

FSM 5 Thematic Papers



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1. Summary

Partnership was a big theme at FSM5. Nearly half the presentations gave examples of public authorities working in partnership with private sector, NGO and other role-players to strengthen non-sewered sanitation city-wide. What was striking was the number of presentations that described private sector involvement and the wide range of partnering arrangements. Four key messages from these presentations are:

Private sector role-players are active throughout the whole sanitation service chain building and improving toilet facilities, providing emptying and transport services, building and operating treatment facilities, and recovering value from treated sludge. Also in manufacturing, sales, financing, communication and specialised consulting support.

Local authorities benefit from working with private sector providers to provide better sanitation services, city-wide and sooner by providing additional resources, skills, capital investment, innovations and sharing their practical experience of what works.

A conducive enabling environment, partnering arrangements and business support are needed to engage the private sector. The enabling environment and regulatory system must affirm the value of the private sector role, clarify norms and standards, mitigate risk and support business viability. Incentives and safeguards may be needed before the private sector are will-



Figure 1 Blue Water Company vacuum tankers arrive to discharge sludge at the faecal sludge treatment works the company funded, built and operated in Leh, North India. Picture credit: Spalgon, R.

ing to play a role. This could include access to skills training, loans or equipment, assurances that they will be paid, measures to support viability, protection from cheaper informal operators, and so on.

It is not a quick fix to partner with the private sector and it does not let the designated authority off the hook; authorities retain a central role as driver, co-ordinator, enabler, and enforcer, and it can take several years of dialogue and interaction to build the trust, respect and partnering mechanisms needed to make the relationship work.

These lessons came from presenters from across Africa and Asia. They have been compiled and are explained below with practical examples and links to the FSM5 presentations. These lessons build on and accord with what was learned in [2017 from case studies presented at FSM4](#) and summarised at FSM5 in [FSM Innovation: Case Studies on the Business, Policy and Technology of Faecal Sludge Management](#).

2. Where is the private sector active in non-sewered sanitation?

Along the Sanitation Chain

The private sector is active across the entire sanitation service chain, from containment to resource recovery.

	Containment	Emptying and Transport	Treatment	Resource Recovery
Micro / Small	Builders + hardware suppliers Hardware suppliers Public toilet operators Septic tank construction Construction of school toilets, O&M	Informal pit emptiers Manual / semi-mechanical pit emptiers (Blantyre, eThekweni, Kampala, Lusaka) Mechanised emptiers (Colombo, Dhaka, Leh, Kampala, Kigali, Sinnar, Wai) and desludging (Greater Colombo) and desludging (Eastern Province, South Africa)	Small DBOT firms (Andhra Pradesh)	Agriprotein Technologies (eThekweni)
	Container Based Sanitation: Loowatt, Sanergy, Sanivation	Loowatt (Antananarivo), Sanergy (Nairobi), Sanivation (Naivasha)	Loowatt, Sanergy, Sanivation	Loowatt, Sanergy, Sanivation
Medium		Blue Water Co (Leh) Sumeet Facilities Ltd (Wai) Various septage contractors	Blue Water Co (Leh) Delvic (Dakar) Safi Sana (Accra) Larger DBOT firms (Andhra Pradesh)	Delvic (Dakar) Safi Sana (Accra)
Large	Laguna Water	Laguna Water (Philippines) Manila Water + Contractors (Philippines)	Laguna Water Manila Water	
Cross-Cutting Private Sector Inputs				
Engineering Firms Philanthropic organisations Consulting and Advisory services Advocacy and Communications Firms IT, Data managers and App developers Funding and financing - micro-financiers, banks, financiers Manufacturers - hygiene products, porcelain components, pipes, emptying tools, e-Vacs, vacuum tankers, plant and equipment, etc				

Figure 2 Examples of private sector participation in non-sewered sanitation. Entries in bold are discussed in the text.

Most enterprises focus on one or two components of the service chain:

- construction of facilities and pit emptying (many informal emptiers)
- emptying and transport (SWEET in Dhaka, Sumeet in Wai and many others)
- desludging and treatment (Blue Water Company in Leh)
- treatment and resource recovery (Delvic in Dakar, Safi Sana in Greater Accra and Agri-Protein in eThekweni)

A handful also provide services more extensively across the chain, for example:

- Laguna Water, part of the Manila Water group in the Philippines, is now managing communal toilets, introducing portable toilets in some areas, providing a desludging service and treating sewage and septage.
- Container-based sanitation enterprises like Sanivation, Sanergy and Loowatt provide services across the full service chain, from containment through to resource recovery. In Naivasha, Kenya, Sanivation is extending its role to providing strategic and technical support to Naivasha County government, although specialised technical support to local authorities and utilities is more commonly offered by dedicated consultancies and engineering firms.

Size, form and revenue streams

The private sector entities now working in non-sewered sanitation are very diverse. What they have in common, as a minimum, is that they are independent of state control and aim to generate a surplus or profit. Without a surplus, they are unlikely to survive for long. They range from sole traders providing a limited pit emptying service informally, through to small enterprises providing school toilet maintenance and desludging services through a franchise model and firms working in public-private partnerships in different roles in a growing number of countries. Some are enterprises that

have a clear social purpose but operate on commercial lines. Some receive grant funding from philanthropic organisations to test promising innovations and business models and hopefully get past the minimum viability threshold.

Their revenue streams vary:

- Most enterprises source their income solely from customer payments – for example, for toilet construction and desludging.
- Some are contracted and paid by a local authority or utility and funded with income collected through monthly water and sanitation tariffs or property or sanitation taxes (eThekweni, Wei and Sinnar).
- Some enterprises collect payment from customers and also receive top-up funding from the water and sanitation utility to keep their tariffs competitive with unlicensed service providers (Lusaka, Greater Colombo).
- A few are able to sell recovered resources like energy or soil conditioners to offset the costs of doing business (Safi Sana, Sanivation, Delvic).

Different types of public private collaboration

The nature of public-private partnerships (PPPs) in non-sewered sanitation varies enormously.²

At one end of the scale are formal contractu-

al PPPs, where the public authority transfers risk to its private sector partner, and remuneration is linked to performance ([Laguna](#), [Leh](#), and [Andhra Pradesh](#)).

There are delegated management arrangements, for example, management of four faecal sludge treatment plants in [Dakar \(Delvic\)](#), and a wide range of contractual agreements between public and private role-players. Some examples include operational management of a sludge processing plant using Black Soldier Flies in [eThekweni](#); a mechanised emptying service where the septage contractor leases vacuum tankers from the water and sewerage authority at a subsidised rate and provides desludging services ([SWEEP](#) in [Dhaka](#)); and where the water and sewerage utility enters a formal agreement with selected existing service providers and licenses them to provide emptying services in specified areas ([Lusaka](#)).

At the other end of the scale are a growing number of partnerships between public and private role-players based on collaboration and common interest, rather than on contracts. For example, in [Blantyre](#), Malawi, the formation of an association of local pit emptiers is facilitating interaction and dialogue with city authorities. Members of the association benefit from greater recognition and higher visibility for their business, and the city council benefits from their input in

setting and enforcing standards for pit emptying services, and their contribution to service delivery.

This review is focused on service providers working operationally in the non-sewered sanitation service chain. Given the prevalence of pit latrine and septic tank-based sanitation across Sub-Saharan Africa and Asia, the work of private operators in desludging pits and septic tanks pit was particularly prominent in presentations at FSM5.

3. How can working with the private sector help authorities to provide better sanitation services?

Extend the reach of public authorities

The private sector plays an increasingly vital role in extending the reach of government's efforts to tackle sanitation improvement, and supporting and complementing what the local authority and water and sewerage utility do. National and local authorities are under pressure to progress towards meeting SDG goals, and partnering with the private sector can bring in more capacity to tackle the challenge.

There are many examples of this, particularly where private operators provide scheduled

² There is no one widely accepted definition of public-private partnerships (PPP). The [World Bank's PPP Knowledge Lab](#) defines a PPP as 'a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance'. Presenters at FSM5 used the term PPPs more loosely to include service contracts and turnkey construction contracts.

emptying services (eThekwin, Leh, Maharashtra, Dhaka, Bandung, Solo City, Greater Colombo). Container-based sanitation services (Sanivation, Loowatt) provide other examples.

One example:

- In Dhaka, Bangladesh, only 3% of human waste is treated or disposed of safely. City authorities have struggled to remedy this, as they lack expertise, capacity and funding to initiate safely-managed FSM across the city. In response, a mechanical emptying service known as SWEEP began operating in 2015, with guidance and support from Water and Sanitation for the Urban Poor (WSUP). SWEEP is delivered by a commercial cleaning enterprise under a contract with Dhaka's water and sewerage utility, DWASA. DWASA leases vacuum tankers to SWEEP at a subsidised rate and SWEEP is contractually obliged to supply desludging services to customers of different incomes, and to ensure that 30% of customers are low-income. Over three years, SWEEP has served more than 257,000 customers.



Figure 3 The partnership model between Dhaka's water and sewerage utility and SWEEP, a mechanical emptying service. Picture credit: WSUP

Access to scarce skills and expertise

Local authorities that have previously not been active with FSM services may be able to access specialist experience and skills to address some FSM challenges through contracting the private sector. This assumes the expertise required exists in the private sector, or that local expertise can be adapted to address what is needed.

- In Leh, in North India, an urgent remedy was needed to address faecal contamination of the groundwater that the town depends on, but construction of a sewerage system was advancing slowly and only feasible for 40% of the population. The extreme temperatures encountered at the foot of the Himalayas called for specialist expertise in faecal sludge treatment. The town is small and isolated, and the Leh municipality (MCL) did not know how to implement or operate effective FSM services and no local companies had relevant expertise. Municipal and regional officials visited a faecal sludge treatment plant near Bangalore and explored options with BORDA and CDD Society, and then opted – given the urgency and lack of budget – to invite private companies to invest and operate a FSM solution for the town for which they take full responsibility, from design through to commissioning and maintenance, although there was no precedent for such a town-level PPP in India.

Blue Water Company (BWC), a Mumbai-based private company with waste-

water management experience, stepped forward, and after a quick evaluation, terms were negotiated. With support from BORDA and CDD Society, it was agreed that BWC would finance, design, build and operate a small 12m³/day FSTP in Leh within three months, on land provided by the government. BWC would schedule and desludge the septic tanks and soak pits of every hotel and household, and the customers would pay for the service. BWC would retain 90% of this income and MCL would spend the remainder on sanitation programmes. The agreement was signed in June 2017, and services and the treatment plant started operating in August 2017. Despite the challenges of running a planted gravel bed during extremely cold winters, the approach has proved effective and successful in reducing contamination and improving environmental health.

- In Dakar, Senegal, ONAS appointed a specialist treatment company, Delvic, in 2013, on a seven-year delegated management contract to turn around the poor performance of its four faecal sludge treatment works and make sludge treatment profitable through more efficient management. The approach has proved highly successful. Delvic has been able to improve the technical and financial performance of the plants and achieve profitability, through optimising operations and maintenance, investing in additional treatment capacity, extending its operating hours and offering its staff better training and more benefits. Delvic now sells a number of products made from

treated faecal sludge, which contributes further to its profitability.

Achieve efficiency improvements

Blue Water Company's ability to put in place a desludging service and a new treatment works in Leh within three months is an illustration of the private sector's potential ability to move fast and efficiently. Greater efficiency can also be achieved by rethinking and optimising business processes. The private sector's need to generate income, and a surplus, is a great motivator to pursue efficiencies. Where these achieve cost savings, lower costs can mean more competitively priced offerings and more affordable service fees. For example:



Figure 4 In Kigali, Pit Vidura pursues efficiency improvements by clustering customers to make the best use of its vacuum tanker capacity. Picture credit: Pit Vidura

- Pit Vidura, is a Kigali-based social enterprise that provides desludging services and works towards continual improvement in faecal sludge desludging logis-

tics. Its aim is to lower the cost of emptying pits and septic tanks that standard vacuum tankers cannot reach or serve, with the objective of improving public health. It pursues this by seeking to optimise efficiency in everything it does. It collects and analyses a range of operational metrics and uses this data to streamline its processes. The Pit Vidura team has re-engineered and accelerated the process of pit emptying by developing what it calls a ‘doVac’ – a double vacuum emptying system that combines the vertical lift of a portable ‘e-vac’ desludging rig with the strong horizontal pull of a vacuum tanker. This technology makes it possible to pump sludge over a distance of 100 meters from the pit to a roadside vacuum tanker, and is quicker and less labour intensive than the alternatives. Transport is its biggest single operational cost, so the Pit Vidura team maximise the load carried each trip by using software apps to cluster customers and map optimal routes, and text messages to fine-tune site visits and collection times with its customers.

Innovative problem solving

In pursuit of competitive advantage, private sector entities are usually more flexible, more willing to experiment and take risks, and better able to respond with agility to opportunities than most public authorities. They are also less constrained by the cumbersome procedures that regulate public procurement. FSM systems designed for resource recovery are an area of particularly rapid technologi-

cal innovation.

- Safi Sana’s approach to faecal sludge treatment is to view sludge as a factory input for producing electricity, irrigation water and high nutrient soil enhancer for agriculture. Sani Sana launched its first factory in 2017 in Ashaiman, Greater Accra, Ghana. It designed, built and operates the turn-key treatment facility, and generates income from tipping fees and the sale of products. Commercial viability requires a partial subsidy. This gap is currently closed with grant funding, and wider scaling will require a government contribution to close the financing gap and keep the cost of services affordable to low income customers.

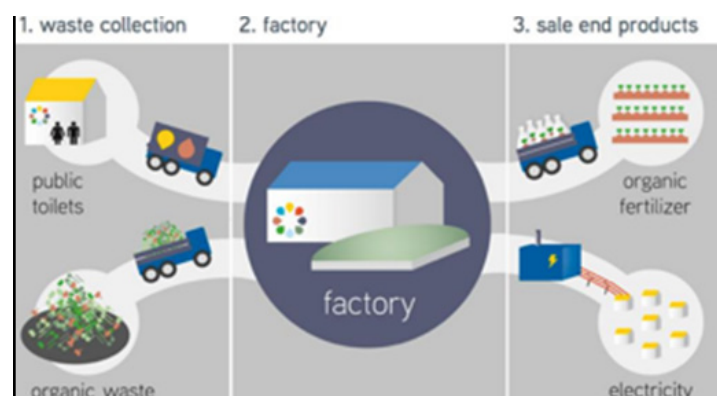


Figure 5 Safi Sana views sludge as a factory input for producing products for sale to lower the cost of service provision. Picture credit: Safi Sana

Raise finance for capital projects

There are some instances where private sector partners can raise or bring funds to supplement infrastructure developments.

- In Leh, the private sector funded the

- development of the new FSTP, and will recover its investment through user payments for scheduled desludging services.

In Andhra Pradesh, India, state and city officials and their advisors have developed a PPP model for developing faecal sludge treatment facilities at scale. The state was one of the first in India to declare all its towns open defecation free, and its government now aims to achieve ODF-Plus through safe treatment of waste water and faecal sludge and septage in all 110 urban local authorities. It is using a design, build, operate and transfer (DBOT) model and a hybrid annuity payment approach, used elsewhere for roads and highways development, to upgrade or construct treatment facilities in 76 towns. This approach helps state authorities to overcome financial constraints impeding construction, and achieve efficient O&M. Each of the new treatment works has been clustered with five or six others to achieve economies and efficiencies of scale, and to attract the interest of larger, more established firms. Tenders are decided on the basis of price, where the bid price is the sum of the bid project cost and the net present value of O&M costs over the O&M period. Half of the capital cost is paid on completion of construction, while the remaining 50% is paid over the life of the project as annuities, along with monthly O&M expenses.

A condition of the contract is that construction must be completed within six months, which is far faster than the state could usually achieve using more con-

ventional approaches. Both the annuity and O&M payments are linked to the performance of the FSTP. Contracts have been signed and work has begun. The model aims to balance the interests of the local authority and the concessions, with risk-sharing on both sides, while incentivising good performance by the assets that have been created.

4. Ensure the enabling environment encourages private sector involvement

Private sector entities do not usually want to be involved in FSM, or wish to serve low-income areas where margins are low and the potential for harassment is high. They will need an appropriate enabling and regulatory environment, and may need business development support and other incentives to engage. A dialogue with them, and performance monitoring and management, will be necessary to achieve the outcomes needed.

Box: The 2019 *AfricaSan Ngor Commitments Baseline Report* found that **31** African countries have private sector engagement for sanitation and hygiene included in national strategies. But while **23** countries provided documented examples of the private sector targeting the poorest populations, only **four** of those reported that the activities were at scale and sustainably reaching marginalised and unserved people.

Provide a conducive enabling environment

Multi-stakeholder models can only work when all the partners are clear on the common goals and their respective roles. This requires a coherent policy approach that affirms the role of non-sewered sanitation in achieving better sanitation for all, and acknowledgement of the contribution the private sector can make.

Partnership also requires a clear and supportive institutional framework, where roles, responsibilities and accountabilities are defined. This is likely to require ongoing dialogue between public authorities and private service providers to build trust between the different stakeholders and map the different needs, challenges and appropriate responses across the service chain. As Ibra Sow, president of the new Pan African Association of Actors for non-sewered Sanitation (PASA) put it in his plenary address to FSM5 / Africasan participants, “We need to

be in the decision-making about sanitation, because we’re on the ground implementing!”

The private sector is often the primary provider of building and desludging services, and should be recognised as a key partner in service provision, rather than as a rival or an irritant.

- In Blantyre, Malawi, formation of an association of local pit emptiers has facilitated interaction with other stakeholders working to improve non-sewered sanitation in the city. In particular, dialogue between the Tipope Pit Emptiers Association, the city council and district health representatives has raised the awareness among officials that the city’s health by-laws penalised manual pit emptiers but left residents without safer alternatives. Pit emptiers were invited to play an active role in setting enforceable standards for pit emptying businesses and services.



Figure 6 Definition of roles in Naivasha, Kenya, enables collaboration between the county government and Sanitation, a social enterprise providing container-based sanitation services and strategic support. Picture credit: Sanitation



Figure 7 Forming an association of pit emptiers has helped to improve dialogue between service providers and Blantyre municipal authorities. Picture credit: Water for people

Develop a regulatory system to provide standards and protection against unfair competition⁴

A clear legal and regulatory framework is essential to balance the interests of all parties. It should recognise the need for pit emptying, and make explicit provision for involvement by the private sector, so service providers do not have to fear harassment, confiscation of equipment or solicitation of bribes. Regulations should provide minimum service standards and compliance requirements for health, safety and environmental protection, and specify norms and standards for safe discharge, disposal or transformation into a re-use product. This is necessary to provide the business certainty required to attract private sector interest and investment.

Regulation, standards and guidelines are needed for the whole sanitation chain, with a well-defined division of public and private sector roles and responsibilities. Appropriate enforcement of regulations is essential, specifically to build demand for desludging services provided by licensed operators. An essential part of this is imposing sanctions on direct discharge to drains and/or informal service providers who do not have the means or a licence to discharge safely. This will support and motivate the service providers who meet compliance requirements for building, desludging and safe discharge of faecal sludge, and protect them from unfair competition from contractors who provide a cheaper service but unsafe service with high public health, safety and environmen-

tal costs.

- The City of Warangal, in Maharashtra, India, has introduced licensing and training of masons for toilet building to ensure facilities are built to design specifications and can be emptied readily, and issues licences to qualifying desludging operators with service level agreements that specify service standards.
- In Lusaka and a growing number of cities, regulation of desludging services is achieved by issuing permits to desludging service providers who comply with health and safety requirements. This enables compliance officers (employed in Lusaka by the water and sewerage utility) to identify registered service providers and sanction illegal operators, and provides informal operators with an incentive to formalise and improve their services.

Develop partnering arrangements that balance the interests of all parties

Special measures may be needed to address the concerns of the private sector role-players. Initial reluctance can be overcome by working with them to develop new business models. Development of partnership agreements should include inclusive dialogue with existing service providers, including pit emptiers where they exist. This has happened in Faridpur, Lusaka, Maputo and Kampala.

Two contracting models that were described

⁴ See the [summary paper from FSM5 on Regulation](#)

in some detail were performance-based contracts for FSM services in Maharashtra, and social franchising for sanitation services in 340 schools in South Africa.

Performance-based contracts specify the required performance outcomes that the service provider must deliver in order to get paid, and not the inputs or material used.

■ The cities of Wai and Sinnar in Maharashtra have developed and implemented model contracts for provision of FSM services by the private sector, with support from CEPT University. The contracts address three areas where the private sector may be engaged – scheduled emptying of onsite systems, construction of FSTPs, and operation and maintenance of FSTPs; and aim to protect the interests of all parties – private sector, city governments and citizens. The contractor was selected through a competitive bidding process, and then appointed on a 36-month service contract in May 2018.



Figure 8 In Wai, performance-based contracts help to balance and safeguard the interests of the private sector and local government. Picture credit: CWAS / CEPT University

The performance-based contract was drafted after extensive dialogue among the role-players. Key clauses explicitly addressed delayed payments, cost escalation, transparent procurement, termination and performance risks. The result was a contract that:

o made provision for assured and timely payments, by raising funds for the service through collecting a sanitation tax alongside property taxes and safeguarding that income in a ring-fenced escrow account;

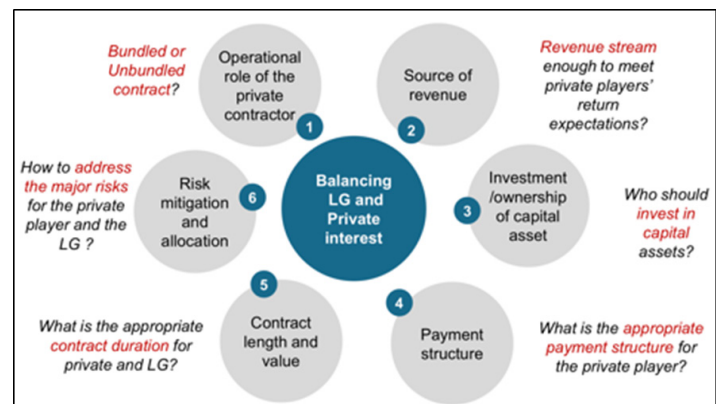


Figure 9 Maharashtra's performance contracts for FSM are based on detailed consideration of how best to balance the interests of the local authority and private service provider. Picture credit: CWAS / CEPT University

o *defined fixed targets for emptying*, with the prescribed daily targets providing an assurance to the provider about the amount of work available and an incentive to invest in the partnership; it also made provision for penalties for not reaching the agreed targets;

o *reduce the potential for disputes*, by defining the roles and responsibilities of the private contractor clearly, and defining the boundaries of the scope of work – for example, the contractor was not expected to open access covers.

o *aimed improve health and safety standards*, by specifying safety standards, use of PPE and measures to ensure safe emptying and disposal of septage without spillage.

Performance is monitored closely by the local authority, and the private operator is required to submit detailed daily reports on customers served and volumes emptied and discharged safely. In this way, the partnership aims to ensure that citizens get timely services at competitive prices.

■ In Faridpur, Bangladesh, the municipality has a performance-based contract with a cooperative that provides mechanical desludging services. The contract specifies key performance indicators, and the municipality monitors progress against quarterly performance agreements.

Social Franchising offers a way to support entrepreneurs enter a new business – in this instance, school sanitation services – by providing a proven business model and oper-

ating approach with ongoing support and mentoring.

In South Africa's Eastern Province, Impilo Yabantu Services is providing sanitation services to over 340 schools through four franchised enterprises. Impilo Yabantu develops the framework and management tools, and offers training in occupational health and safety and other aspects that make the franchisees sustainable beyond the launch stage. Impilo works with government and funding agencies to select qualifying franchisees. They then train the franchisees in various areas including plumbing repairs, health and hygiene campaigns for learners and maintaining Construction Industry Development Board (CIDB) standards. Once contracted, the franchisees take responsibility for building, maintaining and desludging school toilets. They also run programmes on sanitation and hygiene awareness and menstrual hygiene management for teachers and learners.



Figure 10 School learners demonstrate the good hand-washing techniques they learnt from Impilo Yabantu trainers. Picture credit: Impilo Yabantu Services

Support the emergence of viable FSM businesses

Provide business training and support:

Equipping pit emptiers and septage contractors to transition from informality to formal, professional service providers requires extensive support and training, particularly where they need to access finance to invest in better equipment and vehicles. Most, if not all, of the initiatives described in the presentations have a strong enterprise development component.

- In Dakar, Senegal, the National Sanitation Office of Senegal (ONAS) aims to entrust all FSM operations to the private sector by the end of 2020. But private operators in this market struggle to access the financing they need to meet ONAS needs and grow their businesses. Local banks are unfamiliar with the FSM sector, and cannot easily evaluate sector opportunities or operators' risk profile. USAID's Water, Sanitation and Hygiene Finance (WASH-FIN) program has been working with an initial cohort of SSPs in Dakar to develop robust, data-driven business plans and 10-year financial projection models to clearly define their financing needs and secure expansion capital, and has provided coaching and support to help them negotiate access to funding. Based on its experiences in providing technical assistance for investment readiness, the WASH-FIN team maintains that engaging the private sector has the potential to increase investment and capacity within the sanitation sector, but that this is only likely to suc-

ceed if emerging private operators are supported to develop the skills required to evaluate market opportunities, design sustainable business models and market these to prospective financiers.

Lower the cost of service provision: Transport is the biggest cost driver for emptying services, so treatment and disposal facilities for safe discharge should be built within a reasonable distance to support viable business operations.

- In Blantyre, one of the key issues that the pit emptiers' association has raised with the city council is the need to rehabilitate the four treatment works that are not operational, and / or build more decentralised treatment works to reduce transportation costs.

Scheduled desludging can also cut costs through aggregation and scale economies, and is being implemented in a growing number of cities. Scheduled desludging usually applies only to emptying septic tanks and other wet storage systems, but in eThekwini, the municipality contracts small businesses to empty 35,000 VIP toilets on a five-year cycle. The VIP toilets were all constructed by the municipality, and are a uniform design with a removable rear panel to facilitate emptying.

Lower the price of services: Business start-ups commonly need support from investors to sustain them while new goods and services are being developed and scaled up, before they achieve viability and profitability.

Similarly, enterprises in the sanitation sector may require support or subsidies to mitigate risks when a new service is introduced, until profitability is achieved.

- In Dhaka, SWEEP was allowed to focus initially on serving mainly middle / higher income and institutional customers to gain experience and achieve commercial viability, and the requirement to service a higher proportion (30%, up from 15%) of poorer clients was only introduced after two years once the business viability was established. SWEEP charges a differentiated tariff, with higher tariffs for middle/high-income and institutional customers cross-subsidising lower income customers. Over three years, SWEEP has emptied more than 8,000m³ of sludge, generated USD 86,000 in revenue and more than USD 15,000 in profit, and has demonstrated the business potential of professionalised mechanical emptying services in Dhaka that include low-income customers.



Figure 11 SWEEP team in Dhaka, Bangladesh. Picture credit: WSUP

- Lusaka Water and Sanitation company (LWSC) is introducing a top-up payment to licensed pit emptiers based on the volume of sludge they deliver to the treatment works. Analysis has shown that prevailing fees for pit latrine emptying and transport services charged by informal emptiers are too low to cover the real costs of safe delivery at the works by licensed service providers. To ensure that licensed operators do not price themselves out of the market, Lusaka Water plans to use World Bank grant financing to top up the fee that licensed pit emptiers charge their customers. LWSC hopes this will attract licensed operators to serve low-income customers, and incentivise them to increase coverage and service quality. They believe this will spur demand for better quality services and increase willingness to pay a more realistic price, and enable LWSC to phase out the subsidy.
- In Greater Colombo, residents bear part of the cost of desludging and the government pays the balance to the operator as subsidy.

Provide payment safeguards: Providing assurance of payment by the local authority can be an important part of overcoming the reservations of septage contractors about entering scheduled desludging contracts.

- In Maharashtra, these concerns were addressed through two measures: performance-based contracts with clearly specified outputs, and ring-fenced funding. Contractors are paid for achieving the agreed target number of septic

tanks emptied, with payment deducted for non-achievement of targets. The contract specifies safety standards for health and safety, and contains clauses to ensure safe disposal of septage without spillage. Daily performance is monitored closely, with detailed daily reporting capturing data on each customer served, with their signature. Service providers are paid from revenue raised from monthly property taxes and a dedicated sanitation tax that is levied on all properties. Those funds are paid into a ring-fenced contract fees reserve funds, which retains a minimum balance to safeguard three months of payments to PSPs. The contract specifies that interest will be paid on any late payments, but to date this has not been necessary.

Build customer demand through ongoing marketing and communications campaigns: A viable service needs sufficient demand and this in turn calls for service offerings that respond to what people want, need and can afford. Communication and behaviour change campaigns are essential to raise awareness of why good FSM matters and how to get in touch with reputable pit emptiers. A companion paper, *Targeted messages* that shift attitudes and behaviour are essential for good FSM, captures key points made at FSM5 about awareness-raising and behaviour change in more depth, with examples from [Abidjan](#), [Dakar](#), [Faridpur](#), [Freetown](#), [Khulna City](#) and [Kampala](#). Dedicated call centres for FSM, like those established in Dakar, Kampala, Freetown and elsewhere, can provide advice and link customers with emptying service providers.

Enforce regulations to protect compliant service providers: Service providers who meet compliance requirements for building, desludging and safe discharge of faecal sludge should be protected from unfair competition from informal contractors who provide a cheaper service but with high health, safety and environmental costs. This has proved effective in [Malaysia](#), [Kenya](#), [Zambia](#) and elsewhere.

5. Engaging the private sector takes time

Working with the private sector is not a quick fix. Local authorities and private sector role-players often have no experience of working with each other, and it can take some time to overcome mutual suspicion between government officials and the private sector based on prior misunderstandings, lack of knowledge of each other or cultural issues. Building trust requires a step-by-step approach, and ongoing dialogue between the parties can help to overcome reservations about the risks and build acknowledgement of where other partners may have greater expertise.

Learning to understand the different motivations of the various role-players is an essential prerequisite for workable partnerships. Encouraging private service providers to organise themselves, for example through forming associations for pit and septic tank emptiers, can be helpful in facilitating and co-ordinating interaction between public and private sector partners.

The need to allow sufficient time to work

with all stakeholders, develop institutional roles and steadily strengthen the enabling environment was identified in Bangladesh, Kenya, Indonesia, Mozambique and Uganda. The experience shows that this may often take several years.

6. Remaining challenges and more lessons learned

Strong champions of partnership are needed in the public sector to build support for pursuing novel approaches to service provision. Regular government tendering processes do not usually allow for the kind of dialogue and data sharing generally required to structure win-win contracts, and creativity and pragmatism are often needed to find a way through.

- In Leh, close dialogue and data-sharing between the different project partners (Leh municipal council, the Ladakh Development Authority, BORDA and Blue Water Company) enabled the participants to structure a win-win contract. Leh and Ladakh authorities were willing to work closely with their potential partners to find a mutually acceptable solution. Having a strong champion for the project in the municipal committee helped to overcome potential barriers.

There is currently limited support capacity to grow and professionalise FSM services provision by private operators. Many of the models for working with private service providers have been forged with extensive input and mentoring from NGOs (BORDA, Water for People, WSUP, Practical Action and SNV), academic institutions (like CEPT University in Ahmedabad, India) and other development partners. This support cannot easily be replicated at scale.

Monitoring private service providers is resource-intensive, but is essential to ensure that their work complies with regulations and the terms of any agreement. Apps have been developed for Dhaka, Maharashtra, Tamil Nadu and Kigali to track desludging performance and collect data to improve services, and intelligent use of monitoring and planning tools can improve business efficiencies. In Tamil Nadu there are now online tools to facilitate FSM data management and reporting.

Commercial viability is essential for any successful private venture and may require supplementary funding. Providing affordable sanitation services that low-income households are willing and able to pay for is very challenging as a business proposition, and several presentations (on Safi Sana,

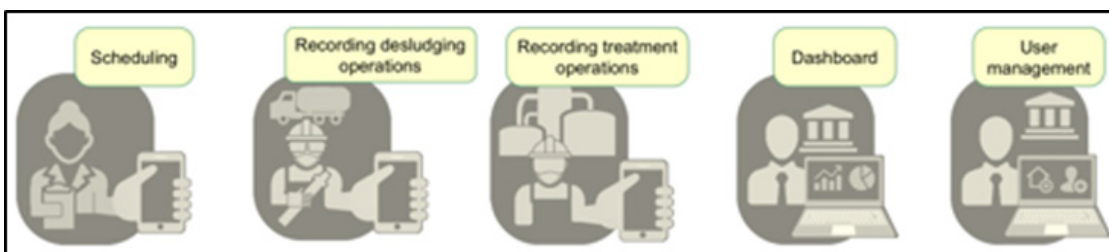


Figure 12 A suite of on-line monitoring tools has been developed to support performance management of sludging contractors in Maharashtra. Picture credit: CWAS / CEPT

SWEEP and management approaches in Sri Lanka, Malaysia and the Philippines) flagged the need for public funding to close the affordability gap. The nature of the challenge and varies enormously from city to city.

- In the early 1990s, Malaysia privatised operational responsibility for sewage and septage management under a concession agreement with Indah Water Konsortium (IWK). Despite impressive improvements in wastewater and sludge management, low tariffs and inadequate revenue collection led IWK into financial difficulties and the company had to be bought out by the government. It now operates with subsidies.

7. Conclusions

Engaging the private sector is not a panacea and it does not absolve the designated authority from its responsibility for ensuring access to affordable effective services. Rather, the public sector needs to drive policy, co-ordinate multiple stake-holders and regulate and ensure enforcement of by-laws. This heightens the importance of effective

systems for performance monitoring and management.

Partnerships between the public and private sectors can offer mutually beneficial relationships and these can now be seen in practice in the non-sewered sanitation sector. The involvement of the private sector enables access to additional resources, expertise and practical problem-solving capacity, while the private sector benefits from having a clearer framework within which to work, with defined roles, performance standards and access to public infrastructure, such as a sludge disposal site, to do the job properly. As Ibra Sow of PASA said in his plenary address to FSM5 participants, “Where government sees a challenge, the private sector sees opportunities”.

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Summary

Regulating the full service chain for non-sewered sanitation is receiving increased attention, but as yet practice and experience of applying it is still emerging in most cities. Regulations clarify minimum performance standards, enable their consistent application and provide a structured framework for investment and for enabling contracts with the private sector.

Key messages from FSM5 were:

- Regulatory frameworks are a critical part of the enabling environment for city-wide safe sanitation services. They clarify roles and accountabilities in a previously neglected and uncoordinated sector, and define the service standards and performance norms required from service providers. They hold householders accountable for building on-site facilities that make safer servicing feasible and provide penalties for behaviours that compromise the greater good. In combination, they provide a framework for engaging private service providers to tackle service needs and to scale up to meet service needs city-wide.
- Regulation shapes demand for safer services, which is essential for enabling the emergence of viable service providers. Service providers aiming to invest in FSM want regulation and service standards to

clarify the rules of engagement and to provide protection from unfair competition from non-compliant service providers.

- Regulatory frameworks should be pragmatic, practical and workable – less is more! Implementation introduced step by step in line with available capacity is more effective than an ambitious big-bang approach that may fail. The challenges facing local authorities can be daunting, and it is important to build confidence in measures that are achievable.

FSM5 presentations described significant advances in developing and implementing regulatory frameworks. Many are very different to the ‘independent Regulator’ model often used for water and sewerage service providers, and that model is not currently suited to the reality of FSM services in many countries. The practical experience of different regulatory models suitable to FSM need to be shared widely and lessons earned. But there is still a long way to go to developing service solutions which are technically feasible, socially acceptable and financially and economically viable, and which can be managed by existing institutions. Regulating FSM warrants closer discussion at FSM6.

1. Introduction

One in five presentations at FSM5 touched on regulatory measures for FSM. This is good news, as frameworks for regulating FSM are a critical part of the enabling envi-

ronment needed to achieve safe city-wide sanitation services. Together, these presentations provide evidence of a welcome shift from previous norms, where management of faecal sludge was left almost entirely to the unregulated and uncoordinated actions of informal service providers and individual customers because of weak, unclear or non-existent institutional mandates for FSM (Blackett and Hawkins, 2017).

Sanitation is a shared public good, so it is usual for national, and especially local, authorities to have an obligation to ensure it reaches an adequate standard. This is usually expressed in policy and legislation, and ideally is supported by a regulatory framework that clarifies roles and accountability relationships, norms and standards, enforcement measures and penalties for non-compliance.

The presenters at FSM5 described regulation and regulatory tools and activities in a range of ways that reflect the diverse history and context of each country's institutional arrangements and regulatory frameworks. Some described the activities of independent sector regulators whose mandates now include FSM services, who aim to mediate and balance the needs and interests of service users, service providers and service authorities. Some described regulation by contract. Some described the tools that local authorities and utilities are using to licence, contract, manage, monitor and sanction private operators who provide desludging, sludge processing and other services. Others underlined the importance of enforcing building regulations to construct

Promising regulatory models are emerging on the basis of dialogue with stakeholders and practical experience rather than idealised models that are difficult to implement. This was a key finding in FSM Innovation, which includes 20 case studies of implementing FSM services in 11 Asian and African countries. In a presentation which summarised important themes and findings from the case studies, the presenters stressed

- the need for dialogue, and pragmatism
- major change takes time: regulations cannot be established unilaterally or quickly, and should aim for incremental change rather than overly ambitious standards
- regulations, standards and guidelines are needed for the whole sanitation chain
- relevant public health regulations should be systematically enforced
- institutional mandates should be clear, with adequate staffing and budgets, and
- all FSM service providers and operators should be licensed and monitored.

on-site facilities that can be desludged readily, or stressed the need for political will in enforcing public health and environmental management regulations, or emphasized the urgency of applying health and safety regulations consistently to safeguard sanitation workers' rights.

The distinction between regulation, regulatory frameworks and regulations can be confusing, and the terms carry different meanings in different contexts.

No definitive description of regulation is offered in this synthesis of FSM5 presentations. Rather, the paper collates examples of regulatory activities in different contexts from the presentations. Most are concerned with regulating provision of goods and services, and are generally categorised as economic regulation. Some also focussed on the importance of communications campaigns that aim to shift social norms of acceptable behaviour and promote good FSM practices to support new regulations, or raise awareness of the service obligations of public authorities. Arguably these constitute a form of social regulation.

Common features of emerging FSM regulatory frameworks described at FSM5 include

- Formal acknowledgement of non-sewered sanitation services as part of the urban sanitation mix
- Clear roles and mandates for the different stakeholders
- Defined standards for acceptable sanitation facilities, services and environmental management
- A growing range of tools, operating procedures and guidelines for achieving compliance
- Criteria for monitoring the performance of service authorities and service providers
- Acknowledgement that enforcement is essential, with penalties for non-compliance

- Mechanisms for stakeholder co-ordination, collaboration and mutual accountability among stakeholders

Why is regulation necessary?

The dire state of FSM described in many presentations at FSM5 reflects poorly defined responsibilities for non-sewered sanitation, and little accountability. Most utilities across Africa and Asia focus on sewered sanitation, and non-sewered sanitation is left largely to the unregulated efforts of individual users and private operators. The results include -

- poorly-built sanitation facilities that are difficult to empty
- unhealthy emptying practices that pose health and safety risks for workers, customers and the wider environment
- illegal dumping of faecal sludge, which pollutes water resources and the wider environment
- extensive reliance on informal service providers offering a limited and unsafe service.
- no or inadequate faecal sludge treatment facilities as an alternative to open dumping
- uncontrolled pricing, which results in services that are unaffordable to many people

Regulation is particularly important to enable the emergence of safer pit emptying practices and viable FSM service providers. Without regulation to clamp down on illegal practices, formal providers are at a big disadvantage: informal providers can charge lower prices, because they circumvent licencing procedures, and cut corners through unsafe emptying and disposal practices. Regulation provides incentives to informal service providers to formalize and improve the quality of the services they offer, while clarifying the 'rules of the game' for everyone.

This emphasis on regulating FSM aims to make non-sewered sanitation work for everyone, fairly, equitably and affordably. It strengthens accountability in FSM from citizens, service providers and authorities against defined objectives, norms and standards. It promotes equity in the allocation of public resources, and greater safety for citizens, service providers and the physical environment. It is vital for encouraging the private sector to play a greater role in expanding access to safer services, by clarifying standards and service norms, providing the necessary checks and balances to safeguard investments and providing protection against unfair competition.

2. Why regulate?

Regulatory frameworks aim to ensure that the objectives of policy and legislation are implemented in line with clear roles, rules, standards and accountability relationships. This entails clarifying institutional roles and responsibilities for FSM, defining minimum service standards, and developing guidelines on how to meet those standards. They may require that service operators require licences or permits that stipulate how particular regulated activities must be undertaken. Performance monitoring is required against defined standards or measurable targets and benchmarks, with workable enforcement mechanisms and penalties for non-compliance.

The scope of regulation is wide. It encompasses, but is not limited to, approving building plans and inspecting household

facilities to ensure that they comply with building regulations, incentivising service providers to serve low-income areas and measures that support affordability, setting minimum service standards and safeguarding environmental protection through regulating sludge treatment operations and safe disposal or re-use.

Presenters at FSM5 provided numerous examples and images of inadequate regulation ([Accra](#), [Dhaka](#), [Freetown](#), [Laos](#), [Lusaka](#), [Nairobi](#), [South and East Asia](#), [Toamasina](#), [Uttar Pradesh](#), [Yaounde](#), etc.) These include open defecation, lack of construction guidelines for on-site facilities, unsafe emptying, open discharge of sludge and septage, severe contamination of drainage systems and water bodies, extensive use of untreated faecal sludge in agriculture and weak enforcement of existing bylaws addressing public and environmental health.

Components of a local regulatory framework for FSM – Warangal's approach:

- design and construction of septic tanks
- conversion of insanitary latrines to sanitary latrines
- pumping and desludging
- septage transportation
- septage treatment, disposal and re-use
- information, education and communication
- training programs
- record keeping and management information systems (MIS)
- Helpline for septage management

A good regulatory system, by contrast, balances the competing interests of government, service providers and customers, by

- supporting the achievement of policy objectives by ensuring the different role-players fulfil their mandated responsibilities, with sanctions for non-compliance.
- monitoring and enforcement of the quality of services in line with government policy and acceptability to users.
- ensuring that services are safe and affordable to users, while service providers have the revenue and motivation to provide the service.
- providing a predictable business environment for service providers where roles and the rules are clear (EAWAG, 2019).

Of course, enforcement of the regulations and standards, with penalties for non-compliance, is essential to give them teeth. Vacuum tanker operators in Lusaka, Zambia, for example, risk losing their operating licence if they discharge sludge illegally, while in Warangal, in India's Maharashtra state, the municipality has empowered the police to impound the vehicles of unlicensed service providers.

Formal regulatory efforts described at FSM5 focused mainly on management of service providers through contracts, including:

- o Lease agreement and performance requirements for desludging service partnerships, for example SWEET in Dhaka
- o Scheduled emptying and desludging services (Sinnar and Wei in Maharashtra; Karunguzhi, Tamil Nadu; Leh in North India; eThe-

kwini, South Africa)

- o Construction and /or operation of treatment facilities (Leh in North India; Delvic in Dakar, Senegal; Andhra Pradesh)

Presenters also described less formal regulation:

- In India, service level benchmarking by city authorities constitutes a form of regulation, as it serves to hold authorities accountable for their performance in delivering basic services and informs their eligibility for grant funding. Four thousand towns and cities participate in this city rating exercise, of which FSSM is now an integral component.

3. The policy context of regulation

3.1 Regulation of FSM usually follows the development of a sanitation policy that acknowledges the extent of non-sewered sanitation and the importance of good FSM in achieving safe sanitation city wide.

Progressive city authorities can also make progress improving sanitation prior to the development of a national policy, and even set a practical example. National policy can be developed in parallel with effective action at city level, and this can support the development of sound policy formulation that is informed by practical contextual experience (Blackett & Hawkins, 2017).

Faecal waste flow diagrams (SFDs), notably for 66 Indian towns and cities in Uttar Pradesh, have proved useful in focusing attention on policy gaps and priorities at city

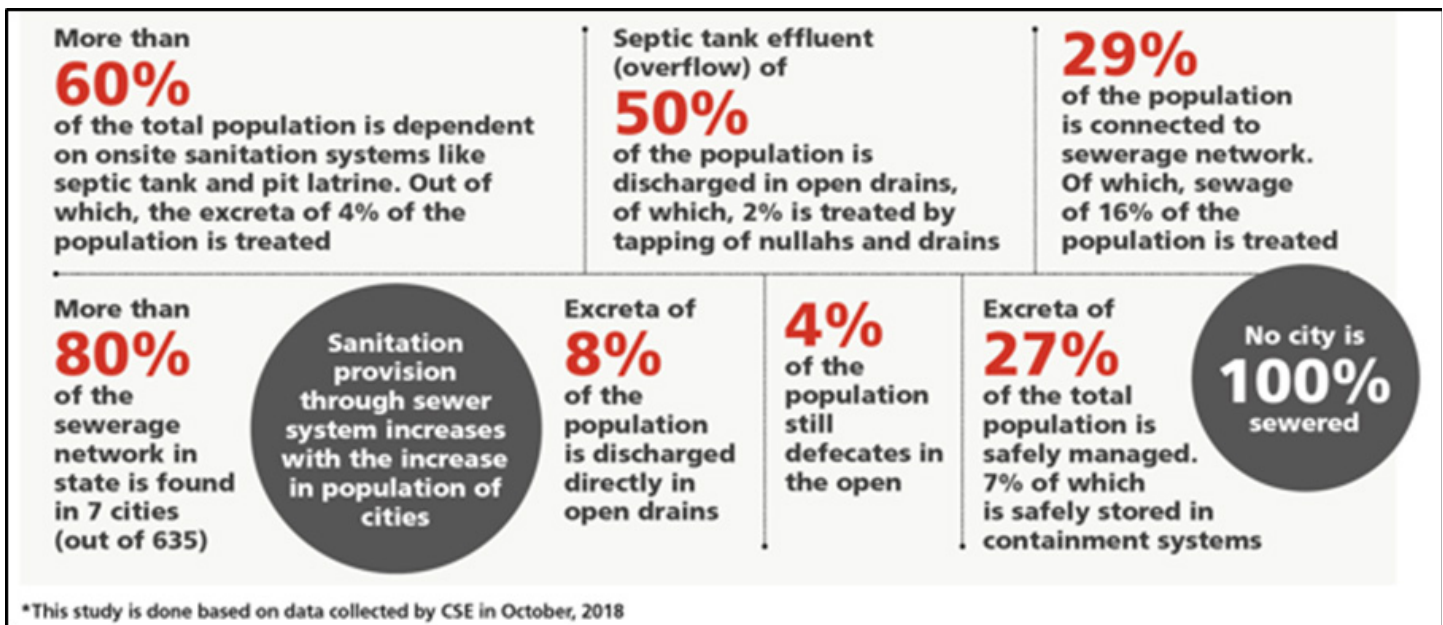
FSM5

Regulating FSM: Emerging approaches

and state level.

With external support, the Indian city of Warangal developed its regulatory framework for urban sanitation ahead of the development of India's 2017 National Policy on Faecal Sludge and Septage Management. Aspects of Warangal's experience informed the development of the national policy.

Analysis of the sanitation chain in 66 cities in Uttar Pradesh, India, has been used to inform the development of regulatory instruments for FSM emptying practices and treatment, and develop action plans for cities and city sanitation and faecal sludge management plans. The approach differentiates between cities of different size and at different stages of development. The findings have been used further to support a national flagship programme for the Integrated Orientation Training Programme for Municipal Functionaries (AMRUT), linking city sanitation improvements to a wider clean-up campaign for pollution abatement in the Ganga basin.



3.2 Regulation requires a clear institutional framework

Clarifying mandates and where responsibility lies for the different aspects of sani-

tation improvement, service provision and oversight is an essential precondition for regulation. Bangladesh, Indonesia, Nepal and Zambia are examples of countries that have recently developed policy frameworks

that spell out institutional and regulatory relationships for non-sewered sanitation and FSM. A core challenge is that aspects of FSM may straddle the portfolios of different authorities responsible for municipal management, building and construction, public health, water and sanitation services and environmental management, and there is often little co-ordination or consensus on priorities. Multi-stakeholder dialogue, often supported by local NGOs and external development partners, has proved useful in building a common understanding of what improved FSM entails. Examples of this were provided from Freetown, Dakar, Dhaka, Khulna, Faridpur, Lusaka and elsewhere.

3.3 Effective regulation of FSM takes pragmatism

Advice from [Indonesia's](#) Ministry of National Development Planning (Bappenas) was that government authorities should opt for pragmatism when formulating and introducing regulation, to avoid discouraging local authorities facing large performance gaps. Inputs from [Zambia](#), India and elsewhere highlighted the importance of involving stakeholders, including service providers, in developing regulations to ensure that they are practical, relevant and workable. Zambia's new [regulatory framework for non-sewered sanitation and FSM](#) was informed by an extensive review of current trends in urban on-site sanitation, relevant policies, laws and national programmes and sanitation, and wide-ranging consultation with sector role-players and service providers. Case studies from [Warangal, Kenya](#) and [eThekwin](#)i indicate that policy and regula-

tory frameworks should be based on evidence, piloting and local practice, while presentations by NGOs such as [GOAL](#), [Practical Action](#), [Speak-Up](#), [SNV](#), [Water for People](#) and [WSUP](#), illustrated the value of pilot projects and field trials in shaping regulatory tools that are practical and workable.

[Bangladesh's 2017 Institutional and Regulatory Framework for FSM](#) covers on-site sanitation facilities and areas served by non-sewered sanitation. The framework identifies the functional ways and means of implementing FSM services, the related roles and responsibilities, and how these are aligned with existing acts and policies. It provides the relevant authorities with clear guidance on how to address FSM as part of their ongoing work. In urban Bangladesh, city corporations and paurashavas (municipalities) are assigned primary responsibility for FSM, but the framework emphasises the need for extensive collaboration with a range of other role-players, and the need for adequate regulatory measures to engage private, NGO and CBO role-players.

3.4 Compliance must be achievable

Effective FSM regulation requires an environment in which compliance is achievable. This includes

- **regulation of on-site facilities and guidelines that provide support** by offering designs and construction methods for sanitation facilities which allow for safe containment emptying (e.g.

Tamil Nadu's Operative Guidelines) and builders who are trained in how to build them ([Lusaka](#), [Warangal](#), etc.)

- **availability of desludging service providers** that are willing and able to provide safe services ([Faridphur](#); [SWEEP in Dhaka](#); see also the separate brief on engaging the private sector in FSM).
- **affordable safe services**, with tariffs that are fair both to customers and service provider, and subsidies where needed. Affordable tariffs, in turn, are often a result of regulation. [Greater Colombo cross-subsidises septage services](#) with revenue from water services as well as a government subsidy on desludging. Lusaka Water and Sewerage Corporation (LWSC) is planning to use grant-funding to [subsidise the cost of desludging services](#) by licensed service providers to enable them to compete with informal emptiers offering unsafe services.
- **faecal sludge disposal sites and treatment** works that are safe and accessible ([Lusaka](#), [Kenya](#), [Andhra Pradesh](#), [Uttar Pradesh](#), etc.). Extensive work is underway in a growing number of Indian states, for example, to build or upgrade treatment works in 121 towns in [Andhra Pradesh](#), and development of 52 treatment sites in Uttar Pradesh were out to tender in Uttar Pradesh in January 2019. Similarly, a substantial initiative to develop treatment capacity in the vicinity of targeted low-income settlements is underway in [Kenya](#) as part of the Upscaling Basic Sanitation for the Urban Poor (UB-



Figure 2 Training builders how to build a good quality toilet – pictured here in Lusaka, Zambia – is an essential step towards providing a workable regulatory framework for non-sewered sanitation and FSM. Picture credit: Mukaku, M. N.

SUP) initiative, with construction of 19 decentralised FS treatment plants completed, underway or scheduled to begin soon.

In view of the extensive role of private service providers in building sanitation facilities and providing emptying and transport services, it is vital that the enabling environment includes policy measures that affirm a role for the private sector, clarify norms and standards, and support business viability. (See separate summary paper on Working with the private sector to meet the challenges of non-sewered sanitation.) As illustrated by [Faridpur](#), [Lusaka](#), [Maputo](#) and [Kampala](#), development of regulatory frameworks should include inclusive dialogue with existing service providers, including pit emptiers where they exist.

3.5 Supportive policies to attract skills and capacity for FSM for public-private partnerships

Improved sanitation city wide requires substantial financing and investment in infrastructure and services for non-sewered sanitation. Mozambique's Water and Sanitation regulator, Conselho de Regulação do Abastecimento de Água (CRA) is exploring the introduction of a sanitation tariff levied on water consumption of middle and high-income groups, commercial and industrial customers, and public bodies. The revenue collected will be allocated to city-wide sanitation service improvements in Maputo, and specifically to support improved FSM services and better management and monitoring of wastewater treatment. The tariff is projected to raise USD3 - 4 million annually. Similarly in Kenya, the board of Nakuru's water and sewerage utility, NAWASSCO, has approved a plan to pilot a pro-poor sanitation surcharge to fund sanitation improvements in low-income areas. This follows extensive research by a research coalition that included WASREB, Kenya's sector regulator, into factors influencing customers' potential willingness to pay a surcharge.

Presentations from Accra, Dakar, Dhaka, eThekweni, Leh and Maharashtra highlighted the importance of a clear policy and regulatory framework for public-private partnerships. This goes beyond the non-sewered sanitation sector to attract the specialist expertise needed to close skills and capacity

gaps, particularly in relation to faecal sludge treatment.

3.6 An urban sanitation policy and regulatory framework alone is not enough to achieve changes

Policy frameworks on their own achieve little. Policy objectives need to be translated into laws and backed up with specific regulations and standards that are enforced through monitoring and inspections, with sanctions consistently applied where warranted. This requires resources, capacity and political will, and ongoing communication and advocacy with stakeholders – residents, service providers, municipal and ministry officials, civil society organisations, etc. – to build a new consensus of what is needed and how to achieve it. Presentations on advocacy and behaviour change campaigns in Freetown, Kampala, Khulna, Faridpur and elsewhere showcased some effective approaches being used to shift awareness.

In its review of progress on the Ngor Declaration on Sanitation and Hygiene, the 2019 ***Ngor Commitments Baseline Report*** shows that 24 sub-Saharan countries have adopted national sanitation and hygiene policies and a further ten have policies awaiting final adoption. A slightly higher number – 26 – have faecal sludge management regulations and by-laws in place, but only six countries report that the regulations and by-laws are comprehensive and enforced.

The report found that the lack of a clear

sanitation policy implementation strategy and regulatory framework is a major challenge for achieving SDG6 in Africa, and that inclusive sanitation policies and a coordinated approach to sanitation programming and regulation are needed.

AMCOW is leading an initiative to develop African Sanitation Policy Guidelines, to help countries create appropriate policy and legal frameworks on sanitation and FSM. Having a policy for FSM, though, is not enough, unless decision-makers truly acknowledge non-sewered sanitation as part of the urban sanitation landscape and allocate adequate resources to it.

4. What aspects of FSM should be regulated?

Regulation, standards and guidelines are needed for the whole sanitation chain, with a well-defined division of public and private sector roles and responsibilities. It is helpful to distinguish between two broad areas of regulation:

- Regulation of containment systems and users' behaviour. This is generally covered by local government by-laws, building regulations and Public Health legislation, with product standards for sanitary ware addressed through industry standards.
- Regulation of service providers who provide desludging services, manage treatment facilities and recover resources from faecal sludge products.

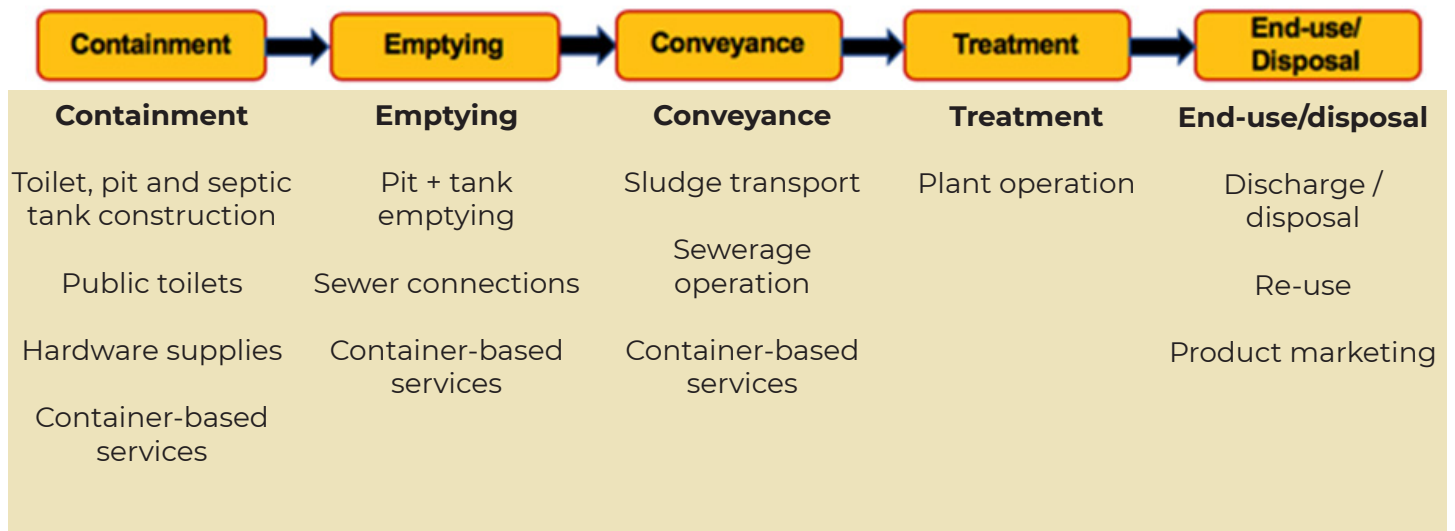
The City of Warangal, in Maharashtra, India, has introduced licensing and training of masons for toilet building to ensure facilities are built to design specifications and can be emptied readily. It issues licences to qualifying desludging operators with service level agreements that specify service standards.

In Lusaka and a growing number of cities, regulation of desludging services is achieved by issuing permits to desludging service providers that comply with health and safety requirements. This enables compliance officers (employed in Lusaka by the water and sewerage utility) to identify registered service providers and sanction illegal operators, and provides informal operators with an incentive to formalise and improve their services.

Appropriate enforcement of regulations is essential, and specifically to build demand for desludging services provided by licensed operators, rather than informal or unlicensed service providers (Kenya, Faridpur, etc.). An essential part of this is imposing sanctions on users who connect their septic tank directly to a drain, and on informal service providers that do not have the means or a licence to discharge safely. This supports service providers that comply with building requirements, safe desludging protocols and discharge sludge only at designated sites against unfair competition from operators that provide a cheaper but unsafe service with significant public health, safety and environmental costs.

FSM5

Regulating FSM: Emerging approaches



Regulation is one of the biggest factors shaping the market for safer, more hygienic means of emptying pit latrines. There is a business case for using mechanical emptying technologies, such as gulpers, e-vacs, trash pumps etc. However these technologies save time, rather than money, and the gains are still limited by the need to transport the sludge once it has been removed from the pit. Without incentives, or support in the form of customer subsidies, the existing business case for safe emptying is not sufficient to engage good entrepreneurs. Improved emptying technologies are essential to build recognition for the need for better emptying options, and the need for infrastructure, regulation and support for pit emptying.

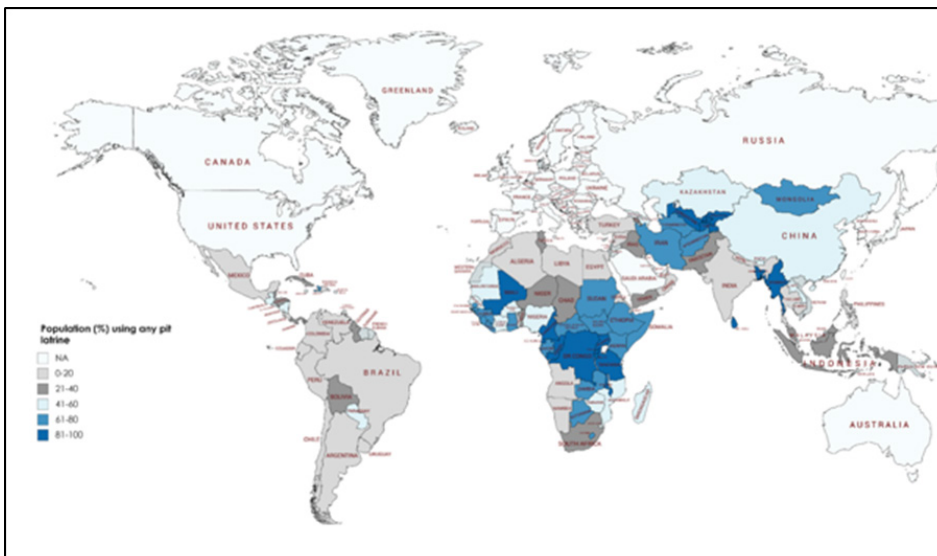


Figure 3 The current global market for pit-emptying services: 300 to 350 million households with pit latrines. Picture credit: Greene, N.

One type of non-sewered sanitation that currently falls outside of all regulatory frameworks is container-based sanitation. A new World Bank review recommends that it is recognised and regulated.

A new World Bank Group evaluation of container-based sanitation (CBS) identifies the need for better regulation of CBS approaches and service standards. Container-based sanitation (CBS) consists of an end-to-end service that collects waste hygienically from waterless toilets built around sealable, removable containers, and transports the waste for safe disposal or treatment and transformation into valuable end-products. The Container Based Sanitation (CBS) Alliance seeks to formalise



acceptance of CBS among municipalities and regulators, and to promote CBS approaches as part of a menu of city-wide inclusive sanitation (CWIS) options.

may apply them singly or combined:

- It can undertake provision of sanitation services itself. From a regulatory perspective, a conflict of interest may arise where the authority undertakes service provision itself, as it cannot sanction itself for failing to provide adequate services to users.
- It can contract a third party to provide services on its behalf. The authority can manage the provider's performance on the basis of criteria specified in the contract.
- It can establish a conducive environment in which effective and affordable service provision is feasible by third parties.

The third option is often regarded as the ideal, as the roles of authority and provider are distinct. This provides an opportunity for an independent regulator, or more commonly a national or sub-national ministry or department to mediate between the interests of service users, service providers and the service authority. Users need to be able to access appropriate services at a fair price. Service providers need to provide services that meet at least minimum quality and performance standards, and be protected from unfair competition from those whose services do not meet minimum requirements. Authorities need to be held accountable for ensuring access to services that are adequate and affordable.

A minority of countries have dedicated na-

5. Institutional arrangements for regulation

There is no one-size-fits-all approach to regulating non-sewered sanitation and FSM, and regulatory arrangements arise from the way the responsible authority discharges its sanitation service responsibilities.

Broadly speaking, a service authority has three options for providing services, and

tional agencies for regulating water and sanitation services, and even fewer include non-sewered sanitation. One of the few is Malaysia, where Indah Water Konsortium (IWK) had a mandate for providing both sewerred and non-sewerred services from when it was established in 1994, and the water and sanitation services regulator, SPAN, has regulated both sewerred and non-sewerred sanitation from its inception. Elsewhere, non-sewerred sanitation has been added to the mandate of the national water sector regulator relatively recently – as in the case of Zambia’s National Water Supply and Sanitation Council (NWASCO) and Kenya’s Water Services Regulatory Board (WASREB). In Mozambique, the water services regulator CRA was set up to regulate commercial water utilities, and until recently had no mandate to regulate the municipal councils that are responsible for non-sewerred services; its mandate has now been expanded. In those countries, the independent regulator aims to balance the interests of service users, service providers and service authorities.

But in many countries, including Bangladesh, India and Nepal, there is little separation between the role of FSM service authority and primary service provider, and there is no independent regulator. In Indonesia, the roles of authority and service provider are distinct, but there is no independent regulator. Sector regulation is part of the mandate of the national ministry responsible for water and sanitation or urban services, and elements of the regulatory function may be delegated to state/regional and local authorities. In Senegal, the dedicated national office for sanitation, ONAS, also has a regu-

latory function.

There are nonetheless regulatory checks and balances within and beyond government with service level benchmarking and media reporting bolstering oversight.

FSM5 presentations illustrated a wide range of institutional approaches to urban sanitation management and regulation:

- Stand-alone regulators are generally found in countries where urban water and sanitation services are provided by commercial utilities rather than a unit within the local authority. Kenya, Malaysia, Mozambique and Zambia are among those with a stand-alone national regulator for water and sanitation utility companies that oversees both sewerred and non-sewerred sanitation. Tanzania also has a stand-alone regulator that combines oversight of water, sanitation and energy utilities.
- National departments or ministries with a regulatory function for non-sewerred sanitation are found in Indonesia, Senegal, South Africa and elsewhere.
- In India, sub-national state authorities in Maharashtra, Tamil Nadu and elsewhere oversee the activities of local authorities in non-sewerred sanitation. Service-level benchmarking and public discussion of the results bolsters oversight by government.
- Local authorities enforce municipal by-laws, ordinances and building regula-

tions, often with support from inspectors employed by public health authorities. FSM5 presentations indicate that local authorities currently play the primary regulatory role in non-sewered sanitation in many countries. Dumaguete, Kampala, Freetown and Warangal, are examples of towns with regulatory frameworks for non-sewered sanitation and FSM.

Like sewered systems, regulation of non-sewered sanitation usually straddles more than one regulator or sector department/ministry and more than one tier of government. In Zambia, for example, NWASCO regulates sanitation services (with the commercial utilities overseeing the performance of licensed desludging service operators), while ZEMA, the environmental management authority, issues permits for vacuum tankers and effluent discharge; local authorities set and enforce by-laws regulating local building norms for sanitation facilities, and issue business licences to service providers. Similarly in Malaysia, the water and sanitation services regulator SPAN regulates water and sanitation services, while discharge of treated effluent, like in Zambia and elsewhere, is regulated by a separate environmental management entity.

Elements of responsibility for overseeing non-sewered sanitation are often assigned concurrently to ministries responsible for local government, housing, public works, water services, public health and environmental management, with different functions allocated at different tiers of government. This underlines the importance of clearly

defined mandates and effective co-ordination between the different entities.

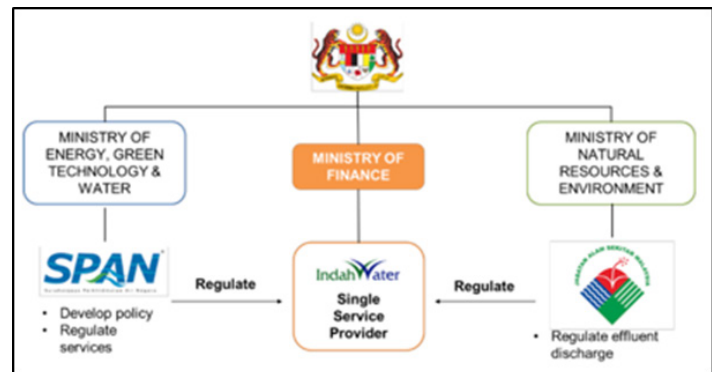


Figure 4 In Malaysia a single service-provider, IWK, is responsible for water services and both sewered and non-sewered sanitation. It is regulated by separate authorities for services and effluent discharge (see Annex for more details)

In the Philippines, the national government is responsible for guiding and mandating FSM programmes, while funding, implementation, regulation and enforcement of septage management is left largely to local government. The Department of Environment and Natural Resources (DENR) and the Philippines Department of Health (DOH) are national agencies with a regulatory role for septage management programs and effluent discharge. In response to severe water pollution, the Philippine's 2004 Clean Water Act mandated local government units (LGUs) to develop and implement city-wide septage programs, in line with a national sewage and septage management programme. The 2004 Act spurred Dumaguete City to pass a city ordinance (by-law) to establish a septage management program and minimum

criteria for on-site wastewater treatment systems. The ordinance:

- requires all homes and buildings to have an approved excreta disposal system (septic tank or other approved structure);
- prohibits discharge of septage anywhere other than the city-owned-and-operated licensed treatment facility;
- provides model septic tank design criteria;
- provides permit requirements for new construction; and
- requires that septic tanks should be desludged every 3–5 years, or when one-third full of sludge.

Over sixty other cities have since developed their own local ordinances for septage management.

In Senegal, there is a single national entity responsible for sewered and non-sewered sanitation, ONAS (L'Office Nationale de l'Assainissement), which falls under the Ministry of Water and Sanitation. In Dakar, it oversees and regulates the performance of private sector contractors including Delvic, which operates four treatment works under a delegated management contract. Delvic cites the existence of a clear institutional and legal framework favourable to FSM as a key precondition for its involvement and for the success of the partnership.

Zambia has recently developed a regulatory framework for on-site sanitation and faecal sludge management to support the proper functioning of an integrated management system covering the whole sanitation chain. There was previously no regulation of on-site sanitation facilities or services, and service level agreements between the regulator NWASCO and the commercial utilities made no reference to FSM; and the environmental regulator, ZEMA issued licences to vacuum tankers, but did not monitor the services they provided. There were no guidelines or regulations for building or operating faecal sludge treatment works.

Urban sanitation services have now been defined as the responsibility of the 11 commercial water and sanitation utilities, although they are able to delegate service provision to private operators that meet the requirements of permits issued by NWASCO and ZEMA.

The new Zambian framework is comprehensive:

- The Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP) provides overall policy leadership and co-ordinates the sector;
- NWASCO, which falls under the MWDSEP, issues licences to commercial utilities for sanitation and regulates overall sanitation service provision; and in due course NWASCO will also issue permits to service providers working under the

commercial utilities;

- Commercial utilities are licensed to serve as overall implementing agents for sanitation and water services provision. For non-sewered sanitation, the utility enters into delegated management contracts with private or community-based service operators for emptying, transport and sludge treatment, which NWASCO must approve.
- ZEMA regulates environmental protection, including licensing trucks that carry sludge and development of standards for sludge treatment and re-use.
- Local authorities continue to promulgate by-laws to regulate local sanitation service provision, and issue business licences for service providers.

The **Eastern and Southern Africa Water and Sanitation (ESAWAS) Regulators Association** is a network of regional water supply and sanitation (WSS) regulators with the objectives of:

- Fostering and enhancing regional cooperation and coordination on regulatory issues in order to improve the effectiveness of WSS regulation in the region, and
- Enhancing the capacity of members in WSS regulation by facilitating information sharing and skills training.

Its member countries include Kenya, Lesotho, Mozambique, Rwanda, Tanzania, Zambia and Zanzibar (which is part of Tanzania but has a separate regulator).

In Ghana, the Ministry of Sanitation and Water Resources (MSWR) has proposed the establishment of a new agency (provisionally entitled the National Sanitation Authority) that will become the institutional home for strategy development, regulation of the sector, co-ordination and resourcing for implementing sanitation programmes.

In Mozambique, urban sanitation is the responsibility of municipal councils, but *de facto* on-site sanitation has largely been left to individual initiative. Maputo Municipal Council (MCC) has developed a city-level legal and regulatory framework to guide service provision and private sector engagement. This followed a city-wide sanitation diagnostic and practical exposure to the challenges of equipping small-scale FSM businesses to serve dense, unplanned peri-urban areas that are inaccessible to large vacuum tankers. These by-laws recognise and regulate FSM service provision across the city, including unplanned peri-urban settlements, in peri-urban areas. The by-law itself does not solve the challenges of peri-urban sanitation services, but it creates incentives for service expansion in the peri-urban areas and promotes service models that improve access for the poorest households.

Gulariya municipality in south-western Nepal is building on local total sanitation initiatives to address the whole service chain for FSM. A faecal sludge treatment plant has been built, and with support from its development partners, the municipality has developed and institutionalised a viable FSM business plan, with plans to regulate and engage private sector and cooperatives in FSM services. This approach has now been adopted by nearby Madhuban municipality. The two are now working to develop a comprehensive institutional & regulatory framework for FSM, with a sewerage management policy and total sanitation guideline. They aim to scale-up FSM services, in part by mobilising private sector role-players and sharing their learning with other municipalities.

Kenya is steadily strengthening its enabling environment for regulating non-sewered sanitation. The 2012 Public Health Act prohibits nuisance caused by offensive waste that is injurious or dangerous to health. The National Environment Management Authority regulates the type of vehicles that emptiers can use and requires that emptiers hold a waste transportation permit as stipulated in the 1999 Environmental Management and Co-ordination Act. The 2016 Environmental Health and Sanitation Policy requires the sector regulator, Water Services Regulatory Board (WASREB), to provide guidelines for solid and liquid waste management.

County utilities known as water services

providers (WSPs) are responsible for providing sanitation services, and are required to manage sludge from on-site systems. But some argue that they are only responsible for sewerage management, not on-site sanitation. The sector relies heavily on private service providers, which are issued permits by the local authority to allow them to operate vacuum trucks within their service areas and discharge at designated sites. By law, WSPs are responsible for faecal sludge treatment, but most lack sludge disposal facilities and there is little enforcement of household containment by the Public Health and Environmental Office.

With funding and practical support from the state-run Water Services Trust Fund and its development partners, WSPs are tackling non-sewered sanitation improvements through the Upscaling Basic Sanitation for the Urban Poor (UBSUP) programme in 26 towns and cities. The programme covers the entire sanitation service chain, with promotion of improved household toilets, measures to strengthen the involvement of the private sector in emptying and sludge transport services, and construction of a growing number of decentralised faecal sludge treatment plants at sites close to low income urban settlements. Ten plants have been built and are operational so far, with a further nine under construction or planned. These measures provide a basis for strengthening regulation of householders and service providers, and holding WSPs more accountable for their performance in servicing low-income areas.



Figure 5 One of Kenya's new decentralised sludge treatment plants. Picture credit: Water Sector Trust Fund

6. Regulatory tools

Presenters described a wide range of regulatory tools. Just as the term regulation is interpreted and used in different ways, so too are different meanings attached to the different regulatory tools. This rough guide outlines some of the key terms, but they may have a different meaning in some contexts:

- **Policy** typically informs **legislation**, which makes the policy legally binding.
- The legal framework spells out how policy objectives will be met, by whom and with what resources. The distinction between legal frameworks, institutional frameworks and regulatory frameworks is often blurred, and there is often some overlap.
- **By-laws, ordinances, local regulations and decrees** are local laws established under the jurisdiction of local authorities, in line with state / provincial or national legislation, that define and enable enforcement of local norms and standards ([eThekweni](#), [Dumaguete City](#), [Balikpapan](#), [Vientienne](#), etc.)
- Legislation often makes reference to **standards**, or includes them as a technical annex to legislation or a contract. These range from formal ISO standards, to promulgated minimum technical specifications or service standards, through to service level benchmarks that define a target against which city authorities can assess their own performance. Even tender specifications can lay the basis for regulation by contract. For example in [eThekweni](#), the tender document for pit-emptying contractors provided detailed specifications for emptying toilets and transporting sludge that included health, safety and environmental compliance requirements. The tender specifications function as standards when attached to the final contract.
- **Technical specifications** often elaborate on standards in more detail.
- **Building codes** are specific regulations for construction ([Warangal](#)).
- **Guidelines** provide information on how to comply with policy, legislation or standards. [ISO 24521](#), for example, offers guidelines for the management of basic on-site domestic wastewater services. Although guidelines are generally advisory, implementation may be mandatory in some instances. See, for example, [Tamil Nadu's 2014 Operative Guidelines for Septage Management](#).
- **Licences** stipulate the conditions under which a service provider will operate, and may delineate their area of operation ([Lusaka](#), [Nairobi](#)).
- **Permits** provide prior approval for activities like building construction or discharging effluents ([Indonesia](#), [Kenya](#)).

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Regulating FSM: Emerging approaches

- **Contracts** specify the terms and requirements of a legally-binding agreement (Andhra Pradesh, Dhaka, Leh, Maharashtra, etc.).
- **SOPs** (standard operating procedures) specify the required methodology for undertaking an activity, such as desludging a pit or septic tank (Freetown, Maharashtra).

New ISO standards for non-sewered sanitation

A presentation on the Role of Standards and Technology Certification Platforms in FSM gave an overview of three new international standards for non-sewered sanitation: ISO 24521:2016 provides guidelines for the management of basic on-site domestic wastewater services; ISO 30500:2018 provides guidelines on general safety and performance requirements for prefabricated integrated treatment units for non-sewered sanitation systems; and ISO/ CD 31800 or ISO/ PC 318 (mid-2020 publication) is concerned with the safety and performance requirements of faecal sludge treatment units and resource recovery units. The standards address protection of users and operators across the service chain, including management, operation and maintenance, financial sustainability, environmental management and risk management.

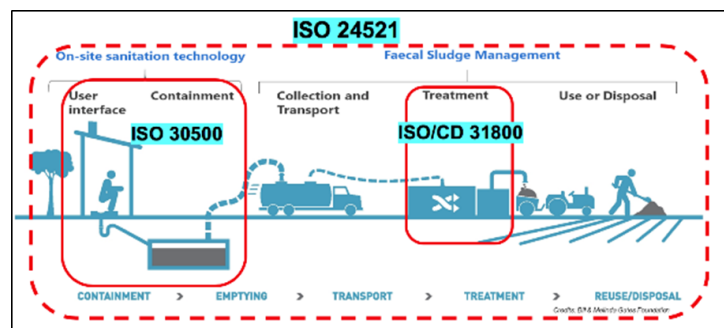
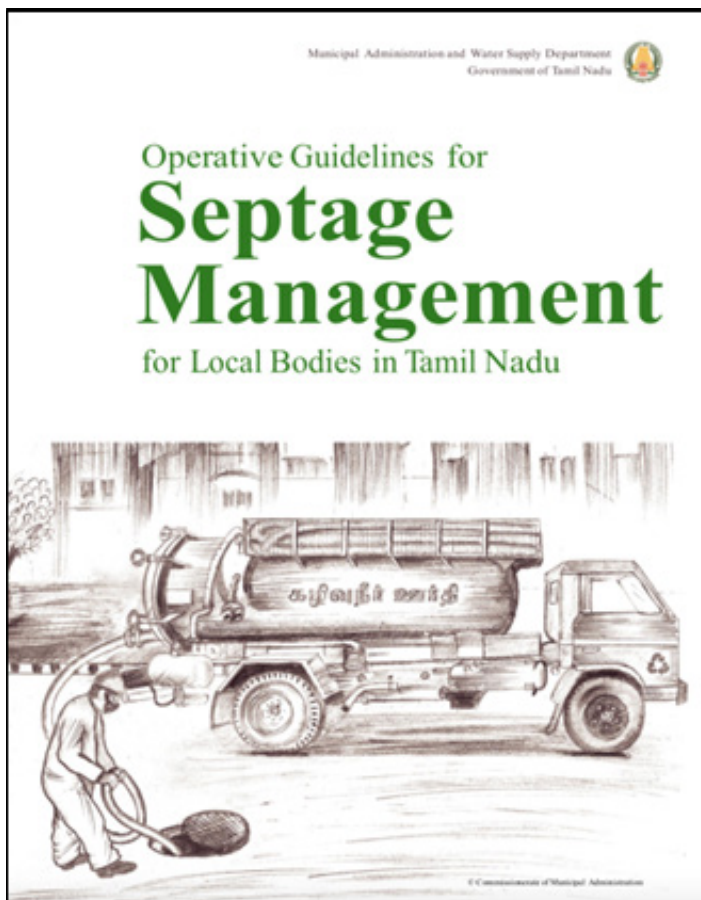


Figure 6 Tamil Nadu's 2017 Operative Guidelines provide local authorities with a comprehensive guideline to faecal sludge and septage management. Picture credit: Municipal Administration and Water Supply Department Tamil Nadu

7. Application

With some exceptions – notably pioneers like Malaysia and the Philippines – the regulatory frameworks for non-sewered sanitation and FSM described at FSM5 have been developed within the past five years. Therefore, implementation is still at a fairly early stage and lessons from experience are still emerging.

Much of the regulatory effort described at FSM5 focused on -

- Building systems and capacity to undertake regulation: training staff, setting up monitoring systems and management information systems, and managing data ([Warangal](#), [Lusaka](#), [Indonesia](#)). In Indonesia, for example, guidelines and training modules have been developed to equip city authorities to tackle regular desludging, with train-the-trainer initiatives to maximise outreach. In [Maharashtra](#), [Tamil Nadu](#), [Indonesia](#) and elsewhere, ICT systems and dedicated apps are being developed to collect and manage data in support of regular desludging, and track the performance of service providers.
- Gathering data on the nature and extent of FSM service needs. This has been done in a growing number of cities in India and elsewhere.
- Training and equipping service providers to comply with new regulatory requirements. This includes training masons to build facilities in line with new guidelines and specifications, helping to gear up desludging operators to comply with licensing requirements through training

in safe operating procedures and, where relevant, contractual performance standards ([Warangal](#), [Maharashtra](#), [Lusaka](#), [Indonesia](#), etc.).

- Raising public awareness of options for improving FSM as a prerequisite for enforcing compliance ([Dakar](#), [Faridpur](#), [Freetown](#), [Indonesia](#), [Tamil Nadu](#), etc.). Several presenters described efforts to shift public behaviour norms on FSM-related practices, in part to support new regulations and strengthen reciprocal public accountability. Examples include [Kampala's Weyonje campaign](#), which aims to shift social norms about what constitutes acceptable sanitation behaviours, and [public oath-taking in Faridpur](#), where city authorities and citizens made commitments to become more responsive to their FSM obligations.



Figure 1 Street theatre in Faridpur, Bangladesh to promote awareness of good FSM practice. Picture credit: Practical Action

Faridpur, Bangladesh: The NGO Practical Action maintains that a successful FSM system depends critically on the relationship between the responsible city authority and its citizens. The city of Faridpur in Bangladesh launched a comprehensive programme to demystify FSM for its residents, and promote a positive message

of turning waste into a resource. The campaign used innovative branding of a treasure hunt to find hidden wealth, playing on a local language pun. It targeted different target groups using community meetings, street drama and social media featuring celebrities, debating competitions, photography competitions and so on. After a year, service demand increased more than five-fold, while unsafe containment dropped from 68% to 48%. This awareness campaign helped to develop a greater sense of responsibility among citizens around their role in safe FSM, and lays the basis for more effective regulation.

Monitoring private service providers is resource-intensive, but is essential to ensure that their work complies with regulations and the terms of any agreement. Apps have been developed for Maharashtra and Tamil Nadu to gather household data on sanitation facilities and their desludging record, and track the activities of service providers. In Tamil Nadu, there are now online tools to facilitate FSM data management and reporting.

Karunguzhi, India: Karunaguzhi, south of Chennai in Tamil Nadu, is the pilot implementation site for a new app for managing

scheduled desludging, in line with new septage management guidelines developed by the state of Tamil Nadu. The app supports better regulation of desludging and discharge. It enables the local authority to track how often each household empties their septic tank, what fee was charged, and where the sludge was discharged. Previously, desludging was very infrequent, service providers charged very inconsistent fees and open dumping was common.

Now Karunaguzhi Panchayat (Village council) requires every household to register for desludging and to empty their septic tank at least once every two years. At registration, the householder provides information about their property and the size of their septic tank. The householder chooses a date for desludging, pays a fee based on the volume and is assigned to a registered and licensed service provider. Data is collected at each step of the service, and by comparing the volume removed from the household and the volume delivered, the scope for unsafe discharge is reduced substantially. The system also picks up disposal of sludge at the discharge site by unregistered operators. The tool has helped to promote affordable and standardised desludging

fees, and helps the local body track non-compliance and unsafe discharge practices. Transitioning from manual records to a systemic web-based tool is a challenge.

User ID	Consumer Name	Date of Desludging	Trucker Owner	Record Num.	Record Date	Trucker Name	Vehicle Num.	Volume	Desludging St.
100	Ilaya	13-08-2018	Parvathi	673817	13-08-2018	JBR	TN13AE0004	2000	Completed
102	Elango	27/09/2018	Parvathi	117766	27-09-2018	KPN	TN11AC4563		Open

Figure 7 The Tamil Nadu app helps regulate desludging and sludge discharge. Picture credit: TNUSSP

Getting ready to regulate FSM takes time

The presentations made clear that realistic timeframes are needed for developing and implementing regulatory frameworks at national and local level. In Zambia, for example, the regulator NAWASCO published a comprehensive regulatory framework for urban on-site sanitation and FSM in 2017 after an extensive process of sector engagement, but getting ready for implementation is expected to take at least two years. The implementation timetable in Figure 9 provides an indication of the steps NAWASCO is coordinating necessary to move from an agreed regulatory framework to hands-on monitoring.

Regulation is a key tool for achieving city-wide sanitation

Even early results and emerging lessons demonstrate the considerable significance of regulation in raising service standards and achieving city-wide sanitation. In Kenya, the national sector regulator now requires county water services providers to report on their activities serving low-income areas. And in a growing number of towns and cities, local authorities are formalising systems for engaging private emptying service providers in ways that expand the capacity available for service provision, while stipulat-

ing service levels and safety standards.

‘What you measure, you manage’: Kenya’s national water and sanitation regulator, WASREB, now requires county-level water and sanitation utilities to report on their service provision activities and outcomes in low-income areas as a way to institutionalise pro-poor service delivery. WASREB publishes an annual report on the performance of the 88 WSPs, and ranks them. Before 2016, the reporting process did not require an explicit focus on low-income areas, allowing WSPs to perform well by prioritising easier-to-service higher-income areas. The new key performance indicator, KPI 10 has eight sub-indicators, and requires the WSP to detail on-site and sewered sanitation coverage and the role of the municipality and Department of Health in low-income areas. KPI 10 was initially piloted in nine large WSPs, and, in a powerful illustration of ‘what you measure you manage’, their average pro-poor score increased by 10% within a year. A further 31 WSPs are now required to report on KPI 10. WASREB monitors the level of pro-poor service provision, and offers guidance to WSPs on how to improve services and low-income areas.

5.	Improve data collection and reporting	December 2018	Framework on data and information management developed, aligned to SDGs
6.	Revise NIS to link to Rural WASH IMS (DHIS2)	July 2018	<ul style="list-style-type: none"> To enhance Monitoring to align to SDGs for urban and rural WSS services NIS revised and provided link to the DHIS2 (Aligned to SDGs)
7.	Strengthen NAWASCO capacity- implementation of the frameworks.	2018 – 2020	<ul style="list-style-type: none"> NAWASCO has visited countries and institutions for learning. 2019 budget includes extra staff
8.	Joint implementation team (JIT)	1st Qtr 2019	Three JITs will be established for 3 CUs
9.	Regulation of OSS and Rural WSS	2 nd Qtr 2019	Monitoring will start slowly while other measures are being put in place.

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Figure 8 NAWASCO's implementation schedule for gearing up to start regulating non-sewered sanitation in urban Zambia. Table will be retyped.

The City of Wai in Maharashtra was the first in India to introduce scheduled desludging, in May 2018. This is already achieving significant improvements in the frequency and quality of desludging services through the appointment of private service providers on performance-based contracts. The approach, with clearly defined roles and expectations, SOPs and route maps, helps the service provider to manage their costs and risks better, and the local authority gets the benefit of a dedicated operator with the skills and equipment to deliver a better service than it can. The service is funded through a monthly household sanitation tax, rather than a user fee, and overall costs to users have been reduced. Seven to eight septic tanks are now desludged daily, compared with a similar number per month in 2017 when on-demand desludging was happening. The sanitation workers who empty the septic tanks are now formalised, and are paid and treated better. One important lesson is that when the private sector is appointed to provide the service, the urban local body (ULB) still needs to regularly monitor the quality of service prior to releasing the payment.

8. Challenges

- **Availability and affordability of safer services** that comply with regulatory requirements **for low-income households** remains a big challenge. This is particularly important for households

reliant on pit latrines, as the cost of pit emptying services that comply with regulatory requirements remain beyond the reach of many. The need for subsidies to close the affordability gap was raised in presentations from Ghana, Kenya, Madagascar, Mozambique, Sri Lanka and Zambia.



Figure 9 Desludging service providers in Wai. Picture credit: CWAS / CEPT University

- **Scaling up existing models** will require partnering with the private sector, and this requires willing and capable partners and viable business models. In many countries, much more work is required to engage and recruit private sector partners on the scale required to tackle city-wide sanitation comprehensively, and nation-wide. Many of the existing models for working with private service providers that currently exist have been forged with extensive input, funding and mentoring from NGOs, academic institutions and other development partners. This support cannot necessarily be sourced

at scale, nor is it available locally at an affordable rate.

- **Regulation is resource-intensive**, in a context where sanitation initiatives are still at a disadvantage in competing for resources at local, regional and national level in most countries. Ongoing sensitisation, lobbying and advocacy are needed to persuade decision-makers to increase budgets for staffing and implementation of regulatory monitoring, enforcement and management information systems.
- **Non-sewered sanitation has many moving parts**, and building the collaborative framework needed to align the work of different ministries, agencies and role-players requires ongoing effort. Strong champions are needed, with explicit backing from political leaders.
- **User perspectives are needed in the discussion of FSM regulation.** The current emphasis of regulatory initiatives is on developing frameworks and building systems for implementation, and the users' perspective is not yet widely heard.

9. Lessons

- **Regulatory frameworks are a critical part of the enabling environment** for city-wide safe sanitation. They clarify roles and accountabilities in a previously neglected and uncoordinated sector, and define the service standards and performance norms required from service providers. They hold householders accountable for building on-site facilities that make safer servicing feasible, and provide penalties for behaviours that compromise the greater good. In combination, they provide a framework for engaging service providers to tackle service needs, and scale up to meet service needs city-wide. Kenya's sector regulator WASREB shows the power of regulation in compelling county service providers to report on their performance in serving low-income areas. What they measure they manage!
- **Regulation shapes demand** for safer services, which is essential for enabling the emergence of viable service providers. Service providers aiming to invest in FSM want regulation and service standards to clarify the rules of engagement and provide protection from unfair competition from non-compliant service providers.
- **Complementary regulatory initiatives are needed at local level** and at state or national level. A national regulatory framework is needed to drive and align local efforts; but without local implementation capacity for regulation and enforcement, the national framework will have little impact.
- **Credible data is a prerequisite** when lobbying for resources and advocating for change. At city, regional and state level, sanitation coverage and service monitoring data provides a basis for identifying gaps, tracking trends, holding role-players to account and building the evidence-base for planning targeted interventions. Comprehensive household surveys are an essential starting point.
- **Effective regulation of FSM requires a collaborative effort.** Non-sewered sanitation straddles a number of govern-

ment ministries and a diverse range of stakeholders and role-players across the service chain. Regulation requires extensive resourcing and support from political leaders – political support to invest in the personnel required to monitor performance, commitment to enforcing regulations.

improvements incrementally yields better results than aiming too high too soon.

The ‘independent Regulator’ model often used for water and sewerage service providers, no matter how desirable, is not currently suited to the reality of FSM services in many countries. The practical experience of different regulatory approaches appropriate to FSM need to be shared widely and lessons noted and learned. Regulating FSM warrants closer discussion at FSM6.

10. Conclusions

Implementing FSM that complies with a coherent regulatory framework for safe sanitation calls for a far-reaching change in approach to sanitation city-wide: from shifting public norms on what constitutes an acceptable household sanitation facility, to developing viable business models for service providers, to ensuring that safe sludge disposal or treatment facilities are accessible. Equally, regulation provides important tools for achieving this change, by defining norms, standards and accountability relationships, setting out a formal framework for partnering with the private sector, and providing mechanisms to compel compliance. Local case studies suggest that a pragmatic, step-by-step approach to implementing

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ANNEX: Additional examples from FSM5

Vientienne: Lao

The regulatory framework for FSM is being strengthened in Vientiane, capital of Lao, as part of a broader effort by the municipal authority and its partners to increase the volume of faecal sludge that is delivered to the city's new treatment works. Previously most of the sludge was discharged directly into the natural environment, and particularly to rice fields during the dry season, but substantial volumes of safe humus are now being produced at the FSTP for use in agriculture. The new regulations focus on improving the quality of on-site facilities, certifying desludging operators and prohibiting illegal discharge.

eThekwini, South Africa: The eThekwini municipality has implemented a circular economy approach to turn faecal waste from 80,000 urine diversion toilets into animal feed. The regulatory frameworks for procurement and public-private partnerships played a critical role in facilitating and enabling partnerships and contracts with the private sector. The municipality engaged local entrepreneurs to manage scheduled desludging of pit toilets, and a private operator to process faecal waste using black soldier fly larvae technology for resource recovery.

Maputo, Mozambique: Affordability of safe emptying services for poor households remains a fundamental challenge. Demand persists for cheaper manual emptying services that focus on pit emptying alone, without transport to an appropriate safe discharge site, and so additional funding is needed to support services that serve low-income households, with further infrastructure development and better management and monitoring. Extensive work has gone into devising a mechanism to raise funds for improved FSM services. The result is a proposal for a sanitation tariff, to be levied on the water bill of middle and high-income groups, commercial and industrial customers and public bodies. The tariff is projected to raise about USD 3 - 4 million annually and will be used to strengthen city-wide sanitation in Maputo.



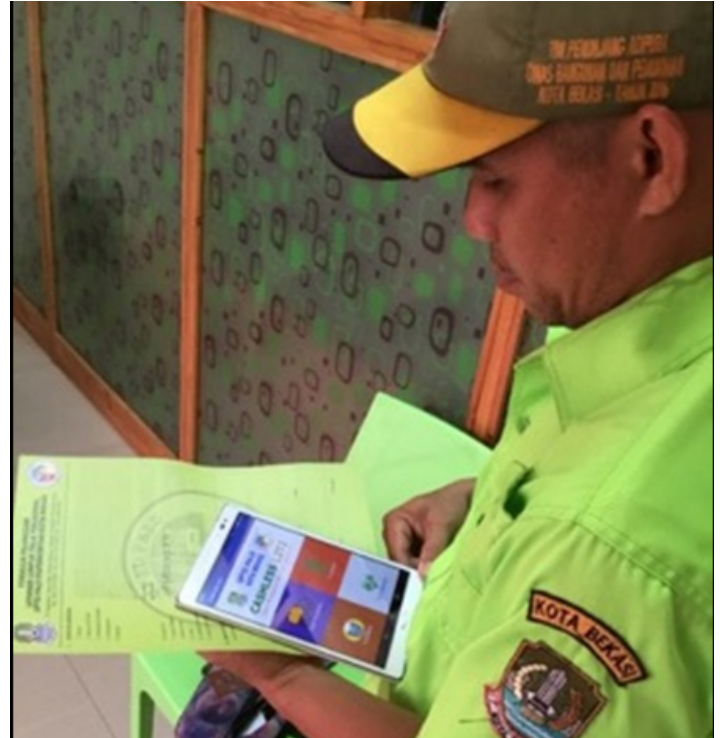
Figure 10 Black soldier flies feed on faecal sludge. Their larvae are subsequently dried and turned into an oil and protein-rich food for animals and poultry. Picture credit: EThekwini Municipality

FSM5

Regulating FSM: Emerging approaches

Regulating FSM in Indonesia: By 2030, more than 60% of Indonesia's population is expected to live in urban areas with predominantly on-site systems. There is now a [National FSM Framework](#) to tackle FSM comprehensively in the context of achieving SDG 6.2, with financial instruments, SOPs for administrative and technical aspects and a range of promotional materials. The FSM program has led to the establishment of 100 effective wastewater management institutions and 50 local domestic wastewater regulation acts. Several cities have contracted private operators to provide desludging services. Key lessons from Indonesia are that intensive facilitation is essential; scaled FSM initiatives need a standardised template, but with a flexible approach; and that technical solutions for sludge containment, transport and treatment need to be leveraged with appropriate institutional arrangements, regulation, promotion and campaigns. Leadership and commitment from mayors are essential.

Regulating Occupational Safety and Health – Despite the range of hazards they face from exposure to faecal sludge and workplace injuries, most sanitation workers are informal, and not protected by occupational health and safety legislation and regulations. A new partnership of WHO, ILO, World Bank, SNV, Water Aid is focusing attention on the plight and rights of sanitation workers, and presented a half-day workshop at the end of FSM5 on their preliminary findings. See complementary synthesis note on *Sanitation Worker Safety*.



Note: This paper is informed by inputs and discussion at an FSM5 workshop. The organisers have combined the presentations into a single slide deck so it is not possible to reference the inputs of different organisations separately.

1. Summary

The working conditions of sanitation workers are often a blind spot in sanitation improvement initiatives. A new working group aims to change that by gathering evidence through case studies and using it for advocacy around the needs and rights of sanitation workers globally. The working group comprises WaterAid, the International Labour Organisation (ILO), World Health Organisation (WHO), World Bank and South African Water Research Commission (WRC).

The group convened a workshop at FSM5, 'The missing link in the sanitation chain: Improving the conditions of sanitation workers'. Speakers from the working group and other organisations presented findings on challenges facing sanitation workers in ten countries and some measures to address them. Slides from all the presentations are available [here](#) and workshop notes are available [here](#).

Important takeaways from the session include:

- Sector emphasis on the service chain often overlooks the sanitation workers who undertake the services. The men and women who do this work are often stig-



Figure 1 Manual emptier working without protection. Picture credit: SNV

matized and face a range of hazards.

- Recognition and formalisation of FSM services are essential first steps towards improving their work circumstances and conditions. Professionalisation through training and certification is essential to reduce stigma and improve safety and

service standards.

- There is more to sanitation worker safety than use of PPE (personal and protective equipment). Occupational health and safety (OHS) for sanitation workers needs to be understood and mainstreamed by local authorities. Training, regulation, monitoring, enforcement of safety standards and consumer education are all necessary to support improved working conditions.
- Dignified, safe working conditions with appropriate pay are critical for attracting and retaining the sanitation workers on whom non-sewered sanitation depends for effective service chains.

across the sanitation service chain yet their work remains largely unacknowledged and unprotected by labour laws and basic health and safety measures. The presentations highlighted a range of occupational hazards and unfair labour practices, and also provided some direction towards improving the working conditions of sanitation workers.

Recent research by the consultancy Dahlberg, quoted by the World Bank, found that in India alone there are about five million full-time sanitation workers working in sewered and non-sewered sanitation. The NGO SNV shared the findings of its study of sanitation workers in 20 cities in five countries (Burkina Faso, Tanzania, Zambia, Bangladesh and Nepal). It found that only 15% of on-site fa-

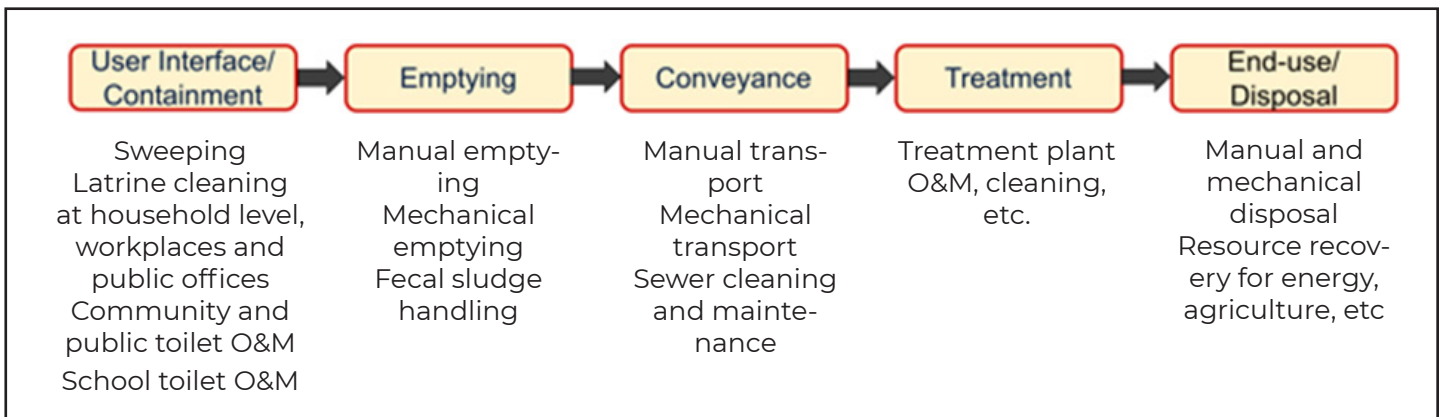


Figure 2 Sanitation work across the service chain

2. Why sanitation workers need better protection

Some preliminary evidence of working conditions for sanitation workers was presented in high-level snapshots from ten countries across Africa, Asia and South America. Sanitation workers provide essential services

ilities are ever emptied. But who does the emptying and how emptying is done varies enormously from country to country. In Zambia, Tanzania and Nepal, nearly 20% of emptying is done by the household members themselves. In Bangladesh, manual emptiers do 90% of the emptying, whereas in Indonesia, 90% is done mechanically with vacuum tankers. These local differences call for country-specific responses to OHS.

FSM5

Improving the conditions of sanitation workers: the missing link in the sanitation chain

Risky and unsafe behaviours and practices are widespread during sludge handling, transport and disposal, but are particularly acute during the pit emptying stage. In many cities, pit emptying is not formally acknowledged as necessary, so there is no regulation or protection for workers.

Factors influencing worker safety

- Design and construction of the toilet
- Pressure by the customer
- Pressure by the employer
- Materials and equipment available to do the job

Workshop participants heard that in Burkina Faso, for example, where sanplats are used widely in Ouagadougou's informal settlements, emptiers remove the slab and then work from within the pit using buckets, ropes and jerry cans. This exposes them to a range of hazards, from cuts and falls, to exposure to pathogens and toxic gases which could asphyxiate them.

With mechanical emptying equipment, emptiers can avoid entering the pit or handling open slopping buckets. Mechanical equipment can enable greater safety if used properly, but mechanical emptying is not necessarily safer than manual emptying if it does not also comply with health and safety norms beyond the pit.

Across all five countries surveyed by SNV, less than 50% of workers wore boots and gloves and a small minority (averaging about 10%) wore face masks. Many reported they found



Figure 3 A very high proportion of manual sanitation workers in India are women. Picture credit: SNV

PPE equipment bulky, hot and uncomfortable, and that it gets in the way when they work. But participants learned that PPE should be the last line of defence in terms of occupational safety: improving other factors could have a greater impact on worker health and safety. Well-designed containment facilities that allow safer, easier access to the sludge is one area that requires better regulation, but improved safety, risk management and working conditions are needed along the entire service chain.

The WHO [Guidelines on Sanitation and Health](#) endorse safe sanitation systems and practices in order to promote health, and recommend that 'Sanitation workers should be protected from occupational exposure through adequate health and safety measures.'

3. Improvements to working conditions must address more than health and safety

Research by the World Bank indicates that the challenges that sanitation workers face go far beyond health and safety. The team identified challenges across four main dimensions:

Social	Financial	Legal and Institutional	Health and Safety
Stigma, persecution and discrimination No opportunities for career progression	Poor pay Lack of job security Difficulty investing in protective gear and mechanical equipment Difficulty covering O&M costs No access to benefits like pension funds or health insurance	Largely informal rights Lack of legal protection and regulation Legislation not implemented Few collective associations and no unions	Exposure to disease-causing pathogens Illness due to toxic chemicals Asphyxiation due to toxic gases Physical injuries Possible death

Figure 4. Four dimensions of challenges that sanitation workers face

The SNV five-country study found that the practices of those working in the private sector were not significantly different to those in the public sector. In Tanzania, for example, many sanitation workers employed by local authorities are on temporary contracts, have limited training and are left to cover their own medical expenses. But it is not just the labour rights of sanitation workers that are not respected; their dignity disregarded too. Most face stigma and discrimination.

It seems that stigma is most acute where sanitation workers are informal and working without protection and mechanical equipment. Caste-based and sexual stigmatisation persists widely in India, where entire housing ‘colonies’ are set aside for ‘sweep-

ers’ and emptiers. In some countries, like Zimbabwe, pit emptying is mainly a job for outsiders from elsewhere. In Zambia, Kenya, Ghana and elsewhere, informal sanitation workers empty pits mainly at night under cover of darkness.

Yet the research found evidence of growing differentiation among sanitation workers, especially pit emptiers. With the introduction of new technologies and business models for FSM, there is some movement towards greater professionalisation and formalisation of sanitation work, and with it, reduced stigma. In Lusaka, Zambia, the NGO Water and Sanitation for the Urban Poor (WSUP) and its partners have worked to ensure greater recognition and formal-

sation of manual emptiers. Teams of manual emptiers have been formalised, trained and equipped to service two areas of Lusaka. They now have branded uniforms, better equipment, higher incomes and six-monthly medical check-ups, and they do their work by day.

Similarly, in Durban, South Africa, the municipality contracts service providers to undertake scheduled pit emptying in areas that require it, and their work is closely monitored. Workers use long-handled spades and rakes to remove sludge with a high solid waste content and low water content. All workers receive training in health and safety, vaccinations and health checks, and protective clothing and equipment. Their rights as workers are safeguarded by legislation and union oversight, and their status as formal sector employees earning a fair wage has done much to counter the stigma often associated with this type of work.



Figure 5 Safe manual emptying by workers contracted by eThekweni Municipality, South Africa. Picture credit: Kathy Eales

4. Raising the status of sanitation workers through training and professionalisation

As the non-sewered sector moves from informality to formality, there is a need to professionalise sanitation work with proper training and certification, safety protocols, standard operating procedures (SOPs) and regulation. The SNV survey revealed just how urgent this is: just 15% of sanitation workers had received any training and only a quarter had a standard procedure for emptying.

In several countries, worker training for non-sewered sanitation is getting increasing attention:

- In Durban, every manual pit emptier employed through the municipality is trained to assess hazards on the job and assess the impact of their actions on the health and safety of themselves, others and the environment. They are taught about risks in sludge handling, risk reduction through different barriers and hygiene, and given practical training in safe work practices for every situation they encounter on the job. Workers are provided with PPE and customised equipment to maximise safety, and health and safety officers manage monitoring and enforcement of safe work practices.
- In Bangladesh, where 90% of emptying is manual, the National Department of Public Health Engineering is leading the

training and certification of sanitation workers. Formalisation with a certificate can provide protection against harassment from police or other enforcement authorities.

- In Lusaka, Zambia, training of manual pit emptiers is being mainstreamed through vocational training programs for sanitation workers in national training institutes, with service standards addressed through a new regulatory framework for non-sewered sanitation.
- In Nakuru County, Kenya, the sanitation start-up Sanivation has introduced SOPs and safety protocols for its employee providing container-based sanitation services. The organisation has found that ongoing reinforcement is necessary to entrench good practice among the workers.
- In Bolivia, where septic tanks and mechanical emptying are the norm, the World Bank has worked with local role-players to develop standard procedures for collection, transport and discharge of household faecal sludge that focus on industrial safety and environmental protection.

Of course, greater professionalisation implies a more expensive service, in a context where many customers want to spend as little as possible. Consequently, an essential part of improving working conditions for sanitation workers is to educate their customers too.



Figure 6 SWEEP team in Dhaka, Bangladesh. Picture credit: WSUP

Findings on good practices for sanitation worker safety

- Appropriate equipment
- Cleaning supplies
- Vaccinations, check-ups and access to medical care
- Clear working procedures and protocols, including protocols for dealing with emergencies
- Monitoring systems with penalties
- Enforcement of labour laws and regulations
- Strong political leadership to drive changes

5. Using licensing, legislation and regulation to improve sanitation worker safety

Dignified, safe working conditions are critical for attracting and retaining the sanitation workers on whom non-sewered sanitation

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Improving the conditions of sanitation workers: the missing link in the sanitation chain

tion depends. Recognising pit emptiers as sanitation workers is an essential first step and enforcing safety stands for emptying should be a minimum regulatory requirement. After training, their improved skills may help them to retain employment.

Workshop participants learned about a range of innovative approaches to incentivising improvements, whether through formal regulation or less formal levers. In Freetown, Sierra Leone, the local authority is piloting the use of a call centre, but to be listed through

the call centre (and benefit from free publicity), the firm must agree to certain service standards and wearing of safety equipment. Similarly, in Lusaka, Zambia, pit emptiers must be licensed to operate, and their licence requires compliance with a range of specified health and safety measures. This differentiates them from unlicensed emptiers, whom the regulators aim to sanction. Nakuru's Sanitation Safety Plan recognises emptiers, and its chief health officer awards certificates to high performers.

Useful generic ILO **Guidelines on occupational safety and health management systems (ILO-OSH 2001)** are available. New guidelines on service standards specifically for on-site sanitation, outlined in **ISO 24511:2016** and **ISO 24521: 2016**, provide guidance for managing basic on-site domestic wastewater services, and include training of personnel and risk considerations. The WHO 2018 **Guidelines on Sanitation and Health** offer further guidance, and address health and safety considerations for sanitation workers.

Where municipalities or utilities contract private service providers, contracts or memoranda of understanding should be aligned with national labour laws. Advice from the ILO representative at the workshop was clear: "Don't re-invent labour laws – just follow them!"

Where union membership is not yet feasible, sanitation workers can improve their bargaining power by forming associations to improve their bargaining position. There are now at least twenty pit emptiers' associations across Sub-Saharan Africa and the recent formation of the Pan-African Association of non-sewered Sanitation Actors (PASA) provides a further boost to recognition, training and formalisation.



Figure 7 Mechanical emptying is generally safer than manual emptying but significant hazards remain without operating procedures that emphasise health and safety. Picture credit: SNV

6. Next steps

The workshop presented findings on preliminary investigation of the working conditions of sanitation workers. Going forward, the working group aims to pursue more detailed case studies, to inform broader advocacy and awareness campaigns.

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1. Summary

Case study, industry and research presentations at FSM5 were unanimous in presenting five important messages about behaviour change and FSM:

- Safe and efficient faecal sludge management will always include an effective behaviour change and communication program
- An FSM behaviour change campaign must be based on robust research and data
- Set specific FSM behaviour change goals, then develop messages to achieve them
- Building local capacity is necessary to shape and respond to FSM demand
- Changing behaviour requires many reminders!

These important lessons learned came from across Africa and Asia. They have been compiled and are explained below with practical examples and links to the FSM5 presentations. These lessons learned build on and accord with what was learned in 2017 from case studies presented at FSM4 as summarised in [FSM Innovation: Case Studies on the Business, Policy and Technology of Faecal Sludge Management](#).

2. Why FSM needs effective behaviour change and communication

Well-targeted behaviour change and communication (BCC) initiatives can change attitudes to FSM, promote adoption of safer emptying practices and strengthen the enabling environment for a functional FSM system city-wide. Conversely, investment in better FSM infrastructure and services may deliver limited benefits unless there is demand for these services from the people at the start of the service chain, and the users and service providers practice safe behaviours along the entire sanitation chain.

This paper draws on the value of BCC initiatives showcased by presenters at FSM5 from Bangladesh, Cote d'Ivoire, India, Senegal, Sierra Leone and Uganda. These examples addressed demand and willingness to pay for mechanical emptying services, adoption of new technologies, acceptance of enforcement measures and willingness among pit emptiers to practice safer emptying.



Figure 1 Better FSM infrastructure and services may deliver limited benefits unless there is demand for these services from the people at the start of the service chain, and safe practices along the entire chain. Graphic: Practical Action, Faridpur

■ **From Sierra Leone**, the NGO GOAL presented a review of a Pilot FSM Demand Creation Campaign in Urban Freetown that it has been working on together with the city council to decrease the amount of untreated faecal sludge in the environment.

Following an assessment of FSM needs and priorities, the Freetown city council and the GOAL worked together on a mass media FSM campaign with two primary aims: to encourage people to contact the call centre for help and advice to link them with emptying service providers, and to promote vacuum truck emptying services.

To achieve these aims, behaviour change consultants interviewed vacuum truck operators, manual pit emptiers and local government representatives, and conducted focus group discussions with a range of community groupings. They used this research to formulate three key messages:

- Keep solid waste out of the latrine
- Empty your latrine or septic tank on time
- Don't ignore your latrine and septic tank

The team developed these messages through an iterative process of focus groups discussion, consumer testing and message editing. They developed TV and radio ads, distributed print materials and plastered billboards, deployed social media (Facebook, WhatsApp, and text messages), and trained community mobilisers to engage in a door-to-door

sensitisation campaign across nearly 60% of the city. The result was a surge in calls to the call centre, a huge increase in the volume of sludge being delivered to the dump site and a flood of complaints alerting city officials to overflowing septic tanks and latrines.



Figure 2 The FSM demand creation campaign developed clear messages about what to do and who to call. Picture credit: GOAL

■ The Kampala City Council Authority (KCCA) presented Innovative Citywide FSM Marketing: Experiences from Kampala, Uganda. In mid-2018, KCCA aimed to increase safe desludging of latrine pits and septic tanks by landlords and caretakers in informal settlements by 25%. Targeting landlords' behaviour is a priority need in Kampala because the majority of residents live in rented accommodation and depend on sanitation facilities provided and serviced by their landlords.

KCCA launched 'Weyonje' (Be Clean), a behaviour change campaign which

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Targeted messages that shift attitudes and behaviour are essential for good FSM

aimed to shift the mindsets and behaviours of all city residents to aspire to a healthy, cleaner environment at home, in the community and in the city. The intention was to build pressure on landlords to provide better latrines and services for their tenants, by shifting residents' perceptions of what is normal and acceptable across the city as a whole. Supporting this was an emphasis on promoting construction of lined pit latrines that could be emptied without collapsing, and promotion of service providers offering safer emptying through a call centre run by KCCA. The campaign team engaged local leaders, convened meetings across the city and went door-to-door, met with landlords and selected champions, and used a range of media to build support for a cleaner city. KCCA claims significant success: safe emptying in Kampala's informal settlements increased well beyond its goal of 25%, to about 40% by early 2019.

3. Lessons learned for everywhere from BCC for FSM

Despite very diverse contexts, the BCC case studies have common themes:

3.1 An FSM behaviour change campaign must be based on robust research

Effective BCC requires a good understanding of the local FSM context before it can develop a clear action plan and respond to local service gaps and needs. Finding out what matters most and is needed in a particular town requires extensive conversations and careful research. This must identify which areas of FSM need priority attention, with what messages, and who should be targeted.

Every campaign described and presented at FSM5 was informed by research – key informant interviews, focus group discussions, surveys and observation – to identify barriers to good practice and triggers for change. Effective BCC builds on extensive research of targeted users, to understand what underlies the practices of individuals in target groups.

- SNV presented Behaviour Change Communications Strategy Implementation: Story of Khulna City Corporation in Bangladesh, which was implemented in partnership with the city corporation. The presentation related how, in 2014, Khulna City Corporation (KCC) launched a comprehensive FSM programme, in-



Figure 3 Kampala used a range of approaches to communicate its messages. Picture credit: KCCA

cluding commissioning a faecal sludge treatment plant. But it was soon evident that very little sludge was reaching the plant. This was due to limited use of local mechanical emptying services because most residents used cheaper manual emptiers for desludging, who also practiced unsafe disposal. As part of the city's new FSM programme, attention was given to increasing demand and willingness to pay for safe emptying services.

Officials from the city corporation worked with SNV to research the perspectives and practices of many local residents, and understand the barriers to greater uptake of emptying services and the features of the service that mattered most to customers. The research exposed a range of barriers – limited awareness of the mechanical service, a slow bureaucratic process for requesting the service, slow response times, limited vehicle access in congested areas, high tariffs and so on. This information resulted in responses, including

- a revision of the tariff structure for desludging services,
- introduction of smaller emptying vehicles,
- improved response times, and
- an emphasis on improving the emptiers' health and safety practices.

In parallel, they developed a comprehensive four-month communications campaign with the tagline 'Empty your septic tanks once every year', before rolling



Figure 4 A wall art competition was used very effectively to raise awareness of the value of good FSM. Picture credit: SNV, Khulna

it out across multiple platforms and media – including by social media and text message, and through street drama and cultural events, a wall art competition and a show presented from the back of a caravan.

Subsequent evaluation of the campaign revealed that it reached 300,000 people, increased knowledge about safe services and nearly doubled the number of people emptying their septic tanks, with a six-fold increase in the number using mechanical emptying.

In India, policy makers working on the Swachh Bharat Mission assumed that the key barrier to better sludge management at household level was a lack of knowledge about the health risks. But an extensive study by BBC Action Media, outlined in [Understanding FSM Behaviour in India: From Exploration to Evaluation](#) found that the key barrier was not a lack of knowledge, but a lack of

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Targeted messages that shift attitudes and behaviour are essential for good FSM

willingness to engage with faecal sludge arising from a complex mix of attitudes and beliefs. They found that most people defer or avoid desludging, and many ended up paying more for services they required urgently. Their findings call for a more stratified and nuanced approach, with different messages targeting the attitudes and perceptions of very different target audiences.

- A team from BBC Action Media presented [Understanding FSM Behaviour in India: From Exploration to Evaluation](#) based on research in Indian three cities. Their objective was to understand triggers and barriers around construction of sanitary toilets and regular desludging, and to segment the population based on their attitudes and practices. They found 91% of people were aware of the health risks of poorly managed faecal sludge, and their attitudes could be clustered into three groups:

- **Pro-active desludgers** (22%), who were conscious of and concerned about their environment and desludged their systems promptly
- **Reactive desludgers** (66%), who emptied their septic tanks only when they caused problems, resented the cost and were not particularly concerned about where the sludge was disposed
- **Dischargers to open drains** (11%). Over 90% of these were aware of the health risks, but most believed it was government's responsibility to maintain cleanliness and ensure public hygiene

These findings revealed the need to engage different attitudes and perceptions, well beyond just closing knowledge gaps.

The team advised government to grab people's attention by heightening the perception of risk around non-visible elements in the FSM chain and building a sense of urgency to take action by making the threat personal. Also to build positive attitudes and behaviour around FSM, they advised raising awareness of correct FSM practices, building a sense of personal responsibility and mobilising social disapproval of incorrect practices more broadly.

BCC goes beyond broad marketing, promotion and awareness-raising to target specific attitudes, behaviours and practices to drive change. Identifying clear goals and developing targeted campaign messages to achieve them is essential.

- **From Faridpur, Bangladesh**, NGO Practical Action presented [Welcome to the Treasure Hunt](#) a city-wide social mobilisation campaign around FSM developed with the Faridpur municipal authorities. Based on extensive research and preparation, the campaign aimed to demystify what safe FSM involves. It aimed to end illegal connections to city drains and unsafe sludge disposal, and offered a positive message about transforming sludge into a valuable resource.

They believed that a functioning FSM system depends largely on mutual ac-

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Targeted messages that shift attitudes and behaviour are essential for good FSM

countability – in particular the relationship between the local authority and the citizens – with **everyone** clear about their sanitation responsibilities. To build the relationship, the team steadily designed and implemented a city-wide campaign that targeted all segments of the city's residents.



Figure 5 Faridpur citizens took an oath to improve their FSM practices, while city authorities made a similar commitment to improve FSM services. Picture credit: Practical Action, Faridpur

The Treasure Hunt, or 'Guptadhoner Sondhane', played on the Bangla words 'gu' for shit and 'guptadhon' for hidden treasure. It kicked off with posters all over the towns asking, "Where do your faeces go?", to provoke curiosity and build interest ahead of the formal launch of the campaign. This was backed by many targeted events, meetings, competitions, workshops, engagements with government line departments, social media promotions, street theatre and even a TV drama that used humour in soap opera style to promote good FSM and recovering value from sludge. Over seven million people were reported to have watched it. Overall, the campaign reached the vast majori-



Figure 6 A scene from a street drama in Faridpur, where a fictional king holds a platter of poop and describes its value. This was part of a wider social mobilisation campaign to promote better FSM. Picture credit: Practical Action, Faridpur

ty of the population, and demand for safer desludging services increased over one year from 8% to 45%, while unsafe containment declined by a third to 48%.

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In addition to providing information on FSM issues, the campaign had a big emphasis on motivating citizens to abide by the law and protect the environment. The mayor launched the campaign at a high-profile event with a formal oath-taking ceremony, where representatives of the municipal authority and citizens acknowledged their mutual responsibilities. The mayor declared it was the municipality's responsibility to manage faecal sludge, and the citizens' responsibility to make proper use of sludge management services. Across the city, citizens were encouraged to join the oath-taking and acknowledge their role in abiding by the law and ending illegal and unsafe sludge disposal.

The presenters claim that the campaign created momentum and shaped a sense of responsibility among both citizens and municipal role-players around their roles in FSM. This greater clarity around roles and norms has enabled the municipality to enforce legal measures against illegal drain connections, and has given citizens the space to voice their service needs. One outcome of the campaign has been greater demand from citizens for additional FSM services.

■ **From Ivory Coast** PSI presented Soakaway Pits are Money Makers for Landlords in Abidjan, and messaging and marketing that targeted landlords has encouraged them to invest in soak pits to lessen contamination of their tenants' courtyards from overflowing septic tanks.

In Abidjan, the average multi-family com-

pound houses 40 people. Landlords often lack the space or funds to build additional septic tanks, and, coupled with the high cost of desludging services, tenants frequently experience overflowing toilets. Two effective solutions were identified for reducing septic tank overflow and the need for costly frequent desludging:

either installation of soak pits lined with cement rings, connected to the existing septic tanks; or redirection of grey water directly to the new soak pits.

The project team worked with informal artisans, builders and bricklayers to provide training in this new approach, and equip them with the basic skills and materials, and then worked door-to-door promoting the approach to landlords. The messages targeting landlords focused on the nature of the problem and its costs: contamination of people's living environment and the high cost of desludging. The solution they proposed was installation of a soak pit and redi-



Figure 7 A BCC campaign in Abidjan targeted overflowing septic tanks, and promoted the installation of soak away pits to absorb used water. Picture credit: USAID/ PSI

rection of greywater directly to the soak pit. The upfront cost was significant – \$330 on average – but soon yielded substantial savings due to reduced frequency of emptying tanks. Awareness of the new approach was promoted by a call centre which provided information both on tank emptying services as well as soakaway pit installation services.

3.2 Building local capacity is necessary to shape and respond to FSM demand

Effective BCC requires a good understanding of the local FSM context to develop a clear action plan that responds the local service gaps and needs. Each of the BCC campaigns described at FSM5 was part of a wider FSM improvement program that was led by or involved the relevant local authority, and supported by partners.

An important lesson from Khulna is that taking safe emptying practice to scale requires time and leadership. Building the capacity of city authorities to provide leadership in FSM services, and to lead the BCC campaign and maintain momentum, is essential.

Building demand for improved FSM practices requires that the capacity exists to respond to that increased demand. Each of the BCC initiatives described here was mirrored by a capacity development initiative to ensure that the service infrastructure was in place, that service providers were equipped and trained appropriately, and that local authority personnel were available to support good practice and intervene with enforcement measures where appropriate.

In Freetown, the city council has been working on FSM since 2015, and has strengthened the infrastructure and regulatory environment for FSM with a dedicated FSM Unit. It developed standard operating procedures (SOPs) for emptiers, provided training and business support for private sector emptiers, and employed inspection officers to bolster enforcement. When it was ready to launch its BCC campaign to stimulate demand for emptying services, it also launched a dedicated call centre to provide advice and link customers with emptying services.

In Abidjan, installation of soak pits offered an effective remedy to overflowing septic tanks, but sufficient trained artisans were needed to support installation before this option could be promoted among landlords. Similarly, in Khulna and Faridpur, increased uptake of safer pit-emptying services required sufficient service providers and safe disposal facilities.

In Senegal, the National Sanitation Office (ONAS) has worked with a Dakar-based public health and sustainable sanitation ‘action tank’, Speak-Up, on Capacity Building for an Improved FSM Chain. It has given particular attention to upskilling pit emptiers, providing training on hygiene and safety management across sludge collection, transport and discharge at FSTPs, as well as stressing the importance of good customer relations and professionalism.

3.3 Changing behaviour requires many reminders!

Social mobilisation for FSM-related be-

FSM5

Targeted messages that shift attitudes and behaviour are essential for good FSM

behaviour change takes more than a one-time campaign. Stimulating shifts in attitude and practices is an ongoing process that requires continuous reinforcement, through a long-term programme of community engagement and messaging. Experience across the different cities suggests that awareness events alone do not necessarily increase emptying demand or improve practices, and that shifting long-standing practices can take a long time, and even then, success is not assured or lasting.

For example, developing safe emptying practice at scale requires time and leadership and involving city leaders and influencers is essential. In Kampala, KCCA officials are now integrating their BCCM campaign and its goals into the city-wide development agenda, and engaging politicians extensively so that they take ownership of the initiative and support it over the longer term.

In Dakar, ONAS and SpeakUp are alert to the powerful role journalists play in shaping public perceptions and have run training programmes for journalists to equip them to write more constructively about sanitation and FSM over the long-term.

Khulna has adopted its BCC strategy as a living document that will be updated in line with emerging monitoring and evaluation findings. It has found that regular monitoring and evaluation is essential to ensure the different components are aligned and working properly. Safe emptying practices are still far below what is needed to achieve safer FSM overall, and KCC now recognises that it needs to pay more attention to strengthening service providers' professionalism, in

part through firmer enforcement.

Finally, Faridpur's experience in using a BCC campaign to build a sense of mutual accountability between citizens and municipal authorities around FSM shows how a social mobilisation campaign can strengthen the enabling environment for a functional FSM system city-wide. This first phase of its BCC campaign has focused on promoting good citizenship and protection of the environment through specific measures. The next phase will emphasise the value of sludge as a resource and promote the use of compost. In this way it aims to maintain momentum and ensure ongoing enforcement of legal measures by the municipality with the support of the citizens.

4. Conclusion

The key messages about behaviour change and FSM from these presentations are:

- Safe and efficient faecal sludge management will always include an effective behaviour change and communication program
- An FSM behaviour change campaign must be based on robust research and data
- Set specific FSM behaviour change goals, then develop messages to achieve them
- Building local capacity is necessary to shape and respond to FSM demand
Changing behaviour requires many reminders!

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