A Case Study of Scheduled Desludging in Lusaka Province, Zambia

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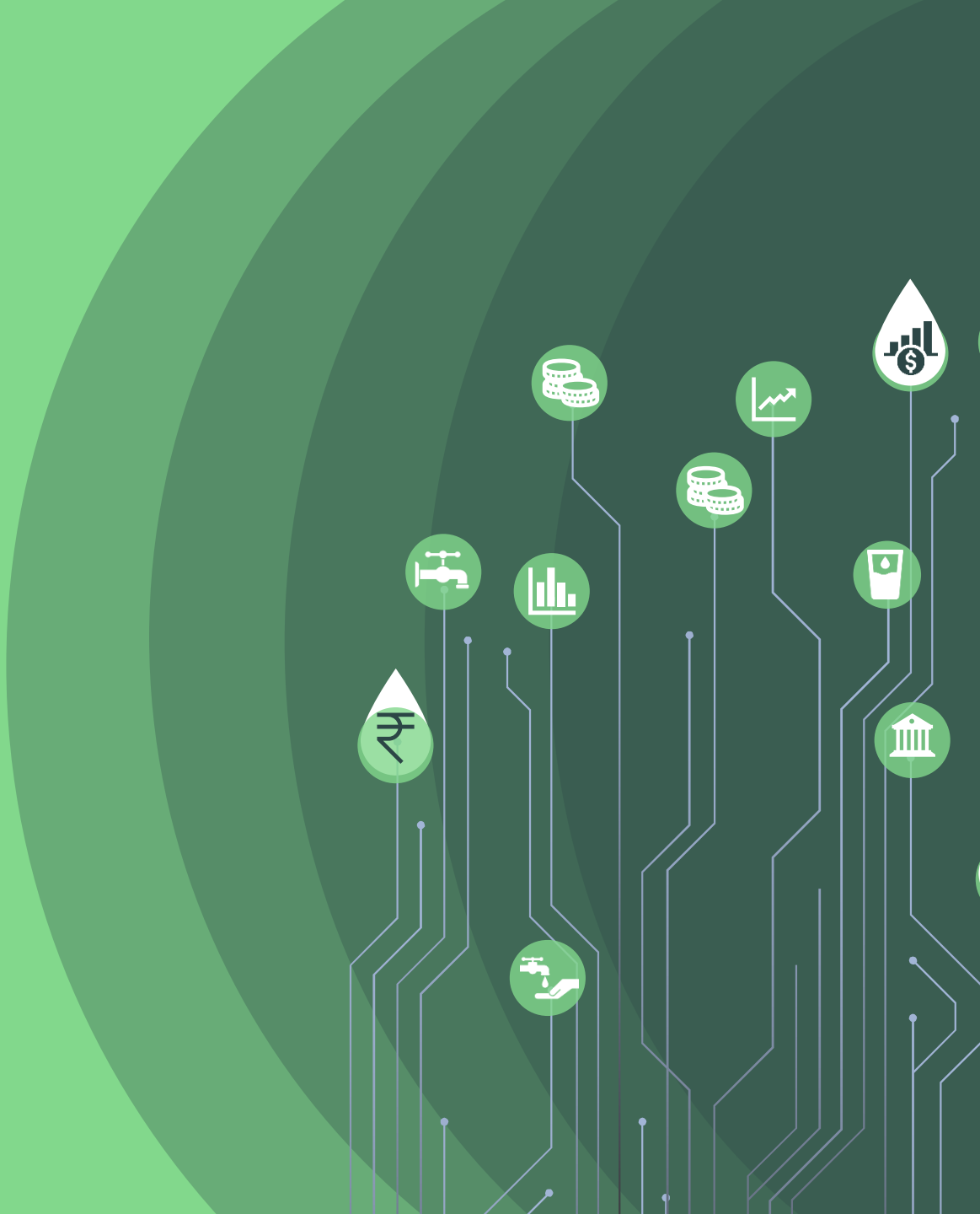

Introduction

- This study explores the **economics of Water, Sanitation, and Hygiene (WASH)** services.
- Focuses on a **scheduled desludging pilot project** implemented in **Lusaka**.
- The project was funded by the **Bill & Melinda Gates Foundation**.
- Implemented in partnership with **Lusaka Water Supply and Sanitation Company**.
- The pilot targeted **4,471 improved toilet facilities**.
- Implemented across **five peri-urban zones** in Lusaka.
- Emphasizes **economic planning and financial sustainability** of **Faecal Sludge Management (FSM)**.
- Contributes to the goal of **citywide inclusive sanitation services**.
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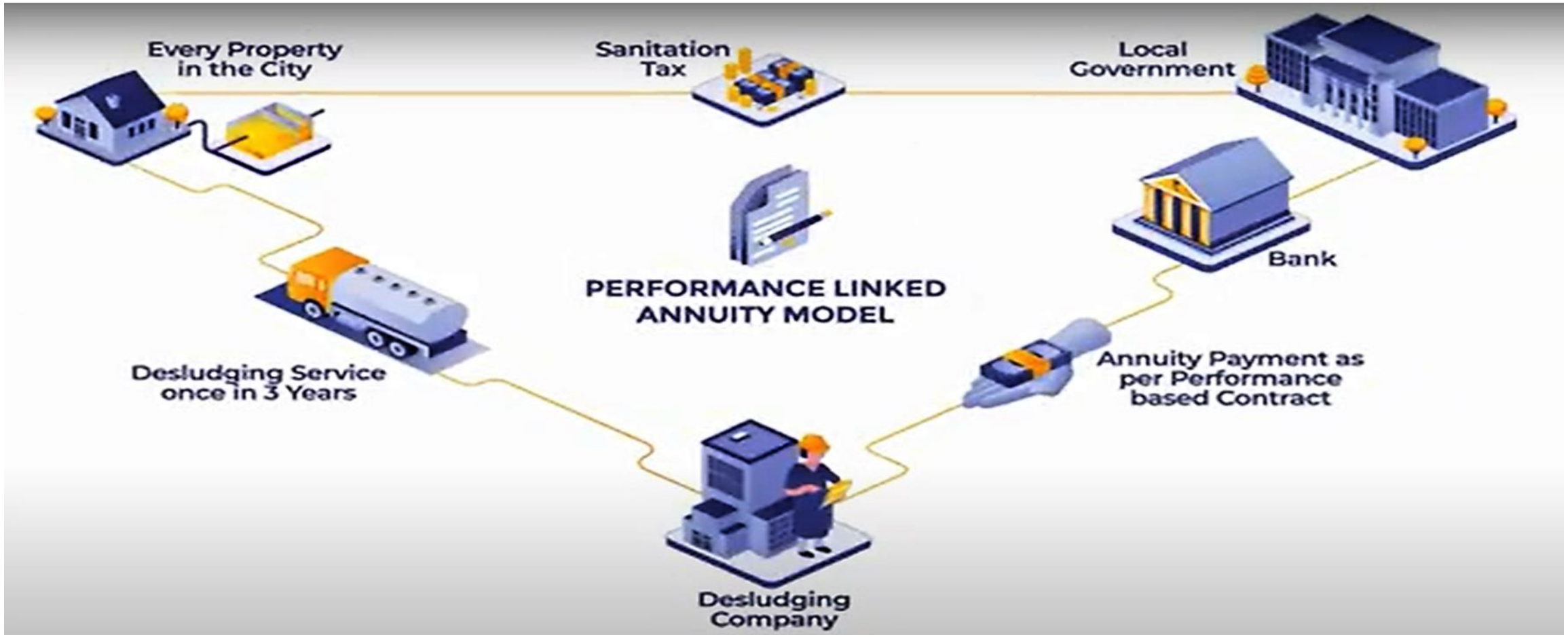
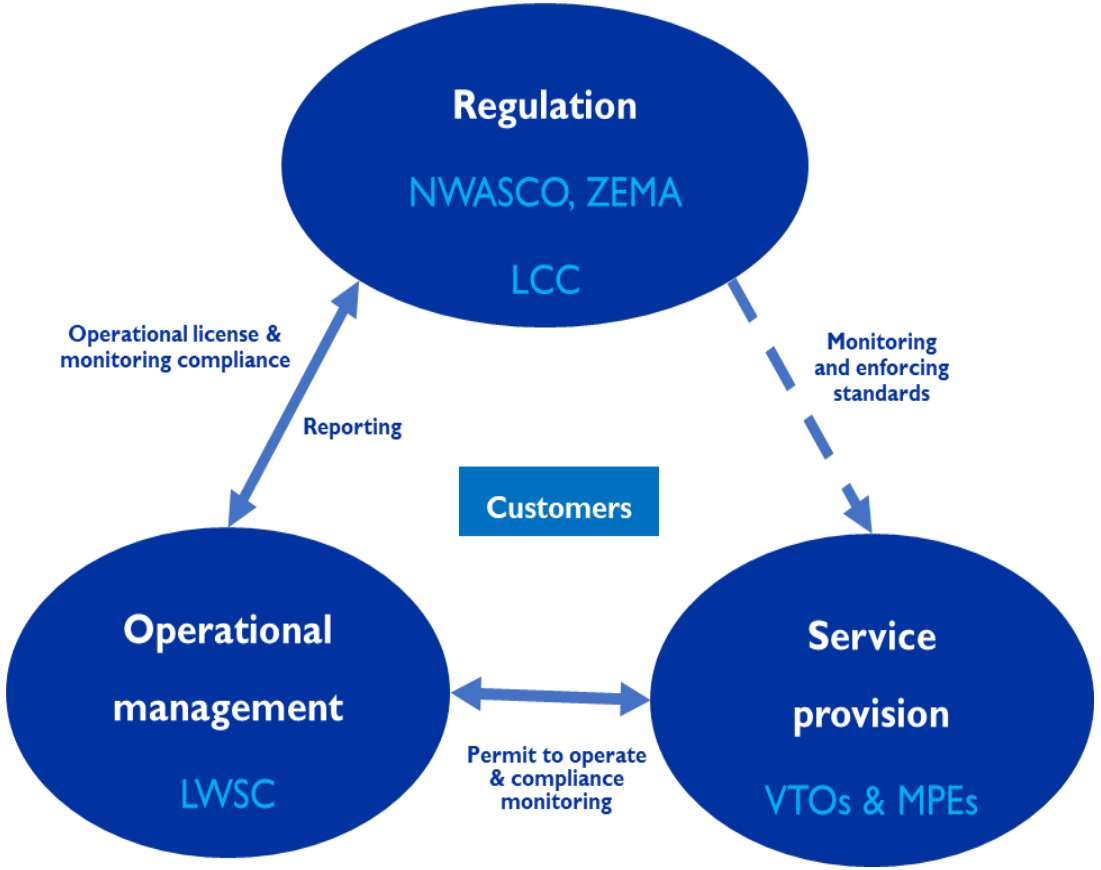
Intro Cont


Every Property in the City
Sanitation Tax
Local Government
PERFORMANCE LINKED ANNUITY MODEL
Bank
Desludging Service once in 3 Years
Annuity Payment as per Performance based Contract
Desludging Company

Enabling Environment

- The pilot will be implemented within the existing onsite sanitation and Faecal Sludge Management (FSM) institutional framework.
- Roles and responsibilities of key stakeholders will be revised
- No new institutional structures are required.
- Implementation will rely on the current operational setup.



Structured Project Approach

Enabling Environment | Operational Capacity | Infrastructure Requirements | Financial Viability

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12-Month Service Cycle

Subscription Target
- 50% households
- 25% in one zone

Vacuum Trucks for Transport

Cost of Service Delivery

Economic Cost Structure

- The **cost of service delivery** ranges from **$8–$12 per m³**.
- Costs are largely influenced by **transport distance** and **fuel expenses**.

Private Sector Contribution

- **Vacuum Tanker Operators (VTOs)** contribute up to **77% of total service costs**.

Additional Cost Components

- **Fixed dumping fee:** $1.6 per m³
- **LWSC coordination costs** also add to the overall cost structure.

Proposed User Fee

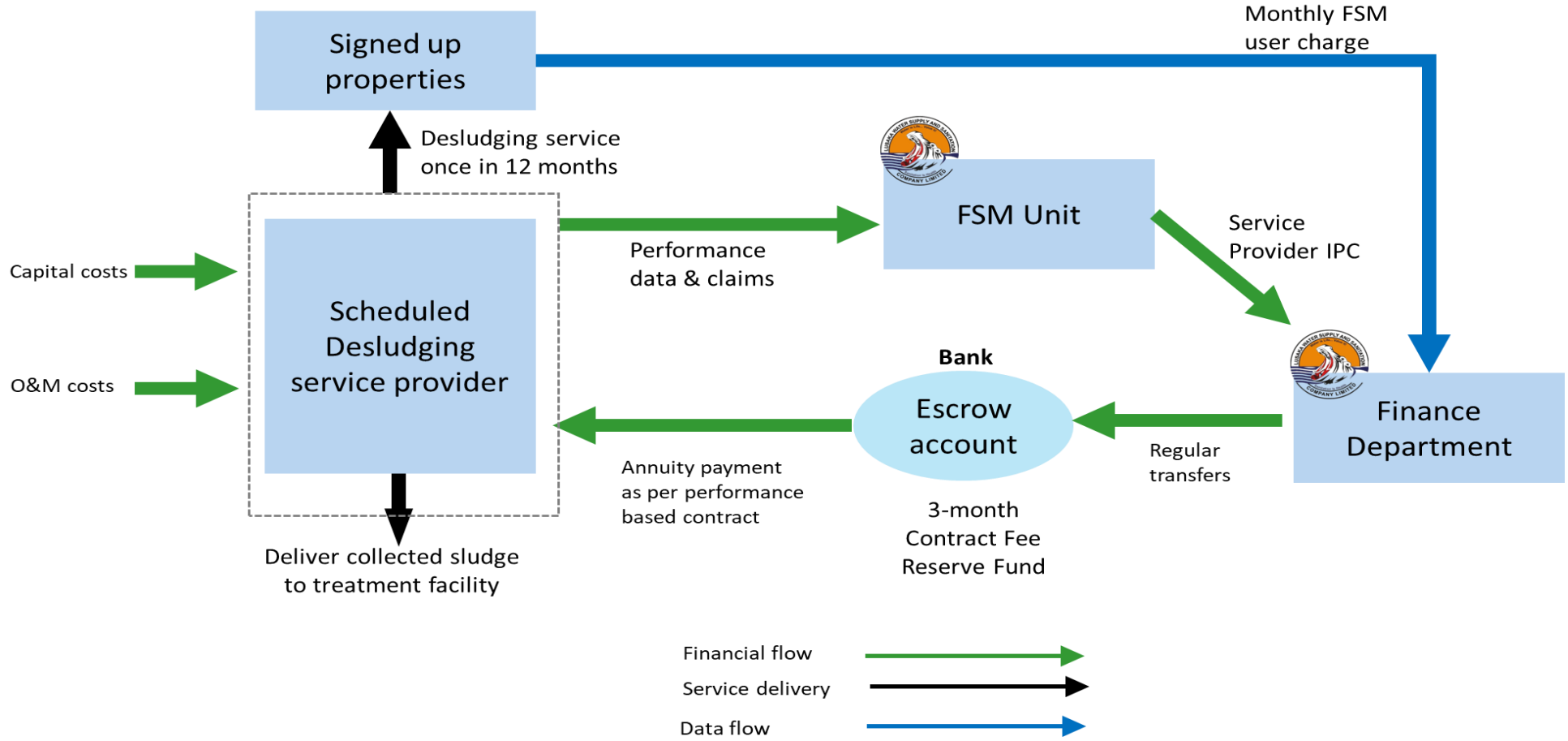
- Recommended fee: **$9.8 per m³**
- Compared to market rates:
  - **VTOs:** $8 per m³
  - **Manual Pit Emptiers:** $17 per m³

The proposed fee supports **financial viability and operational sustainability** while remaining **competitive within the market**

Financial Viability and Sustainability

- The proposed pricing structure allows LWSC to achieve a 9% net margin, ensuring a return on initial investment.
- Helps address early-stage cash flow constraints during service rollout.
- Demonstrates the importance of economic analysis in designing viable sanitation services.
- Balances affordability, service quality, and private sector participation.
- Supports sustainable and inclusive WASH service delivery

Financial Viability and Sustainability Cont



Financial System for Scheduled Desludging Programme

- A financial management system is required to coordinate programme revenues and expenses.
- The system ensures efficient cash flow management and operational sustainability.

Key Preconditions

- 3-month financial reserve to cover projected programme costs
- Reliable monthly payments to private Vacuum Tanker Operators (VTOs)
- Accountability and verification mechanisms for payment processes

Investment and Funding Structure

Pilot Phase Financing

- Initial investment funded through a grant from the Bill & Melinda Gates Foundation (BMGF) for cash flow management.
- Capital investment for desludging trucks will be made by private VTOs already operating in the city.

Key Objective

- Reduce public capital burden while leveraging private sector capacity.

Revenue Collection Mechanism

Operational Costs

- Covered through user fees paid by customers receiving desludging services.

Revenue Flow

- Revenue begins from the second month of service delivery.

Payment Channels

- Monthly water bills through existing LWSC billing system
- Direct payments from customers receiving FSM services

Customer Payment Structure

- Each customer has an LWSC account number.
- Full service cost is debited after service delivery.
- Customers are expected to clear the payment within 12 months.

Financial Management

- Revenue deposited into a dedicated desludging programme bank account.
- Account maintains a 3-month contract fee reserve.

Conclusion

- A pilot plan for scheduled desludging services was developed for onsite sanitation facilities under the Lusaka Sanitation Program, with 4 m^3 capacity toilets expected to fill in about 24 months.
- The pilot will operate in five service zones: Chawama, John Laing, Kanyama, Garden House, and George, targeting 2,162 out of 5,572 constructed toilets.
- Private Vacuum Tanker Operators (VTOs) will provide desludging services, with households registering for annual emptying of their latrines.
- Toilets designed for 10 users per facility should last until the next cycle; misuse (e.g., dumping trash) may require customer-paid emergency desludging, encouraging proper use.
- Desludging costs range from \$8–\$12 per m^3, with an average of \$9.8 per m^3; a uniform tariff of \$9.6 per m^3 is proposed (\$38 per toilet or \$3 month).
- LWSC will invest \$35,789 with an expected 9% with an internal rate of return over three years, and the pilot is projected to break even by month 22.

Thank You

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IFS Institute for Fiscal Studies

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Gates Foundation