LESSONS FOR BENCHMARKING FECAL SLUDGE MANAGEMENT SERVICES

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SUMMARY

Water and wastewater utilities have long used benchmarking—comparing performance indicators to targets, historical values, or other organizations—as a performance management tool. The practice has since expanded to fecal sludge management (FSM). This research reviewed the literature on good practices for benchmarking water and wastewater management and conducted key informant interviews to understand emerging FSM benchmarking efforts across eight countries. It found that benchmarking can serve as a tool to improve transparency, foster competition, and inform decisions. To make use of benchmarking, however, cities first need a functioning FSM system, organizational readiness, and clear communication channels. Launching a benchmarking program requires regulatory sensitization, a customer-aware business model, financial support, and adequate data management capacity. In addition, attention to the use of data for decision-making, incentives, and public information sharing can reinforce the beneficial outcomes of benchmarking. The findings recommended adopting a short list of high-priority key performance indicators (KPIs) for monitoring FSM services at the city level.

WHY THIS MATTERS

Inadequate sanitation can contaminate surface and groundwater, spreading disease. Demographic and health survey data from 58 countries (2003–2015) established that 63 percent of households use sanitation facilities requiring FSM,[1] also called on-site, decentralized, or non-sewered sanitation. Coordinating the many steps involved in safely managing fecal sludge (i.e., containment, collection, transport, treatment, and disposal or reuse) poses greater logistical challenges relative to centralized wastewater treatment by a single utility, with a large proportion of waste discharged directly into the environment or waterways.[2]

Multiple scales and types of benchmarking exist, and combining them may lead to synergies. Among the most common, "metric" benchmarking relies on monitoring quantitative KPIs, while "process" benchmarking supports peer learning and sharing

How does this research connect to USAID's Global Water Strategy Action Research Initiative?

Under USAID's Global Water Strategy Action Research Initiative, the Urban Resilience by Building Partnerships and Applying New Evidence in WASH (URBAN WASH) project is partnering with local, regional, and global stakeholders to conduct research on the enabling environment for city-wide inclusive sanitation. This study contributes to furthering USAID's goals of strengthening regulatory frameworks and institutional capacity to ensure equitable access to safe, sustainable, and climate-resilient sanitation services.

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This Learning Brief is based on research conducted by USAID URBAN WASH.

of good practices. Benchmarking has long been an accepted part of the enabling environment for effective piped water and wastewater services, especially given a historic lack of market competition.[3,4] Thus, applying benchmarking more broadly to FSM services could reinforce progress toward service efficiency and Sustainable Development Goals.

METHODOLOGY

This research addressed the question: "***What are good practices for FSM benchmarking systems, and how should these be implemented in different institutional or governance contexts?***"

The research team conducted a literature review of 54 peer-reviewed journal articles and more than 100 gray literature sources found on Google, Google Scholar, and PubMed. Because national-level FSM benchmarking applications have only emerged since 2014, we included relevant discussions of water, wastewater, solid waste management, electricity, and healthcare benchmarking from any location. Key informant interviews were used to collect up-to-date information on nascent FSM benchmarking efforts. We screened potential country case study options to identify locations with substantive activities led by regulators or others in low- or lower-middle-income countries. This resulted in eight case studies conducted via interviews with 27 practitioners. The data collection and analysis revolved around the FSM context, benchmarking approaches, and specific issues, including KPIs used for FSM, opportunities for future growth, and effects of benchmarking. KPIs gathered from all sources were grouped into relevant categories and prioritized for global use depending on the ease of measurement and validation, reliance on other data sources, extent of application, and appropriateness for use across multiple country contexts.

FECAL SLUDGE MANAGEMENT BENCHMARKING

CASE STUDIES

- Uganda
- Zambia
- Bangladesh
- India
- Indonesia
- Philippines
- Kenya
- Haiti

Individuals working from the local to global scales shared their experiences regarding public and private service provision, implementation support, regulation, research and learning, and financing FSM service improvement efforts.

FINDINGS

#1. Benchmarking for FSM is more complex than for piped water and wastewater.

The number and diversity of actors across the FSM service chain pose challenges to coordinated and efficient data collection and analysis.

#2. Successful use of benchmarking hinges on enabling factors.

Regulatory buy-in, a full range of FSM services, organizational readiness, and dedicated funding are needed to set the stage for performance improvement initiatives.
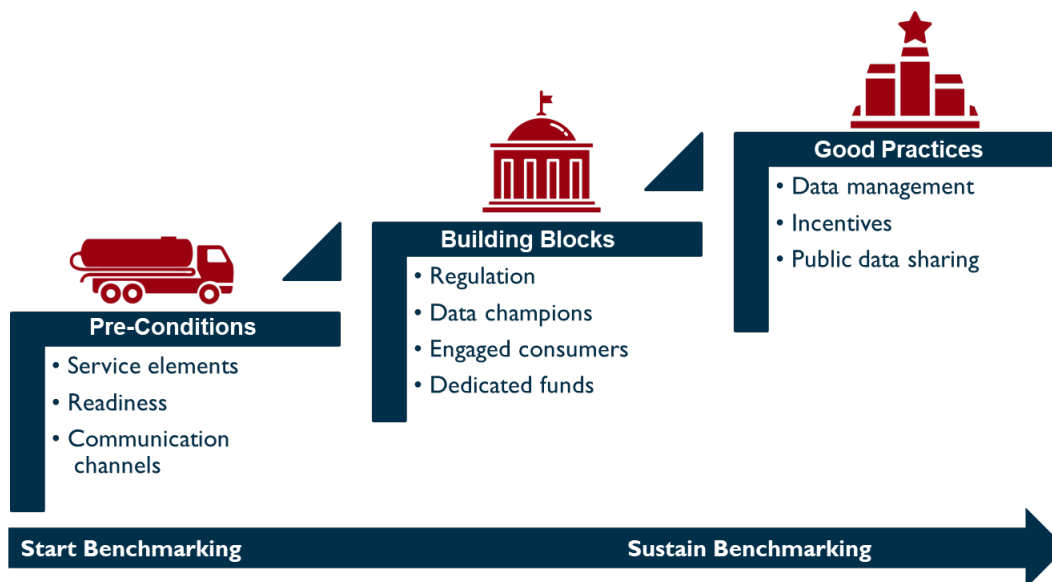
#3. FSM benchmarking can drive performance improvements, but has costs.

Practitioners reported a wide range of outcomes—both benefits such as greater internal visibility and eligibility for funding and negative outcomes like risks of complacency or the potential for false reporting.

ENABLING FACTORS

FSM benchmarking is well suited to contexts where certain basic pre-conditions have been met (Figure 1). Basic **FSM infrastructure** (e.g., emptiable toilet facilities, disposal sites, treatment plants), as well as defined roles and responsibilities related to service delivery, should be in place before attempting to measure overall performance. In addition, supporting service elements, such as sludge quality standards, market research, worker safety standards, and agreed pricing, are needed to define and measure a full range of functional benchmarking indicators accurately. Critical actors—including service providers and regulators—must also have **organizational commitment and capacity** to collect and use benchmarking data. Finally, to ensure benchmarking data can be used to improve practice and policy, regular multidirectional **communication pathways** should exist among the actors involved in collecting sludge, carrying out treatment and disposal, allocating funds, and overseeing service provision.

Good Practices
• Data management
• Incentives
• Public data sharing

Building Blocks
• Regulation
• Data champions
• Engaged consumers
• Dedicated funds

Pre-Conditions
• Service elements
• Readiness
• Communication channels

Start Benchmarking → Sustain Benchmarking

Figure 1: Enabling factors for sustainable benchmarking

The primary building blocks for starting up new FSM benchmarking programs include ***regulatory ownership, customer demand, data champions, and financial support***. These stem from the case studies, but any building block might serve as an initial entry point to facilitate the introduction of FSM benchmarking programming in other locations. Historically, donors have primarily driven FSM benchmarking activities. Still, multiple local actors, including regulators and service providers, local research and learning institutions, and the private sector, have crucial roles to fill in scaling up FSM and FSM benchmarking activities, such as data validation, safety standard development, and customer engagement. Professional networks are likewise well positioned to support coordination, peer comparison, and incentives.

Over time, sustained good practices can build on these initial building blocks to drive beneficial outcomes of benchmarking, such as improved performance and customer satisfaction. Good practices revolve around three themes:

1) ***Data management:*** use of a common short list of well-defined indicators, application of measures to improve self-reported data quality, and sufficient resources to meet personnel and equipment requirements to collect correct and validated data
2) ***Incentives:*** direct and indirect financial, regulatory, or reputational rewards or penalties
3) ***Public dissemination:*** broad sharing of benchmarking data to overcome barriers to data use, which in practice relies on high-level buy-in, correct and validated data, relatively favorable benchmarking data, engagement incentives, and maintenance of a user-friendly interface.

KEY PERFORMANCE INDICATORS

Quantifying FSM KPIs requires collecting data from multiple entities that carry out on-site sanitation services, including households, desludging operators, treatment plant operators, and local government, rather than one utility for piped water and wastewater services. The diversity of collection, treatment, and disposal steps often leads to an excess of KPIs. This makes data collection resource intensive and interpretation difficult. In addition, service domains such as access equity, social responsibility, environmental impacts, sustainable finance, and management efficiency hold critical information about the true value of FSM services to society. This study recommends consistently applying a short list of high-priority indicators to compare city-level FSM. The precise number of KPIs selected by benchmarking participants may vary across spatial scales, with service providers tailoring additional indicators to local needs and global actors aggregating a smaller number of indicators for comparison (Figure 2).

Recommended key performance indicators for FSM benchmarking at city scale

1. Percentage of population with access to safely managed sanitation
2. Access to sanitation services among vulnerable groups
3. Coverage of on-site sanitation facilities
4. Total collection volume
5. Treatment ratio (volume treated: collected)
6. Percentage of fecal sludge safely managed
7. Worker safety procedure adherence
8. Operating cost recovery
9. Percentage of desludging providers operating with a formal license

OUTCOMES

Common-sense arguments that "you manage what you measure" have driven adoption of benchmarking systems. Yet, disentangling the effect of benchmarking itself from other improvement efforts (e.g., infrastructure upgrades, staffing or funding changes) taking place simultaneously within the same system poses a clear challenge. Benchmarking does not easily lend itself to controlled prospective experiments, which would allow for attribution of impacts.
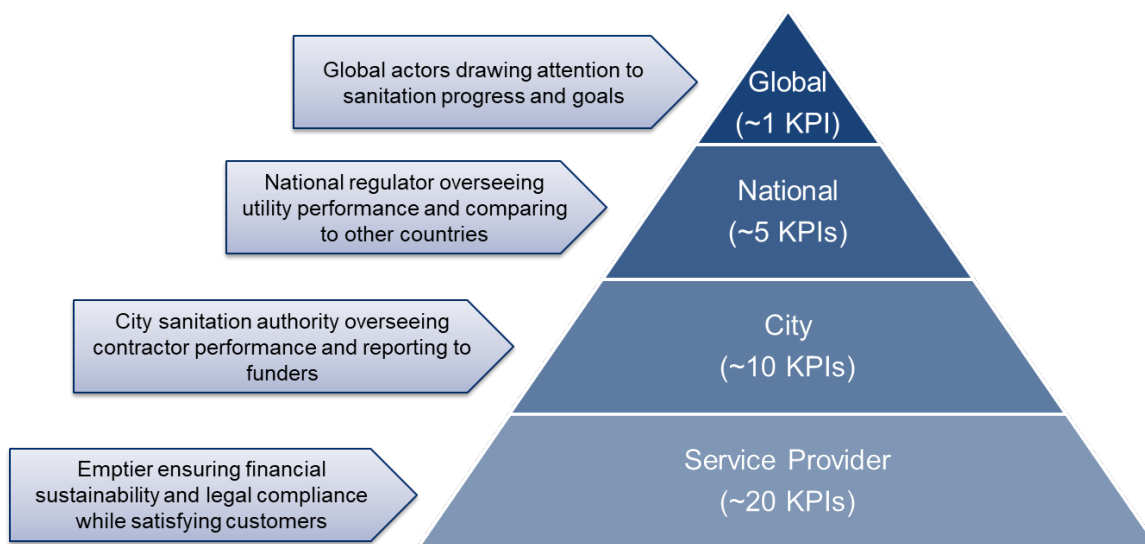
Figure 2: Example tailoring the extent of FSM benchmarking activity and indicative number of KPIs to stakeholder purposes at different spatial scales

Reported FSM benchmarking outcomes highlighted a range of benefits, as well as the need to consider the potential downsides of introducing benchmarking in new contexts. Even in places with nascent FSM services, benchmarking can provide interim benefits such as greater visibility and advocacy for dedicated funding or regulations. For example, respondents indicated that benchmarking data often satisfied funders, made their organization appear more worthy of funding, and garnered greater visibility and internal support from organizational leadership. Conversely, benchmarking has been criticized for biasing perceptions of performance and limiting creative problem-solving. Potential pitfalls included the opportunity cost of investing in benchmarking, inability to capture a complete picture quantitatively, lack of control over contextual influences, potential misalignment with workers' values, and risk of complacency or false reporting. These findings suggest periodically revisiting and course correcting the benchmarking approach, including the selected KPIs, measurement approaches, and data uses.

CASE STUDY: UGANDA SEEKS TO TRANSITION FROM DONOR-FUNDED TO LOCALLY DRIVEN FSM BENCHMARKING

The vast majority of residents in Kampala, Uganda, use on-site sanitation. The city service provider has made strides toward serving low-income areas, despite facing early challenges from a disjointed regulatory approach. For example, multiple national government ministries oversee FSM policies. Within Kampala, the city's FSM unit oversees sludge collection and transport with limited funding to maintain trucks, while the national utility responsible for sludge treatment holds a larger budget allocation from sewer customer revenue. Outside of Kampala, city governments tasked with managing fecal sludge generally lack centralized financial or technical support.

Donor funding has supported FSM capacity strengthening in Kampala City since 2017, with past monitoring and evaluation approaches involving upwards of 30–40 KPIs. Stakeholders are actively working to streamline and optimize the number of indicators used for ongoing monitoring. Transitioning to a more permanent benchmarking model will require institutionalizing support for FSM services. Uganda's 2023 roadmap for regulating citywide inclusive sanitation highlights existing collaborations and refocuses effort on clarifying roles while enhancing regulatory oversight, data collection systems (including software), and financing mechanisms.[5]

RECOMMENDATIONS

1 **Consistently apply a short list of high-priority indicators to compare city FSM services.** KPIs should capture the full sanitation value chain, including containment, collection, treatment, and disposal or reuse, as well as social, financial, and environmental responsibility, while keeping the list manageable. Service providers can customize additional KPIs and targets to fit their local contextual needs.

2 **Apply benchmarking to support performance improvements,** while simultaneously investing in the service provision, organizational capacity, and coordination mechanisms required for benchmarking to be useful. Benchmarking offers benefits under a variety of institutional arrangements and circumstances and can be used to advocate for further FSM investments and performance improvement.

3 **Periodically adjust implementation to follow good practices and consider local goals.** Effective data management, incentives, and public data dissemination practices foster positive outcomes. When investing limited resources into benchmarking activities, these are critical areas to focus on. Clear roles, responsibilities, and communication channels support identification of pitfalls as well as active data use and interpretation.

4 **Engage all sectors to develop FSM benchmarking efforts fully.** While international donors and academics have driven most FSM benchmarking activity, involving for-profit companies, local research institutions, public interest groups, nongovernmental organizations, and professional networks can bolster efforts made by regulators and service providers.

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For more information, please contact Liz Jordan (liz.jordan@tetratech.com) or visit:

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