

Is there a Business Case for Mechanical Emptying of Pit Latrines?

A closer look at the 'formal' pit latrine emptying market

Dr. Nicola Greene

Tate Rogers, Jocelyn Tsai, Dr. Francis de los Reyes

NC STATE
UNIVERSITY



Is there a Business Case for Mechanical Emptying of Pit Latrines?

1. The Current Market

- Customers
- Systems in Place
- Service Providers

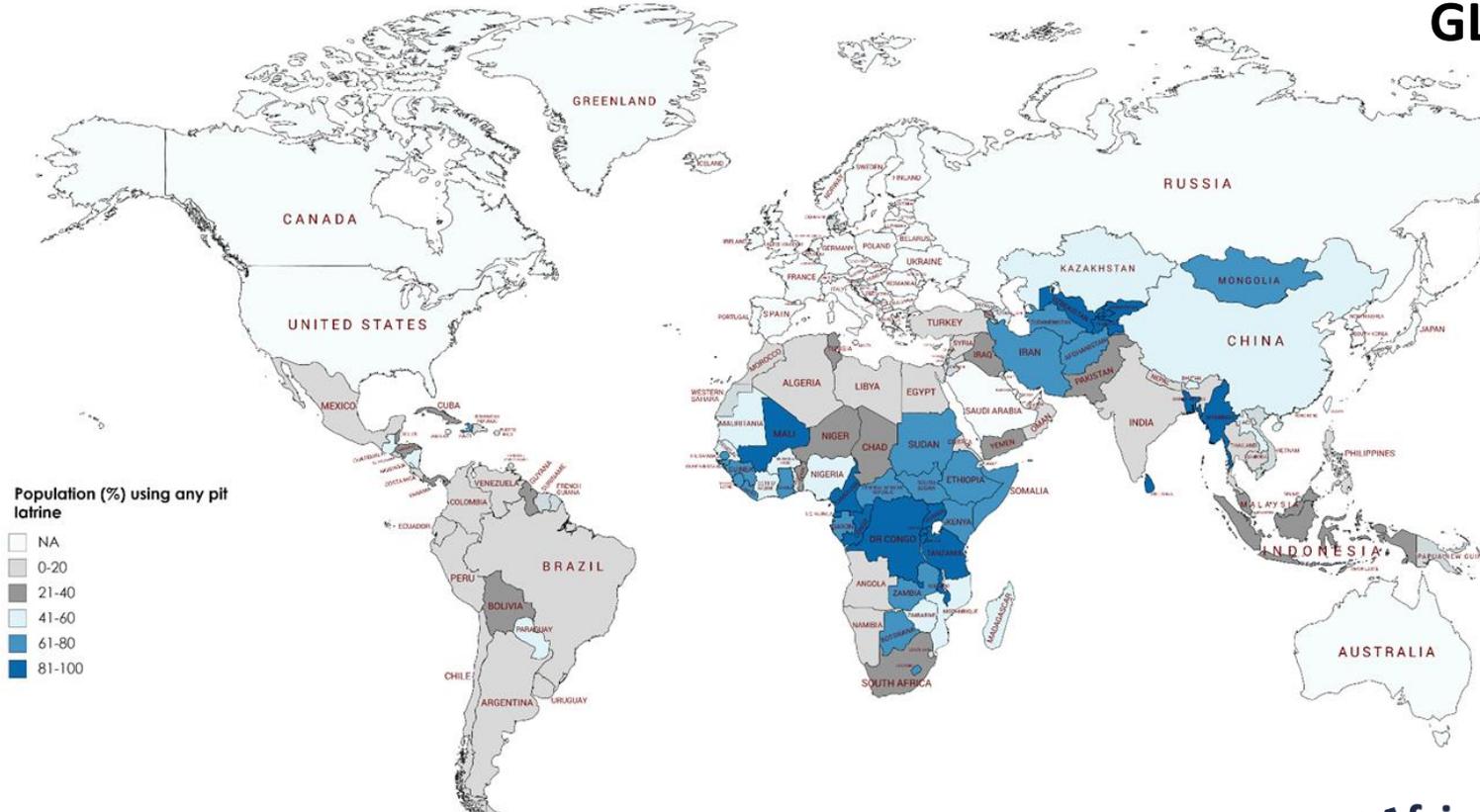
2. The Equipment

3. Business Case

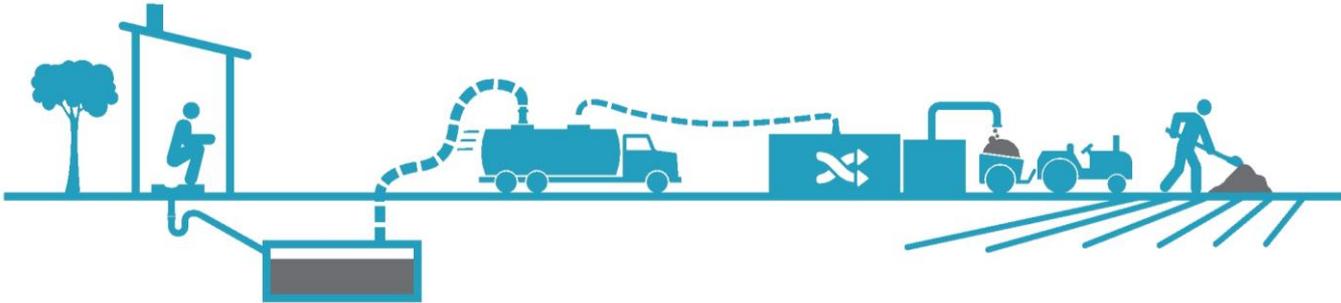
- Service Provider
- The Market Enablers
- Manufacturer

1. The Current Market: Customers

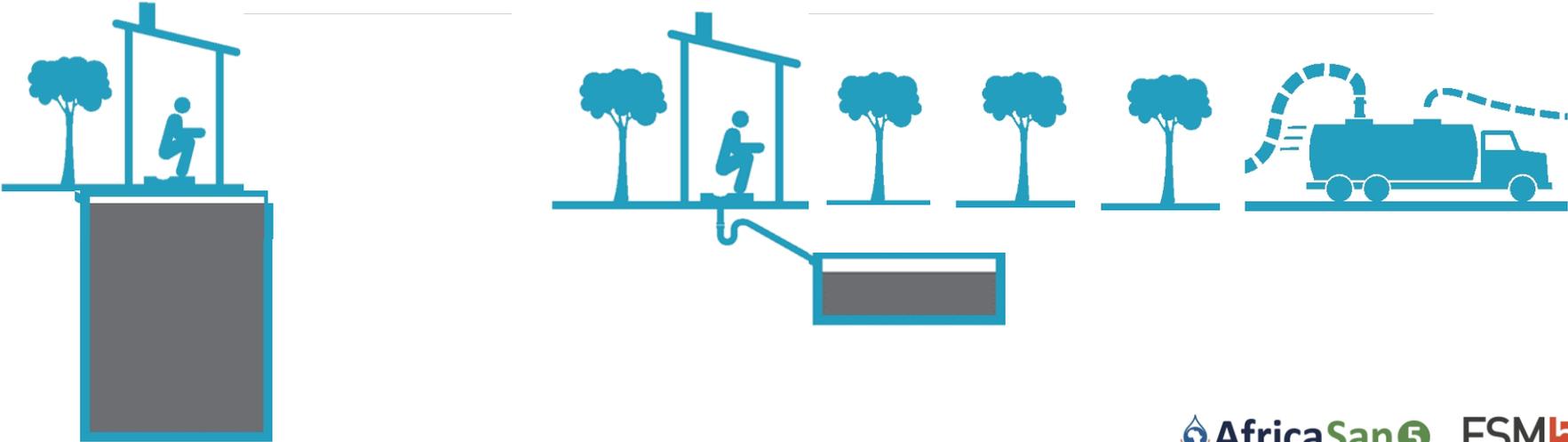
**~300-350 MILLION
PIT LATRINES
GLOBALLY**



1. The Current Market: Systems in Place

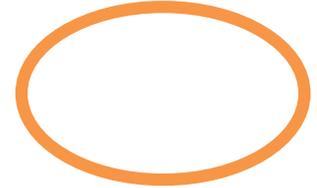
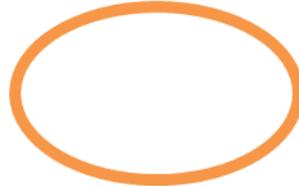


CONTAINMENT > EMPTYING > TRANSPORT > TREATMENT > REUSE/DISPOSAL



1. The Current Market: Service Providers

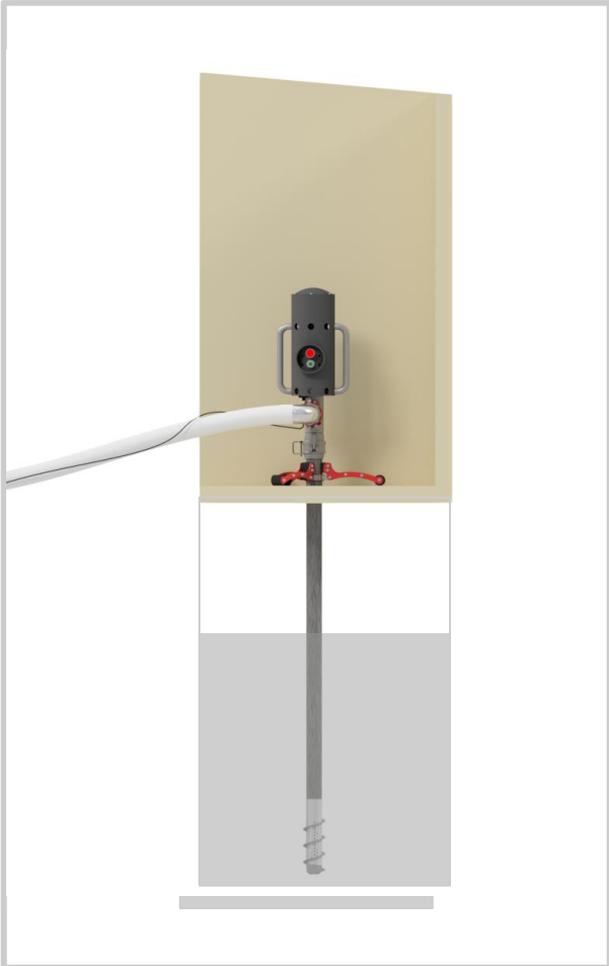
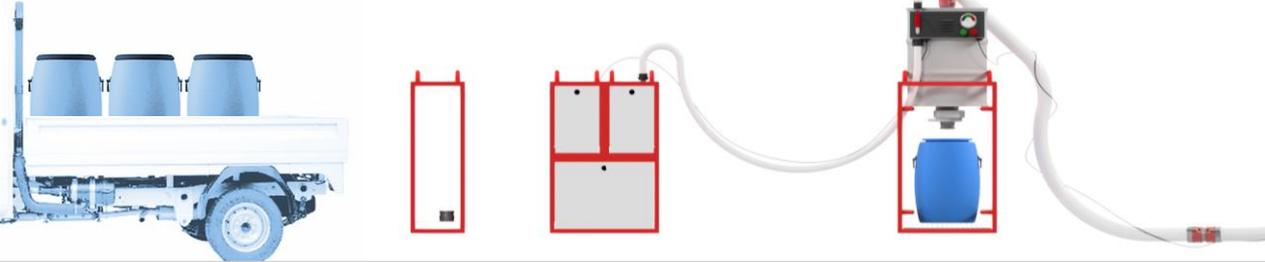
TYPE	Vacuum Truck Operators
Equipment	Vacuum Trucks
Capital Investment	USD 30,000 - 70,000
Cost per job	USD 70-120
Cost per m3	USD 10-40



SSG, Uganda

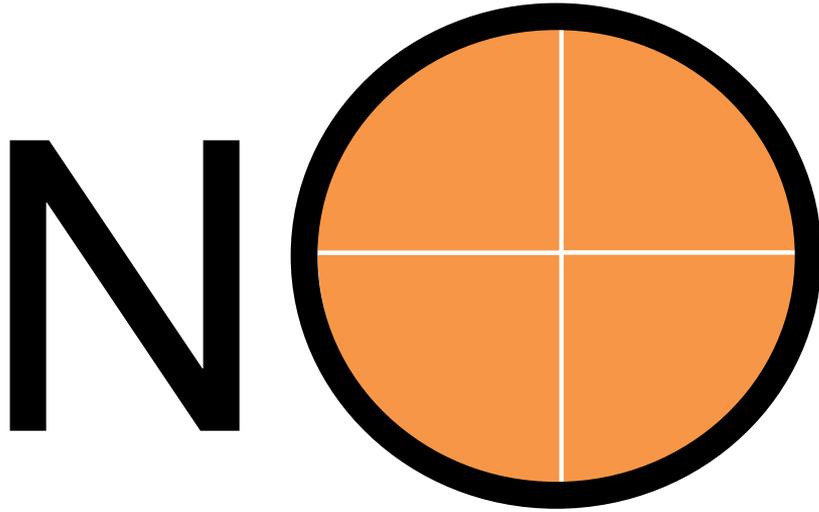
2. The Equipment: The Excluder

1 - Custom Vacuum System



2. The Equipment: Can it solve poor pit emptying practices?

NO

The word 'NO' is written in a large, bold, black sans-serif font. The letter 'O' is replaced by a large orange circle with a thick black border. The circle is divided into four equal quadrants by a white cross.

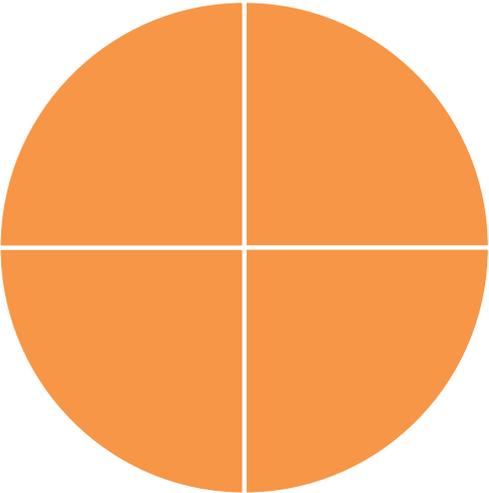
TECHNOLOGY/INFRASTRUCTURE

POLICY/ REGULATION

BEHAVIOUR/HABIT

CAPACITY OF STAKEHOLDERS

2. The Equipment: Its all about the...

M  **N E Y**

SERVICE PROVIDER

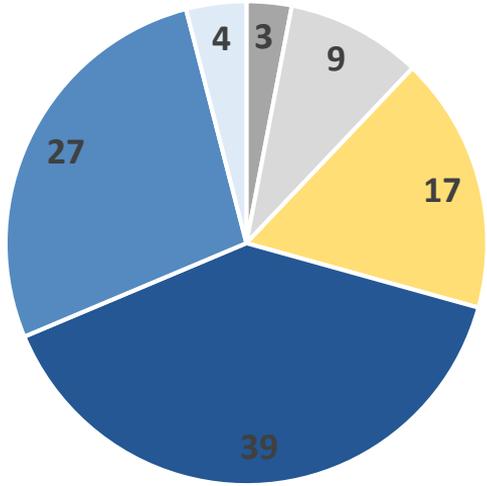
MARKET ENABLERS

MANUFACTURER

3. The Business Case: Service Providers – Who would use it?

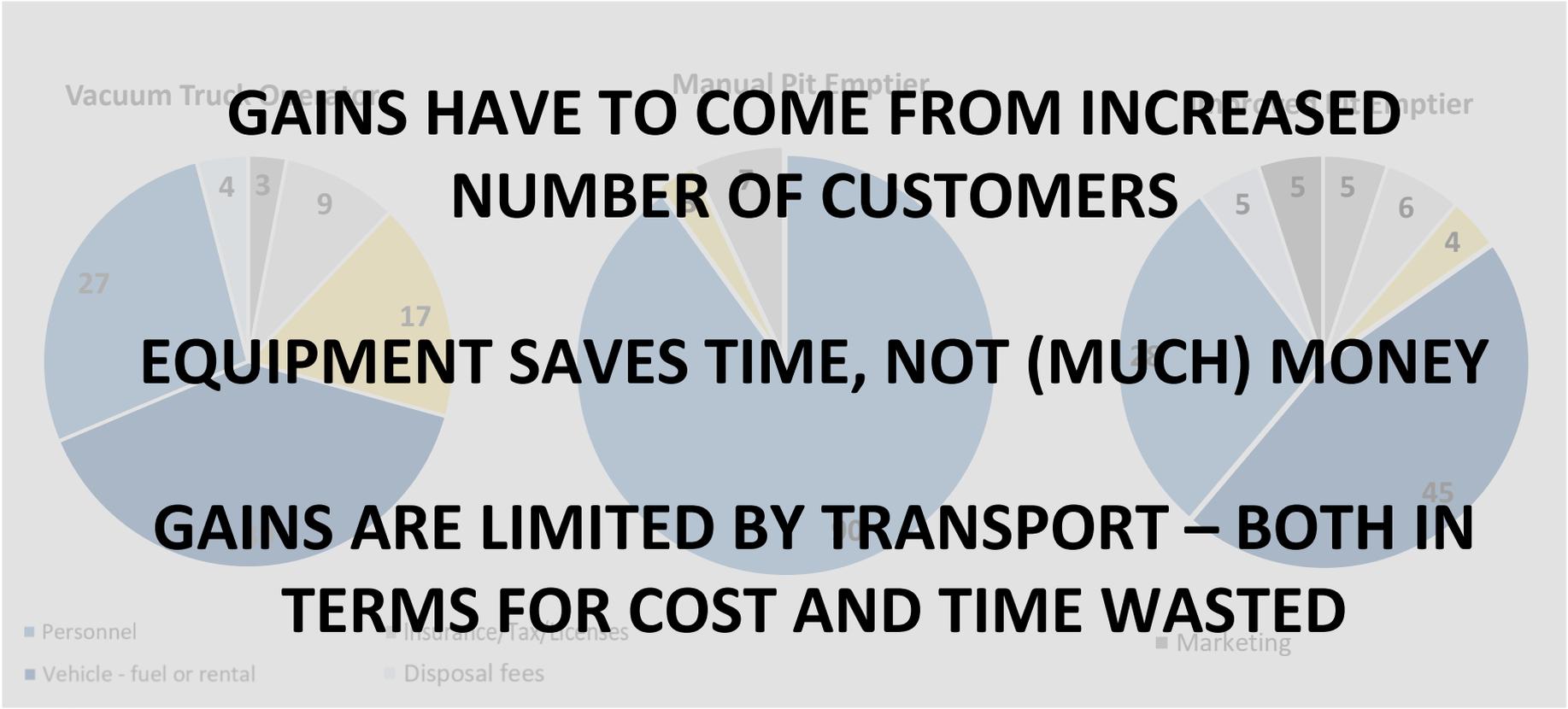
Expenditure per job (%)

Vacuum Truck Operator ~\$55



- Personnel
- Vehicle
- Maintenance
- Rent/Comms/Health and Safety
- Insurance/Tax/Licenses
- Disposal fees

3. The Business Case: Service Providers – Who would use it?



GAINS HAVE TO COME FROM INCREASED NUMBER OF CUSTOMERS

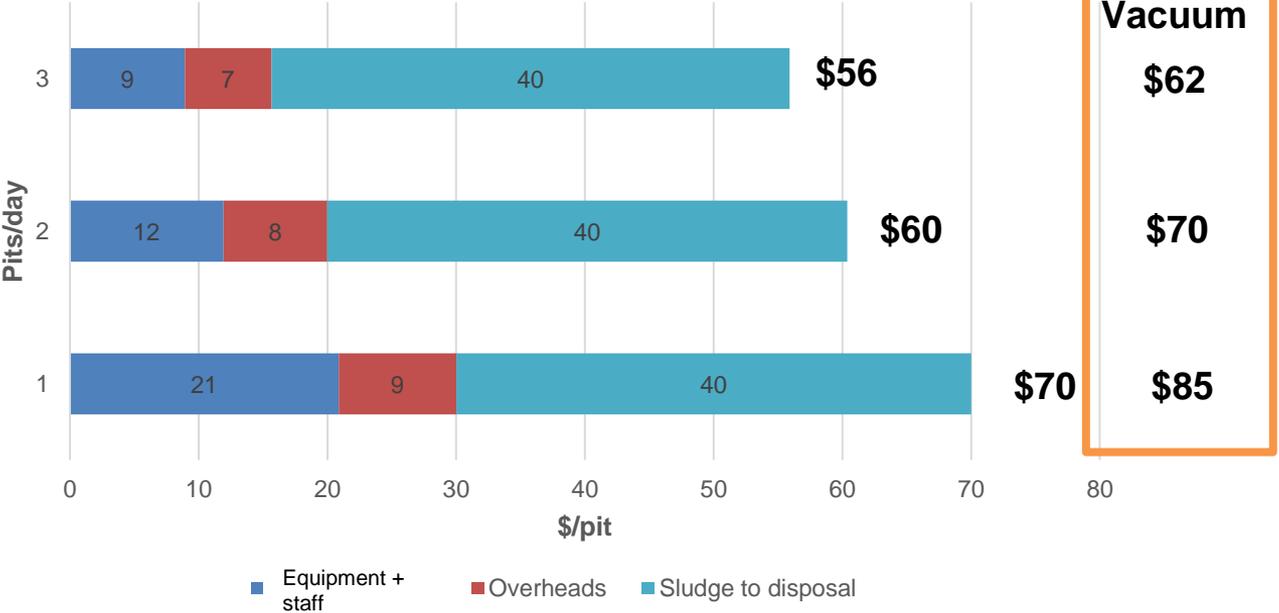
EQUIPMENT SAVES TIME, NOT (MUCH) MONEY

GAINS ARE LIMITED BY TRANSPORT – BOTH IN TERMS FOR COST AND TIME WASTED

- Personnel
- Vehicle - fuel or rental
- Maintenance
- Rent/Comms/Health and Safety
- Insurance/Tax/licenses
- Disposal fees

3. The Business Case: Improved Pit Emptying

Cost of Emptying – Excluder + Trash Pump



3. The Business Case: Improved Pit Emptying

Profit proportional to:

(i) How much you manage to charge

Pit/Day	1	2	3
Charge/pit (\$)	Profit (\$/annum)		
50	- 5,305	- 5,295	- 5,285
75	1,070	7,455	13,840
100	7,445	20,205	32,295

(i) Availability of customers

(ii) Disposal infrastructure access

(iii) Subsidy for services?

3. The Business Case – The Market Enablers

STAKEHOLDER	PROPOSITION STRENGTH
Client	MEDIUM

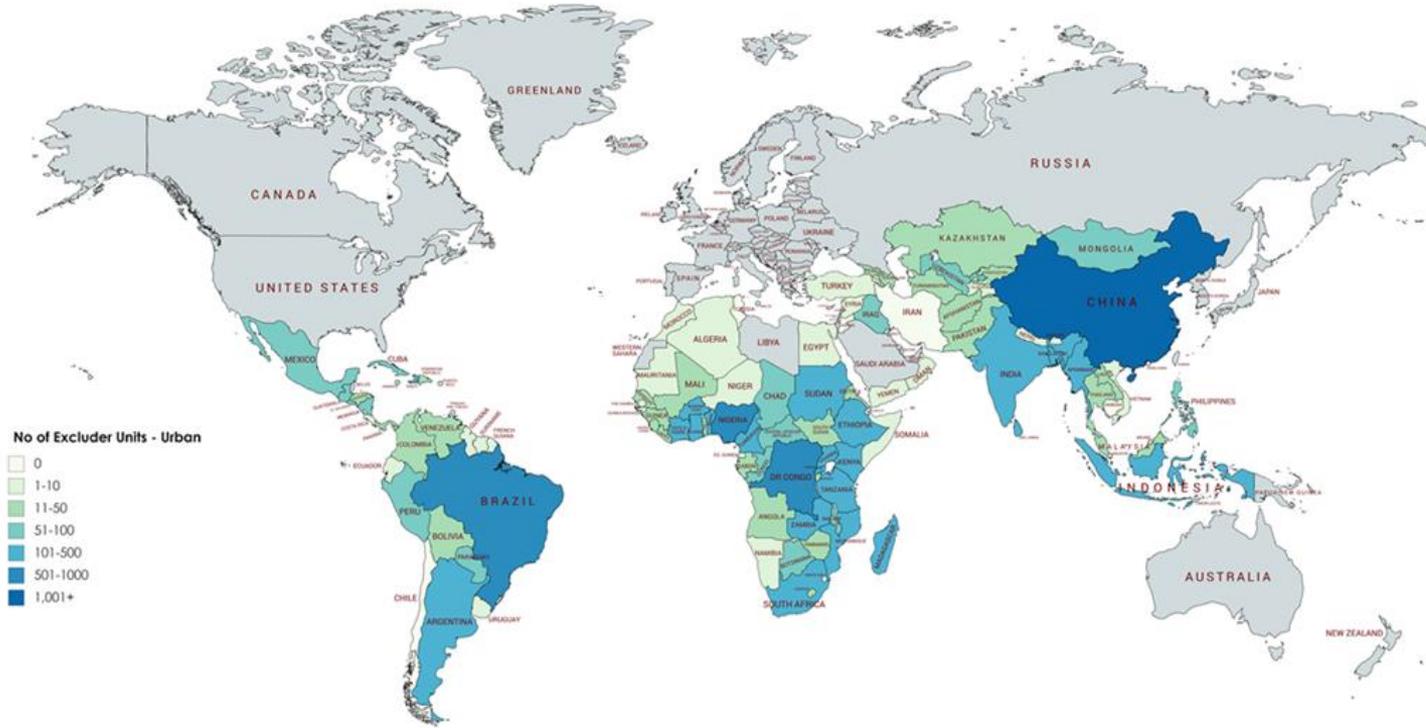
Who to work with...

...without inflating expectations

- Incentivise the Vac trucks
- Train more manual emptiers
- Establish more improved emptying teams

This industry simply must exist

3. The Business Case – The Manufacturers



Max Available Market
~66,000 units

5 year Market
~200-300 units

- Early Adopters**
- IPEs – East Africa
 - Utilities/NGOs

Local presence required
‘without aftersales – there are no sales’

Partner based model with reduced risk purchase

Is there a Business Case for Mechanical Emptying of Pit Latrines?

- There is a business case BUT the strength of the case relies on factors external to the machine itself – enabling environment, access to treatment facilities
- Existing business case won't excite 'good' entrepreneurs without incentive/support
- **Enables the IPE industry to gain legitimacy, operate in the day time, and demand and demonstrate the need for infrastructure, regulation and support to offer their services.**

A MARKET ENABLING TECHNOLOGY

What Next?

- Extended testing – Rwanda/Madagascar
- Test with existing pumps/trash pumps
- Identify means to reach early customers
- Manufacturing at small scale for early adopters
- Funding through ‘valley of death’

For more information:

Nicola@triangle-environmental.com

fldelosr@ncsu.edu

