

Paper 1: Enabling framework for on-site sanitation and faecal sludge management in Lusaka

The challenge

‘Sanitation’ in Lusaka has long been tacitly interpreted as ‘sewerage’, with most on-site solutions regarded as stopgaps. Legally, the overall responsibility for Water Supply and Sanitation (WSS) services rested with Lusaka City Council (LCC), and implementation had been delegated to Lusaka Water and Sewerage Company¹. As its name implies, LWSC concentrated on networked sewerage – much like the regulator NWASCO – and there was no clearly assigned implementation structure for OSS for either the City Council or its Commercial Utility (CU).² Any tentative forays into pit-emptying services on the part of LWSC were closely tied to external support and had remained limited in scope. Collection, transport and disposal of faecal sludge were largely unregulated activities, and no standards covered the construction of sanitation facilities at the household level.

A key challenge for safe on-site sanitation (OSS) and faecal sludge management (FSM), however, was the fact that there was no official agreement on what constituted acceptable sanitation, let alone a formal definition of the type and range of services this would entail. Indeed, there was little grasp or appreciation of the OSS service chain amongst key stakeholders across the sector. At the organisational level, these attitudes manifested themselves in the form of inadequate internal systems, structures and procedures. Without a shared understanding of the problem and possible solutions, stakeholders had little incentive to take action.

Understandably, neither LCC nor LWSC had access to adequate resources that would allow a coherent response to a

specific OSS mandate, even if it had existed. There was no unit within LWSC tasked with FSM-related matters, and any activities in this area were undertaken by contractors (Water Trusts and/or privately-owned vacuum tankers). The LCC’s Public Health Department (PHD), which assumed some responsibility for informal settlements, was eminently understaffed and could not afford to keep its local offices open.³ This drastically reduced residents’ direct access to information and formal complaints mechanisms, especially in peri-urban areas (PUAs). While the PHD conducted its business in accordance with a set of standard LCC operating procedures (SOPs), inspections generated a large amount of paperwork. Reports being difficult to trace presented a major obstacle to effective management. Enforcement, one of the department’s central activities, was hampered by poor accountability and transparency as much as the absence of a clear legal basis for OSS.

Activities and interventions

It was clear that any interventions would have to start with raising awareness and promoting professionally managed OSS. It is worth noting that some of Lusaka’s peri-urban areas received formal recognition only recently. Despite the well-known difficulties of providing sanitation in these areas – and the consequences suffered as a result – the official solution was connecting PUAs to the sewerage network. CFS-Lusaka supported partners to champion climate-friendly FSM practices as safe and perfectly acceptable means of expanding sanitation services for all. Stakeholders were offered frequent opportunities to expand their conceptual understanding through workshops, demonstrations

1) All commercial utilities were officially renamed ‘Water Supply and Sanitation Companies’ in 2019

2) The National Water Supply and Sanitation Capacity Development Strategy of 2015 warned that ‘the mandate for onsite sanitation is not clearly defined between CUs and LAs; this creates a gap through which the management and / or regulation of onsite sanitation services may fall as nobody’s responsibility.’

3) Around 30 inspectors were in charge of all public health-related matters in a city approaching three million residents. In theory, the PHD inspectors’ work should link with that of environmental health technicians (under the Ministry of Health), though it is unclear what support in terms of the envisaged inputs regarding sanitation, hygiene and solid waste exists or could be developed.

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and knowledge exchange visits. GIZ's network of partners in the region enabled Zambian decision makers to discuss ideas and practical approaches with other local authorities, utilities, regulators and civil society representatives facing similar challenges in other African cities. Within Lusaka itself, LCC and LWSC needed to revisit and extend their interpretation of their mandates – and regulators would need to follow suit. GIZ advisors joined the PHD and LWSC as embedded experts to focus on the institutions' own organisational procedures, but also to press ahead with supporting the process for necessary legal changes. In parallel, one component of the CFS-Lusaka project was focused on bringing all OSS/FSM stakeholders of Lusaka together. Following a mapping exercise, all relevant WASH and public health stakeholders were invited to join a formal partnership. Discussions culminated in the formation of a Lusaka District WASH Public Health Committee (LD WASH PHC) in June 2017 to coordinate activities, share resources and generally support each other under the leadership of the LCC.

In many ways, LCC had experienced a relative disadvantage compared to LWSC: remuneration, resources and organisational culture often lagged behind the CUs who received significantly more support from development partners. Despite this, the local government would find itself at the receiving end of complaints about poor infrastructure and service delivery, regardless of the nature of the problem. The lack of functioning services available in informal settlements meant that residents resorting to alternatives such as pit latrines and manual emptying was inevitable, in spite of the further problems this created. An important question was how to improve the day-to-day work of the already overwhelmed PHD inspectorate and maintain motivation in the profession.

Compiling a compendium of available on-site sanitation technologies that could be used to improve access to sustainable sanitation in high-density peri-urban areas of Lusaka was a useful first move. The 'toilet catalogue' introduced the concept of a complete service chain, comprising all intermediate steps from the user interface through to final sludge disposal or reuse.⁴ A review of all existing legal provisions regarding sanitation showed that the notion of a

service chain simply did not exist in the law, which primarily focused on toilets (structural conditions) and sewerage services. With this guidance in hand, a by-law⁵ was drafted to create a sound basis for effective enforcement on the part of LCC PHD. Jointly with the embedded advisor, the PHD also provided feedback to strengthen the attention given to OSS in the draft Water Supply and Sanitation Services Bill of 2017.

The process of developing the by-law prompted a review of enforcement procedures, as even a watertight legal basis could easily be compromised by weak internal processes. CFS-Lusaka provided technical support to introduce digitalisation of the SOPs: the PHD's response to the situation on the ground, the reasoning went, could be vastly improved through access to real-time data.⁶ A smartphone app was developed to reduce bureaucracy. Field inspectors would be able to log their activities instantly, and residents could make applications (e.g. for permits) at their convenience. CFS-Lusaka placed high importance to assisting LCC with decentralising its services and strengthening accessibility. Anchoring the digitalisation activities at LCC site offices offered an incentive to upgrade facilities. Working together with other development partners through the LSP, CFS-Lusaka assisted with progressing the ongoing operationalisation of the site offices.

In order to facilitate more targeted, risk-based public health interventions in peri-urban areas, CFS-Lusaka introduced the SaniPath Exposure Assessment Tool to Lusaka.⁷ A SaniPath pilot study of Kanyama compound was supported by GIZ in 2018 to demonstrate the relationship between exposure to diarrhoeal disease risks arising from poor sanitation and their relative impact on overall public health. Consultant researchers, in close collaboration with LCC, investigated suspected faecal contamination pathways. Environmental samples were collected to check for the presence of E.coli. LCC was actively involved in the data collection exercises, including the focus group discussions and door-to-door interviews that were designed to gain an understanding of personal and community hygiene habits. PHD staff also observed the laboratory analyses, which had to be outsourced to the University of Zambia (UNZA), and participated in numerous training sessions.

4) LCC and GIZ. 2017. On-site sanitation catalogue.

5) Draft Lusaka City Council (On-Site Sanitation and Faecal Sludge Management) By-Laws (2019)

6) e.g. data gathered during inspections, permits that have been issued or not, penalties for those being fined for not meeting standards, payments of penalties/for permits, and validity of certificates

7) SaniPath was developed by the Center for Global Safe Water at Emory University, Atlanta, USA, with funding from the Bill & Melinda Gates Foundation. For more information see sanipath.org.

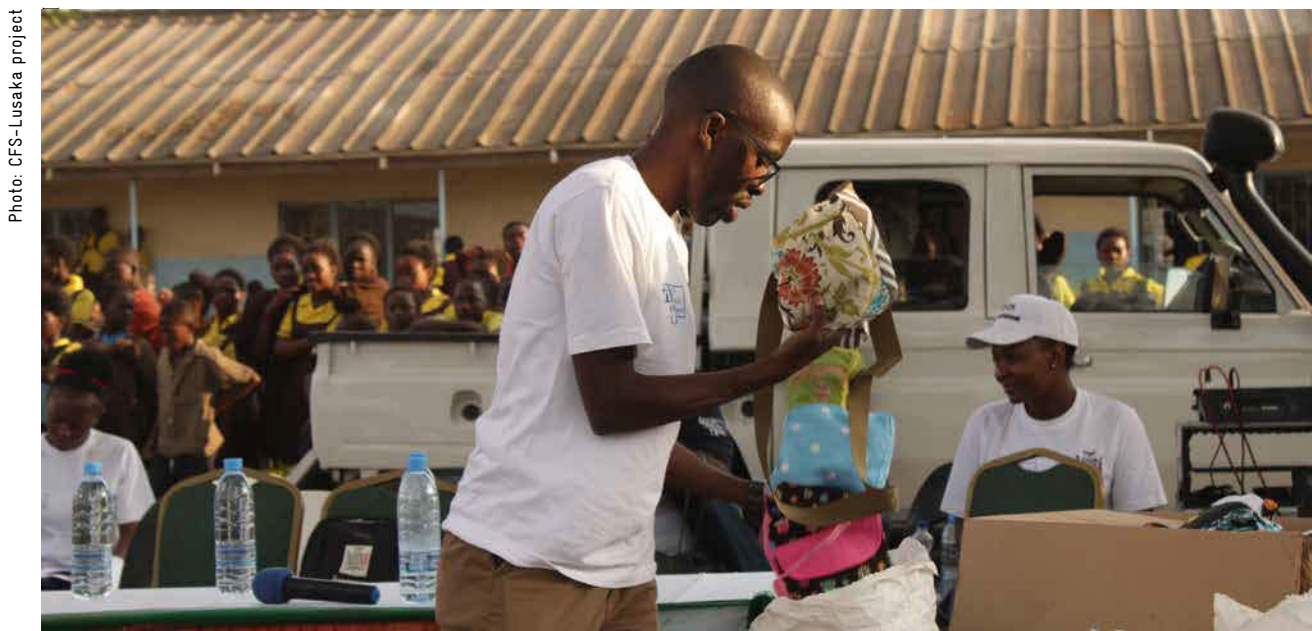


Photo: CFS-Lusaka project

Chairperson of the LD WASH PHC distributing reusable sanitary pads to Chawama School Lusaka on Global Handwashing Day 2019

Progress and impact

When CFS-Lusaka activities first began, pit-emptying services being piloted by LWSC in Kanyama and Chazanga needed to be scaled up to other peri-urban areas and the positive experience shared with a wide audience. Over the past three years, both knowledge and understanding of OSS and FSM as an appropriate and sustainable way forward has increased amongst all stakeholders. Access to state-of-the-art information and first-hand experiences from Africa and beyond has undoubtedly played a role. In April and December 2018, for instance, Zambian stakeholders travelled to Kampala and Dar es Salaam for peer learning events facilitated by GIZ. By May 2019, they hosted colleagues and sector experts from around the world for a three-day Knowledge Exchange (KEx) in Lusaka. Local partners now take to the international stage to discuss OSS concepts and implementation strategies and share their own perspective.

The LD WASH PHC enjoys the full support of the chief executives from the participating institutions, which are beginning to engage more proactively through the committee and its technical working groups (TWGs).⁸ Again, there have been some hurdles to realising the full potential of this group: the priorities of the different stakeholders had to be ascertained and harmonised, and CFS-Lusaka has played a

part to ensure the committee would have a functional and motivated secretariat. The LD WASH PHC exists as a coordination platform of public health, water, sanitation and hygiene experts (see box). Through its TWGs, it provides technical implementation support for WASH and public

LD WASH PHC membership and representation

- Lusaka City Council: Public Health and Housing and Social Services Department (2 seats)
- Lusaka Water and Sanitation Company: Lusaka Sanitation Programme, with other departments to be advised (4 seats)
- Ministries (at district level): Water Development, Sanitation and Environmental Protection, Local Government, Health (Department of Health Promotion, Environment and Social Determinants) (1 seat each)
- Regulators: NWASCO and ZEMA (1 seat each)
- Development Partners: Water Group and Health Group (1 seat each)
- NGO WASH forum (1 seat)
- The remaining 4 seats are reserved for the TWG spokespersons.

8) Water Supply and Water Quality TWG, Sanitation TWG, Disease Surveillance TWG, and the Information, Education and Communication (IEC) and Health Promotion TWG. The TWGs meet monthly, the LD WASH PHC every quarter.

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health interventions in Lusaka district in accordance with Zambia's long-term development goals outlined in the 7th National Development Plan and Vision 2030, as well as the SDGs. It has provided an avenue for raising the profile of gender mainstreaming in the sector, which is reflected in the committee's structures, and integrating a gender perspective and promoting equality is becoming the norm for projects. The LD WASH PHC is also making other, more subtle, sustainability-related changes, for example by not paying seating allowances for committee meetings. This has not dented its members' enthusiasm for being involved.

The process of developing the OSS and FSM by-law has been described as beneficial in numerous ways. First and foremost, working closely on such a fundamental piece of guidance for the Lusaka sanitation sector sharpened the PHD's focus on the complete OSS service chain. CFS-Lusaka advisors provided technical support and ensured LCC retained ownership of the entire process. With the public consultation now closed and comments being reviewed by the PHD and LCC's legal department, the gazetting of the by-law is anticipated for the end of 2020. This will pave the way for proper enforcement and regulation of OSS services. Lastly, the by-law process has nudged other regulators to engage in OSS and FSM. PHD and the Zambian Bureau of Standards (ZABS), for example, are coordinating activities to work towards better standards. The Ministry has signalled its approval of the by-law and is reportedly looking to use it as a model for an OSS statutory instrument that would become applicable across the country.



The enabling framework requires integrated systems thinking, along with its technical and regulatory underpinnings, and supporting formal stakeholder partnerships to harmonise interventions and overcome practical and institutional hurdles.”

For LCC, the digitalisation activities have been a boost to its reputational image, seeing that PHD is now finding itself at the forefront of the drive towards 'SMART Zambia'. The PHD LCC app and the data gathered through the SaniPath pilot study help the department to strengthen its operations and become more responsive to the needs of citizens – in line with the government vision.⁹ The PHD worked closely with the (local) developer of the new app, with GIZ providing technical backstopping support. PHD has gone on to

use its sanitation-related data to feed into the 'Lusaka Sanitation System' (LSS), an information system that is currently being developed to integrate Ministry of Health and LWSC data.¹⁰

Enforcement is now set to become more focused and transparent. With the information generated by the SaniPath tool, LCC is already working from a more informed perspective. Inspections are becoming risk-based. SaniPath outputs have also proved useful for public education messaging; residents are more receptive to appeals backed by hard evidence. Not only will decision-making improve and delays be avoided once data can be logged on-site through the PHD LCC app and immediately transferred to the cloud rather than recorded in the individual inspectors' diaries. It will also improve confidence in the entire process as every payment and observation will be properly documented, leaving no room for low-level corruption. Live, geo-referenced data can then be used to generate reports and recommendations for directing human resources and interventions more strategically. All data will be held in a database, which is owned by and anchored at PHD and managed in-house with assistance from LCC's IT department. To ensure reporting pathways and data flows are functioning as anticipated, the app has been pilot-tested from local site offices in the community; it will go live in the near future.

The capacity development associated with all of the above activities has been pivotal. Technical assistance was rigorously coupled with training for the department to be able to replicate and extend all activities without external input in the future.

Remaining challenges

The fragmented nature of OSS makes effective stakeholder coordination very important. Yet institutional fragmentation is also what makes this coordination difficult. There is room for improving the cooperation between the different members of the LD WASH PHC and to secure buy-in from key members such that the secretariat can run effectively. Resource mobilisation and acquisition is always problematic, but the working groups are encouraged to take full ownership of their joint goals and activities. Each of the working group members has access to limited resources that

9) The Zambian government has launched the 'SMART Zambia' project with the aim of deploying information technology to improve public service delivery. The SMART Zambia eGovernment Master Plan 2018-2030 was approved by the Cabinet in February 2019.

10) NWASCO is weighing options of integrating some of the LSS data into its own information system.

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can be used to support synergetic activities in the TWG. On reflection, the group should be extended to include stakeholders such as the Water Resources Management Authority (WARMA). Especially in the context of climate change, WASH services and the water resources they rely on will only become more interlinked. On another note, the interconnection between city planning, construction of housing and sanitation has been raised time and again in the Lusaka context, with some arguing that neither can be resolved in isolation.¹¹

NWASCO is in the process of operationalising its new regulatory framework for OSS and FSM. Under this new framework, NWASCO would issue a licence to CUs to cover both on-site and off-site sanitation. CUs can delegate the implementation of this to private operators or community based organisations (CBO) through a permit system. Again, coordination and cooperation between regulators will be critical, as each will assume responsibility for specific elements of the sanitation chain. NWASCO and ZEMA expect to be concentrating on transportation, treatment and disposal. A service level guideline that guarantees customers of sanitation service providers a certain level of service at a specified price is in preparation. LCC will remain the responsible regulator for building and construction-related matters. Standards for construction of OSS facilities are the starting point to ensure that the sanitation service chain functions effectively. For the time being, reuse of treated faecal sludge remains an activity to revisit in the future, when investment in equipment and facilities can guarantee adequate treatment before resale. Applicable regulations and standards are under development but have yet to be finalised by the Zambia Bureau of Standards (ZABS). It may take time for regulations and regulators to settle into a routine that leaves no gaps in oversight of the entire sanitation service chain. At the time of writing it appears as though some clarification among actors regarding spheres of authority may be required, as does the way in which the LCC by-law and NWASCO regulations and standards fit together.

In Zambia, local authorities (LAs) carry the mandate of ensuring that faecal sludge is safely contained, emptied, transported and treated by the CU in the interest of public health, including the safety of those providing the service, while the CU is tasked with providing (or managing) the

service itself. For LCC and LWSC, an understanding of the separation of these roles and responsibilities and where these sometimes overlap along the service chain has created some challenges. The working relationship between the two organisations has and continues to improve, though it was the cholera outbreaks that acted as a catalyst for pilot interventions and more intensive cooperation. Stakeholders have expressed a desire to develop a communication strategy that forges stronger links in the future.

On the practical side, the PHD site offices that have been upgraded under LSP with CFS-Lusaka technical assistance, especially in SOP digitalisation, are contributing a great deal to LCC's increased ability to carry out their tasks. Further efforts to establish fully staffed and well-equipped site offices in the remaining constituencies would extend the PHD's reach into even more communities. Resources in general are a bottleneck and continue to impede the ability for many tasks to be completed. Here staffing¹², logistical problems and shortages in equipment and facilities were cited. Extending training opportunities to other LCC departments whose work relates to sanitation could be of great benefit to both the PHD and the entire sanitation sector in Lusaka in the future. In addition, applying the newly developed regulatory frameworks remains a challenge. Implementation requires both financial and technical resources, both of which are limited for the regulators.

Another challenge is the availability and consolidation of data. Synchronizing the datasets of service provider and the regulator will be important.

Lessons learnt: findings and recommendations

- Stakeholder coordination has been a central theme of CFS-Lusaka activities to create an enabling framework for OSS and FSM. Establishing a forum for key stakeholders to come together and facilitating their cooperation in different technical working groups has been a step towards harmonising sanitation-related interventions in Lusaka.
- Exposure to new ideas and peer learning opportunities has had profound effects on the rhetoric in partner circles. As awareness develops into deeper understanding

11) cf. Todd, D.M. 1987. Constraints on the Development of Appropriate Sanitation Policies in Zambia. *Habitat Intl.* 11(1), 161-171. Stakeholders interviews reaffirmed Todd's view of an 'inextricable' link between housing and appropriate sanitation.

12) Note that capacity problems are related to staffing numbers rather than competence of individuals or the department as a whole.

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and confidence, attitudes and priorities can begin to shift across ever-widening circles. It is helpful to focus on and repeat positive messages.

- Balancing priorities and recognising and utilising inter-connections is not straightforward, even within a single institution. PHD should continue to develop and embed clear processes such that LCC can present a united front on OSS-related matters.
- Whilst important milestones, notably the OSS by-law, have been achieved over the past three years, these are only the beginning. Creating an enabling framework takes time and patience.
- During the process of developing the by-law and applicable standards for sanitation facilities, asking pertinent questions has prompted stakeholders to reflect on goals, roles, jurisdictions and specific activities. These deliberations alone are a valuable outcome, even if it has become clear that by-laws and the standards they refer to would better be developed and finalised in parallel. Enforcement is a key procedure within the PHD, which is inhibited by the current lack of standards.
- SaniPath and the digitisation of the PHD's standard operating procedures have fostered a greater understanding of the important part that digital tools play within a green city. SaniPath in particular has created an appetite for real-time data to enable more precise decision-making within LCC and other stakeholders. Zambia is embracing a digital future. In Lusaka, digital tools hold great potential to guide the path to a greener city.
- Strengthening staffing and facilities at PHD should continue. SaniPath has highlighted the need for building internal capacity for on-site testing of environmental samples as well as investing in the prerequisites for scaling up digitalisation (i.e. training, logistics, equipment). Continued improvement of systems within LCC, along with more extensive in-house data collection and analysis, will enable staff to communicate with confidence at all levels and spread its message to other sector stakeholders.
- The interconnection between city planning, housing and citywide sanitation outcomes may warrant further exploration, and 'sanitation' might be explicitly widened to encompass drainage.

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