Restructuring the Non-Sewered Sanitation Services Market to Address Failures

Lusaka, Zambia

Mwansa Nachula Mukuka

Lusaka Water and Sewerage Company
Outline

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Lusaka

Context

Access to Sanitation

MOST COMMON SANITATION FACILITY

- Improved Pit latrine
- WC connected to septic tank
- Water closet connected to the sewer system

WC connected to sewer: 9%
WC connected to septic tank: 22%
Improved latrine: 50%
Pour flush: 10%
Open defecation: 1%
Lusaka
Context
SFD
LWSC’s FSM Journey

- In line with national strategies
- 57% SS, 43% NSS by 2036
- Cost: USD 1.9 billion
Market Insights

EMPTYING
Vacuum Tanker Services

EMPTYING
Pit Emptying Services (Formal & Informal)

TREATMENT
Septage and pit latrine waste

REUSE
Soil Conditioners

REUSE
Biofuel

REUSE
Biogas-to-energy
Market Insights
Vacuum Tankers

1. **59 vacuum tankers** (16 emptied <10 loads in 2017), and **38 companies**

2. **Very low utilisation rate** due to limited demand and reported breakdowns

3. **Limited capacity to grow business.** Those that do grow rely mainly on commercial customers – their strategy for growth.

4. **Rarely empty pit latrines** due to low margins

5. **High supply, low demand and high competition**

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### USD 200,000
*estimated value of domestic and commercial market in 2017*

### USD 400,000
*potential value of domestic and commercial market in 2017*

### USD 84
*typical price of emptying a septic tank*

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**MARKET SEGMENTS**

- **INDUSTRIAL**
  - 55%
  - -13% decline per annum – connection to sewers or construction of treatment facilities on-site

- **COMMERCIAL / INSTITUTIONAL**
  - 25%
  - 8% growth per annum

- **DOMESTIC**
  - 20%
  - 5% growth per annum
Market Insights

Pit Emptying Services

1. **not as profitable serving the poor** as serving higher-income / commercial customers – higher cost of emptying, lower willingness to pay

2. Limited capacity of both formal and informal sector to **grow and professionalize** without considerable support

3. **provision of transport** is critical to achieving LWSC’s objectives

4. No local importers, distributors or manufacturers of appropriate pit emptying equipment

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USD 63 - 84
typical price of emptying a pit latrine by informal manual emptiers

Who empties NSS facilities?

- **A vacuum tanker**: 30%
- **The water trust**: 6%
- **A community-based provider**: 5%
- **An informal service provider**: 46%
- **A member of the household**: 13%

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Typical price of emptying a pit latrine by informal manual emptiers:

- **32 lbs for three years**: USD 38 (18%)
- **24 lbs for two years**: USD 32 (23%)
- **12 lbs for one year**: USD 21 (58%)

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Cleaning your latrine really made my day!
Business Plan [2020 – 2024]
Service Model and Partnerships

A PERMIT SEPTIC TANK EMPTIERS (STEs)
B PIT LATRINE EMPTIERS (PLEs)

MARKET-BASED E&T FEE + DUMPING FEE

NON-LWSC CUSTOMERS

MARKET-BASED E&T FEE

LWSC CUSTOMERS

DUMPING FEE

SERVICE PROVIDERS WITH PERMIT A

SANITATION SURCHARGE (LWSC & WATER TRUST CUSTOMERS)

“TOP UP”
Paid to permitted pit emptiers per cubic metre of sludge delivered to treatment facility.

SERVICE PROVIDERS B

TREATMENT FEE
Paid to LWSC Treatment Team based on input & performance

SALES OF SAFE BIOSOLIDS

LSWC FSM DEPARTMENT

REUSE OPERATOR

LWSC FSM SPECIALISTS

Service Model and Partnerships

MARKET-BASED E&T FEE

PERMIT SEPTIC TANK EMPTIERS (STEs)

PIT LATRINE EMPTIERS (PLEs)

LWSC SEWERAGE SERVICES DEPARTMENT

FIXED E&T FEE ZMW 125 / m³

FIXED E&T FEE

“TOP UP”

PAID TO PERMITTED PIT EMPTIERS PER CUBIC METRE OF SLUDGE DELIVERED TO TREATMENT FACILITY.
Business Plan [2020 – 2024]
‘Top Up’ to address failures of pit emptying market

Undercut informal pit emptying market by fixing price of emptying a pit at below cost, and providing a ‘top up’ to service providers on delivery of waste to treatment facility.

Cost of emptying 6 m³ Containment System

Formal Pit Emptier, $180
Informal Pit Emptier (High), $150
Informal Pit Emptier (Low), $109
Vacuum Tanker Operator, $75

Full volumetric cost of safe emptying & disposal with a MDU
TOP UP Paid by LWSC to PLE
USD 12.5 / m³
Fixed volumetric fee paid by customers directly

TOP UP Paid by LWSC to PLE
USD 12.5 / m³
Fixed volumetric fee paid by customers directly

Full volumetric cost of safe manual emptying and disposal
Business Plan [2020 – 2024]
Proposed FSM Unit at LWSC

LWSC FSM

Manager
 Deliver FSM Business Plan
 Report to Commercial Director
 Strategic partnership with ZEMA & LCC
 Service Level Agreement with SSD

Senior Compliance Officer
 Issue permits
 Approve payments to PLEs
 Tactical coordination with ZEMA & LCC

Business Development & Marketing Officer
 Support & coordinate above-the-line marketing with service providers
 Data analysis from waste manifests & reporting on market intelligence

Human Resources
[0.1 FTE]

Finance and Administration Specialist
[0.3 FTE]

Procurement & Contract Administration Specialist
[0.1 FTE]

Disposal Site Compliance Officers
[5]
 Check & enter data
 SSD and permit compliance

Roaming Compliance Officer
[2]
10% random checks on waste manifests & random checks on permit compliance

MIS Specialist
[0.1 FTE]
Training & QA of data entry

GIS Specialist
[0.1 FTE]
Supporting in issuing maps

Disposal Site Compliance Officers
[5]
Business Plan [2020 – 2024]
Operational and Financial Targets

Cost of Delivering Safely Managed NSS Services

Tariff on Water Bills Required to Implement FSM Business Plan

Estimated Sludge Safely Managed per Annum
Take aways

1. Do design market interventions to **address your market’s specific opportunities and failures** – there is no need to copy-and-paste solutions from elsewhere

2. Do **engage the existing private sector** to enable service delivery - utilities do not have to deliver all services directly themselves

3. **Stakeholder consultation** – as always – is critical, especially with the regulator

4. **Ensure an overall vision** for the utility and the market, but focus on the immediate and potentially transitional 2 – 5 years
Lusaka Context
Institutional Structure

Ministry of Water Development, Sanitation and Environmental Protection
WSS Portfolio, including WSS Policy, programmes (NUWSSP) and strategies (NUSS)
Policy, strategy, funds & resource mobilisation

WSS Regulator (NWASCO)
Sector-Wide Financing Mechanism being developed
WWGs
Represent unresolved complaints, means of communication & feedback
Environment Regulator (ZEMA)

Ministry of Local Government
Finance and supervision of location authorities
LCC
Enforcement of Public Health Act
Shareholders appoint board of directors

Water Resources Regulator (WARMA)
Water rights
Effluent environment permits

LCC
Enforcement of Public Health Act
Lusaka Water and Sewerage Company (LWSC)
and delegated service providers providing water and sanitation services