FSM INNOVATION

Leveraging FSM to Close the Urban Sanitation Loop in Kampala

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EXECUTIVE SUMMARY

Kampala is experiencing rapid population and economic growth. Provision of basic services, including adequate sanitation for the city population has not kept pace with these developments. The municipal sewerage network serves less than ten percent of the city's population, leaving the vast majority (over 90 percent) reliant on onsite sanitation, which is mostly unimproved. Only about half of the faecal sludge from these onsite facilities is safely collected and treated, and large parts of the population have no faecal sludge management services. Kampala Capital City Authority, which is in charge of regulating and planning the waste and sanitation sector of the city through its Directorate for Public Health and Environment, has made it a priority to tackle these challenges to achieve its environmental sanitation ambitions.

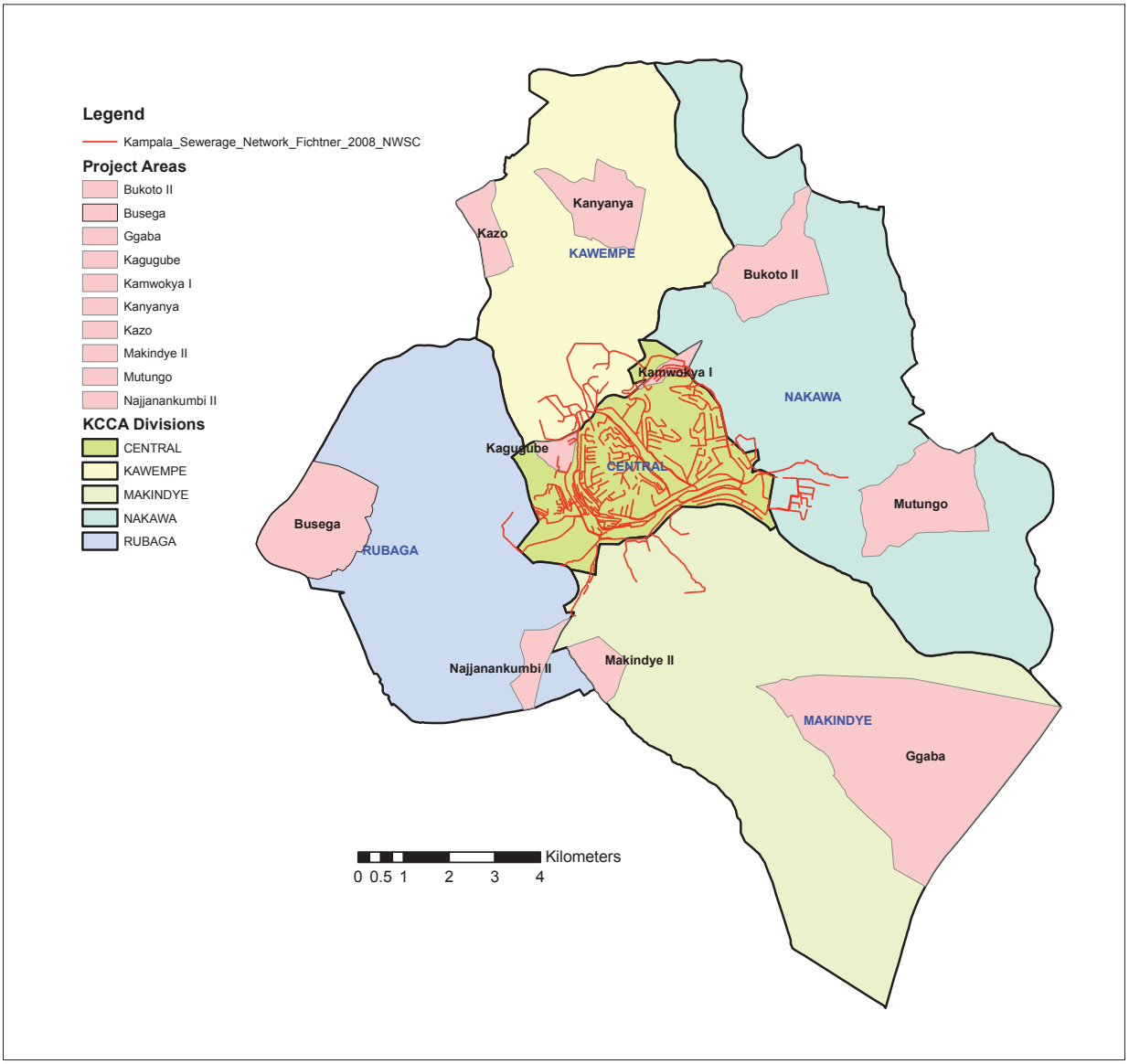

Figure 1: Map of Kampala

Firstly, it strengthened its coordination of sector actors in the city to minimize duplication and optimize the available resources and capacities. It then embarked on a sanitation improvement programme with strategic partners including the Bill and Melinda Gates Foundation (BMGF), DfID, GIZ, WfP and other NGOs. The programme addresses the whole sanitation service chain with a focus on private sector participation to accelerate and improve coverage and levels of service. Three strategic interventions have been implemented along the sanitation chain, initially on a pilot scale and now in the scaling-up phase. These included strengthening the legal and institutional framework of the sanitation sector, intensive engagement of the private sector, focusing on faecal sludge collection and transport, and the creation of demand for sanitation services. Ultimately, the city authority is working towards a public-private-partnership model based on service level agreements to regulate and monitor service delivery.

The programme has already achieved considerable results. For instance, access to formalised faecal sludge management services has increased, and the private sector is in constant and institutionalised exchange with the city authority. Minimum standards for onsite sanitation have been developed and facilities are being upgraded or constructed to meet the standards. Streamlined behavioural change communication material has been developed and applied in a city-wide campaign. In addition, sanitation coordinators are in place in all five divisions of Kampala, and a sanitation call centre has been established and been in in operation since mid-November 2016.

CONTEXT

Kampala, Uganda's capital city is located beside Lake Victoria, one of Africa's great lakes. Originally a city on six hills, Kampala has expanded to accommodate a resident population of 1.5 million (2014 census) that doubles during the day due to commuting flows. It has become the largest urban centre in Uganda, accounting for 80 percent of the country's industrial and commercial activities and generates 65 percent of national gross domestic product. The city is divided into five administrative divisions: Kawempe, Nakawa, Central, Rubaga and Makindye. The central business district is the economic and industrial hub, but all five divisions are characterised by a mix of residential and commercial areas. Due to rapid urbanization and rural-urban migration, approximately 60 percent of city residents live in informal low-income settlements, which occupy 10.8 percent of the city area, and of which 95 percent lie in valleys.

The urban poor predominately reside in these growing informal settlements that are typically characterised by high population densities, inadequate infrastructure and limited access to social services, including sanitation and waste management. Policies for service provision are inadequate and often fail to cover the poor in these settlements. Resources are difficult to mobilise due to the illegal status of the settlements. When services are provided, the value of the area, property prices and rents increase and the poorest residents have to move to cheaper accommodation where there are fewer services.

Following decades of inefficient city management, Kampala Capital City Authority (KCCA) was established by parliament in 2011 to administer Kampala on behalf of the government. Since then, KCCA has been responsible for the city, including, but not limited to, physical planning, education, social and public health services. KCCA therefore has the mandate for regulating and planning the waste and sanitation sector of the city through its Directorate for Public Health and Environment.

The mission of KCCA is to transform Kampala by building key institutional, infrastructural and social structures that will ensure the delivery of goods and services, and respond to the challenges of increasing population and urbanization. In the first years since its inception, the authority has been focusing on improving solid waste management. It has developed a public private partnership (PPP) framework, in which KCCA remains the regulator but the private sector is the implementer. This system, though quite new, is proving to be successful. Recently, KCCA has adopted a similar approach and PPP model to improve sanitation in Kampala, with KCCA as regulator and the private sector taking over collection, transportation and treatment of faecal sludge.

The sanitation situation in Kampala

Sanitation is one of the major development challenges facing Kampala Capital City. Like many other cities in developing countries, Kampala is experiencing rapid population and economic growth. However, provision of key services including adequate sanitation has not kept pace with these developments. The municipal sewerage network is out of reach to the majority, serving less than 10 percent of the city, mostly in the central division (see Figure 1). Over 90 percent of the population rely on onsite sanitation, most of which is not classified as "improved" or "acceptable". In many cases, multiple households share a toilet, leading to unhygienic conditions. Pit latrines are mostly unlined, contain a large amount of solid waste, and are difficult to access for emptying, ultimately resulting in filled pits

that are either abandoned or directly emptied into the environment, posing health and environmental risks for the city and its people. The predominant sanitation technology is the pit latrine (64 percent) followed by septic tanks. According to the 2014 census, 30 percent of Kampala's households have access to improved toilet facilities such as flush toilets, VIP latrines, pit latrines covered with a slab, and compost toilets.

Besides improving personal hygiene and the cleanliness of toilets, a major challenge is the safe handling of faecal sludge from the onsite facilities. It is estimated that only half of the faecal waste generated daily in Kampala is currently emptied from the pit latrines and safely managed.

Improper solid waste disposal and sanitation facilities that are emptied during heavy rains or connected directly to open drains contaminate the wetlands and Lake Victoria's Inner Murchison Bay, the city's main water source. Furthermore, the latrine pits pose significant health hazards due to the high groundwater tables, leading to a situation where, according to the city administration, all natural springs in Kampala are contaminated with *E. coli* bacteria.

FAECAL SLUDGE MANAGEMENT (FSM) SERVICES IN KAMPALA

Whilst significant investment has been made in providing access to sanitation (99 percent of city residents have access to sanitation facility, Census 2014), minimal effort has been placed on the downstream components of the sanitation service chain. Effluent from latrines and septic tanks is often discharged into the environment untreated, and where pit emptying services are provided, service providers travel long distances to the treatment plants. Additionally, many premises in informal settlements are inaccessible by road. Overall, only 43 percent of the faecal sludge generated is currently collected, transported and disposed of safely. A study in 2014 (BMGF, 2014) also identified unregulated emptying services, insufficient treatment capacity and a lack of public awareness as challenges to faecal sludge management (FSM) in Kampala.

Emptying services

Faecal sludge collection and transportation services in Kampala are provided by KCCA and largely informal and unregulated private operators. Two associations with a membership of more than 100 service providers are to some extent organising the private vacuum truck operators, but this does not give them legal status. Most of the vacuum truck operators work informally without a certificate of incorporation, trading license, environmental license or a formal office. The objectives of the two associations are to strengthen the operators' market power, set minimum industry standards, and provide pricing guidelines. There are 88 vacuum trucks active in Kampala varying in size from 2 m^3 to 10 m^3. As the operators are not accountable in any way to the authorities, it is hard to keep track of the ownership of the trucks.

There are also ten Gulper operators in Kampala. A Gulper is a mechanical sludge emptying device similar to a borehole handpump that has been designed for pit emptying in densely populated, informal areas not accessible by the larger vacuum trucks. The emptying charges range from USD 7.00 to USD 11.00 per 200-litre barrel. With an average daily income of USD 2.00 in poor urban households of Kampala, this service is considered expensive. Vacuum trucks are proportionally cheaper, charging from USD 20.00 for 2.5m^3 to USD 50.00 for 10m^3 of faecal sludge. Informal

Figure 2: A vacuum truck in Kampala

Figure 3: Gulper in operation

FOREVER SANITATION: A SMALL FSM ENTERPRISE

Because of the inconvenience and expense of pit emptying, it is common practice in Uganda to dig latrine pits as deep as possible – typically 4m–6m, but not infrequently up to 10m – reasoning that a deep pit will take a long time to fill up. However, this means that sludge at the bottom of pit is rock-hard and almost impossible to remove. This may be further exacerbated by the use of "DX-4" or similar liquid additives, which some people use to reduce the sludge volume by separating liquids and solids, resulting in a lower volume of more solid sludge.

Forever Sanitation's standard operating practice, which has evolved over the past four years, starts by adding up to two drums of water to the pit to soften the sludge. The sludge is then broken up and mixed using wooden poles, and any solid waste is removed with rakes and spades. A Gulper is then used to remove the first couple of metres from the top of the pit, beyond which it cannot function effectively. The remaining sludge is then scooped out using a cut down three-litre plastic container suspended on rope, which is effective down to about 6m. The whole operation usually takes about three hours, but can take up to ten hours for difficult pits. It is hard work, carried out by a team of two people – one to empty the sludge and the other to transfer it to the truck parked on an accessible road – but there is little alternative in places that vacuum trucks cannot access.

Health and safety are important, and the workers wear rubber boots, gloves and protective clothing, and clean up any spillages as they work. Safe disposal is also a challenge, as the designated sludge dumping sites are designed for vacuum tanks with hoses, and cannot accept sludge in barrels. To address this, Forever Sanitation has developed a funnel with hosing at one end and a cage screen in the middle to screen out solid waste.

Figure 4: Scooping sludge from a pit latrine

The Gulpers are useful, but better equipment specifically designed for emptying inaccessible or poorly constructed pits is needed, as are improved techniques for processing faecal sludge into saleable products. Applied research collaborations with local or international academic institutions and practitioners have much to offer in this regard.

Transport and disposal also present challenges: the designated dumping sites are designed to cater for vacuum trucks, and have limited opening hours that coincide with the business day, and hence heavy traffic. Transfer stations and/or tankers would also reduce time lost in traffic jams. Forever Sanitation is also considering the use of motor tricycles and/or mini-trucks for better access in unplanned areas.

manual emptiers also exist, but as their work is illegal there is no record of their number. In addition, Kampala Capital City Authority (KCCA) owns six 5 m^3 vacuum trucks for emptying public and institutional toilets, such as those in public schools and health centres.

Faecal sludge treatment

The city has two wastewater treatment plants. Bugolobi Sewage Treatment Works is designed to treat only domestic and industrial effluents, and has a capacity of 14,500 m^3/day, which is currently being expanded. Lubigi Sewage and Faecal Sludge Treatment Plant, commissioned in 2014, has a sewage treatment capacity of 5,000 m^3/day, which is to be expanded to 12,500 m^3/day, and faecal sludge treatment capacity of 400 m^3/day. The latter is currently receiving around 600 m^3 of faecal sludge per day, so is already overloaded. Furthermore, Bugolobi is also receiving

faecal sludge on a daily basis, even though it is not designed to treat sludge, which should be directed to the Lubigi plant. There is no official data on the amount of faecal sludge received per day at Bugolobi.

Business models

As the FSM market is currently not regulated, there is a free market for emptying services, and operators negotiate their charges with individual customers. Only the dumping fees at the treatment plants are fixed.

The majority (76 percent) of formal emptying takes place in formal settlements (KCCA, 2017), although they house only 40 percent of the population. There are no geographical service boundaries, and operators can offer their services anywhere in the city. This leads to "cherry picking" of customers who are easy to access, close to the treatment plants and/ or who can afford to pay higher charges, leaving large numbers of customers and geographical areas of Kampala unserved (Figure 5). The Gulper operators were intended to solve the access issue, but as their charges are relatively high for the volume of sludge emptied, they are not considered a pro-poor alternative for low-income areas.

THIS LEADS TO "CHERRY PICKING" OF CUSTOMERS WHO ARE EASY TO ACCESS, CLOSE TO THE TREATMENT PLANTS AND/ OR WHO CAN AFFORD TO PAY HIGHER CHARGES

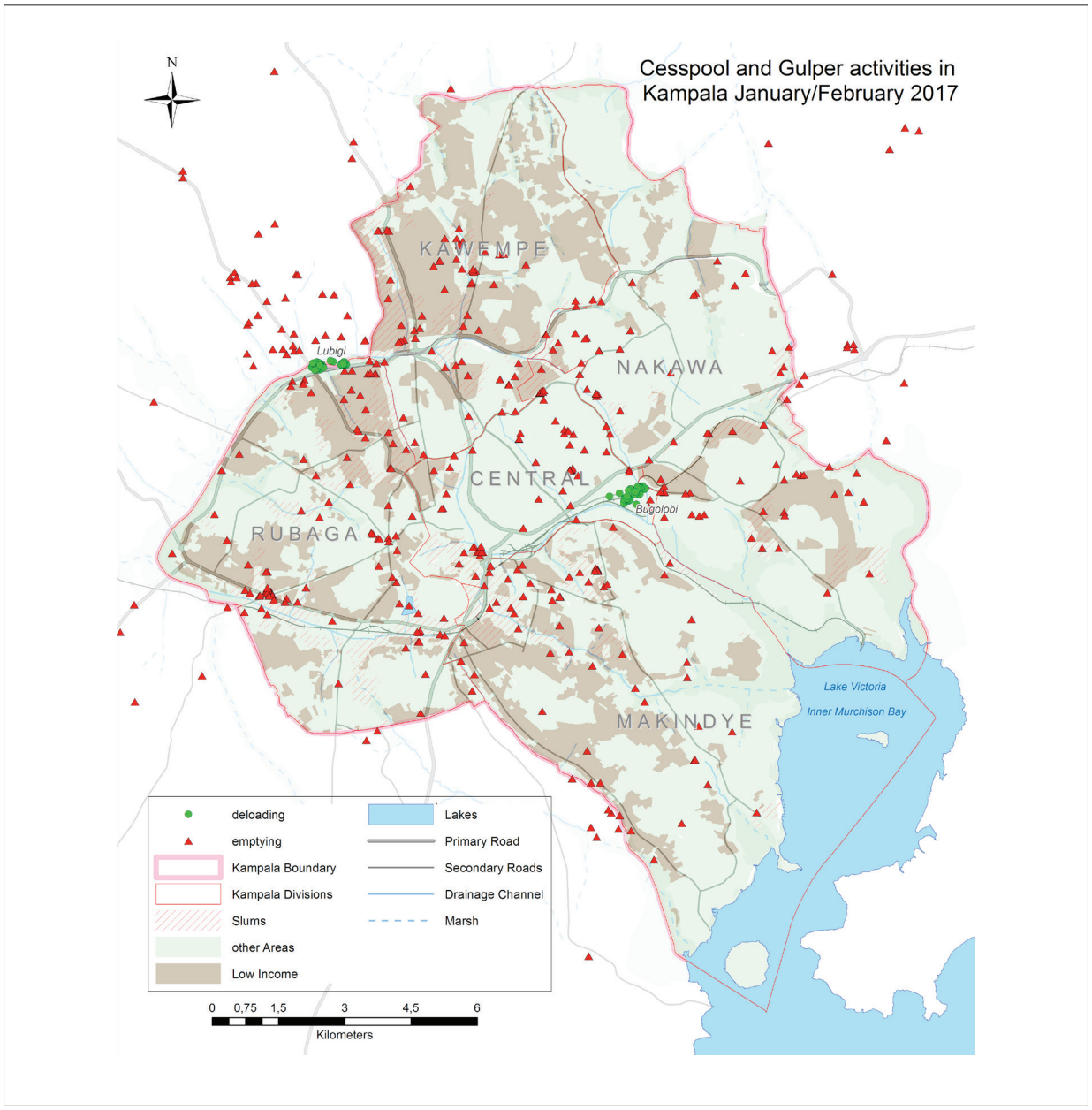

Figure 5: Preliminary results of a tracking exercise of vacuum trucks in Kampala

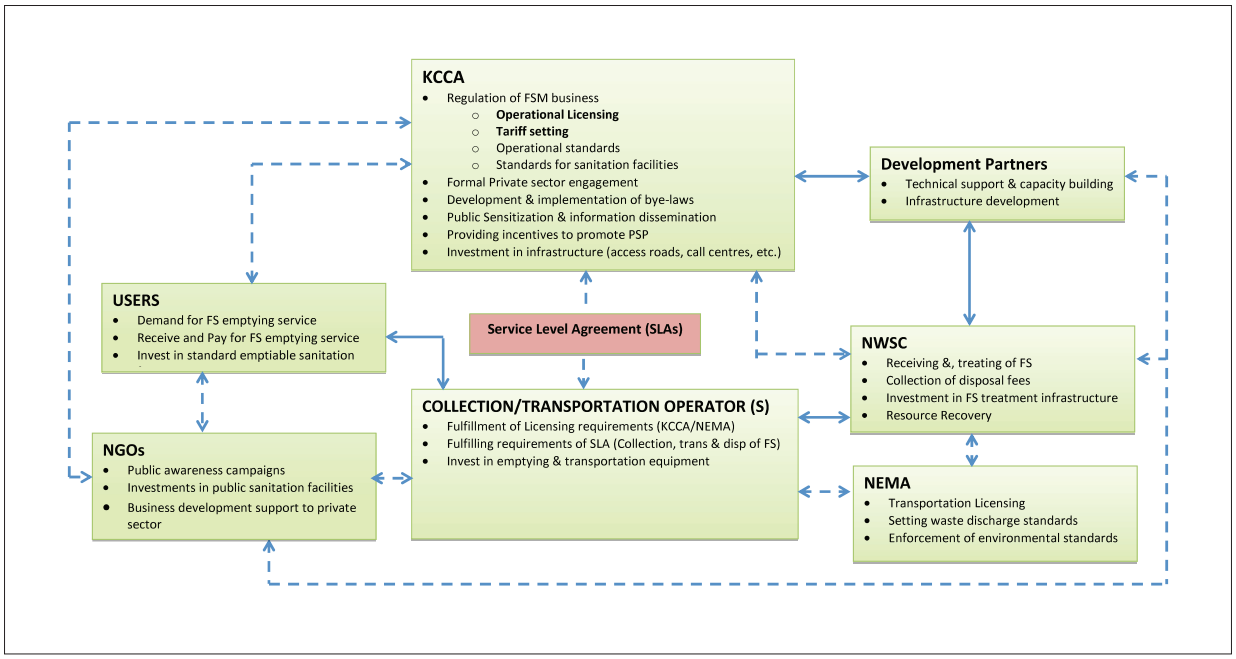

Figure 6: Proposed Institutional and operational framework for Kampala (KCCA, 2014)

FSM stakeholders

While collection and transportation of faecal sludge is currently carried out by the private sector, responsibility for treatment lies with the National Water and Sewerage Corporation (NWSC), a government parastatal that has the role of developing, operating and maintaining water supply and sewerage services in urban areas. The NWSC falls under the Ministry of Water and Environment and operates in Kampala and 174 other towns. Using internal funds and donor funding, the NWSC is working to improve and expand the sewerage system in Kampala, and is also increasingly engaged in pro-poor onsite sanitation projects. For the latter, three micro faecal sludge treatment plants, each with a capacity of 5 m^3/day, and three disposal points, with an aggregate capacity of 100m^3/day, are planned.

Regulation of waste transportation and disposal is carried out by the National Environment Management Authority (NEMA). To date, only one company has a licence from NEMA to transport FS legally. NEMA collaborates with KCCA in enforcing environmental protection policies – for example, solid waste operators can only get a license from NEMA on the recommendation of KCCA.

NGOs and community based organisations (CBOs) such as Water for People (WfP), Community Integrated Development Initiative (CIDI), AMReF and WaterAid are active in sanitation services provision in the city. However, they operate on a piecemeal basis, duplicating or contradicting one another. That said, the role of these NGOs and CBOs is crucial and their increased future involvement will be an essential component of continuous and reliable service provision in the informal settlements.

IMPROVING FSM AND CLOSING THE SANITATION LOOP

Since 2015, KCCA and its development partners, GIZ-RUWASS and BMGF, have developed and implemented a programme to improve FSM in the city based on a coordinated and holistic approach where FSM interventions are identified and planned along the entire sanitation service chain (containment, collection, transport and disposal, treatment and reuse.) The rationale for the FSM programme is that onsite sanitation is a mid- to long-term reality in Kampala, so FSM has a critical role in contributing to the citywide provision of sanitation services. The main principles followed in developing the programme include:

- Creating a strong legal and institutional framework with clear roles and responsibilities for sector stakeholders
- Private sector engagement and business development
- Capacity building and coordination of stakeholders
- Awareness and demand creation among user groups

The FSM programme recognises that to ensure citywide service coverage, and to informal settlements in particular, KCCA will need to partner with the private sector, based on a viable business model. The model adopted divides the city into operational zones that are assigned to different operators through a tendering process. This will ensure citywide service coverage.

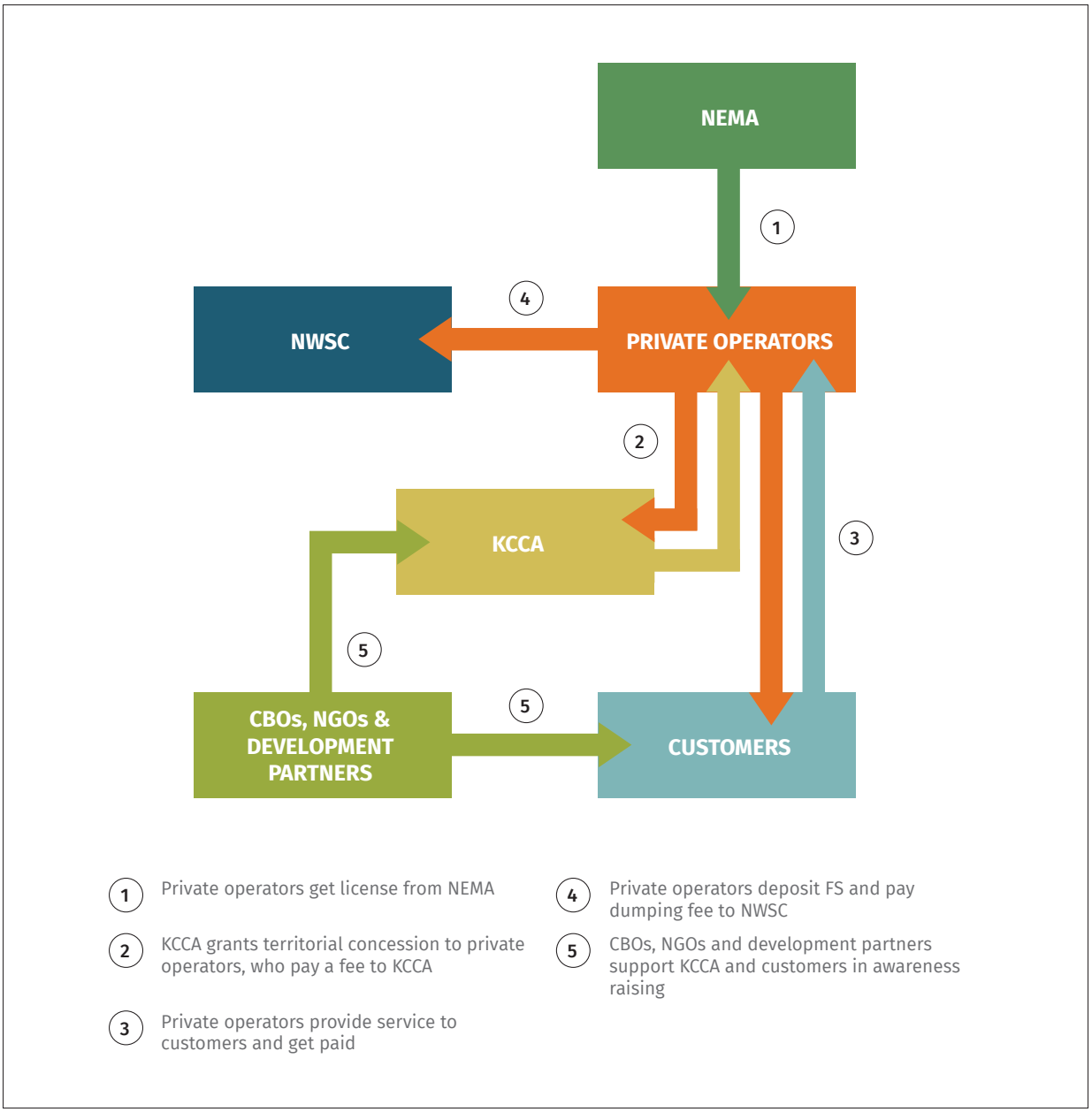

Figure 7: Business model for FSM in Kampala

This business model was first piloted in five parishes in the city for 18 months (January 2016 to June 2017). This successful experience is now being scaled up across the rest of the city (since January 2017).

Pilot phase

In the pilot phase, ten service providers were selected to operate in the five parishes and monitored. The following interventions were undertaken:

Private Sector Engagement This was undertaken mainly to create a foundation for a partnership based on trust rather than through an enforcement-only approach. The aim of the partnership with the private emptiers was to increase service coverage, affordability and efficiency of emptying services, particularly in the informal settlements.

An inventory of private emptiers was developed to facilitate mobilization and engagement activities. The private operators, under two umbrella associations, are in a constant and productive exchange with KCCA. They are part of the planning process and have provided input into a memorandum of understanding with KCCA, which serves as a model for future service level agreements (SLAs).

The zoning and the establishment of SLAs with selected private operators was then tested in five pilot areas. Each ward was assigned two designated operators who worked under a memorandum of understanding with the objective of identifying the challenges of working in one specific area.

Furthermore, since treatment capacities are already exceeded and infrastructure projects take time, KCCA

is considering resource recovery and safe reuse (RRR) of faecal sludge. Six entrepreneurs that are adding value to the faecal sludge by producing briquettes, compost, biogas and other saleable materials were supported in this pilot phase.

Legal and institutional frameworks It was essential to bring together the various stakeholders and interests within the existing institutional and regulatory framework relevant to FSM in Kampala, to enable synergies and facilitate better planning. A high-level steering committee for sanitation projects in Kampala was established with representation from the key stakeholders. The committee meets biannually to discuss developments and progress, and to provide strategic direction to FSM interventions in the city.

To guide the implementation of the pilot SLAs, KCCA with the support of GIZ and in collaboration with the private emptiers developed a memorandum of understanding between KCCA and the private service providers specifying their obligations, service delivery standards, targets and performance measurement.

To focus FSM at the divisions, five Sanitation coordination officers were recruited to support the public health section at divisional level by providing technical support and coordinating communities and local leaders in adopting good sanitation practices. Further, KCCA established partnerships with key stakeholders such as NWSC, and NGOs such as WfP and CIDI, to supplement its capacity through the technical, social mobilization, academic or financial capacities of these organisations. For instance, the partnership with WfP supported and nurtured sanitation business start-ups particularly the small-scale Gulpers to self-sustaining businesses.

Development of an operational framework An operational framework to guide service provision and sector regulation was developed. The framework comprises standards for onsite sanitation technologies, minimum health standards for sanitation-related processes, obligations for the safe collection and transport of faecal sludge, monitoring tools, incentives and penalties. These were developed using a consultative and integrative approach. Implementation of the new regulations started only about two months prior to the date of writing, but some landlords have already built improved facilities to meet the new standards.

Capacity building and business development KCCA received support from GIZ, including high level benchmark visits and trainings, to strengthen its supportive and regulatory role, and assist in developing the framework for sanitation service delivery by the private sector. On the private sector side, much initial work was undertaken by WfP to develop small-scale service providers based on Gulpers and other manual tools. WfP recruited entrepreneurs and helped them develop into sustainable businesses, providing training and assistance with registration, licensing, and equipment procurement. KCCA is now scaling up this work with a series of half-day training events for vacuum truck operators (also attended by some small-scale Gulper operators), covering health and safety issues and business skills development. KCCA is also providing assistance with registration and licensing to bring both vacuum truck and Gulper operators into the new regulatory space.

KCCA IS NOW SCALING UP THIS WORK WITH A SERIES OF HALF-DAY TRAINING EVENTS FOR VACUUM TRUCK OPERATORS COVERING HEALTH AND SAFETY ISSUES AND BUSINESS SKILLS DEVELOPMENT

Demand creation and awareness raising Sanitation marketing and promotion of emptying services was conducted in communities. Communication, awareness raising and behaviour change messages were streamlined into a set of messages addressing three key behaviours identified by KCCA, namely: 1) safe pit emptying; 2) improved, and therefore emptiable toilets; and 3) toilet hygiene.

The sanitation coordination offices at division level played a key role in creating awareness and sensitizing communities about the FSM programme.

Innovation New approaches were needed to overcome historically neglected FSM problems, and were developed in close collaboration and partnership with stakeholders, and included:

- A **sanitation call centre** to coordinate service provision. KCCA (with the support of GIZ and BMGF) established a sanitation call centre to strengthen the link between customers, service providers, and KCCA itself. Through a toll-free number, the centre offers customers a platform for inquiries and complaints, as well as a simple means to contact emptying service providers. The call centre is not a bidding platform, but staff do record prices in follow-up calls, also assessing customer satisfaction and gathering information on sanitation issues. Based on this, they can give customers an indication of market rates,

FOREVER SANITATION: A GROWING FSM BUSINESS

Forever Sanitation Limited was established with the help of the NGO Water for People, which advertised the new business opportunity through their sanitation marketers and on the radio, and provided business training and support to the entrepreneurs who they accepted. Since starting operations in March 2013, Forever Sanitation has emptied more than 1,250 pits, removing 2,500m^3 of sludge in 12,500 barrels, typically emptying two pits a day. Initially they focused their business on slums in Kampala, but later identified demand further afield, and may now travel up to four hours to a customer's site.

Customers pay UGX 30,000 (USD 8.60) per 200-litre barrel removed and transported to the treatment plant, equivalent to UGX 150,000 (USD 43.00) per m3. Although this is expensive in terms of cost per unit volume compared with the charge for a full vacuum truck, it compares favourably with a vacuum truck call-out charge of around UGX 175,000 (USD 50), always assuming road access is possible. Additionally, customers with cashflow constraints can decide how many barrels they can afford to have removed. The average revenue per job is UGX 300,000 (USD 85.70), equivalent to 10 barrels. Labour, dumping fee, fuel and disinfectants cost a total of UGX 122,000 (USD 34.80), yielding an average profit per job of UGX 178,000 (USD50.85), or about USD 100 for two jobs a day.

Figure 8: Forever Sanitation proprietor John Busingye with Sato pans for installation

The business started in 2013 with 20 barrels and two Gulpers, expanding enough by 2014 to rent a truck to transport the full barrels to the discharge site, and then to buy one in 2015. Forever Sanitation has now started saving for a vacuum truck, because of the high demand for this service, also believing that their extensive experience with pit latrines will give them a competitive advantage in the marketplace.

Noting the difficulty of emptying pits with a high solid waste content, Forever Sanitation has generated extra business by selling and installing Sato traps, which make it harder for users to put solid waste in the toilet, as well as providing a more hygienic and pleasant user interface. This also saves the user money in the long run by reducing the pit filling rate.

Lessons learned over the last four years include the following:

In the pit emptying market: Many customers cannot afford the services offered by Forever Sanitation, even though they would prefer their more hygienic emptying. This could be tackled on three complementary tracks:

- Increased enforcement of improved and emptiable latrines (this is now starting to happen);
- Putting "foot soldiers" on the ground to raise awareness of FSM (also now happening);
- Introducing a subsidy (possibly up to 75 percent) to make the service affordable to the poorest slum dwellers.

In the job market: Initially, young people were reluctant to work in FSM due to the social stigma, but now the business is established they are never short of new workers. However, the company is not paying their workers much more than food and transport (although this is not insignificant in a low-wage economy with high unemployment), and wishes to pay stable wages and provide insurance in order to retain its trained teams.

and this seems to have resulted in a significant decrease in prices. The call centre has been operational for eight months and is considered highly successful, having already received 1,213 calls and much positive feedback. The information it provides to KCCA has also proved valuable to inform their sanitation activities.

- A **GPS tracking system** for service providers to improve service efficiency and avoid illegal dumping. This was piloted for four months and showed that emptying was mainly taking place in the formal sections of the city.
- **Mobile transfer stations** to reduce transportation distances for small scale service providers. KCCA, in partnership with WfP and GIZ, has converted a vacuum tank from an old truck to a trailer into which small operators can discharge their collected sludge for a small fee (UGX 3,000, or slightly less than one US dollar). Being mobile, the transfer tank can be located close to emptying operations in communities. It is then hauled by a tractor to the utility's faecal sludge treatment sites. In its first week of operation, over 35 households were served, and approximately 200 households were served over the first two months. Preliminary feedback is very positive, and it clearly stimulated demand for emptying in the informal settlements where it was stationed.
- **Promotion of small entrepreneurs** using innovative technologies. Technically, the use of Gulpers for pit emptying, the production of briquettes from faecal sludge, etc. are not recognised by the existing legislation. However, the municipality acknowledges the gap that they are filling, especially in inaccessible areas, and therefore promotes them where they are relevant, while also working with them in parallel towards legalising their operations.

KCCA ESTABLISHED A SANITATION CALL CENTRE TO STRENGTHEN THE LINK BETWEEN CUSTOMERS, SERVICE PROVIDERS, AND KCCA ITSELF

Scaling-up phase

The programme is now (since January 2017) being scaled up into a citywide programme known as the Kampala Faecal Sludge Management (KFSM) Programme under the overall coordination of KCCA, with various partners contributing to the programme. This has enabled more efficient use of the available resources, as well as minimizing duplication and learning times.

The following interventions have so far been undertaken as part of the scaling-up process:

Citywide sanitation mapping This serves to guide sanitation investments in the city and to inform the zoning of the whole city into financially viable areas for use in the SLA model. Two hundred enumerators carried out a door-to-door assessment of sanitation in all five divisions of the city over the six-month period January to June 2017, and a geo-referenced database of all onsite sanitation facilities in the city was created. Local politicians played a critical community mobilisation role in this exercise, which was supervised in conjunction with KCCA's technical team. Local leaders, community opinion leaders and village health teams[1] also mobilised communities and acted as local guides.

Citywide community mobilization The pilot phase produced three key learnings regarding community mobilization: 1) the need for constant engagement with the communities; 2) door-to-door engagement was the most effective mobilization tool; and 3) enforcement or the threat of enforcement plays a convincing role in behavioural change.

A citywide community sensitization programme targeting informal settlements and their landlords is being implemented based on these learnings. The streamlined behavioural change communication material already developed forms the basis of this campaign, focusing on the three key objectives of safe pit emptying, improved toilets that can be emptied, and toilet hygiene. This initiative is spearheaded by local community leaders.

A phased roll-out of the campaign has been adopted in order to maximise impact. Twenty-two parishes are now at the centre of the campaign, which will be extended to 20 more parishes every two months to cover all the 99 parishes that make up Kampala by the end of 2017. This community mobilization campaign has already made an impact in parishes yet to be engaged, as shown by data from the sanitation call centre.

Coordination of the various stakeholders Increasingly, KCCA has prioritised the coordination of the various stakeholders in the city through the Kampala WASH forum, to share best practices (from the pilot), and to streamline and optimize the available resources to achieve citywide sanitation. The forum, hosted by KCCA, has four thematic working groups: hygiene and public health education; appropriate technologies; knowledge management; and governance and policy.

Figure 9: Operator training

Business development This activity is key to delivering a sustainable sanitation business sector, where products and services demanded by households and institutions are supplied in a well-regulated market. As previously mentioned, business development and capacity-building of private emptiers is being carried out to enable them to be licensed and subsequently regulated. To reinforce this, a service delivery framework and operational guidelines have been developed in conjunction with the operators. This informs the capacity building programme and constitutes the basis for compliance monitoring, which is currently being implemented through the call centre feedback mechanisms.

Infrastructure investment A significant constraint on FSM in Kampala is the infrastructure, all the way from containment, to transportation and treatment facilities. KCCA has invested in schools and public sanitation facilities, and has reduced pupil stance ratios in public primary schools from 118:1 in 2012 to 43:1 currently. Through partnerships with NWSC and NGOs such as WaterAid, AMReF and CIDI, significant investments have been made in public toilets and faecal sludge treatment capacity.

The majority of household pit latrines in Kampala are unlined and would require upgrading to meet minimum standards. The approach being adopted is to persuade landlords to provide facilities which meet the standards through awareness-raising and enforcement. As this will not deal with all the toilets that need upgrading, subsidy and/or credit financing for the remaining facilities is currently being discussed. Central to this discussion is the number of toilets that fall into this category, and it is expected that this will become clearer by the end of 2017 when the current behaviour-change and enforcement campaign has been concluded. To ensure equity and citywide coverage, all these investments are coordinated at programme level.

FINANCIAL ASPECTS

The main payment flows comprise emptying fees that are generally determined by the service provider after assessing the location, condition and size of the sanitation facility. The KFSM programme has consciously not regulated emptying fees but rather left it to the influence of competitive forces and increasing volume of work. At the start of the programme, emptying charges averaged USD 45.00/m^3 for Gulpers and USD 6.50/m^3 for vacuum trucks. Following the various interventions, a reduction in emptying charges has been noted, to USD 40.00/m^3 for Gulpers and USD 5.00/m^3 for vacuum trucks.

With the implementation of the planned zoning and engagement of the private sector through SLAs, it is envisaged that price regulation will be introduced in a phased manner.

DRIVERS OF CHANGE

KCCA has a commitment to reform the sector and the willingness to apply a stepwise approach, which includes a learning and revision process. The success of the solid waste management reforms has motivated the authority to improve the FSM situation too. Partners including GIZ and BMGF have supported KCCA since its inception, and strengthened its leading role in the sanitation sector through sector coordination and capacity building. KCCA has gained momentum and ownership under a focused strategy where activities were streamlined and additional funds could be generated thanks to confidence and a shared vision.

THE SUCCESS OF THE SOLID WASTE MANAGEMENT REFORMS HAS MOTIVATED THE AUTHORITY TO IMPROVE THE FSM SITUATION TOO

Close collaboration with the private sector. Their trust in and collaboration with KCCA has brought the programme forward in an efficient way. However, the more striking fact is that the private sector brings

valuable and significant inputs into the planning process, helping to avoid failures when strategies are implemented on the ground.

Creation and dissemination of information. The project has produced a number of publications to inform the sector, such as an inventory of all private players in FSM and RRR and an analysis of the framework conditions for private sector participation in FSM, while GIZ and BMGF have supported KCCA in widening and improving its databases. For example, the exhaustive database of the state of household, institutional and public sanitation in Kampala and the maps of all public and community toilets including information about their sanitation, ownership and operation and maintenance status, have informed investment planning.

LESSONS LEARNED

Coordination of stakeholders and activities is key to avoid duplication, create synergies, and pool funding. Fora and steering committees that meet on a regular basis can support this. However, they need to have clear descriptions of their roles and responsibilities, such as terms of reference, and the outputs, outcomes and agreements of meetings need to be written down and circulated. A lead agency that invites and does the follow up is essential, and it should not be a donor or NGO but rather a local entity – KCCA in this case.

Public-private-partnerships need close cooperation right from the start. Regular meetings are not enough – the public sector needs to genuinely consider the concerns of and inputs from the private sector.

There can never be too much community engagement. Communities need to be constantly engaged right from the start of an intervention to ensure buy-in, continuity and sustainability.

NEXT STEPS

In terms of next steps, financing infrastructure and securing the legal framework through ordinances are the key next steps. A simple lined VIP latrine meeting the minimum standards costs approximately USD 900, which is beyond the means of the majority of the urban poor. A subsidy system similar to that implemented in Kenya by the National Water Services Trust Fund and GIZ might encourage people to start constructing improved sanitation facilities. Subsidies would only be paid for new toilets that meet the minimum standards when construction is complete. Funds to implement this subsidy programme are currently unavailable, and it remains to be seen how quickly the 70 percent of Kampala's population using unimproved sanitation facilities can upgrade to improved toilets. The overall success of the sanitation reform requires that all steps in the sanitation service chain, including containment, emptying, transport, treatment and re-use, are of an adequate standard, thus closing the sanitation loop.

NOTES

[1] The village health teams are community volunteers, directed by the Public Health Inspectors, who support various public health activities at community level

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ABBREVIATIONS AND ACRONYMS

KCCA	Kampala Capital City Authority
PPP	public private partnership
BMGF	Bill and Melinda Gates Foundation
FSM	faecal sludge management
NWSC	National Water and Sewerage Corporation
NEMA	National Environment Management Authority
NGO	non-governmental organisation
CBO	community based organisation
WfP	Water for People
CIDI	Community Integrated Development
SLA	service level agreement
RRR	resource recovery and safe reuse

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