

A guide to strengthening the enabling environment for faecal sludge management

Experience from Bangladesh, Kenya and Zambia | November 2017



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Introduction

This Guide presents an introduction to conceptualising and strengthening the enabling environment for faecal sludge management (FSM) services in low-income urban areas. It is based on WSUP's experience working with Bill & Melinda Gates Foundation (BMGF) to develop market-based solutions for on-site sanitation services in the cities of Dhaka and Chittagong (Bangladesh), Kisumu (Kenya) and Lusaka (Zambia).

Who is the Guide aimed at?

The Guide is not intended as a technical blueprint for implementing urban FSM programmes: it aims to present the many components of an enabling environment for FSM services, and to demonstrate how each component has been strengthened in different contexts. The case studies are expected to be of value to implementers, donors and service providers as they work together to address shared challenges in the locations where they work.

Why is FSM so important?

FSM is the process by which faecal sludge is contained, collected, transported, treated and then safely disposed of or reused. 2.7 billion (38%¹) people around the world are dependent on on-site sanitation facilities like pit latrines and septic tanks, which contain and partially treat faecal sludge on-site (as opposed to centralised systems like sewers that remove waste from households and transport it to treatment facilities). In light of the vast numbers of people who depend on on-site sanitation, there is no serious prospect of achieving SDG6 without the development of reliable, safe FSM systems covering the full sanitation chain.

Accordingly, FSM is now a major focus for governments and development organisations, particularly in urban and urbanising areas where constructing sewer networks is expensive and unrealistic in the medium-term (most low-income communities or informal settlements fall into this category); and where there is little space available to simply cover full pits and dig new ones. Achieving citywide sanitation in such locations typically requires both on-site and sewered systems and may also include non-centralised small bore/condominial sewer systems. While non-sewered (on-site) facilities sequester harmful waste from direct human contact (if properly constructed and maintained), how that waste is dealt with beyond those pits and tanks is too often a secondary consideration.

What do we mean by the enabling environment, and why this focus?

The initial emphasis of WSUP's BMGF-funded programme was to catalyse the market for on-site containment systems in urban areas. The potential market for on-site facilities such as container toilets (piloted in Kisumu, Kenya) and prefabricated septic tanks (currently being tested in Chittagong, Bangladesh) is substantial, given the number of people in these cities who are not connected to sewer networks. However, pilot projects demonstrated that focusing primarily on one link of the FSM chain was insufficient to improve sanitation for low-income residents at scale. There were not enough supportive policies, incentives or regulations to allow potential service providers to lower prices or reduce their operating costs.

The market for on-site sanitation products and services will only thrive if it is supported by strong financial and institutional frameworks, complete with clear policies, regulations, technical assistance and political buy-in. It is factors like these that comprise the 'enabling environment'. Stakeholders must be confident enough to invest in, design and implement sanitation services and products. A core function of the enabling environment is to stimulate this confidence.

Supporting public and private service providers: a dual approach

In conceptualising the enabling environment for FSM, it is essential to bear in mind that the complexity and scale of urban sanitation requires engaging with both private and public service providers. In the context of FSM service provision, this is achieved through strengthening FSM businesses such as mechanical or manual emptying services; and working with public bodies such as utilities or city government departments to strengthen capacity and improve FSM regulations and guidelines. From an implementing perspective, this can also require brokering partnerships between the two sets of actors: many of the case studies included in this Guide are grounded in fluid and flexible public-private partnership arrangements (PPPs).

A functioning enabling environments is built on political commitment

High-level political commitment to sanitation and significant budget allocation and utilisation are critical to the enabling environment for safe, sustainable urban FSM systems. It is beyond the scope of this Guide to discuss factors relating to

¹ WHO and UNICEF (2017) Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines. Geneva.

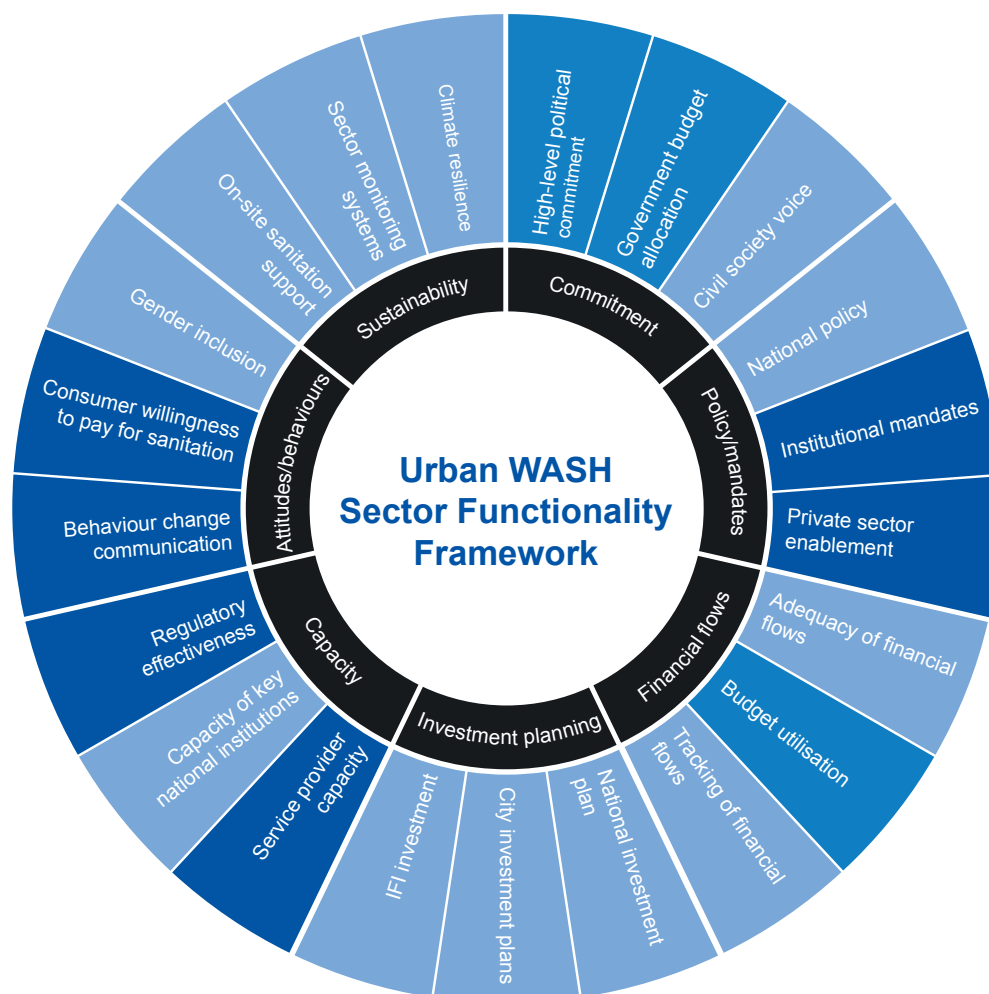


Figure 1: What does an enabling environment for FSM look like? WSUP's Sector Functionality Framework²

WSUP considers all of the 21 components relevant to the enabling environment to FSM.

Components coloured **dark blue** have been a core focus of programme activities in Bangladesh, Kenya and Zambia: a dedicated section on each component is included in the Guide.

Components coloured **medium blue** were not core to programme activities in Bangladesh, Kenya and Zambia, but form part of the national-level commitment that underpins forward momentum on FSM.

national-level commitment in depth, but these factors provide the backdrop to the activities conducted under WSUP's BMGF-funded programme.

In interpreting the case studies, it is important to note the presence or absence of high-level government support and funding streams has implicitly affected multiple aspects of the enabling environment for FSM in Bangladesh, Kenya and Zambia. The focus of programme activities will inevitably be influenced by a set of preconditions which vary by location. In Bangladesh, for example, the sanitation sector is Dhaka-centric and highly centralised: significant changes for the capital city may fail to translate to other urban areas such as Chittagong (Bangladesh's second city). By contrast, Kenya's extensive devolution process - enacted under the 2010 Constitution - mandates Kenya's 47 Counties to supply water and sanitation services, but Counties lack the legal framework to provide these effectively.

How is the Guide structured?

WSUP's Sector Functionality Framework (SFF - see Figure 1) outlines what needs to be in place for a country's urban WASH sector to function properly. This is a high-level representation of the enabling environment for urban sanitation as WSUP perceives it. The Guide is divided into sections that correspond to the dark blue components of the SFF: these components have been particularly relevant to WSUP's BMGF-funded programme. Infrastructure and technology are also explored, reflecting the programme's focus on activating on-site sanitation markets through improved technologies.

Within these sections the Guide presents case studies of how the component has been strengthened through the programme in Bangladesh, Kenya and Zambia, and identifies a key lesson to inform future programming. The Guide concludes with a set of recommendations for strengthening enabling environments for FSM that respond to common challenges and opportunities identified through the programme.

² WSUP's sector functionality framework (SFF) has been developed as a tool to capture and assess over time the attributes that contribute to a functional urban WASH sector. The SFF comprises 21 qualitative indicators, spread across 7 groupings. WSUP has developed one SFF for urban sanitation (Figure 1) and another for urban water, though 6 of the 21 indicators are assessed for the urban WASH sector as a whole. In-depth consultation with local stakeholders is core to the assessment process.

The framework is currently being applied and tested as part of an ongoing evaluation of WSUP programme activities in Bangladesh, Ghana, Kenya, Madagascar, Mozambique and Zambia. More information about the development and application of the framework is available from WSUP on request.



Image: A street in Chittagong, Bangladesh. **Credit:** Adrian Jankowiak

Overview: WSUP's 2012-2017 BMGF-funded programme

The case studies featured in this Guide derive from WSUP's ongoing BMGF-funded programme, active in Bangladesh, Kenya and Zambia since December 2012. The programme had two distinct phases.

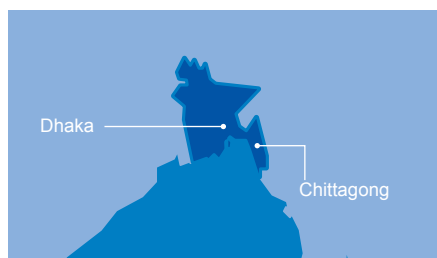
Phase 1 (2012-2015) focused closely on catalysing the market for on-site containment systems through innovative sanitation business models: this included the development and testing of business models for prefabricated septic tank distribution in Chittagong (Bangladesh); shared serviced and container-based sanitation in Kisumu (Kenya); and a FSM service targeted at and funded by low-income customers in Lusaka (Zambia).

The design and focus of **Phase 2 (2015-2017)** responded to learning from the first phase. Significant challenges were encountered in developing and testing the sanitation business models, with many of these challenges related to the wider enabling environment of the focus country. This is far from exceptional in urban WASH programming: WSUP works on the front line of a challenging sector, and not everything goes to plan when trying to innovate.

It became apparent that promoting sanitation business growth in the three countries would be more effectively achieved through a realignment of programme focus. Phase 2 stepped back from a business-centred approach and aimed to address barriers to sanitation business growth by strengthening diverse aspects of the enabling environment for FSM services. The case studies featured in this Guide relate primarily to Phase 2.

The programme rationale, objectives and activities for the three focus countries and their evolution over time are outlined in pages 8 and 9 overleaf.

Bangladesh



Rationale

All Bangladeshis can now access and use a toilet and open defecation has officially been reduced to 2-3%. However, the FSM chain beyond containment - how accumulated waste is removed from on-site facilities, transported, then treated and disposed of safely - is almost non-existent, with 97% of faecal sludge in Dhaka re-entering the urban environment untreated. There remains a clear and urgent need in Bangladesh for improved faecal sludge treatment options, regulation and market stimulation of safe and professional FSM services.

Objectives

To expand the existing PPP for FSM services in Dhaka (SWEEP); to replicate SWEEP in Bangladesh's second city, Chittagong; to attract more private sector actors to FSM; to increase the profile of public bodies in Dhaka and Chittagong as providers of safe sanitation services.

Institutional partners

Dhaka Water Supply and Sewerage Authority (DWASA); Chittagong City Corporation (CCC)



Other partners

Gulshan Clean & Care (GCC); Chittagong Sheba Sangstha



Phase 1

Developing and testing a business model for prefabricated septic tank distribution in Chittagong

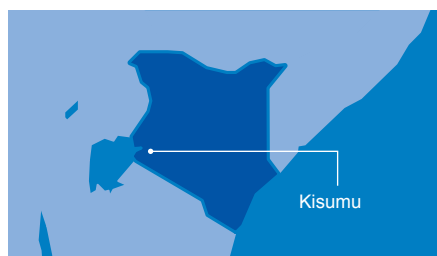
WSUP originally sought to activate the on-site sanitation market at city-scale by testing and piloting prefabricated septic tanks in Chittagong, a city where around 4 million people rely on on-site sanitation. Prefabricated septic tanks offer lower up-front instalment costs compared to concrete tanks built by informal masons; lower long-term costs, as they require less frequent emptying; and produce a standard quality effluent, lessening the environmental impact compared to poorly constructed tanks and pits. However, following analyses of consumer willingness to pay and business modelling, it was clear that a distribution business based on selling and servicing septic tanks would not be viable in Chittagong; the enabling environment for such a business was not robust enough to allow manufacturers to lower prices to an acceptable level for low-income consumers.¹

Phase 2

Replication of a public-private partnership for FSM services (SWEEP)

A technical trial of two types of prefabricated septic tank is still ongoing and will provide useful data for manufacturers; however, the broader focus of the Chittagong project has shifted significantly in Phase 2. WSUP has been supporting an emptying service (SWEEP) in Dhaka since 2015: structured as a small-scale public-private partnership between an entrepreneur (Gulshan Clean & Care) and Dhaka Water Supply and Sewerage Authority (DWASA), SWEEP was the first such successful sanitation business in Bangladesh. With Chittagong City Corporation (CCC) as institutional partner, the SWEEP model is being successfully replicated in Chittagong, where it has been operational since April 2017, serving 26,864 to date.

Kenya



Rationale

In Kisumu, Kenya's third-largest city, a very high proportion of the city relies on pit latrines, which fill up quickly and often collapse due to loose soil and a high water table. However, there are limited options for safe pit emptying: the County Government of Kisumu has three functional vehicles for transporting faecal sludge and can only provide services to 10% of the city, while numerous informal pit emptiers operate illegally and unsafely. There is a pronounced need to strengthen the enabling environment to create the conditions for safe and professional FSM services to develop and fill the service gap.

Objectives

To facilitate the growth of sanitation enterprises and support a stronger enabling environment for sanitation enterprises; to facilitate learning on container-based sanitation services; and to assess the potential demand for a FSM mobile application.

Institutional partners

Kisumu Water and Sewerage Company (KIWASCO); Kisumu County Government



Other partners

Gasia Poa Waste Management Services



Phase 1

Designing and testing innovative EcoSan and container-based sanitation business models

The initial focus of WSUP's intervention in Kisumu was to design and implement 1) a shared sanitation service model, involving an EcoSan toilet shared between multiple households; and 2) a container-based sanitation service model, where households would be provided with an indoor toilet. In both cases a company would safely empty or collect and transport the faecal sludge for a set fee. Early modelling and assessments of willingness to pay for the proposed models demonstrated that landlords were reluctant to pay for their tenants to access such a service. Tenants were willing to pay, but not a sufficient amount to cover the costs of a collection process. Business and financial modelling concluded that achieving viability for either business model would require years of subsidies.²

Phase 2

Supporting a new PPP in FSM services; enhancing the enabling environment for professional FSM services

Following an assessment of the existing sanitation enterprises in Kisumu, WSUP began supporting a solid waste management company (Gasia Poa) to move into FSM. Lessons learned during Phase 1 were applied to improve the enabling environment and fill the gap between the small number of licensed operators and those who empty pits informally and outside existing regulations. To date, this has included designing Standard Operating Procedures (SOPs) for pit emptying; providing training in SOP implementation for pit emptiers and Public Health Office volunteers and employees; and a focus on improved enforcement, to prevent low-cost and unsafe informal operators from undercutting the market. WSUP is also aiding the County Government of Kisumu to formulate a Sanitation Policy – one of the first such pieces of legislation at this administrative level in Kenya.

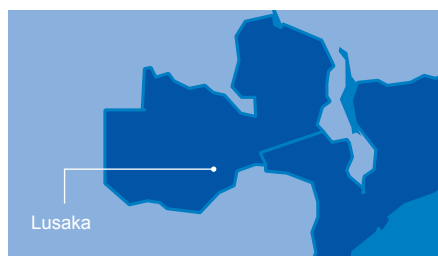
¹ See WSUP (2016) Learning from innovation in sanitation business models: prefabricated septic tank distribution in Chittagong.

² See WSUP (2016) Learning from innovation in sanitation business models: shared serviced and container-based sanitation in Kisumu.



Image: FSM transfer station under construction in Chazanga, Lusaka. Credit: WSUP

Zambia



Rationale

Rapid rural to urban migration has resulted in the proportion of Lusaka's population with access to improved sanitation decreasing over the last 15 years. While the city centre has some access to the sewerage network, lower-income peri-urban areas (PUAs) rely on on-site sanitation. These unplanned areas typically lack any formal FSM services, with residents emptying pits themselves or paying informal emptiers to do so.

Objectives

To iterate, expand and strengthen the current sludge emptying and toilet upgrade business models through: strengthening sanitation businesses and demand for FSM services and toilet upgrades; creating sustainable centralised support for private sector engagement; and targeting financing for the poor.

Institutional partners

Lusaka Water and Sewerage Company (LWSC)



Other partners

Kanyama Water Trust; Chazanga Water Trust



Phase 1

Focused support to a CBO-led FSM service targeted at and funded by low-income customers

WSUP has been working with Kanyama and Chazanga Water Trusts - two WASH community-based organisations that are delegated providers of water and sanitation services on behalf of LWSC - to set up FSM services that cover two of Lusaka's PUAs. The pit-emptying services operate in PUAs where the majority of the population is considered low-income. Three FSM treatment facilities have been established to date (two in Kanyama and one in Chazanga). This enables sludge collected from PUA households to be safely transported to treatment facilities by Water Trust employees, where it is processed and treated waste products are then either safely disposed of or reused.

Phase 2

Demonstrating the potential of broader private sector participation; tie-in to the Lusaka Sanitation Project

As well as expanding and strengthening the pit-emptying service and treatment sites, WSUP is complementing the Lusaka Sanitation Project's efforts to deliver improved FSM services and toilets in low-income PUAs. This support will partly come through the continued operation of the pit emptying service and treatment facilities, which LWSC have expressed interest in replicating across the city. WSUP are also demonstrating the potential of private sector involvement to LWSC; identifying barriers small enterprises could face when entering the sanitation sector; and working with LWSC to set up a sanitation information database (the 'Toilet Tracker') and a centralised sanitation services support unit.

Institutional mandates

It is difficult to improve the FSM chain if no institution – such as a government ministry, directorate or utility – is mandated to take the lead, or if several institutions have conflicting or overlapping responsibilities. Other stakeholders, such as sanitation SMEs, can play an important role in service provision (for example, entrepreneurs providing emptying services to low-income customers), but long-term development planning, monitoring and financing can only come from national and sub-national institutions.



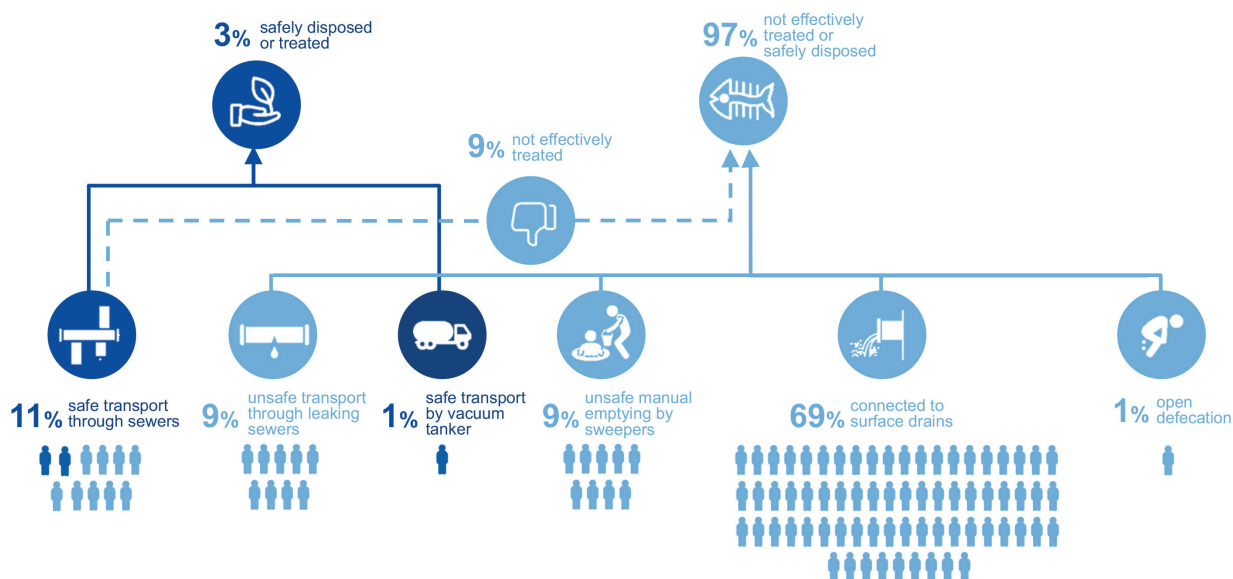
Clarifying urban sanitation responsibilities across Bangladesh

In Bangladesh, responsibility for delivering and regulating urban sanitation services has been fragmented for decades across numerous national and sub-national government departments and public bodies. Despite the country's widespread reliance on on-site sanitation systems, FSM received very little attention and was not adequately addressed by

previous policies that set out institutional responsibilities for sanitation and environmental health. A prominent example of the lack of clarity around institutional mandates could be seen in Dhaka, where until recently, Dhaka Water and Sewerage Authority (DWASA) controlled sewerage and main street drains; Dhaka's two City Corporations (North and South) held responsibility for lane drains and solid waste; and FSM fell somewhere and nowhere in between.

This lack of oversight led to a failure of public accountability for ensuring that faecal sludge was adequately removed from human contact – contributing to a situation where 97% of faecal waste in Dhaka was returning to the environment untreated, with 69% of pits and septic tanks discharging directly into open drains (Figure 2).¹ The lack of clearly defined mandates for FSM also discouraged private sector participation, as businesses were unlikely to receive the institutional support needed to enter a precarious and as-yet-untested market.

Figure 2: Flow of human waste in Dhaka.



¹ See also p.12 – regulatory effectiveness



Image: Unimproved sanitation facilities in a Dhaka slum.
Credit: GMB Akash

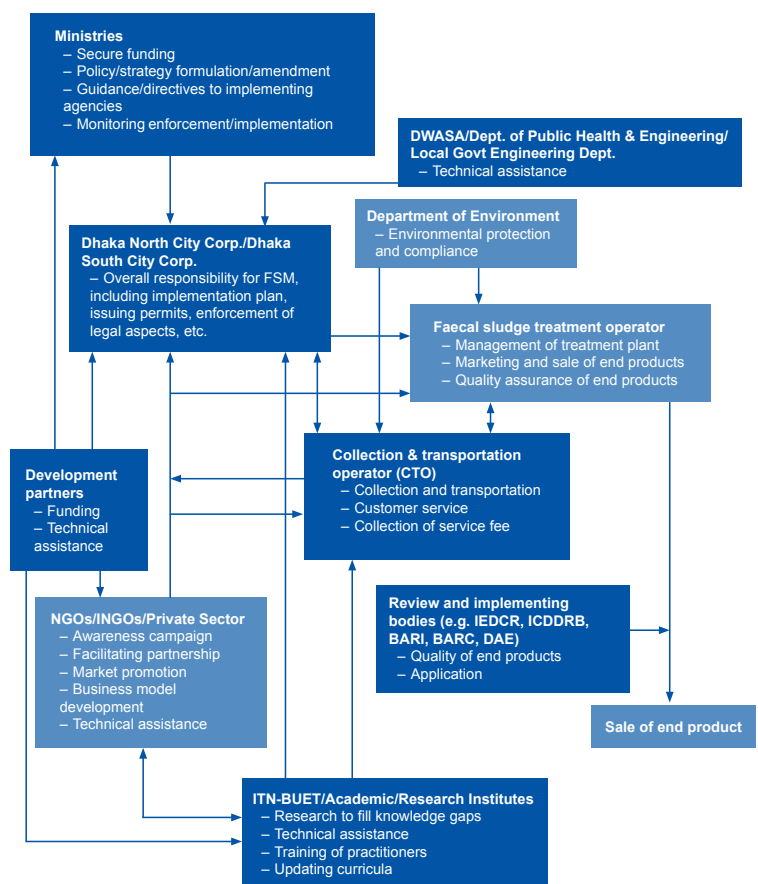


The Institutional and Regulatory Framework (IRF) for FSM: a major step forward

By 2015, there was an increased awareness of the scale of the issue among public bodies and other sector actors, and a growing willingness to bring about the substantial reforms required. The Government of Bangladesh invited WSUP and other stakeholders to draft an institutional and regulatory framework for urban FSM, which was signed into law in May 2017. Consisting of four frameworks that cover Dhaka, the nine City Corporations, Pourashavas (collections of multiple smaller urban areas) and rural areas, the IRF is now the blueprint for institutional responsibility for FSM throughout the country.

Under the IRF, the responsibility for urban FSM lies with City Corporations and Pourashavas, although DWASA will still play a key role in the capital (Figure 3). City Corporations will now have to build up their capacity, but this renewed clarity about which institutions are responsible for delivering and overseeing FSM is a critical first step.

Figure 3: Institutional mandates for FSM in Dhaka under the IRF.²



Implementing a change in mandate requires institutional innovation and support

The IRF is a strong starting point and point of reference for the numerous bodies involved in environmental health and sanitation in Bangladesh, but successful implementation will require institutional innovation and capacity development. A lack of flexibility that comes from weak management structures will restrict the environment for sanitation upgrading and problem solving.

These issues can be mitigated by driven and determined stakeholders. Extra-governmental bodies such as the Faecal Sludge Management Network (a group of CBOs, NGOs and other sanitation actors) can provide valuable guidance to City Corporations and utilities over the next decade as the IRF moves from documentation to implementation.

² Source: Working Committee formed by the Local Government Division, Ministry of Local Government, Rural Development and Cooperatives (2015) Draft Institutional and Regulatory Framework for Faecal Sludge Management (FSM): Mega City Dhaka.

Regulatory effectiveness

Safe and equitable FSM service provision depends on well-designed regulations to formalise the sector and provide clear guidelines for those working within it. Regulations cover every aspect of sanitation service provision, from safe emptying practices and setting tariffs to support for businesses.



Developing a regulatory framework for urban sanitation in Zambia

A national regulatory framework for urban sanitation is currently being formulated with support from GIZ and with significant WSUP involvement. Stakeholders included in the discussion are the National Water Supply and Sanitation Company (NWASCO), Lusaka City Council and LWSC. Potential changes to be introduced under the draft framework include updating licensing requirements for waste management to include faecal sludge; the introduction of minimum standards for on-site sanitation facilities in homes; and the development of new guidelines for minimal standards for sanitation (including toilet design, toilet emptying procedures, and storage and treatment facilities).

The proposed framework is wide-reaching, not only covering regulations that would improve

facilities and services but introducing support for sanitation service providers (see Figure 4). In the framework's current form, NWASCO would develop guidelines for the annual business plans submitted by licensed water and sanitation providers, update tariffs so operators can cover their costs, and develop financial mechanisms such as tax incentives or a sanitation surcharge that would encourage new entrants, the latter alongside the Ministry of Water Development, Sanitation and Environmental Protection.

If this proposed regulation is approved, this would be a huge step forward for urban sanitation, comprehensively strengthening the regulatory environment and providing much-needed guidance and support for FSM stakeholders.



Standardising pit emptying in Kisumu

WSUP has designed new Standard Operating Procedures (SOP) to provide a baseline for what is minimally expected from service providers for safe and hygienic manual emptying in the city. These guidelines will significantly raise the professional standards of private service providers and decrease health risks for operators and customers. The owner of Gasia Poa, Dickens Ochieng, has been closely involved in the formulation of the SOP, as has the Kisumu Public Health Office. The regulations are therefore based on practice and attainable for small businesses. Development of the SOP have

Figure 4: Excerpt from draft framework for urban sanitation (on-site sanitation and FSM), Zambia. This excerpt has been included in the publication for illustrative purposes, with NWASCO's consent: development of the framework is ongoing and the content may change.

Element	Responsible Institution	Detail of element	Purpose
Regulations	ZEMA, Local Authorities, CUs	Registration and inspection regulations of septic tanks (Proposed)	In general all on-site septic tank systems or domestic wastewater treatment systems (DWWTS) will have to be registered.
	MWDSEP	Statutory Instrument: Regulations governing the operation and maintenance of onsite sanitation facilities (Proposed)	- Establishes regulations for the operation and maintenance of onsite sanitation facilities - Defines desludging/emptying requirements - Defines registration and monitoring requirements
		Statutory Instrument: Waste Management (Use of Sewage and Faecal Sludge in Agriculture) Regulations (Proposed)	- Defines standards for the use of disposal of sewage and faecal sludge - Established the general requirements, pollutant limits, operational standards, and management practices, as well as frequency of monitoring, record keeping, and reporting requirements

been accompanied by training to the Public Health Office to enable them to effectively enforce these standards.

The SOP require that enterprises working in FSM have three licenses: one to operate a business; a license to transport waste issued by the National Environment Management Authority; and a Hygiene and Operational license from the Public Health Office. In addition, all employees must be immunised against typhoid, Hepatitis B and cholera, have health insurance and receive training from the Public Health Office. The SOP also specify personal safety equipment and equipment for emptying, and best practice for transporting and disposing of waste in the Nyalenda wastewater lagoons.



Image: Dickens Ochieng, CEO, Gasia Poa Credit: WSUP

This practice has significant citywide health impacts, and undermines demand for FSM services such as SWEEP. Households have little incentive to empty their tank when it is possible to connect the toilet to a drain or open their pit when it rains, leaving sludge to be washed away. The lack of regulation and enforcement creates a challenging environment for companies to expand FSM services in Bangladesh.



Clarifying regulations in Bangladesh

Bangladesh's new Institutional and Regulatory Frameworks have the potential to drive forward significant improvement in FSM. Importantly for SWEEP, the IRFs for Dhaka and City Corporations (which covers Chittagong) clarify regulation around connecting on-site sanitation facilities to the storm drainage network. This is widely practiced in towns and cities across the country, with the result that faecal sludge is emptied straight to storm drains and water bodies, often completely bypassing treatment – particularly if the household does not have a septic tank, as is typically the case in low-income areas of the city.

The IRF for Dhaka (see p.11) assigns primary responsibility for FSM to Dhaka North and South City Corporations, with support from DWASA, the Department for Public Health Engineering and RAJUK (Capital Development Authority). This resolves outstanding issues related to the City Corporation Act 2009, which did not explicitly include faecal sludge. Under the IRF, RAJUK will check new building designs to ensure that septic tanks are accessible for mechanical emptiers. The two Dhaka City Corporations, with support from DWASA and RAJUK, are mandated to ensure that household sewage/wastewater does not flow into storm drains.



Regulation, training and enforcement must go hand in hand

Regulation that acts as a positive enabler for businesses, rather than introducing additional costs and delays for small businesses in their start-up phase, can decisively shift economic focus towards sanitation. However, for regulation to be effective, it needs to be enforced. Provisions for enforcement – including training for those taking the lead – must be a core component of any programme that aims to strengthen the enabling environment.

For example, Community Health Volunteers and pit emptiers in Kisumu have now been trained in the implementation and enforcement of the SOP. The information and practices outlined in the SOP are feeding in to a Sanitation Policy being drafted by the Kisumu

County Government to enshrine regulation and enforcement at the county level. In Bangladesh, the IRF calls for the Ministry of Local Government, Rural Development and Co-operatives to initiate the implementation and training of 'Environmental Police' to ensure regulations against connecting pits, tanks and toilets to open drains are enforced: supporting rollout of this important initiative should be a key focus of sanitation stakeholders over the next few years. Organisations such as WSUP can contribute to the design of such regulations, but provisions for their enforcement – including availability of transport for enforcers, and exclusion of corrupt practices – will be the key to regulation having a sustained positive impact on service delivery.

Service provider capacity

Capacity development spans a broad spectrum of activity, from targeted business development support to working with public bodies like health departments to develop safe pit latrine emptying training. Improving the operational efficiency of FSM service providers can be essential in the short to medium term, positioning them to provide safe sanitation products and services in the long term without prolonged external support.



Marketing and business development support to SWEEP

While the vast majority of urban Bangladeshis rely on on-site sanitation systems such as septic tanks, awareness of FSM services provided by companies like SWEEP is low; educating the public about safe FSM will be integral to growing SWEEP's customer base in Dhaka and Chittagong. In both cities, WSUP provides marketing support to businesses operating under the SWEEP brand, developing large-scale leaflet, TV and poster campaigns, door-to-door promotion, and introducing the service at community meetings.

This support has played a critical role in establishing SWEEP's commercial viability: a major marketing campaign in Dhaka helped the FSM service become profitable on an O&M basis within just five months of start-up, with sustained marketing activity contributing to the continued strong financial performance of the business (Figure 5). WSUP has also provided business development support including financial health assessments and monitoring throughout the start-up phase, together with operations manuals, business management manuals and training in record keeping to help ensure sustained business growth.



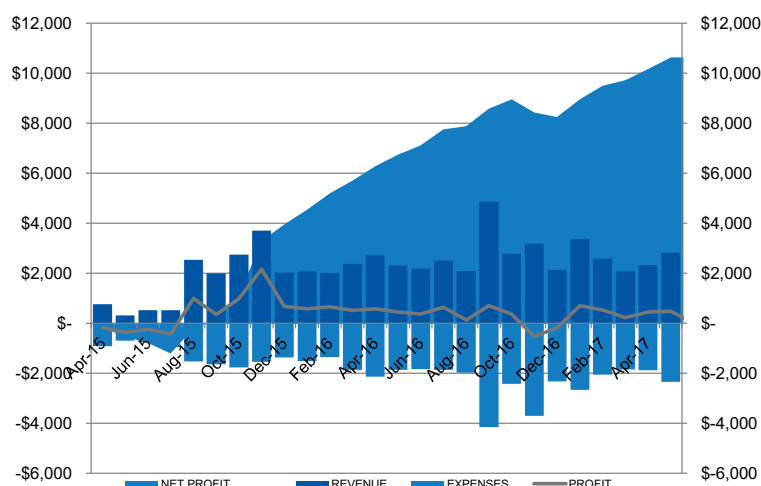
Image: Analysing what consumers want from sanitation services in Bangladesh.
Credit: WSUP



Financial modelling support to Gasia Poa

Before engaging with Gasia Poa in Kisumu, WSUP undertook a detailed capacity assessment to understand where support would be best targeted, and has since worked with the company to develop a marketing plan, branding, and financial training and tracking (Table 1). This information will be invaluable for the company as it expands and will help guide future decision making.

Figure 5: Overview of SWEEP's performance (US\$), April 2015 – May 2017¹



¹ Net profit represents total revenue minus total expenditure since inception of the service; profit represents monthly revenue minus monthly expenses.

Table 1: Typical daily operating expenses of Gasia Poa.

Daily operating expenses				Total (ksh.)
Income	Cash received			10,000
	Item	Amount paid (ksh.)	No. required	Total (ksh)
	Truck hire	4,000	1	4,000
	Haulers	400	2	800
	Emptiers	1,250	2	2,500
	Cleaning products	70	1	70
	Personal Protective Equipment (PPE) cleaner	200	1	200
	Total			7,570
Surplus/Deficit				2,230

For example, a financial model developed by WSUP shows that if Gasia Poa continues to hire vehicles to perform emptying jobs, they will need to empty at least 23 pits every month to break even; in contrast, buying a vehicle of its own would result in Gasia Poa breaking even after emptying 12 pits per month. As part of its support WSUP is exploring options for a part-subsidised 5-year loan to finance the capital cost to the business of procuring a vehicle.



Supporting public institutions in Bangladesh

WSUP is working with the public institutions now mandated to take the lead in overseeing urban FSM according to the new Institutional and Regulatory Frameworks: the City Corporation in the case of Chittagong and the Water Supply and Sewerage Authority in Dhaka. WSUP Bangladesh has engaged both bodies with information about FSM, training and other capacity building activities such as learning visits,



Image: Chazanga task team and future members of the Chazanga pit emptying team visit drying beds in Kanyama on a learning visit. **Credit:** WSUP

with the aim of highlighting both the potential of public-private partnerships and the important role that public institutions have to play in the development of a nascent sector.



Learning visits and structured knowledge exchange can be powerful tools for capacity development

Safely managed FSM is a relatively new concept in Bangladesh, Kenya and Zambia. The services that have been on offer to date have not been safe, efficient or properly regulated. However, the programme has demonstrated that services can be provided to a high standard while remaining financially viable in each of the three countries.

Encouragingly, other actors are now expressing interest in replicating or learning from organisations such as SWEEP and the Kanyama Water Trust. Establishing the first official service provider is challenging: it may require external support, adaptation and iteration for the service delivery model to develop and become sustainable. Once established, the presence of a financially viable FSM provider can have a catalytic effect, reducing the

risks of entry and presenting an example for other potential providers to follow.

Chittagong City Corporation staff observed SWEEP's operations in Dhaka in 2016: this learning visit has been cited by the staff as instrumental in the decision to implement and adapt their own model, which has run successfully since April 2017. In Lusaka, Chazanga Water Trust employees visited the Kanyama treatment facilities before setting up a similar plant of their own. Gasia Poa is a relatively new entrant to the sanitation sector, having previously worked in solid waste management, but the owner has already provided training to other pit emptiers in Kisumu and is in discussion with CBOs who are also interested in training.

Private sector enablement

Utilities and local governments struggle to deliver safely managed sanitation to residents at the scale required to serve everyone in the city. Sanitation SMEs have a critical role to play in helping to bridge the service gap, offering efficiency, innovation and flexibility to address complex issues. The public sector must provide incentives for businesses and ease market access. Upgrading infrastructure or providing targeted financial incentives can make the difference between a sector that is attractive to private entrants and one that will frustrate attempts to make a business viable.



Bringing the public and private sectors together in Bangladesh

Before the creation of SWEEP, there was no official space for private sanitation providers in urban Bangladesh. Minimal FSM services were provided by public bodies (City Corporations or WASAs) or by NGOs and CBOs (which were neither profitable nor scalable), leaving informal manual emptiers as the only alternative. Encouraging the public sector to create a formal space for new sanitation providers was a vital first step. WSUP's initial strategy for developing such a partnership was opportunistic: DWASA possessed vacuum tankers that were not being used - WSUP was able to persuade DWASA officials they had very little to lose from leasing them to a private company.

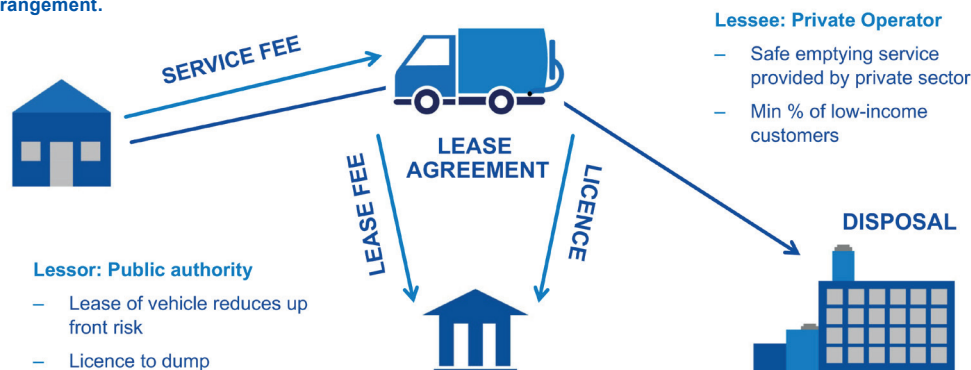


Image: SWEEP operators and vacuum tanker in Dhaka. Credit: WSUP

After an initial analysis of the market for emptying services in Dhaka, WSUP designed three public-private partnership (PPP) models that could combine the respective strengths of the public and private sectors, with DWASA choosing one model to implement. Under the chosen arrangement, DWASA earns revenue from lease fees, while a sanitation SME - Gulshan Clean & Care - receives institutional support and licensing to offer professional and safe emptying services under the brand-name SWEEP (Figure 6).

The success of the SWEEP model in Dhaka showed governmental bodies that the FSM sector was viable and manageable. The SWEEP model was replicated in Chittagong, where an entrepreneur partnered with the Chittagong City Corporation to provide emptying and disposal services, and has been emptying pits and tanks since April 2017.

Figure 6: SWEEP PPP arrangement.



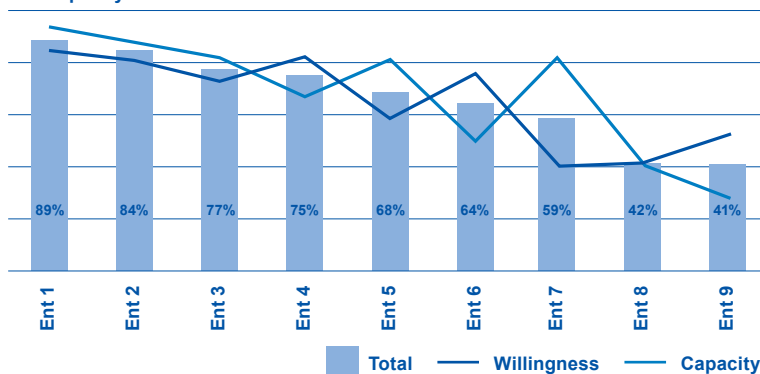


Assessing barriers to entry in Lusaka

There are only around 25 private vacuum tanker operators in Lusaka, which work in newer developments in the centre of the city rather than poorer peri-urban areas such as Kanyama and Chazanga. However, there are a number of small businesses that work in sectors broadly analogous to emptying and transporting faecal sludge, such as plumbing or construction companies and solid waste managers. These potential entrants to the FSM sector were the subject of an assessment undertaken by WSUP to understand the capacity and appetite to work in FSM (Figure 7), as well as the barriers to small businesses entering the sanitation sector.

The analysis produced encouraging results, with a number of companies expressing interest in expanding their operations to FSM. However, significant barriers to entry were also highlighted, most notably around access to start-up finance. With the start of the Lusaka Sanitation Project, WSUP is working with LWSC to address these barriers to entry by promoting improved infrastructure, access to credit and other diverse financial incentives that would aid SMEs working in collection, transport and treatment.

Figure 7: Results from assessment of business willingness and capacity to enter the FSM sector in Lusaka.¹



Fluid and flexible partnership between the public and private sector can help to overcome wider barriers to participation

The barriers to private sector participation in sanitation are multiple. Although the specifics will vary by context, barriers will typically include lack of access to start-up capital; lack of access to affordable banking services; inadequate public infrastructure (see p.18); and in some cases, the high formalisation costs of creating partnerships with the private sector.² Policy makers can consider a number of measures to incentivise participation, including income tax breaks and VAT exemptions for sanitation SMEs; a reduction in formalisation costs incurred by sanitation SMEs in tax compliance, registration and licensing fees; facilitating access to credit and business planning support for sanitation SMEs; and government loan guarantees for

financing capital expenditure (for example, vacuum tanker procurement).

Clearly these measures are not always straightforward to introduce. Even in their absence, WSUP's experience in Bangladesh, Kenya and Zambia has shown that public-private arrangements can be developed which adequately incentivise the private partner while conforming with the local policy and regulatory context. A fluid and flexible approach is required which takes a broad view of the public-private partnership (PPP) concept and creates space for partnerships based on service-level agreements and/or working relationships, as opposed to a single contract.

¹ Source: WSUP (2016) Rapid assessment of existing and potential sanitation businesses, Lusaka, Zambia.

The names of participating businesses have been anonymised. Willingness and capacity sub scores were calculated based on responses to interview questions. These spanned a range of variables including FSM knowledge, willingness to expand, and contact with the utility, LWSC (willingness); and staff size; accounting method; capital invested; marketing strategy; etc. (capacity).

² For a study of barriers to participation for sanitation SMEs in the Ghanaian context, see WSUP (2017) Barriers and opportunities for sanitation SMEs: A study of the wider market system in Ghana.

Infrastructure and technology

The at-scale provision of safe FSM services won't happen unless public authorities commit significant capital to sanitation infrastructure. Investment and appropriate technology is required across the sanitation chain: from the equipment used by sanitation entrepreneurs to empty pits and septic tanks; to the provision of decentralised transfer stations, essential for incentivising FSM businesses to serve low-income areas; to faecal sludge treatment facilities, which ultimately secure positive citywide impacts on health and wellbeing.



Constructing primary and secondary treatment facilities in Lusaka

WSUP has supported Water Trusts in Lusaka to provide improved sanitation infrastructure in zones of the city that have been underserved by public and private FSM operators. The construction of a new transfer station and faecal sludge treatment facility in Kanyama, Lusaka's largest Peri-Urban Area (PUA), enabled Kanyama Water Trust's contracted sanitation workers to safely transport sludge by truck and handcart to a specially designed plot consisting of a biodigester and underground holding tank. Following primary treatment, the sludge is moved to a drying bed for secondary treatment. The resulting product is then packaged and marketed as a soil conditioner (Figure 8).

Within the first 24 months of opening, waste from 25,000 people was safely processed using this facility. Following a successful pilot period, the model treatment plant was replicated, with additional plants constructed in Kanyama and Chazanga, a PUA in the north of Lusaka.¹

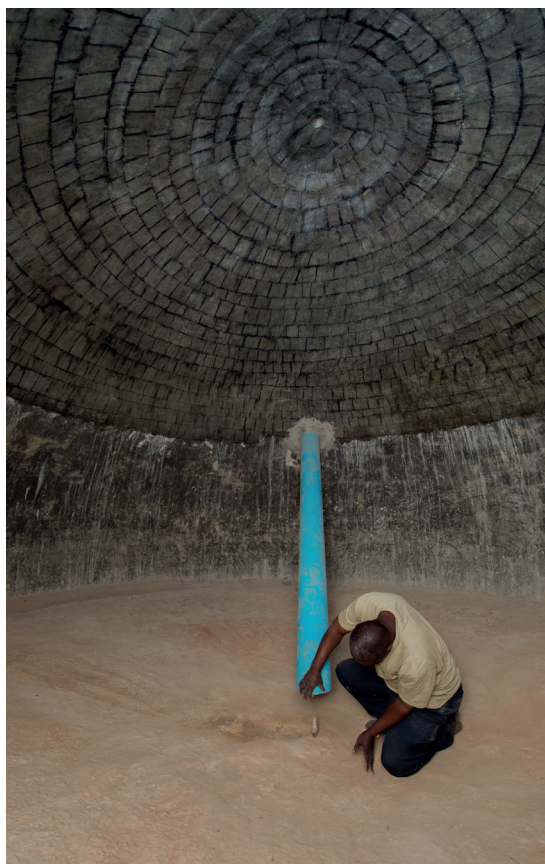
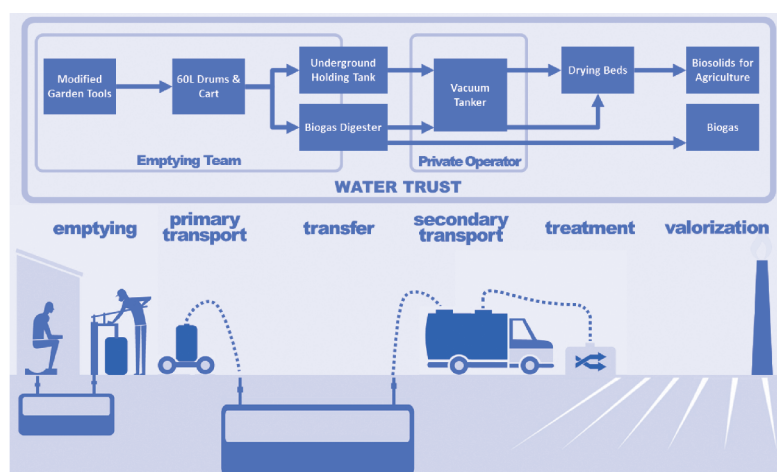


Image: Transfer station in Chazanga. Credit: Gareth Bentley

Figure 8: FSM service chain in Kanyama and Chazanga.



¹ For an assessment of the financial viability of the FSM service, see WSUP (2017) Balancing financial viability and user affordability: An assessment of six WASH service delivery models.



Testing septic tank treatment technologies in Chittagong

Chittagong – along with the rest of Bangladesh – is heavily reliant on on-site sanitation technologies. Promoting low-cost but reliable technologies that successfully contain the harmful faecal waste produced by millions of urban residents will significantly impact public health, and is a potentially valuable (and so far almost untapped) market that offers opportunities for private companies who can manufacture and sell such technologies.

Prefabricated septic tanks appear to have multiple advantages for the low-income customer, relative to cement concrete septic tanks built by informal masons: they produce a standard quality effluent; upfront costs are lower; long-term costs are lower, due to infrequent emptying; and they are easier to construct (especially for homes near water bodies). There are a number of prefabricated tanks on the market in Bangladesh, but few of these have been tested in long-term trials in low-income areas with challenging topography and high water tables. WSUP is therefore testing septic tanks produced by PRAN-RFL and Aqua Septic (as well as more common brick septic tanks built by local masons) in a technical pilot to assess their comparative claims regarding faecal sludge containment and liquid effluent discharge into the ground.



Image: Servicing a shared toilet in a low-income area of Chittagong. **Credit:** WSUP

These tests – which are taking place in high-density, low-income urban neighbourhoods – will produce results that could inform manufacturers' designs and lead to improved products that customers can afford and want to invest in.²



Decentralised transfer stations are worth the investment

Decentralised transfer stations are capital-intensive, but crucial for establishing a safely managed urban FSM chain and encouraging entrants to the sector. The presence of these facilities enables primary operators to safely discharge collected sludge near low-income areas, rather than travelling to the centralised treatment plant; this in turn greatly reduces transport costs, and enhances the operational efficiency of FSM businesses, positioning them to serve a greater portion of low-income customers.

WSUP's experience in Bangladesh and Zambia has demonstrated the catalytic effect of well-planned

infrastructure investment. KWT now have significant experience in operating and managing sanitation infrastructure and technology, and this enhanced capacity has encouraged other stakeholders to make significant investments in improving sanitation in Lusaka. Funded in part by the World Bank and the European Investment Bank, the Lusaka Sanitation Project has expressed interest in scaling up the KWT model to other zones across the city, in accordance with the project aim of strengthening the capacity of Lusaka Water and Sewerage Company and expanding services to low-income PUAs.

² To date, two tests performed with a six-month interval (in July 2016 and February 2017) indicate that the wastewater produced by all the tank types tends to be more alkaline than acidic, although those levels had decreased since the first test. The five-day Biochemical Oxygen Demand (BOD5) tests demonstrate that the amount of organic material in the wastewater from all the septic tanks has increased by the second round of testing. This could be for a number of reasons (higher temperatures, possibly impacted by seasonal fluctuations), and further testing will hopefully show a clearer picture.

Affordable services and customer willingness to pay

FSM service providers in countries like Kenya, Bangladesh and Zambia are stepping in to a sector that is underdeveloped, with few operators delivering safe services. While this implies that the market for services exists – in that there is clearly a need for improved urban sanitation that is not being met – FSM is a challenging sector for start-up businesses. Setting prices at a level that is financially viable while delivering affordable and equitable services is critical to business sustainability and uptake of safe sanitation practices.



Exploring options for bringing down costs in Kisumu

Landlords are not used to paying the price currently offered by Gasia Poa in Kisumu, which can be upwards of KSh 8000 (US\$ 77) for a large pit attached to a compound toilet, particularly as a lump sum. A survey examining Kisumu landlords' willingness to pay found that they considered KSh 4000-4500 (US\$ 39-43) to be more acceptable. Although the new service has been welcomed, it is currently too expensive for low-income customers.

Acknowledging this reality, Gasia Poa is exploring options to reduce their prices and remain viable. The company currently rents vehicles to complete emptying jobs as required, which costs around US\$ 40 a day. Buying a truck could result in cheaper prices for customers and a lower break-even point for Gasia Poa in terms of numbers of pits emptied per month – WSUP is working with the company to explore options for a part-subsidised 5-year loan to finance this investment (p.15). A further option now being explored is to partner with a micro-finance institution to provide customer loans for pit emptying, with repayment tied to when landlords receive rent from tenants; Gasia Poa has also begun to offer a flexible payment scheme for landlords as an immediate measure. It must be

emphasised that these measures will only have the desired outcome if accompanied by improved regulation and enforcement to remove unfair competition (p.12).



Introducing pricing brackets in Bangladesh

The entrepreneurs offering pit emptying services under the SWEEP brand have developed differential pricing structures, so prices are linked to household income. In Dhaka, for example, SWEEP customers living in low-income areas are charged a lower tariff of US\$ 6-7.50 per cubic metre, compared to US\$ 10-15 for middle/high-income and institutional customers; these tariffs correspond to service fees ranging from US\$ 60-75 for small septic tanks, US\$ 150 for medium septic tanks and US\$ 250-1000 for large septic tanks. However, the pricing structure is not fixed, due to the widespread practice in Dhaka of negotiation over price for services rendered.



Image: Kanyama Water Trust employee counts takings. **Credit:** Gareth Bentley

SWEEP's pricing flexibility has been enhanced by the public-private partnership (PPP) arrangements: in both Dhaka and Chittagong, SWEEP is licensed to use sludge disposal facilities free of charge, ensuring that no cost is passed on to the customer. A deliberate strategy to target middle and high-income customers through the start-up phase has been another important factor, establishing the viability of the service and positioning SWEEP to charge affordable prices to low-income customers.



Barriers to increasing prices in Zambia

Prior to establishing the FSM service in Lusaka, WSUP carried out a willingness to pay survey which was used to set prices in consultation with LWSC. Customers were offered three options: 12 drums of sludge for 250 ZMW (US\$ 28); 24 drums for 380 ZMW (US\$ 42); and 32 drums for 450 ZMW (US\$ 50) (Figure 9). In the first 23 months of operations, approximately 900 pits serving nearly 25,000 people were emptied. The 12-drum option proved most popular, with the highest band more likely to be requested by larger clients such as schools.

While these prices have not been updated since the FSM service's initiation, stakeholders acknowledge that tariffs will need to rise in future to keep pace with inflation and balance the operational costs of the business. WSUP has



Figure 9: Promotional material for the FSM service in Kanyama outlining service offerings

recommended increasing the price point (the amount paid by customers) by around 30% – in line with increases that have already been trialled and judged to be acceptable to low-income customers – together with a wider set of measures to strengthen operational efficiency and financial viability, such as using a truck for all emptying services, and mapping and creating a database of toilets to more effectively target sales and marketing. That prices have yet to increase is due to political timing considerations: the decision lies with LWSC, and given that 2016 was an election year, price increases were not judged to be politically viable.



Pricing strategies should be grounded in ongoing tracking of business health and revealed customer preference

Affordability does not necessarily translate into willingness to pay. Many potential customers are not accustomed to thinking about sanitation as a service, and are unlikely to factor it into their household budgeting. Affordable pricing is therefore only one of a set of measures that may be required to stimulate demand, including effective marketing and improved regulation and enforcement.

While it is good business practice to develop fixed rates in order to ensure profitability, FSM businesses will need to bear in mind the unique challenges of the sanitation sector, and will in practice respond to the environment in which they operate.

This requirement is evident in the contrasting approach of SWEEP and the FSM service in Lusaka. SWEEP entrepreneurs found it challenging to stick to fixed rates, choosing instead to adopt a flexible approach to price (within set pricing brackets), to avoid losing customers who wanted to negotiate. By contrast the FSM service in Lusaka has been stable in its service offering to date (although stakeholders acknowledge pricing will need to change in the near future). The critical point is that both businesses have strong financial monitoring and customer liaison processes in place: any movement in pricing will be grounded in ongoing tracking of business health, and a combination of data on revealed preference through service uptake and customer feedback on planned changes.

Consumer behaviour

The disposal of solid waste in pit latrines is a widespread issue that undermines the viability of FSM service provision across the sanitation chain. Behaviour change activities which target this practice will reduce the time taken to empty pits and tanks; enable emptiers to use more efficient equipment like vacuum tankers or gulpers; create significant efficiency savings at faecal sludge treatment plants, where operators have to separate and sort solid waste that is contaminated with sludge; and safeguard the quality of the sludge itself, facilitating its reuse as high-quality soil conditioner or fertiliser.



Promoting pour-flush toilets in Kisumu

Pit latrines in Kisumu fill up quickly because of the high volume of solid waste they receive, ranging from plastic bags and condoms to more substantial items like old clothes and mattresses. While this means that there should be demand for regular emptying services – a study conducted by WSUP found that over 40% of households in Kisumu require their latrines to be emptied more than once a year – it also results in emptying becoming extremely difficult as the sludge is clogged with debris and precludes the use of simple but cost-effective technologies like sludge pumps. In Kisumu the practice is also impacting significantly on treatment plants: in 2017, approximately 72 tonnes of faecal sludge contaminated with solid waste is expected to be delivered to the treatment facilities run by Kisumu Water and Sewerage Company.

To address this, WSUP Kenya encourages Gasia Poa's customers to upgrade their pit latrines to pour-flush toilets with a ceramic pan. This will considerably lessen the amount of solid waste found in pits and improve Gasia Poa's operational efficiency, as well as lessening the strain on KIWASCO's sanitation infrastructure (these activities are supplemented by support to KIWASCO in upgrading reception facilities at the treatment ponds to screen out solid waste).



Image: Solid waste disposed of in pit latrines is sorted at a transfer station in Lusaka.
Credit: Gareth Bentley



Facilitating toilet upgrades through loan provision and improved monitoring in Lusaka

WSUP is pursuing a similar strategy in Lusaka, where it is developing a customer toilet database that could be used to inform marketing activities: the database (or Toilet Tracker) contains information on toilet standards (i.e. whether the household has a pit latrine or pour flush); and when the pit or septic tank was last emptied.

Demand for products such as improved toilets in Lusaka remains relatively low, particularly in low-income areas where residents could struggle to afford such items without subsidy. Engaging micro-finance institutions to provide loans to households will enable artisans to upgrade toilets in peri-urban areas. WSUP will then monitor the upgrades, ensuring they have been installed according to city regulations. This model is being piloted in around 100 households in the peri-urban area of Chazanga to demonstrate the business case for toilet upgrades.



Dovetailing behaviour change messaging with FSM business marketing

In Lusaka's peri-urban areas of Kanyama and Chazanga, two WSUP-led annual behaviour change campaigns target landlords about the problems caused by tenants using the pits to dispose of solid waste. This dovetails with an additional behaviour change and marketing campaign that stimulates households to empty their pits more frequently. Community volunteers and community leaders go door-to-door to encourage households and landlords not to wait until their pits are full to employ emptiers. This serves the dual purpose of highlighting the availability of formal pit emptying services while discouraging households from leaving latrines to overflow and become unusable.

More broadly, sanitation marketing will be a key component of the Lusaka Sanitation Project. This aspect of the LSP aims to reach the whole of Lusaka over the next two years, promoting the benefits of improved facilities, how to use latrines in a way that ensures their effectiveness and longevity, the availability of services such as pit emptying, and how different sanitation equipment functions.



Image: Upgrading latrines in Kenya. Credit: Wanjiku Njenga



Image: Solid waste from pit latrines in Lusaka. Credit: Gareth Bentley



Landlords can be effective agents of change in low-income urban contexts

Low-income urban settlements are characterised by constantly changing and expanding populations, who live under a range of formal and informal rental agreements. In many of the locations where WSUP works, groups of around 4-5 households live in close proximity, using the same toilet (lack of space often precludes each household having its own toilet) and paying rent to the same landlord.

Although a portion of landlords in most urban contexts are likely to be absentee, recent research in Dhaka has shown that where present, landlords can be particularly effective targets for behaviour change communication campaigns incorporating a solid waste disposal component. Effective engagement of this group can reduce barriers and facilitate uptake of improved behaviours relating to solid waste disposal and shared toilet maintenance more broadly.¹

¹ Yeasmin et al (2017) Landlords/Compound Managers: change makers to improve and sustain communal latrine use and maintenance. Paper accepted to 40th WEDC International Conference, Loughborough, UK, 2017.

Recommendations

Experience has shown that FSM businesses cannot survive to any meaningful degree in a policy, regulatory and funding vacuum: donors and implementing organisations must be willing to dedicate resource to supporting and strengthening the wider sector in which these businesses operate.

In this section we present overarching lessons and recommendations for the development of multi-stakeholder FSM projects, accrued from experience in Bangladesh, Kenya and Zambia.

1. Find the right people

The development of new FSM services begins with identifying stakeholders with the authority to effect change, and the capacity to follow it through. In Dhaka, for example, DWASA's Commercial Manager understood the SWEEP model's potential, and had the capability to implement the required contracts.

Finding the right business partners will require more than connecting with a willing private sector operator. Entrepreneurs need to have a feel for the business and a long-term understanding of the requirements for sector change. The owner of Gasia Poa in Kisumu, for example, has only worked in FSM for a relatively short period of time, but has already contributed to the design of the city's new Standard Operating Procedures (SOP) and Kisumu County Government's Sanitation Policy (currently in development). He has also provided training to other pit emptiers in the area in order to raise the reputation of the sector as a whole and persuade residents that pit emptiers can be professional and work safely.

2. Leverage existing structures and businesses

WSUP typically aims to support existing businesses in expanding into FSM, as opposed to setting up a new business focused exclusively on this service. SWEEP in Dhaka is operated by Gulshan Clean & Care, a well-established waste management company; while SWEEP in Chittagong is run by a medical waste disposal



Image: Kamrul Islam, owner of Gulshan Clean and Care. **Credit:** WSUP

specialist, Chittagong Sheba Sangstha. Gasia Poa is a solid waste management company in Kisumu who expanded into pit emptying with WSUP's assistance.

The pit emptying component of these businesses were not immediately profitable, and the majority are not yet financially viable without internal cross-subsidy from the company's other revenue streams such as solid waste collection. The businesses have made a judgement that they have the financial capacity to absorb this start-up period until the FSM service becomes profitable, as SWEEP has already done.

3. Show, don't just tell

The demonstration of effective service delivery models is a powerful driver of change. Safely managed formal FSM service provision is a relatively new concept, and the development of a safe FSM chain from containment to treatment and disposal will generally be a gradual process. Building viable and equitable service models that address part of the FSM chain (such as emptying and transportation) will encourage other stakeholders to replicate or expand these models - as occurred in Bangladesh when Chittagong City Corporation observed the well-functioning SWEEP model in Dhaka. Highlighting the support required for these small-scale models to grow is a practical way of influencing the wider enabling environment.

Direct observation of high-quality emptying practices can also encourage customer uptake, counter any negative images associated with FSM businesses, and potentially even increase the amount that households and landlords are willing to pay.

4. Establish clear price points but retain flexibility

Citywide sanitation service delivery requires prices that are affordable for low-income residents; at the same time, it can only be achieved if service providers are generating sufficient revenues to recover costs and underpin long-term sustainability. In Chittagong and Dhaka, the companies operating under the SWEEP brand are contractually required - through public-private partnership arrangements - to ensure that 30% of their customer base are lower-income. Pricing strategies ensure the cost of serving lower-income households is partly covered by higher prices charged to those with larger pits (i.e. middle- and higher-income households, hotels and other institutions). The strategy accounts for the fact that haggling is an accepted part of Bangladeshi life: insisting on a fixed price would result in low uptake. In Lusaka, by contrast, the prices quoted to households have not kept pace with inflation, and remain unchanged from when the service was first introduced; these prices will need to be increased in the near future, within the parameters of what low-income customers can afford.

Willingness to pay surveys are a necessity at the start-up stage, but they only represent a snapshot of a community at one point in time. Willingness to pay will fluctuate according to season and other economic pressures. Ongoing financial tracking and the ability to adapt pricing and business operations to account for these changes is critical.

5. Stack the odds in favour of formal operators through effective regulation and enforcement

In most locations, a new entrant to the FSM sector can expect to find themselves competing with multiple informal operators, who are positioned to charge lower prices through unsafe practices (for example, illegally dumping sludge



Image: Drying beds for treatment of sludge collected by the FSM service, Lusaka.
Credit: Gareth Bentley

in a local watercourse). The development of safe and professional FSM services will not happen in such contexts without effective regulation and enforcement to clamp down on low-cost, unsafe alternatives. This needs to be accompanied by logistical support to enforcement teams (for example, through vehicle procurement), and by sustained efforts to eliminate corruption.

Regulatory frameworks may need to be substantially revised or created for this purpose. This will take time, but the hugely significant development of the Institutional and Regulatory Frameworks (IRF) for FSM in Bangladesh shows it can be done. In Kenya, the development of the Standard Operating Procedures (SOP) in Kisumu has demonstrated that real progress can be achieved at the city level.

6. Support infrastructure planning based on realistic estimates of investment

The siting, design and operation of infrastructure has an enormous impact on those working throughout the FSM chain. The provision of decentralised transfer stations, for example, can significantly enhance the capacity of FSM businesses to serve low-income areas.

Where they are developed, sanitation masterplans must provide for this infrastructure. In WSUP's view, these plans should reflect the reality that citywide sanitation requires a menu of services. This means engagement with on-site sanitation and non-centralised condominial/small bore sewers, as well as sewerage.

In some cases, a change of mindset is required towards how citywide coverage is achieved. Planners could begin by asking what level of investment is likely to be available over a period of 20-30 years, and work backwards from this point to see how citywide services can be provided with the level of investment available (as opposed to modelling and costing the ideal scenario). This approach would quickly bring home the reality that sewerage alone is rarely the answer, and negate the risk of producing expensive and unrealistic masterplans that sit on the shelf.

7. Assess sources of long-term sector financing

FSM will need some form of public investment or subsidy to survive as a viable market. There is no one-size-fits-all solution: opportunities are likely to exist to create the financing model for a given service, and flexibility is required to respond effectively. This is evidenced by the various financing models featured in this Guide. SWEEP makes a profit because OpEx is the only cost that needs to be recovered from customers, as CapEx in Dhaka is in effect subsidised by DWASA in the form of reduced vehicle lease fees; the FSM service provided by Kanyama and Chazanga Water Trusts in Lusaka has been cross-subsidised by revenues from water sales; while Gasia Poa will also require some form of subsidy to continue its work in pit emptying.

In WSUP's view, the wider health, social and economic benefits of improved sanitation justify public and municipal finance support on the basis of contributing to a public good.

8. Enhance the pro-poor targeting of IFI investments

A number of significant IFI investment projects are already underway in the focus cities discussed in this Guide. The activities of organisations like WSUP should complement these plans wherever possible. All stakeholders have a role to play in ensuring capital-intensive investments are effectively targeted, and the city's low-income communities are not left behind.

Engaging with large-scale sanitation interventions such as the multi-million dollar Lusaka Sanitation Project, Dhaka Sanitation



Image: Pit emptiers employed by Kanyama Water Trust, Lusaka. **Credit:** Gareth Bentley

Improvement Project and Chittagong Water Supply and Sanitation Improvement Project at an early stage is key to pro-poor service provision in the long term.

9. Promote fluid and flexible public-private arrangements

Public and privately-led service provision are sometimes presented as alternative solutions. A core message of this Guide is that when applied to the FSM sector, this becomes a false dichotomy: public-private collaboration is a fact of effective service provision. WSUP's experience supporting SWEEP, Gasia Poa and the FSM service in Lusaka illustrates that this collaboration can take many forms, with varying levels of cooperation and formalisation. The institutions featured in this Guide have supported FSM businesses in myriad ways, ranging from targeted infrastructure provision and enhanced regulation and enforcement to licensing and lease-based contracts.

In WSUP's experience, it is a mistake to conceive of public-private arrangements solely in the traditional sense of large-scale, contract-based PPP infrastructure projects. At the scale of unsewered sanitation service provision in urban areas, partnerships developed between the public and private sector are often governed by service-level agreements and/or working relationships, which are opportunistic in nature and respond to the local context. Such fluid and flexible partnerships are integral to the successful development of urban FSM services.



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This publication is produced by WSUP, a not-for-profit company that helps transform cities to benefit the millions who lack access to water and sanitation. We were created in 2005 as a response to the unprecedented urban explosion that has left cities unable to provide basic services to low-income communities. Since inception, we have helped nearly 15 million people access better water and sanitation services.

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