# Diagnostic Tools and Guidelines for Fecal Sludge Management

## Update on the current WSP FSM work

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FSM-3 Hanoi, 18 January 2015

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# Objective

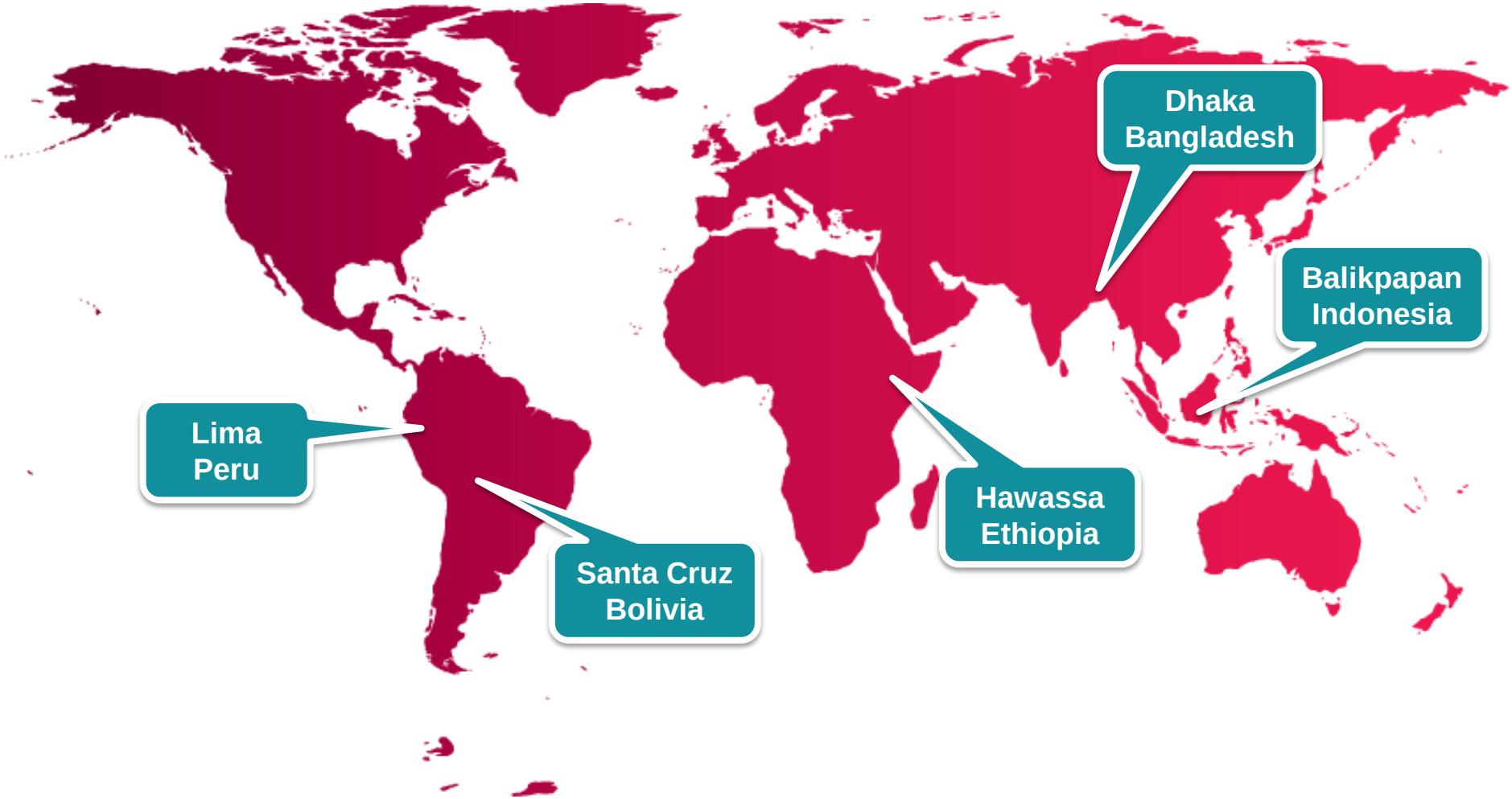
Develop a ‘package’ of diagnostic and decision-making tools and guidelines for the development of improved Fecal Sludge Management (FSM) services as part of urban sanitation strategies and plans.

The scope considers city-wide septage services but focuses on how to serve poor urban communities, based on collection and analysis of primary and secondary data.

# Tools and Guidelines Based on Evidence

- Applying draft tools from WSP's '12 City FSM study', Emory University and Economics of Sanitation Initiative.
- Undertaking detailed case studies in 5 cities:
  - Fieldwork complete in Balikpapan and Dhaka, analysis in progress
  - In progress in Lima and Santa Cruz
  - Starts February 2015 in Hawassa
- Linked to WB investment projects for potential downstream implementation and learning.

# Tools and Guidelines Based on Evidence



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# Survey Instruments and Sampling

## Household (HH) survey

- City-wide – 30 clusters x 12 households / cluster = 360 city-wide HHs
- Slums – 30 clusters x 12 households / cluster = 360 slum HHs

## Transect walks

- Held in 10 randomly-selected city-wide clusters
- Held in all 30 slum clusters
- 30 drain and water samples for testing

## Focus Group Discussions

- Held in 10 of the slum clusters

## Key Informant Interviews

- Conducted with >20 stakeholders

## Observation of service providers

- Carried out over 5 emptying events (3 manual, 2 mechanised)
- 15 fecal sludge samples taken for testing during observations

# Some Preliminary Findings From Dhaka and Balikpapan

- Poor FSM is widespread, and not only in poor areas
- Many septic tanks and pits discharge directly to drains
- Institutional delivery frameworks absent or weak

## Dhaka

- Over 93% emptying is manual and informal
- Over 70% households discharge to drains.
- 14% poor households empty pits themselves.

## Balikpapan

- 90% satisfaction with private sector emptying but cannot reach all houses in dense areas
- Pollution risk increased where high groundwater
- 80% interest in regular desludging service

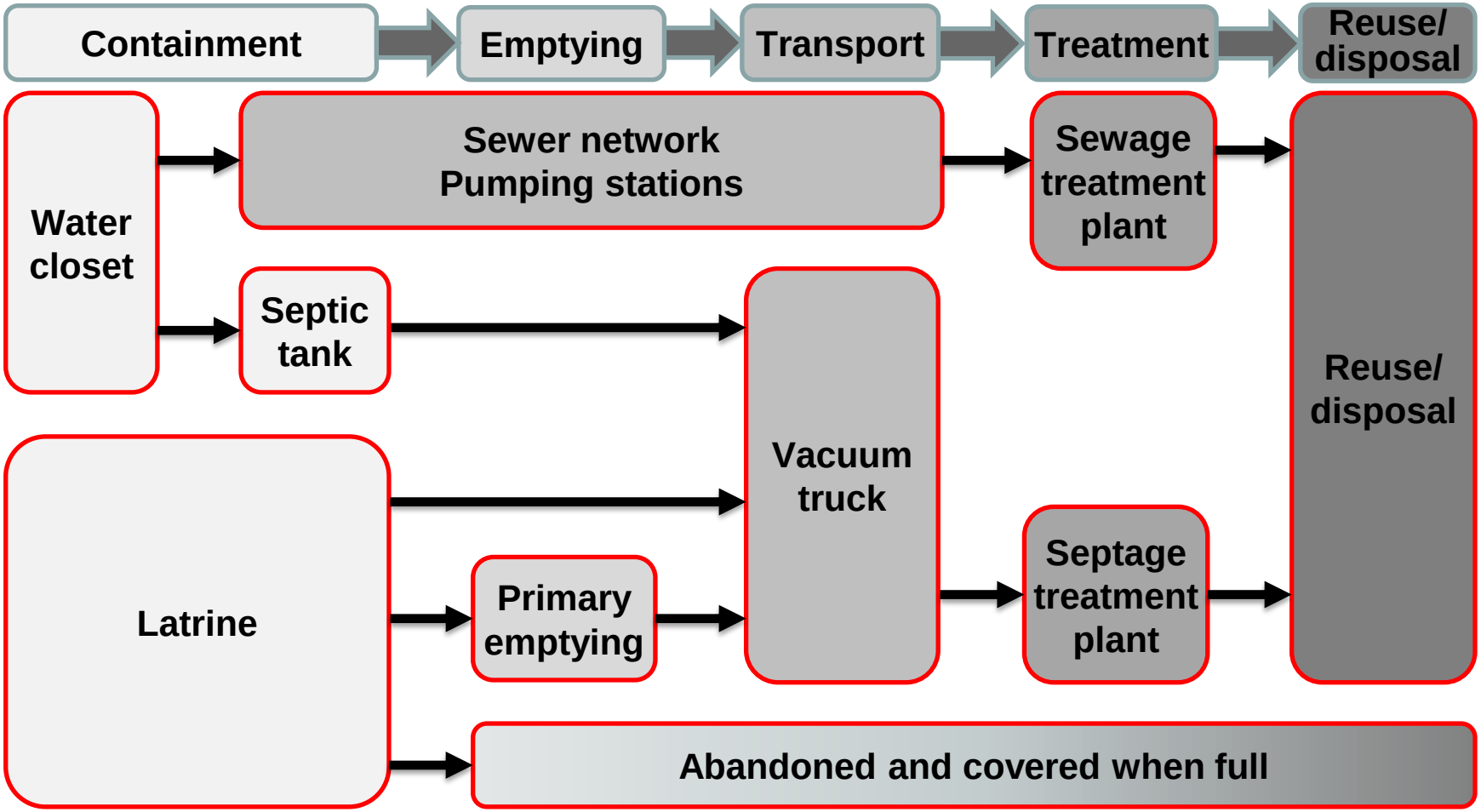
# Timeline

- All fieldwork and analysis complete by April 2015
- Economics tool – May 2015
- City case study reports – Aug 2015
- Draft tools & implementation guidelines – Nov 2015
- Final publications, website etc. – Feb 2016

# Learning more about what we don’t know …

- Continuum from true ‘septic tanks’ to the most precarious pits. How to motivate improvements?
- Small septic tanks reduce capital cost – but do they reduce BOD and capture sludge?
- High groundwater areas using wells – what are safe low cost household options?
- Few design figures available for quantity and quality of septage removed from tanks and pits
- Hygienic emptying equipment suitable for dense slums
- Simple low cost sludge treatment at scale which doesn't require large land areas
- And many more issues emerging ... new agenda?

# Context for the Tools and Guidelines




**But how does it actually work in practice?**



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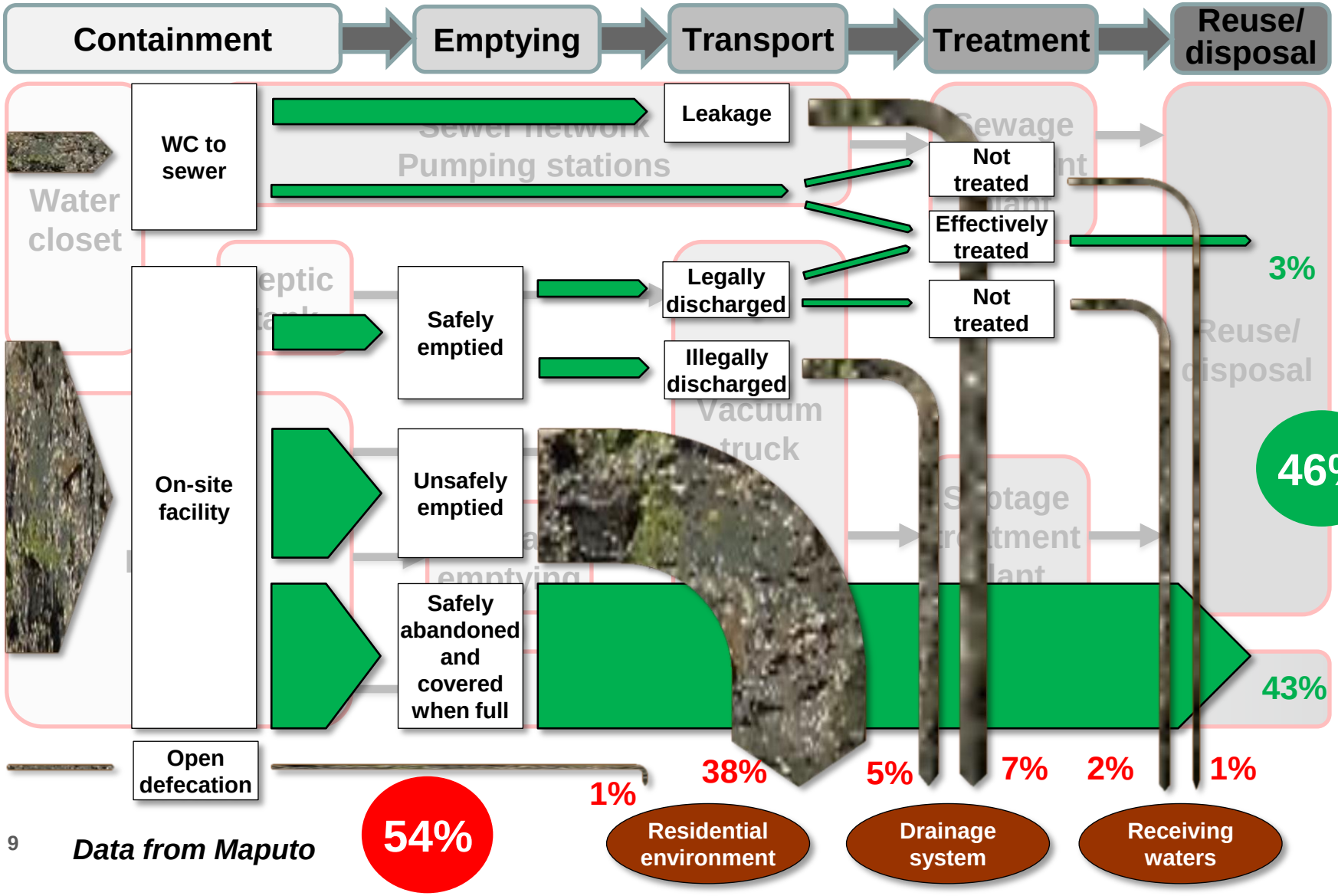
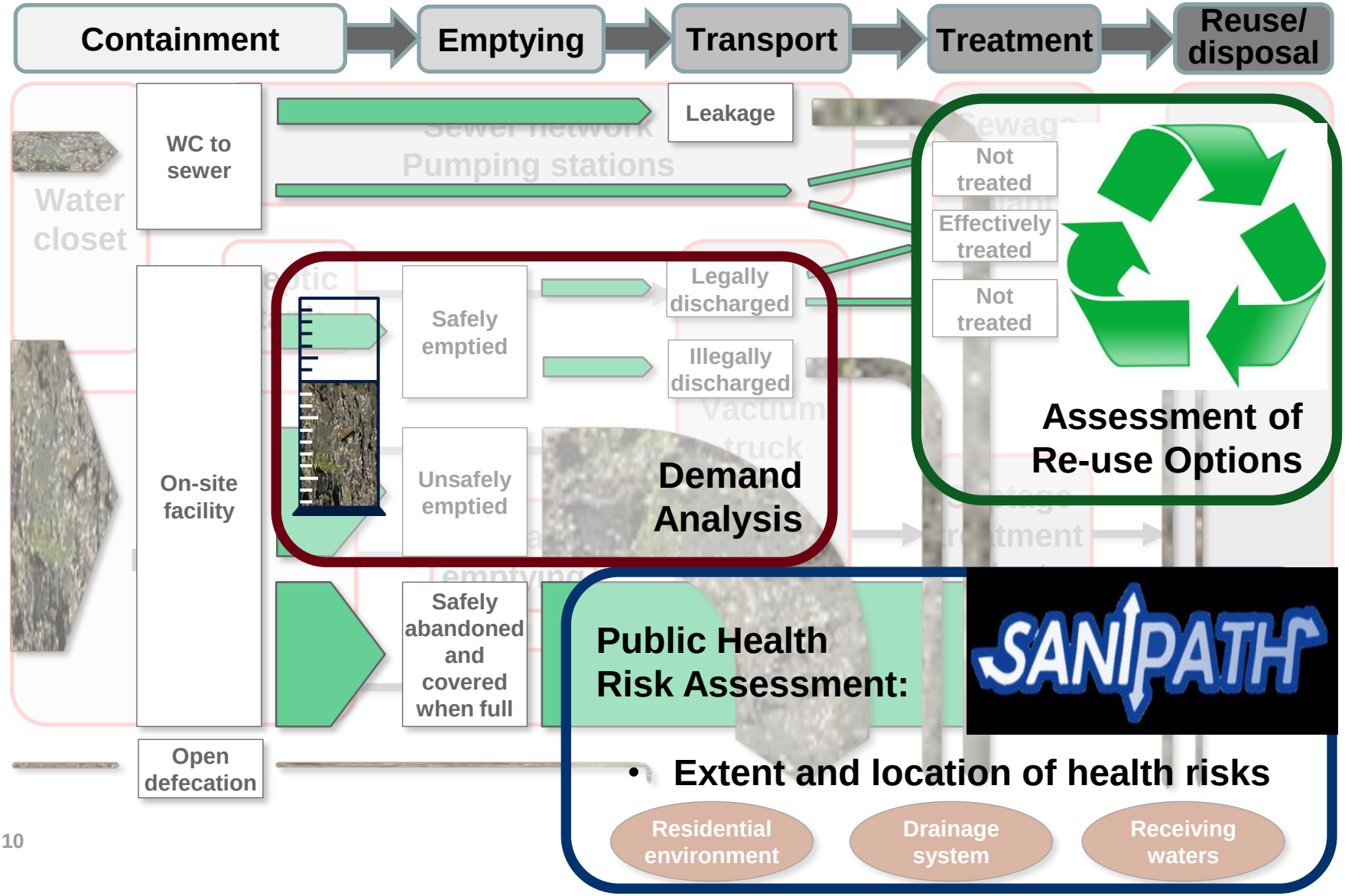
# Overview: Fecal Waste Flows – the SFD

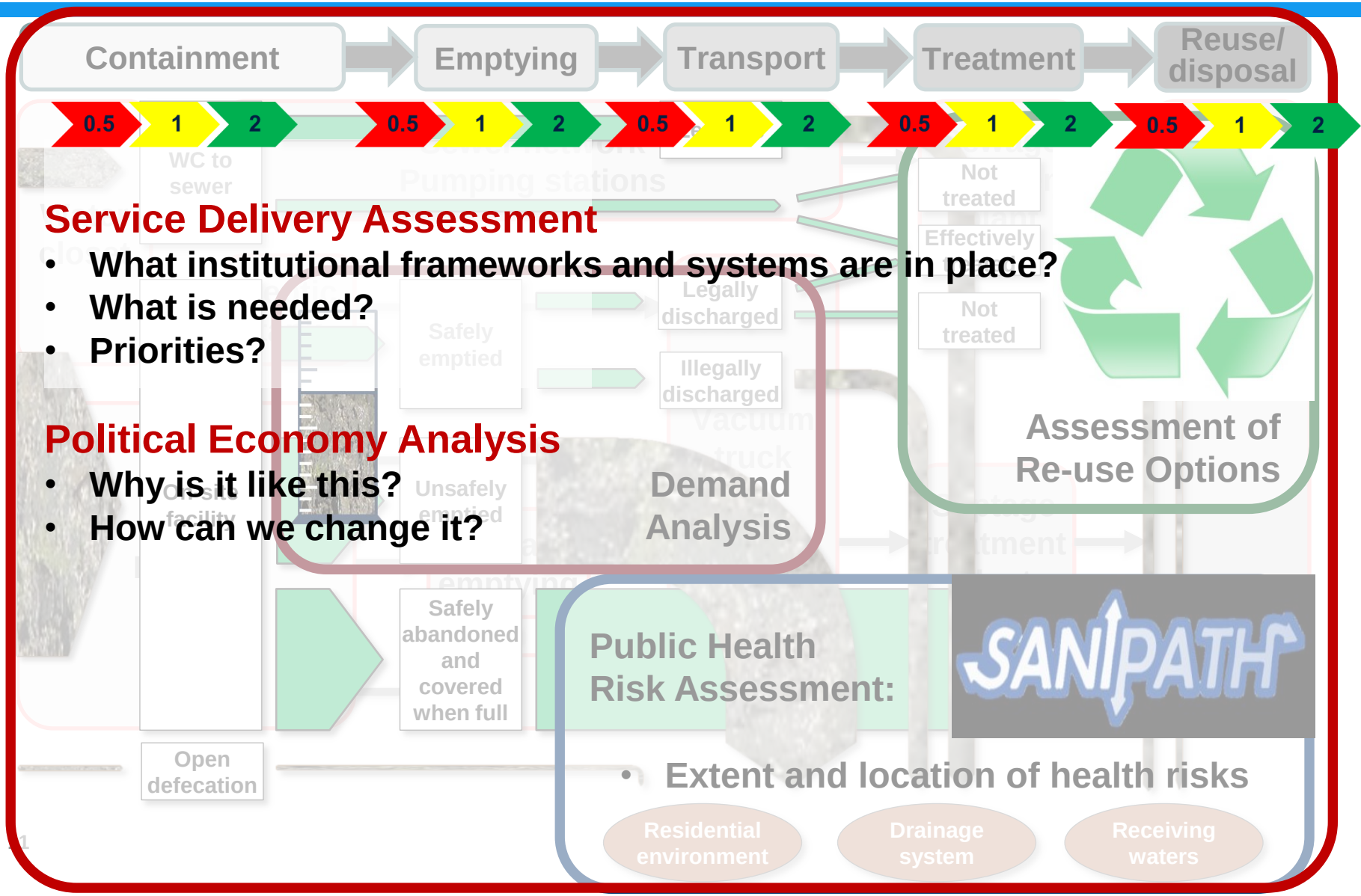



*Data from Maputo*

# Diagnostic and Decision-making Tools (1)



# Diagnostic and Decision-making Tools (2)



# Diagnostic and Decision-making Tools (3)


**Service Deliver**

- What institutio
- What is neede
- Priorities?

**Political Econo**

- Why is it like t
- How can we c

**Economics of Sanitation Toolkit:**

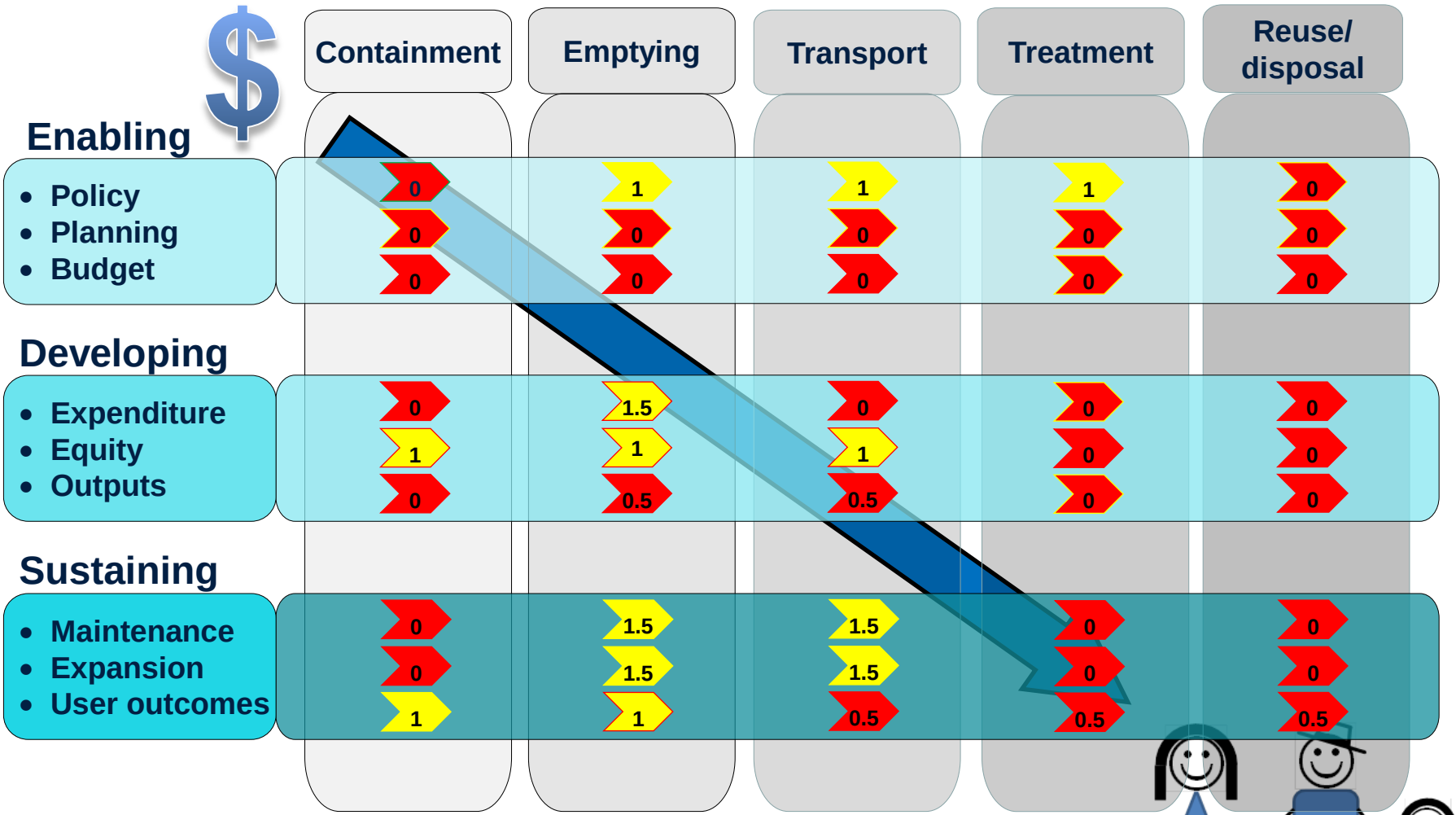
- **What are the costs and benefits of possible interventions?**

# Service Delivery Assessment Framework

| | Containment | Emptying | Transport | Treatment | Reuse/ disposal |
|---|---|---|---|---|---|
| **Enabling**<br>• **Policy**<br>• **Planning**<br>• **Budget** | - Is FSM recognized? Targets? Institutional roles? Private sector? Regulation?<br>- Investment coordination and prioritization mechanisms? Implementation capacity?<br>- Sufficient budget? FSM expenditure identifiable? | | | | |
| **Developing**<br>• **Expenditure**<br>• **Equity**<br>• **Outputs** | - How much is being invested in FSM?<br>- Community engagment? FSM vs. other sanitation expenditure? Poor-inclusive?<br>- Rate of growth and quality of FSM sufficient to make impact? Being monitored? | | | | |
| **Sustaining**<br>• **Maintenance**<br>• **Expansion**<br>• **User outcomes** | - O&M costs known and covered? Standards monitored and enforced?<br>- Promotion of FSM? Planning expansion of services? Private sector development?<br>- How much is the service chain “leaking”? Is it reaching the poor? | | | | |

*Example: Balikpapan*

# Service Delivery Assessment Framework




*Example: Balikpapan*

Poor | Developing | Good

# Political Economy Analysis

**Who will be responsible for and interested in ensuring adequate FSM?**

- Many stakeholders.  Motivations?  Coordination?
- Clarify roles and accountability relationships
- Both formal and informal processes and institutions
- Identify degrees of influence and interest
- Target key centers/individuals of influence
- Align interests for sustainability and ‘win-win’
- Consider regulation, rewards, sanctions

# Expected Output

- **Diagnostic tools:**
  - SFD *
  - SaniPath-FSM *
  - Sludge volume estimation
  - SDA

* *Linked to Emory University, GIZ, BMGF work.*

- **Project design inputs:**
  - Political Economy Analysis
  - Re-use potential and markets
  - Economic analysis

- **Project implementation guidelines**
  - Products for different target audiences
  - Explicit consideration of political economy
  - Synergy to other initiatives from BMGF, SANDEC etc



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# Thank You

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