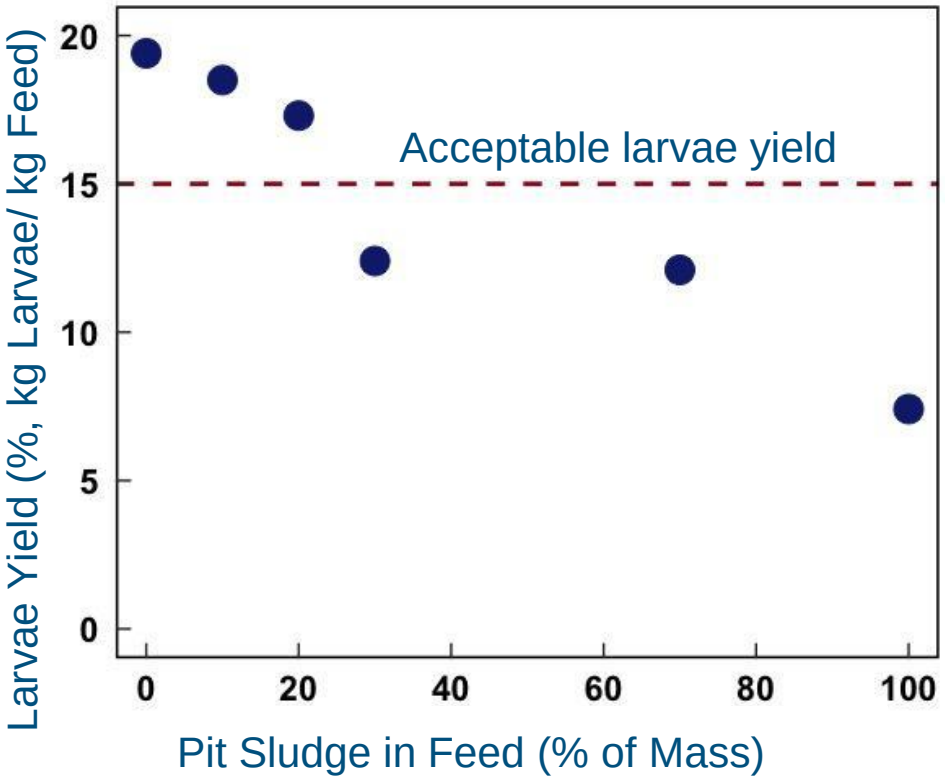
Can we reuse the pit sludge?

How can we develop a business case for municipal contracting?

What next? Can pit waste be integrated into reuse ?

- Low solid content
  - Dewater or mix with drier feedstock to achieve moisture content preferred by BSFL
- Contaminants
  - Not a problem in trials to date
- Low nutrient content
  - Mixture with up to 20% pit sludge resulted in acceptable larvae yields

Yes, pit sludge can be integrated into reuse processes - there is room for further research.



Business Case

Key qualities for a sanitation service	Install sewers	Extend pit latrines	Do nothing	Fresh Life services
Environmentally friendly	?	X	X	✓
Easy to implement	X	X	X	✓
Affordable	X	?	?	✓
Safe to use	✓	X	X	✓
Desirable	✓	X	X	✓

Acknowledgements

Lars Schoebitz of Biomass Controls and Lauren Harroff
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BIOMASS CONTROLS


Asante!
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Moisture content of pit sludge compared to regular BSFL feed

	Pit Sludge	Regular BSFL Feed
Moisture Content (% of total weight)	92	72
Volatile Solids (% of all solids)	70	86

Build

Upgrade of existing unimproved pit latrines