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PHOTO CAPTION: Water kiosk operated by Chambeshi Water and Sewerage

USAID EXPANDING WATER AND SANITATION PROJECT
MARKET ASSESSMENT REPORT

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LIST OF ACRONYMS

APM	Area Pump Menders
CBO	Community-Based Organization
CTLS	Community Led Total Sanitation
CDF	Constituency Development Fund
ChWSC	Chambeshi Water and Sanitation Company
CSO	Civil Society Organization
CPs	Cooperating Partners
CSO	Civil Society Organization
CU	Commercial Utility
DEWATS	Decentralized water systems
DDCC	District Development Coordinating Committee
D-WASHE	District Water, Sanitation, and Hygiene Education
FSM	Fecal Sludge Management
GRZ	Government of the Republic of Zambia
JMP	Joint Monitoring Plan
LA	Local (Government) Authority
LSWC	Lusaka Water and Sanitation Company
MOFNP	Ministry of Finance and National Planning
MLGRD	Ministry of Local Government & Rural Development
MWDS	Ministry of Water Development and Sanitation
NGO	Non-Governmental Organization
NRW	Non-Revenue Water
NWASCO	National Water and Sanitation Council
NWSSP	National Water Supply and Sanitation Policy
O&M	Operations and Maintenance
PDCC	Provincial Development Coordinating Committee
PPP	Public–Private Partnership
PSE	Private Sector Engagement
PSP	Private Sector Participation
TEVETA	Technical Education, Vocational and Entrepreneurship Training Authority
SOMAP	Sustainable Operation and Maintenance Project
SWSC	Southern Water and Sanitation Company
USAID	United States Agency for International Development

WASAZA	Water and Sanitation Association of Zambia
WASH	Water, Sanitation, and Hygiene
WWS	Water Supply and Sanitation
WWSC	Western Water and Sanitation Company

INTRODUCTION

According to the Zambia Demographic and Health Survey (2018) 72 percent of household, 92 percent urban and 58 percent rural, obtain their drinking water from an improved source. In terms of sanitation, 54 percent, 78 percent urban and 37 percent rural, have access to improved sanitation facilities. In both instances, the need for improved water and sanitation is higher in rural than urban areas. Predominantly, provision of WASH services in rural areas and rural growth centers has been the responsibility of local authorities, i.e., district, municipal and city councils. In 2020, however, the National WASH regulator National Water Supply and Sanitation Council (NWASCO) expanded the commercial utilities' mandate to include provision of services to all areas, including urban, peri-urban, rural, and rural growth centers.

In practice, this means that commercial utilities (CUs) need to increase their capacity and resource base in order to respond adequately to this expanded mandate. More importantly, CUs need to explore partnership models that will allow them to reach all the areas under their jurisdiction. The USAID-funded Expanding Water and Sanitation Project (USAID Expanding WASH) aims to professionalize WASH services in Zambia, to promote accountability for reliable and high-quality WASH services, and to enhance the enabling environment for private sector engagement (PSE) in service delivery. This objective will require the concerted efforts of the Ministry of Water Development and Sanitation (MWDS), local authorities (LAs), GRZ partners, NWASCO, CUs, and the private sector.

OBJECTIVE OF THE MARKET ASSESSMENT

This document is one of the preliminary assessments in embarking on the USAID Expanding WASH project. The main objective is to assess the potential for market-based WASH service delivery models, including the presence and capacities of local businesses. Specifically, the assessment identifies gaps, discerns potential customers, and maps the private service providers that will enable better targeting of project resources in each district. The assessment analyzes services and products along the sanitation value chain, including market segmentation, to better understand the size of the market, location, living conditions, ability and willingness to pay, current sanitation/hygiene access (especially for women, youth, and persons with disabilities), environmental constraints and fecal sludge management, especially for district centers.

METHODOLOGY

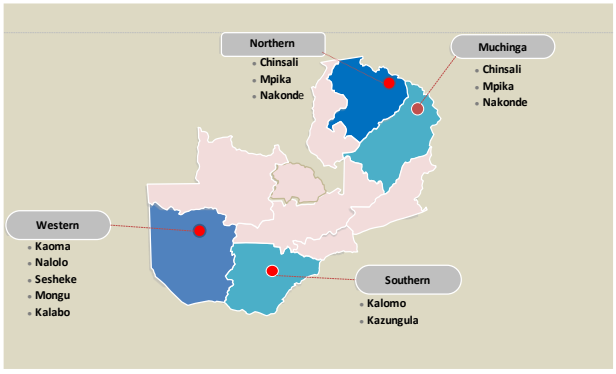
This assessment involved a review of existing baseline data; key informant interviews with relevant stakeholders, such as CUs; WASH delegated managers, customers and users; government ministries; district-level existing and potential service providers; and key private sector entities.

PROJECT TARGET AREAS

Expanding WASH will be implemented in four provinces: Northern, Muchinga, Western and Southern, and specifically in 12 districts: Kalomo, Kalabo, Kazungula Nalolo, Kaoma, Sesheke, Mongu, Mpika, Lunte, Chinsali, Nakonde and Mungwi. These are rural areas, rural growth centers and peri- urban areas, all with idiosyncrasies that will require appropriate interventions. Rural areas are characterized by sparsely located households in remote locations and widespread subsistence farming. These areas typically use streams and wells as water access points, and have low income levels, a high prevalence of open defecation, and lower acceptance of improved technologies.

Preliminary interventions for **rural settings** include community-managed technologies. The operation and maintenance of these systems was implemented through the Sustainable Operation and Maintenance Project (SOMAP), an LA-led initiative to sustain the operation of water systems. Each water point has a Village WASH (VWASH) committee that collects contributions from the community for maintenance of infrastructure. This system is not without its flaws, as the administrative process for obtaining funds from LAs when boreholes break down can be lengthy, leaving communities without access to water for months. In this regard, the expanded mandate for CUs should include technical support as well as materials, where possible, to ensure that supply is sustained. In terms of sanitation, community-led total sanitation (CLTS) is one of the main sanitation interventions in rural areas, based on behavioral-change approaches to eliminating open defecation.

FIGURE 1. PROJECT MAP



Rural growth centers are located slightly away from district centers, and have relatively higher income than rural areas and improved structures where residents live. Residents of these centers are relatively more open to change and aspirational in their desire for improved WASH services. Possible solutions include piped water schemes, especially solar-powered technologies, for those living away from the main grid. Residents of rural growth centers have a higher willingness to pay for improved WASH services. There is the potential for the private sector to set up and operate water schemes, although companies may need access to financial and technical support. The regulator is key in setting up tariffs that will be attractive to the private sector. In terms of sanitation, small decentralized water systems (DEWATS) or sewer systems may work in these areas. There is also potential for improved, emptiable toilets. The private sector can construct toilets and sewer systems, as well as dispose of fecal sludge.

Peri-urban areas surround the urban areas, and are in close proximity to CUs, so WASH infrastructure is within reach. Most of this infrastructure, however, is in need of rehabilitation and extension. In terms of sanitation, rehabilitation and/or extension of the sewer network is needed, as well as modification of wastewater treatment plants to include fecal sludge treatment. There may also be an opportunity for improved toilets, creating an opening for the private sector for pit emptiers and vacuum-tanker operators. For construction, the private sector can contribute masons, artisans, and bricklayers for the constructions of DEWATS as well as expansion of the sewer network.

POLICY, INSTITUTIONAL AND LEGAL FRAMEWORK

WATER AND SANITATION

VISION 2030

Vision 2030 is Zambia's long-term plan that sets out the government's aspiration of reaching middle-income country status by 2030. The Vision is founded on seven principles: i) sustainable development; (ii) upholding democratic principles; (iii) respect for human rights; (iv) fostering family values; (v) a positive attitude to work; (vi) peaceful coexistence; and (vii) upholding good traditional values. With regard to water, the plan aspires to "provide access to safe potable water sources and improved sanitation facilities to 100 percent of the population in both urban and rural areas for all by 2030" (Vision 2030 2006:11).

8TH NATIONAL DEVELOPMENT PLAN (DRAFT)

The 8th National Development Plan is a national strategic document that forms part of Vision 2030. The current draft covers four strategic areas: economic transformation and job creation, human and social development, environmental sustainability, and good governance environment. Water and sanitation fall under the human and social development stream. The government recognizes that the key constraint is dilapidated infrastructure, which is more common in rural areas. In addition, the urban explosion has resulted in an increase in unplanned settlements and the need for water and sanitation services to reach these settlements. The plan also recognizes the weak operation and maintenance of water resources, as well as poor waste management and infrastructure.

Key interventions to address these constraints include sector investment promotion and establishing a mechanism to mobilize financing through public-private partnerships (PPPs). Specific strategies include climate-resilient water supply infrastructure development and maintenance, water quality monitoring, and protection of aquifers and protected water sources. Key programs to enhance access to improved sanitation include sanitation infrastructure development and maintenance, sanitation and personal hygiene promotion, capacity development, solid-waste management, and health and hygiene education (Draft 8NDP 2022:54). The government cites the constituency development fund, increased from K1.6 million to K25.7 million in the current budget, as key to investment in water.

NATIONAL WATER SUPPLY AND SANITATION ACT 1997

This Act provided for the establishment of NWASCO, as well as the creation of CUs by local authorities. The Act devolved the provision of WASH services directly to local authorities by mandating them to create companies to sustainably provide WASH services, and also clearly defines the functions of the regulator.

NATIONAL WATER POLICY, 2010

This policy provides for measures to develop a strategy for WASH infrastructure development that is attractive to both public and private sector investors. The policy recognizes that one impediment to private sector participation is limited access to finance. Therefore, the strategy presents incentives to drive private partnership participation, including a revolving fund to facilitate water infrastructure investment. The policy provides for both investment partnerships and management partnerships, to improve capital and efficiencies in service provision, respectively.

NATIONAL OPEN DEFECATION FREE (ODF) STRATEGY 2018-2030

Zambia has a target to eliminate open defecation by 2030. In line with this, MWDS developed an ODF strategy covering the period 2018-2030. Many communities are still practicing open defection, 25 percent and one percent for the rural and urban population, respectively, as of 2017 (ODFS 2018:1). The strategy refers developing a PPP framework to allow participation of the private sector in WASH through the provision of low-cost sanitation products, solid waste management, and fecal sludge management.

NATIONAL RURAL WATER SUPPLY AND SANITATION PROGRAMME (NRWSSP) 2019 – 2030

The NRWSSP is a road map to attaining the aspirations of Vision 2030, as well as Sustainable Development Goals for water and sanitation. The plan acknowledges that for water supply investments, appropriateness of technology is key, depending on community preference, willingness to pay, and ability to maintain infrastructure. The program also cites the need for the private sector for the rehabilitation and repair of water systems, and recognizes women as playing a key role in this initiative.

With regards to sanitation and hygiene, the program distinguishes interventions at the household and institutional level. For household sanitation, improving access involves a "combination of investments in offsite and onsite sanitation solutions that are affordable, appropriate and environmentally friendly, a concerted hygiene education campaign, and sanitation marketing" (NRWSSP 2019: 48). The role of traditional leaders in promoting access, as well as strengthening capacities at district and sub-district levels to promote improved sanitation practices, is key. For institutional sanitation and hygiene, the key is "improving access to clean sanitation facilities and promoting improved hygiene behaviours in public institutions (schools, health centers, bus stations and marketplaces)" (ibid:49). The integration of both strategies under both sanitation streams aims to eliminate open defecation by 2030. Under the sustainable operations and management (O&M) subcomponent, the program recognizes the need for private sector participation in service provision, supply of materials, institutional and system support, and expertise.

NATIONAL WATER SUPPLY AND SANITATION POLICY, 2020

This policy has the same aspirations for private sector participation. Of particular importance is the objective to "develop and implement optimal linkages between private and public sector service providers and develop guidelines to strengthen private sector participation in WSS" (NWSSP 2020:18). To date, no specific WSS guidelines or optimal linkages driving private-public arrangements have been established. This provides an opportunity for the private sector forum and private sector dialogue envisioned by Expanding WASH.

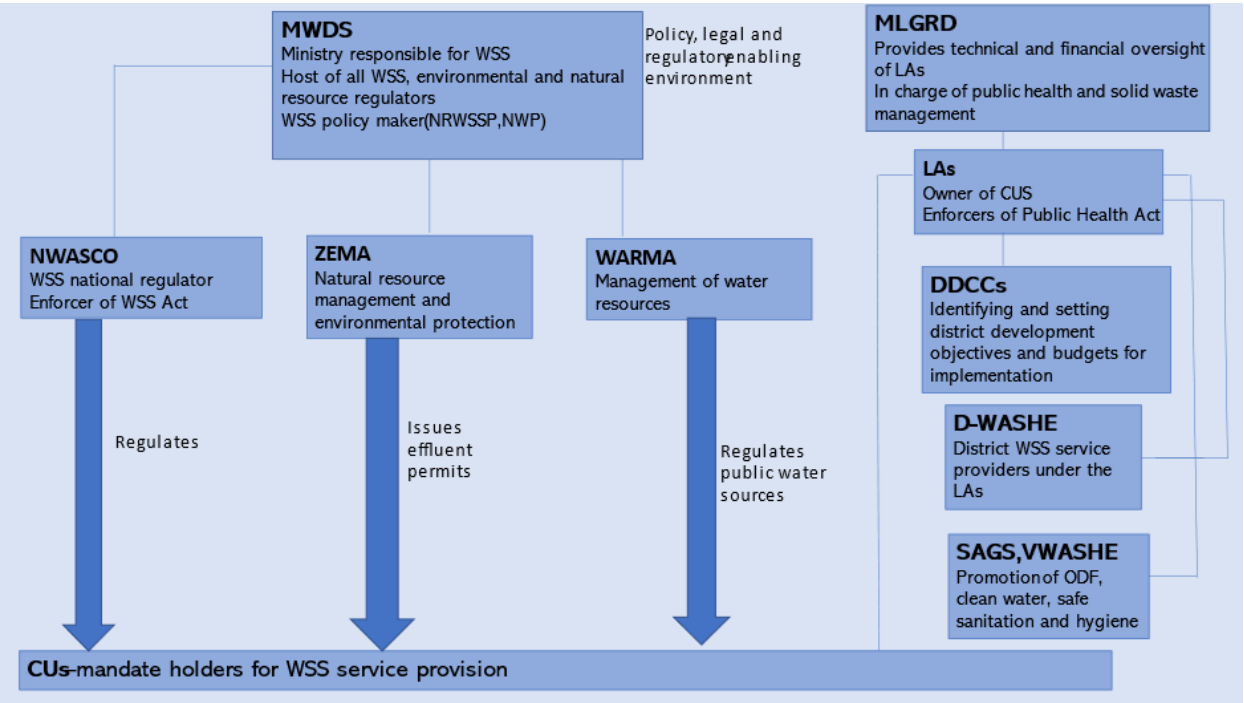
Other policies that support the WASH sector include:

a. Public Health Act (Chapter 295 of the laws of Zambia) of 2006
b. Local Government Act
c. Environmental Management Act of 2011

INSTITUTIONAL FRAMEWORK

The institutional framework of the Zambia WASH sector is depicted in Figure 2, below.

FIGURE 2. INSTITUTIONAL FRAMEWORK



PRIVATE SECTOR PARTICIPATION

Private sector participation in Zambia is supported by the PPP Act of 2009, an act "to promote and facilitate the implementation of privately financed infrastructure projects and effective delivery of social services by enhancing transparency, fairness and long-term sustainability and removing undesirable restrictions on private sector participation in the provision of social sector services and the development and operation of public infrastructure". PPPs are comprised of two main parties: the Contracting Authority, which refers to a public authority and includes any ministry, government department, local authority or statutory body, and the Concessionaire, which is the private sector entity.

The Act, although it is not implicitly stated, provides for large-scale projects. In consultation with the PPP department, Expanding WASH learned that the Act is undergoing review, in order to provide for small-scale partnerships. This is critical, because PPPs in the WASH sector are more likely to involve smaller partnership arrangements, with investors and private sectors complementing the mandate of CUs rather than competing with them. Complementary to the Act is the Zambia Public Procurement Act, which is fitting because public procurements tend to be large in scope and value; this Act also provides for the establishment of a PPP department. The PPP Act clearly stipulates that "a key function of the Unit is to promote the participation of the private sector in the financing, construction, maintenance and operation of any project, irrespective of its cost". In practice, however, as well as in public perception, the Act is seen as being relevant to large-scale infrastructure PPP arrangements.

In the WASH sector, PPP may appear to be a misnomer, considering that the mandated service providers (CUs) are not in themselves public entities. Notwithstanding the fact that CUs are essentially owned by local authorities, which are public entities, CUs operate autonomously as limited companies. In the strict definition of PPP provided for by the PPP Act, "public" refers to government ministries, state-owned enterprises, local authorities, and agencies. However, a case can be made that CUs count as local authorities, since LAs are the owners.

There are not many examples of PPPs in the WASH sector. The Lusaka Water and Sanitation Company (LSWC) pioneered involving the private sector in WASH, for both water and sanitation. For water, CUs contract with vendors, which are paid a 40 percent commission on proceeds from sales. Other examples include 12 contracts with private sector players under the Lusaka Sanitation Programme. Under this program, LWSC divided the city into three zones (Central, Northern, and Southern) with four contractors in each zone to provide fecal sludge management (FSM) services. The contractors have performance-based contracts, in which a subsidy is given for providing FSM services below the market rate. Customers pay K150/m³ for sludge emptied, and LWSC tops up with K190. This subsidy has been fixed from the inception of the contracts, despite inflation. Of course, there is great demand for the service, given the affordable rates. The contracts run through August 2022, when the project comes to an end.

The LSWC contractors were trained in bookkeeping, safe emptying practices, and the use of personal protective equipment, and included informal emptiers in the city as part of the workforce of about 100 pit emptiers. Experience has shown that there are some prerequisites for interesting the private sector. The subsidy is, of course, the main driver; another is "above-the-line" marketing of the service on behalf of contractors where LWSC advertise and market the services through media platforms, brochures and posters while the emptiers manage door to door awareness and marketing of the services. The project team acknowledges that the dynamics may differ in other areas, since in Lusaka the service had already been provided by formalized vacuum-tanker operators who pay a license fee to ZEMA, as well as the informal emptiers whose employment has now been formalized. The project was able to leverage from pilots in Kanyama and Chazanga, where LWSC delegated management contracts with water trusts to provide FSM service.

FINDINGS

FORMAL SERVICE DELIVERY ASSESSMENT

COMMERCIAL UTILITIES

Service coverage for the utilities refers only to the urban and peri-urban areas that the utilities are currently serving. It does not include rural areas or rural growth centers.

SOUTHERN WATER AND SANITATION COMPANY

SWSC's vision is to be a leading utility that sustainable and viably provides WASH services. Its 2018-2022 strategy aims to reduce non-revenue water (NRW), increase sanitation coverage, focus on the customer, engage competent staff, and become self-sustaining. To implement these objectives, the utility has a budget of $29,322,300.00, 94 percent of which is from external sources.

The Constituency Development Fund (CDF) is a decentralization initiative whereby the central government allocates funds to the local government to meet the development objectives of the constituency. In the 2022 budget, the allocation increased from K1.6 million to K25.7 million. Since 60 percent of the fund is designed for community projects, including WASH interventions, there is a case to be made for leveraging the CDF.

The utility's strategic business plan aims to reduce NRW, currently at 47 percent, to the sector benchmark of 25 percent. The goal is to become self-sustaining and reduce reliance on subsidies and external support. SWSC felt there was room to leverage the increase in the constituency development fund to actualize the rural water supply and sanitation mandate. SWSC only has one vacuum tanker, housed in Choma. 23 percent of all of the utility's customer base is connected to the sewers, a clear indication of the prevalence of onsite sanitation. There is currently only one other competitor, a vacuum truck in Livingstone.

SWSC cites an average 24-hour water supply in Kazungula and 16 hours water supply in Kalomo, albeit with a high NRW of 47 percent.

CURRENT COVERAGE

TABLE 1. SWSC COVERAGE

AREA	POPULATION SIZE	WATER[1]	SANITATION
Kalomo	281,333	22,800	3,246 (on sewer)
Kazungula	156,186	11,316	0

CHAMBESHI WATER AND SANITATION COMPANY

ChWSSC's vision is to ensure that adequate WASH services are provided to all 20 districts under its jurisdiction. Like its counterparts, the utility's management acknowledges the need for private sector participation in fulfilling this vision.

The utility's objective are to reduce open defecation, improve sanitation facilities, increase sewerage coverage, increase the uptake of safely managed sanitation services, increase the volume of wastewater safely treated and disposed or reused, increase the volume of fecal sludge safely treated and disposed or reused, increase the proportion of fecal sludge safely treated and managed, establish

[1] Number of current customers on SWSC's database multiplied by an average household size of six people.

and secure financing for sanitation investments in priority towns, and increase the participation of women in sanitation projects, services, and management.

To implement these objectives, the utility has a budget of K4,896,060,102.43 of which it can only fund 30 percent, the rest coming from external sources. This exemplifies the need for private sector participation not only in investment, but also in service provision, to be able to actualize the utility's vision.

ChWSCC's water supply averages 17 hours per day, with parts of Mpika and Chinsali receiving the least supply (NWASCO Sector Report 2021).

CURRENT COVERAGE

TABLE 2. CHWSSC COVERAGE

AREA	TOTAL DISTRICT POPULATION SIZE	URBAN AND PERI URBAN POP	WATER	SANITATION
Chinsali	136,680	42,496	85 percent	76 percent
Mpika	145,638	73,431	90 percent	60 percent
Nakonde	188,666	68,112	60 percent	54 percent
Mungwi	211,293	16,880	80 percent	72 percent
Lunte	73,823	-	-	-

Source: compiled using data from Zambia Health Management Information System (ZHMIS) and Tariff Study Report for ChWSSC for the Integrated Small Towns Water Supply And Sanitation Programme (ISTWSSP)

WESTERN WATER AND SANITATION COMPANY

WWSC's vision is "to become financially viable and be the most customer-centered water and sewerage utility company in Zambia." Its 2016-2020 strategy aims to improve water supply and sanitation coverage, achieve 100 percent cost coverage, have a skilled and motivated workforce, and be among the top three ranked utilities in the country.

WWSC faces constraints in capacity, corporate governance, and cost recovery. The utility's current strategy covers 2016-2020 and acknowledges its place among the three lowest-ranking utilities over these five years. WWSC has a 10m³ vacuum tanker that is operationally designed to service all the districts; however, this truck is currently not in good condition, and cannot run. The utility was charging K780 per load for hiring this truck, and an additional K1500 per additional kilometer beyond the defined boundaries.

TABLE 3. WWSC COVERAGE

AREA	POPULATION SIZE	WATER	SANITATION
Kalabo	101,206	32 percent	52 percent
Kaoma	125,284	28 percent	45 percent
Mongu	156,285	39 percent	57 percent
Nalolo	67,402	38 percent	15 percent

TABLE 3. WWSC COVERAGE			
AREA	POPULATION SIZE	WATER	SANITATION
Sesheke	53,197	65 percent	49 percent

Source: compiled using data from Zambia Health Management Information System (ZHMIS) and Tariff Study Report for ChWSSC for the Integrated Small Towns Water Supply And Sanitation Programme (ISTWSSP)

Water supply does not reach sector benchmarks, averaging 14 hours a day. WWSC pledges 15 hours of supply for areas like Mongu, but currently only manages 12 hours. Certain areas, like Tungi and Hellen, have water for only three hours a day, while Boma has water for eight hours a day. Quality of water, especially in the rainy season, is compromised. In Sesheke and Kalabo, for instance, turbidity is very high. In Mandanga in Mongu, the iron content of the water is very high. Some customers complain about paying more than owe due to inaccurate meter readings. In the Site and Service PUA in Kaoma, some residents claim that the meters are faulty, taking readings when residents are not receiving service. The residents also say they have not had any water for over three months, yet are still billed monthly, attributing the discrepancy to the fact that the bills are generated in Mongu. Some residents have resorted to shallow, unprotected wells near pit latrines.

CU-Pit Emptier Relationships

The current examples of CU engagement with the private sector are donor driven. The CUs offer traditional pit emptiers with the expertise to safely manage sanitation. Support includes purchase of PPE, training in bookkeeping, vaccination of workers, and operation and maintenance. Emptiers are supported with mechanized transport and modified tools for manual emptying.

These challenges are compounded by the 63 percent NRW, which can be attributed to poor infrastructure, illegal collections, malfunctioning meters that give incorrect readings, and limitations in water production. In some cases, when infrastructure breaks down, repairs are delayed due to resource constraints (usually, no engineer or technician with the expertise to fix the problem). For this reason, it is imperative that Expanding WASH take a cocreation approach with utilities, to ensure that capacity is built no matter which technologies are introduced.

TABLE 4. SUMMARY OF CU SERVICE DELIVERY			
ITEM	SWSC	CHWSC	WWSC
NRW	46	33	63
Average hours of supply	20	17	13
Population served by sewer	18 percent	8 percent	2 percent
Population served by septic tanks	69 percent	67 percent	22 percent
Population served by pit latrines	13 percent	25 percent	26 percent

Source: compiled with data from NWASCO 2020 Annual sector report

Judging by the above assessments, the CUs do not have the capacity to actualize expanded mandates on their own. There is no clear direction on their involvement in providing rural WASH services,

and they still lean heavily on local authorities. Their level of involvement is scanty, in some cases limited to preparing a bill of quantities for water scheme managers.

OTHER PROVIDERS

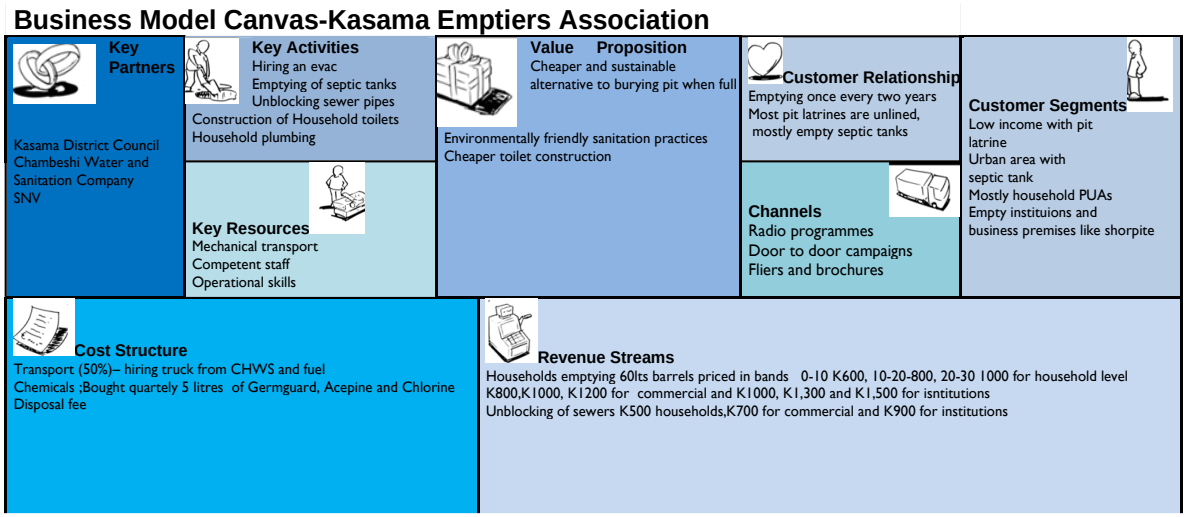
SANITATION

Formalized sanitation services from private entities are only available in four districts under ChWSSC: Nakonde, Mbala, Mpulungu, and Kasama. For SWSC, the only formalized sanitation is the pilot Transform Project in Livingstone. For WWSC, there is currently no formalized emptying service partnering with the utility.

KASAMA EMPTIERS ASSOCIATION

With support from SNV under the Zambia Urban Sanitation and Hygiene for Health and Development Project. pit emptiers in Kasama, Mpulungu,Mbala, Mpulungu and Nakonde were rained and formalised.

FIGURE 3. BUSINESS MODEL FOR CANVAS-KASAMA EMPTIERS ASSOCIATION

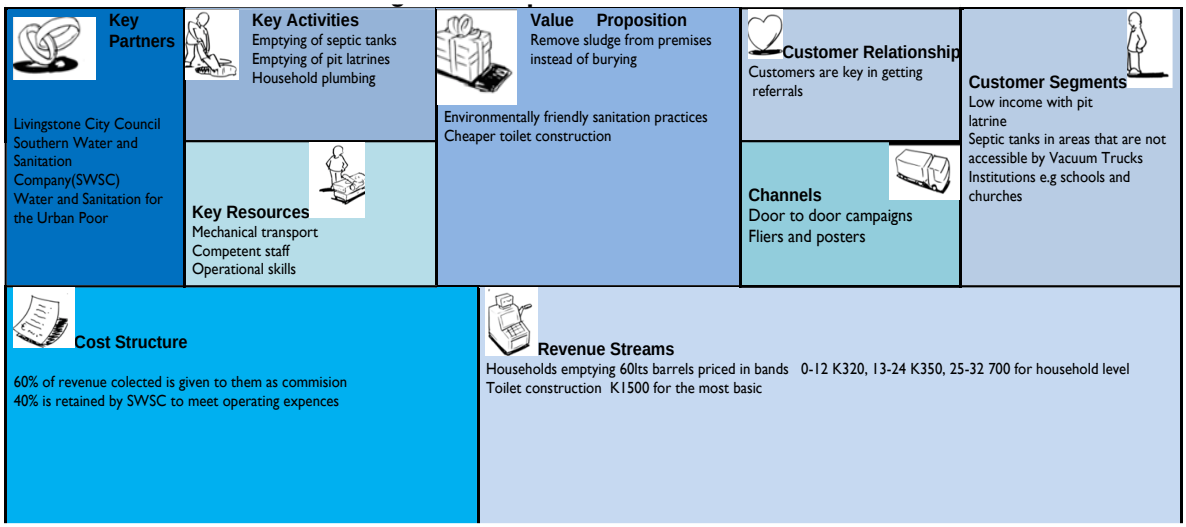


Source: USAID Expanding WASH

LIVINGSTONE PIT EMPTIERS

Under the Unilever-funded Developing and Testing Approaches to Expand Safe and Sustainable FSM Services in Livingstone, SWSC signed an MOU with a group of pit emptiers to provide sanitation. A first of its kind in Southern Province, the project aims to activate the expanded mandate for sanitation service provision, and can be replicated in other service areas under the utility's jurisdiction. The emptiers group, though not formally registered with PACRA, consists of seven members who were previously informally employed and had the skill set necessary for emptying. Under the project, the emptiers were formalized through training at the Livingstone Business School and Technical Education, Vocational and Entrepreneurship Training Authority(TEVETA)-approved certificates.

FIGURE 4. BUSINESS MODEL CANVAS - LIVINGSTONE EMPTIERS



Source: USAID Expanding WASH

WATER

In the provinces, CUs are the main source of water supply in urban areas, while low- income communities will have a mix of supply from the CU and from shallow wells and hand pumps. The prevalent model in rural areas is community-managed hand pumps distributed around several villages in the district.

WASH CONTEXT

SANITATION PROFILE

Expanding WASH used the JMP ladder to assess sanitation access, according to which "safely managed" toilet facilities refer to "improved facilities that are not shared and where excreta are safely disposed of in situ or transported and treated off-site". "Basic toilet facilities" refers to "improved facilities that are not shared with other households," while "limited toilet facilities" refers to 'improved facilities shared between two or more households". "Unimproved toilet facilities" are "pit latrines without a slab or platform, hanging latrines, or bucket latrines". Lastly, open defecation refers to "disposal of human feces in fields, bushes, open bodies of water, beaches or other open space or with solid water."

FIGURE 5. JMP SANITATION LADDER

SERVICE LEVEL	SERVICE LEVEL DEFINITION
SAFELY MANAGED	Improved facilities that are not shared and where excreta are safely disposed of in situ or transported and treated offsite
BASIC	Improved facilities that are not shared with other households
LIMITED	Improved facilities shared between two or more households
UNIMPROVED	Pit latrines without a slab or platform, hanging latrines, or bucket latrines
OPEN DEFECATION	Disposal of human feces in fields, forests, bushes, open bodies of water, beaches or other open space or with solid waste

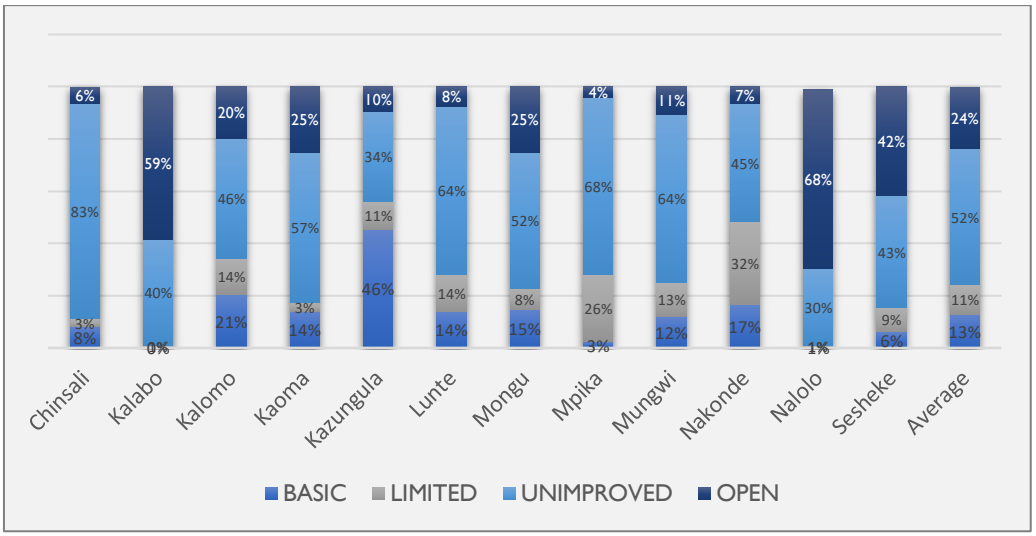
Source: JMP 2017 Annual Report

Overall, the baseline assessment indicates that 27 percent of households in the study practice open defecation, while 52 percent have access to unimproved sanitation services. Overall, 11 percent and 9 percent of households in the assessment, respectively, have limited and basic access to sanitation services. Nalolo (68 percent), Kalabo (59 percent), and Kazungula (48 percent) reported the highest

proportion of households practicing open defecation. Mpika (4 percent), Chinsali (6 percent), and Nakonde (7 percent) reported the least proportion of households practicing open defecation.

Chinsali (83 percent), Mpika (68 percent), and Mungwi (64 percent) reported the highest proportion of households with access to unimproved sanitation services. Kazungula (29 percent) and Nalolo (30 percent) reported the least proportion of households with access to unimproved sanitation services. Nakonde (32 percent) and Mpika (26 percent) reported the highest proportion of households with limited access to sanitation services, while Kaoma and Chinsali (3 percent each) reported the least proportion of households with limited access to sanitation services.

FIGURE 6. DISTRIBUTION OF HOUSEHOLDS BY SANITATION SERVICE LEVEL



Expanding WASH conducted a market assessment in 5 of the 12 project districts, namely Mongu, Kalabo, Muungwi, Lunte and Chinsali. The other districts will undergo the same process as the project identifies opportunities for private sector participation. The assessment revealed general frustration among stakeholders regarding development projects. Residents were concerned that a lot of money is spent without any significant improvement, and perceptions about the importance of improved sanitation are still a challenge.

Western province has the highest rate of OD in the country; AfDB provided funding for toilets only in schools and rural health centers, while households were encouraged to build toilets using their own materials and at their own cost. However, residents do not see the value of investing in an improved toilet when using the nearest bush will do. Other challenges relate to the accessibility of certain areas, especially during the rainy season. In Western province, for instance, areas like Nololo are remote, which makes accessibility a challenge. There is also the challenge of land ownership, which makes it difficult for commercial utilities to invest in certain areas. In Western province there is no clear-cut status regarding land ownership. Decisions about where to construct improved facilities are sometimes unresolved due to a lack of consensus about who owns the land.

MONGU

Most of the toilets in Mongu are not in an emptiable state, and the substructure does not comply with JMP standards. In peri-urban areas such as Manyamo and Mandanga, the types of toilets dug collapse during the rainy season because they use thatched material as a means of reinforcing the structure (since the soil is porous). The toilets are called basket rings, and retail for K70 each; this is a recurring cost, as new basket rings have to be installed after each rainy season. This is a huge

expense for the residents, who therefore resort to using a dambo or bush to defecate. This poses a challenge to the utility, as the cost of an up-to-standard toilet needs to be subsidized, and the utility's current financial position does not permit subsidies.

PRIVATE SERVICE PROVIDER ASSESSMENT

Basket Ringers

An interview with Ms. Namukolo, a basket ring seller, indicates that sales are slow but are higher in the rainy season. She sells an average of 4 to 6 baskets per month, at prices ranging from K70 to K100. Average monthly sales are between K450 to K600.

Another basket ring trader, Mr Muzala, stated that bricklayers, basket weavers, and thatchers are available in the compound to undertake sanitation projects. On average, the typical cost for a toilet include: basket ring at K60, reeds for putting up the superstructure K20, and labor at K50. Usually, the toilets last only one year, before another one is built to replace the completely filled up one. Sales for sanitation baskets are strong; vendors earn up to K2,000 in good months. Basket rings are therefore a generally accepted and sought-after sanitation solution for those who can afford them.

FIGURE 7. BASKET RINGS AT MANDANGA MARKET

FIGURE 8. POORLY CONSTRUCTED SUBSTRUCTURE

FIGURE 9. A WELL-PLACED TOILET RING IN MUYONGO VILLAGE IN KAMA

The district WASH coordinator, an official appointed by the local authority, relies heavily on community sanitation champions who interface with villages. Each ward is divided into catchments as operational areas for community champions, and these champions oversee village committees called sanitation action groups (SAGs), which directly monitor and encourage households on sanitation matters. Expanding WASH conducted an interview with the Muyongo community champion to understand the status of sanitation coverage in the village. Muyongo was recently "triggered," e.g., sensitized about sanitation, toilet construction, and hygiene maintenance and practice. In this village, the majority of the households were seen to be erecting toilets. Several others had excavated and exposed refuse and toilet pits. Households excavated pits using their own labor, and some bought ring baskets for K45-50 and used their own labor to build the shelters.

The SAG set a clear definition of an ODF household:[2]

- Adequate toilet provided (smooth base, cover lid for the squat hole, and tipping-taps. A tipping tap is an innovative hand washing facility made with recycled water containers. Additionally, ash or soap to wash hands should be readily available)
- The refuse pit must be excavated at the household level for solid waste management
- Dishrack to keep all utensils above ground
- Motor and pestle stand to process foodstuffs
- Bathing facility with better drainage

Sanitation Platform

Another innovation is the wooden sanitation platform (sanplat). A sanplat trader, Mr. Biemba, uses local wood, and has teamed up with two friends owing to high demand. Each sanplat retails for K150 to k200. Mr. Biemba indicated that business is good, up to K2,500 per month. However, this innovation still does not meet recommended containment standards, as most people use logs and sand-filled sacks.

FIGURE 10. SANITATION PLATFORM (SANPLAT) MAKER DISPLAYING THE PRODUCT

KALABO

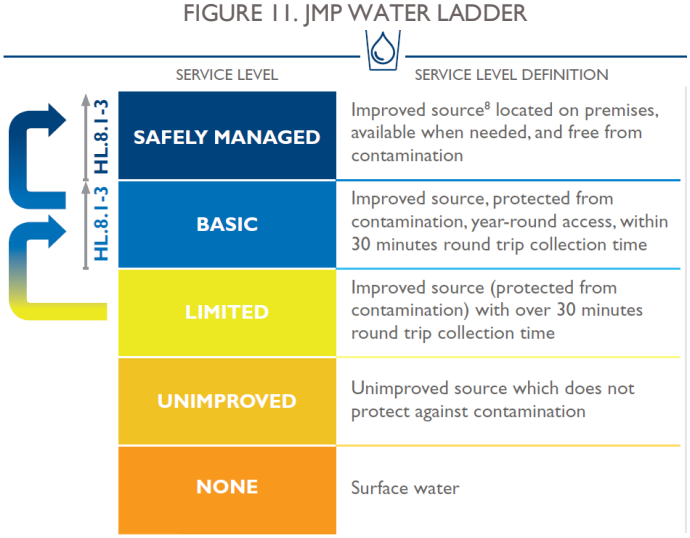
The WASH coordinator stated that Kalabo has more open defecation than other districts in Western Province, and that community sanitation champions face huge challenges reaching out to their target catchments. Expanding WASH conducted interviews with basket-ring vendors in Yuka, a rural growth center in Kalabo, on the Sikongo road, surrounded by a large peri-urban compound called Chinjenge Village. The program sought to understand the source of materials for basket weaving and the cost of production. One interviewee said that he sources materials at his own expense from bushes and shrubs close the Chinjenge Village, and has been in the trade for 6 years. He earns K600 per month or more when he takes the ring baskets to town for sale, but faces challenges in transportation. The overall uptake in Chinjenge Village is low, owing to the village not having been "triggered" under CLTS.

[2] See Annex 2 for photos.

Notwithstanding the fact that basket rings are not th ideal sanitation solution, and do not meet basic improved sanitation standards, these vendors are a critical service provider in the sanitation chain and can be onboarded to provide improved and safe sanitation products.

WATER PROFILE

FIGURE 11. JMP WATER LADDER



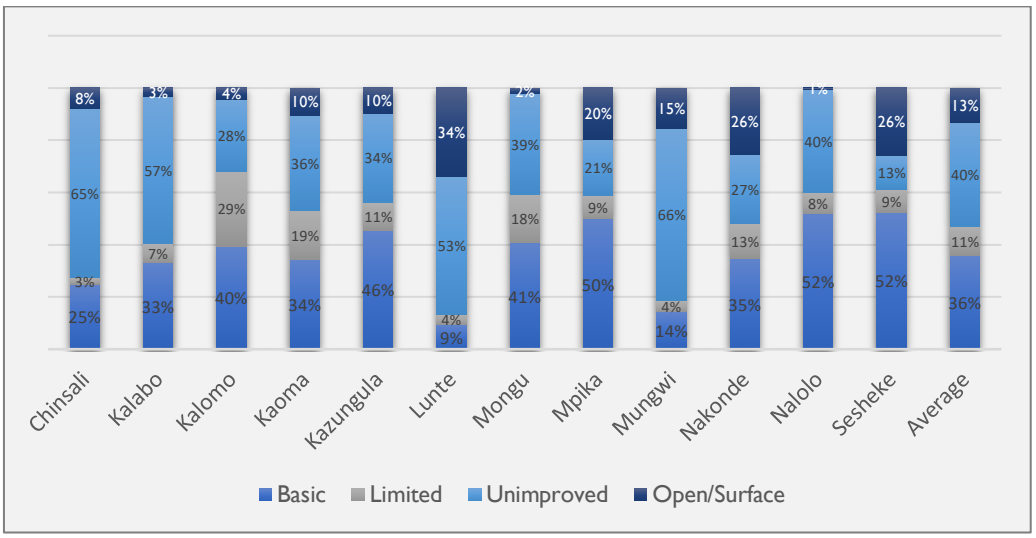
Source : JMP 2017 Annual Report

For the purpose of this baseline assessment, JMP criteria on access to water services was adopted. A "safely managed" water source is an "improved source located on the premises, available when needed, and free from contamination." A "basic water source" is an "improved source protected from contamination, year-round access, within 30 minutes round trip collection time." An "unimproved source" is one that that does not protect against contamination, while "none" refers to surface water.

The baseline assessment indicates that 13 percent (n=4,448) of households in the study have no access to water services. Overall, only 4 percent of households in the study have access to safely managed water services, 40 percent have access to unimproved water services, and 32 percent have access to basic water services. Disaggregated by district, Nalolo (52 percent), Mpika (47 percent), and Kazungula (43 percent) reported the highest proportion of households with access to basic drinking water services. Lunte (9 percent), Mungwi (14 percent), and Chinsali (21 percent) districts reported the least proportion of households with access to basic drinking water services.

Sesheke (12 percent), Kaoma (7 percent), and Kalomo (6 percent) districts reported the highest proportion of households with access to safely managed drinking water services. Mungwi (0.8 percent), Kalabo (2 percent), and Nakonde, Mpika, Kazungula and Mongu (3 percent each) reported the least proportion of households with access to safely managed drinking water services.

FIGURE 12. DISTRIBUTION OF HOUSEHOLDS BY WATER SERVICE LEVEL



MONGU

Mongu has an established WASH office that is vertically integrated within the Council. This office has registered most of the half-dozen drilling and WASH construction companies in the district. African Development Bank (AfDB) funded the councils to support rural livelihoods; two water schemes were developed under the auspices of the Mongu Council and handed over to the community to operate by the contractors.

The registered WASH contractors in Mongu are:

- Luena Water Wells
- Chisubu Construction
- Dana Water Wells
- Mushingo Water Wells
- Mushima Construction
- Empowered Community Helping Other (ECOHE)

The water schemes are grappling with the following operational challenges:

- Lack of the technical know-how for smooth operation, and absence of entrepreneurial skills
- Under-utilization of scheme potential
- Poor operation and maintenance regimes
- Inadequate funds to implement requests for water points from the wards
- Lack of resources for training and monitoring

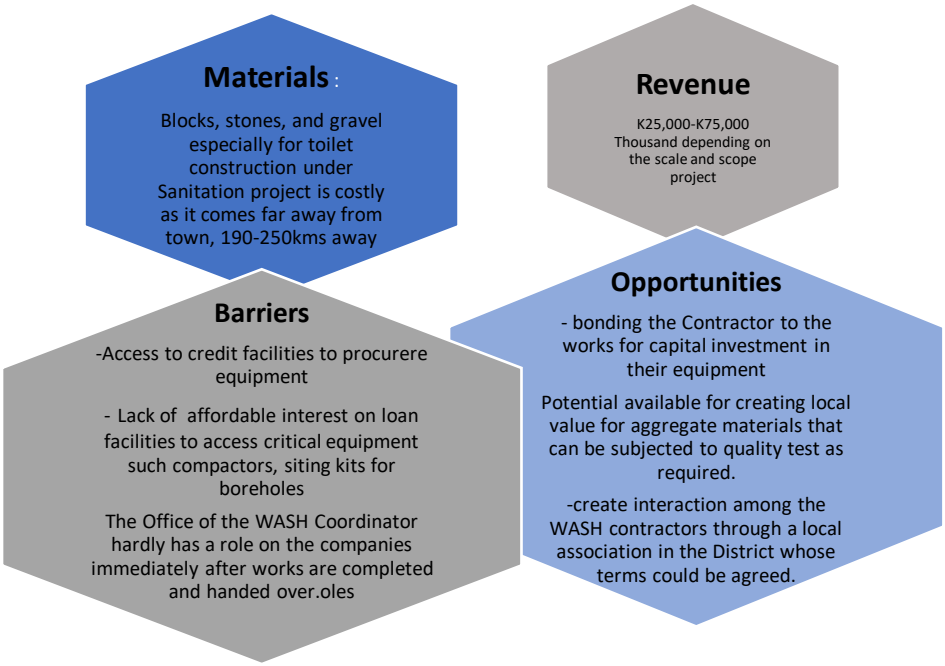
The district has had 167 boreholes drilled under the rural livelihood improvement project. Two local companies drilled 60 of these boreholes, 15 for Luena and 45 for Mushingo Water Wells. Luena has yet to develop and complete all 15 water points.

The local authority, despite being awarded the role of chairing and coordinating WASH activities in the district, has not collaborated well with other WASH agencies--such as the Pilot Project for Climate Resilience (PPCR), OXFAM, and the International Federation of the Red Cross (IFRC)--to understand the challenges and intricacies of schemes developed in rural, peri-urban, and growth centers. The coordinator had sufficient details and knowledge only about the water schemes funded by AfDB, and referred all other queries to various entities/project/programs, some of which had

already wound up operations. Most local contractors are poorly manage, as owners lack management and entrepreneurial skills. There is a challenge in sourcing aggregate materials, such as stones and gravel, given the land formation in the district. These materials have to be sourced from Kaoma and Mangango, 189 and 250 km away, respectively.

WASH Contractors

FIGURE 13. CHISUBU CONSTRUCTION OPERATING MODEL



Expanding WASH visited Kama, a growth center with a population of 6,000 spread out over six villages, Muyongo, Mafulo, Liembe A and Liembe B, and Nakasheke A and Nakasheke B. Kama has four government service facilities, the primary school, agriculture and veterinary camp offices, and a fully functional rural health center. Kama has been a trading point for a long time, given that travel between Mongu and Kalabo is largely by water. The Kama water scheme has a facility with three water kiosks, at which the most vulnerable customers pay K5 per month per household. The scheme has a water network that supplies the rural health center, school, and agriculture and veterinary camps, as well as individual customers, totaling 21 connections. The scheme was handed over to the community by the contractor in 2019, without any training other than how to switch the pump and inverter on and off. The scheme broke down on March 16, 2022. In May, the council sent an officer to assess the cause, who established that 13 of the 36 panels had been struck by lightning, and the control panel for the borehole was inoperative.

When in operation, the scheme was taking in K2000 to K2500 monthly. Regular expenses comprised K500 for the watchman and K200 for chlorine. The scheme managed to pay a registration and maintenance fee of K4,000 to the council.

Area Pump Menders (APMs)

Community champions (CCs) supervise and monitor APMs to ensure that all hand pumps are maintained and kept operational in a catchment. Some CCs are also trained APMs. The CCs work on a voluntary basis, and their services are often required by village catchments. Households make a capital contribution of K5 per month toward maintenance of the borehole. In Mutalai Village, four

water points were abandoned, three because spare parts were not available and one because of silting. The APMs should establish a value chain for supply of spare parts.

KALABO

Kalabo has 18 water schemes, broken down by funders as follows:

- International Federation of the Red Cross (IFRC) - 11
- New Apostolic Church Relief Organization (NACRO) - 4
- Pilot Project for Climate Resilience (PPCR) - 3

During the assessment, Expanding WASH examined four schemes, two by the Red Cross at Ufufu and Liumba and two by PPRC. the WASH coordinator confirmed chaotic transitions during the handover of these schemes, dumping the facilities in the hands of the community without imparting the necessary expertise.

The district has an elaborate process for assessing water needs, which involves obtaining a form from the community in need and minutes of the community meeting resolving to have a borehole. Minutes and forms are submitted to the WASH coordinator, who summons a district WASHE meeting to appraise the proposal and later undertake field appraisals as well. If successful, a Village WASH committee is formed around the site/village where bore is required, and, depending on funding, implementation follows.

Nearly all Water Schemed developed in Kalabo are coupled with an agriculture component. The Improving rural livelihood projects covered Kalabo for sanitation, but not water, in RHCs, schools, and markets. There is a considerable cadre of active area pump menders Kalabo. Also, the local authority, through the WASH office, opened and operate a shop to support sales for borehole spares under SOMAP. However, the stock has now been depleted.

An interesting case is the Ufufu water scheme. The infrastructure is fully functional, but there is gross underutilization of available water for agriculture. Water is given out free of charge to the community. Of the 64 farmer households allocated water for irrigation, only one farmer, Mr. Kamona, had realized that objective. The scheme is vulnerable to vandals scavenging for solar panels, and there was a near break-in the night before the Expanding WASH interview.

Mr. Kamona realizes a monthly profit of about K3,500 monthly, and incurs costs of between K600 to K800 on chemicals, fertilizers, and fuels. Kalabo does not chlorinate the water abstracted, and 10 of 33 stand taps in the farm block have been stolen.

Radical changes are needed for the use of water, including a re-think of the project model and an investigation of why people are not able to use water for irrigation. This may have something to with the cost of inputs, given the severe poverty level. Ufufu has not held a serious community meeting to discuss security of infrastructure, so thugs take advantage knowing production facilities are not guarded. Ufufu needs to re-engage with farmer households to ascertain the reasons for failing to plough allocated plots.

MUNGWI

The proximity of Mungwi to Kasama has resulted in an almost total absence of local hardware businesses. Interviews in Lunte were challenging, as potential and existing stakeholders were almost nonexistent. Expanding WASH will encourage local businesses in Kasama to include Mungwi in their customer portfolios.

LUNTE

Given Lunte's remote and undeveloped environment, only small-scale businesses are present, including pump menders, artisans, and plumbers. The main source of water is an open furrow from a natural spring. Lunte depends on Kasama for most of its services and supplies. The D-WASH is not active due high iron content in the area, residents preferring to drink from an open furrow in a natural spring. The CU has no presence, resulting in a high prevalence of water-borne diseases.

There is a pool of trained masons and artisans in the district. An interview with a local artisan trained by SNV in the construction of pit latrines revealed that most locals cannot afford to construct improved toilets, only institutions such as the school and the clinic and a few individuals. Residents are accustomed to using thatched latrines, even given the risk of collapse during the rainy season.

Lunte also has some pump menders, who indicated that their business is not profitable due to the unpopularity of hand pumps (given the brackish taste of water because of its high iron content). The menders charges between K250 to K300 but are hampered by lack of spare parts and tools. In addition, hand pumps are only used by institutions such as schools, clinics, and government offices. Despite Lunte's proximity to Kasama, where most spare parts are sourced, the cost of transportation affects profits.

There is an opportunity to establish a supply chain so as to incentivize the private sector. CUs can stock spare parts, and enter into agreements with suppliers so that pumps are not abandoned for months on end due to lack of spares. Given that spares are not fast-moving commodities, a dedicated supplier in Lunte may not be economically sound. However, a supplier to ChWSSC is worth considering.

CHINSALI

Like Lunte, Chinsali has limited small scale WASH service providers. An interview was conducted with a contractor who is involved in borehole drilling and plumbing. The interviewer indicated that his business is profitable but lacks capital to purchase additional equipment like a borehole drilling rig. He explained that with the necessary support and opportunity some outlying establishments can be covered by the private sector such as using solar powered isolated piped water systems. Like most businesses previously interviewed in other areas, lack of access to working capital is a huge challenge. There are a number of hardware stores in Chinsali that can be considered in the supply of spare parts for water points. A hardware owner interviewed expressed willingness to be a part of the supply chain but indicated paying for WASH services may be a challenge due to low income as most use their produce as a means of exchange.

CHALLENGES AND OPPORTUNITIES FOR THE PRIVATE SECTOR

CHALLENGES

- The relatively low income of residents inhibits their ability to invest in improved sanitation
- Open defecation practices are accepted by communities
- Rural areas are sparsely populated, making cost of service provision high
- The cost of material for construction of toilets is high, due to distance from material sources
- Some areas are not accessible, especially during the rainy season

- WASH is a regulated industry. Tariffs are not full cost reflective, which may disincentivize the private sector
- Mistrust of CUs when it comes to billing and reliability of services orovided
- Lack of access to credit facilities. Financial institutions are not keen to provide operating capital to entrepreneurs

OPPORTUNITIES

- Limited capacity of CUs to adequately provide services to all areas under their jurisdiction; capacity building can help
- Introduce new players to supply the market, especially for sanitation
- The growing population in transit towns like Kaoma offers an opportunity for revenue collection if the sewer and water network is expanded. Customers already pay private borehole owners for water
- There is political will for private sector participation, backed by laws and regulations
- The private sector can leverage a constituency development fund to partner with government

INTERNATIONAL BEST PRACTICE

Small-Scale Partnerships in Sanitation

When looking to the private sector for sustainable solutions for peri-urban and rural sanitation issues, the approach must address the immediate needs of the community in an effective and sustainable way, while also satisfying the private sector's hurdle rate and risk profile for investments. Historically, solutions for private-sector involvement in small-scale sanitation projects have focused on informal arrangements between the service provider (usually the septage pumper) and the local homeowner or landlord, often in an unplanned emergency sewer overflow situation that has negatively impacted local residents, surface water supplies, and groundwater.

Though typically responsible for the protection of water resources, utilities in Zambia have largely been left out of the customer relationship, as well as any solutions. Compounding the problem, short-term sanitation solution often focus on addressing overflows, but there is no long-term solution for the improper disposal of collected wastewater.

Practical examples of private sector and community-based programs that approach sanitation issues in different ways are provided below, reflecting the nature, type, and size of sanitation issues faced by the public sector.

Graphics for each example are available in **Annex 2. Best Practices Images**.

Dodoma, Tanzania (Chang'ombe and Swaswa Districts)

In Dodoma, Tanzania, the onset of the rainy season leads to widespread septic tank failures and overflows, creating unhealthy and unpleasant conditions, particularly in peri-urban and rural areas. Pumping an overflowing septic tank on an emergency basis costs as much as 50 percent of a resident's monthly wage, resulting in either severe and unexpected financial hardship or a failure to act.

To address the problem, a pilot preventative maintenance program was developed for sanitation management in two peri-urban areas. The project design was created by the World Bank technical consultants in consultation with key public and private stakeholders in Dodoma. The program allows the local Dodoma Water Company to manage the overall operation. The premise is that switching to a preventive-maintenance approach to sanitation provides multiple benefits to the water utility, utility customers, sanitation companies and the environment, such as:

- Eliminating negative impacts on water sources (surface and groundwater) caused by septic tank overflows
- Providing additional revenue to the utility
- Providing a service to the customer at lower cost, and on a monthly basis, rather than on an emergency basis with a large cash-flow impact on the customer
- Providing a viable, stable business model for septage haulers via regulated service to a specified number of customers and a guaranteed revenue stream
- Eliminating illegal or unsanitary disposal of untreated septic tank wastes to local water courses

The basic elements of the scheme include:

- Private-sector haulers bid for, or are awarded, an exclusive concession for the project area, and operate under a service contract of, say, 5 years
- Project design includes a full range of customer classes, both urban and peri-urban, to ensure that the benefits of the scheme are felt across all economic classes
- All septic tanks within the designated service area are pumped by the contractor(s) on a pre-arranged schedule as a regular maintenance activity, avoiding overflows, public health issues, and costly emergencies
- The selected private hauler(s) is obligated by contract to dispose of collected waste in a specially constructed septage treatment facility.
- Haulers are paid by the utility only for waste disposed at the disposal facility, measured either by volume or weight
- The homeowner or septic tank owner pays a sanitation fee to the utility as part of the residential water bill. Other customers served by the scheme who are poor, live in informal areas, or are not utility water customers are cross-subsidized by other customers
- Fees are set based on the cost of providing the service (pumping, hauling, and treatment), plus a small amount to the utility to administer the service. Failure to pay the sanitation fee brings the same penalty as failure to pay the water bill

Jakarta, Indonesia (Petojo Utara District)

Petojo Utara is a neighborhood in Jakarta, Indonesia, comprising 735 households and a total population of 2,906 people. USAID supported implementation of a pre-existing initiative that was designed and co-funded by the NGO through a coordinated community program in water and sanitation, hygiene promotion, and greening and composting. A household and public hand-washing facility was completed in 2007, with community participation in land acquisition/leveling and NGO/donor support in the facility's actual construction.

The facility combines a community clothes and handwashing station with a toilet facility. Waste from the toilets is treated by an anaerobic process before the treated water is discharged to a local stream and treated solids composted. The quality of the wastewater is examined every six months, and complies with Indonesian wastewater standards.

The facility is operated and maintained by a designated community committee. 80 septic systems were rendered superfluous by the community system. Users pay a monthly fee for use of the facility, to cover the cost of operating staff and maintenance. The facility operates over two shifts, with a staff of four community members, and at a net profit that will be used to maintain and expand the facility, as required.

Medan, Sumatra, Indonesia (Tembung Peri-Urban Area)

Tembung is a rapidly growing peri-urban area near the major city of Medan in northwest Sumatra in Indonesia. The growing population and rural-to-urban transition has led to the exacerbation of a sanitation problem that threatens both surface and groundwater resources in the area.

The Tembung community uses groundwater for daily consumption (washing and drinking water). The quality of this source was threatened by improper septage disposal and poorly functioning septic systems and soakaways. Under a USAID grant, a Decentralized Wastewater Treatment System (DEWATS) was constructed jointly by the local community, along with the district government. The community contributed the land required for the DEWATS facility.

The DEWATS serves community households within a designated 200-meter perimeter. Under the program, a village-level sanitation committee was established to manage the facility. Each household served is charged a monthly fee that is used for facility maintenance and improvements.

As a result of the success of this model, neighboring communities have expressed interest in adopting similar systems. Paradoxically, while the community-action model has been successful, it was found that local government is not confident enough to implement this program more widely, due to limited staff that properly understands the community-based system. The successful replication of the process will be aided by building CU staff capacity, through training of CU officials.

CONCLUSION

The findings of this market assessment will be used to:

- Engage in consultations with representative private sector actors, to delve deeper into these findings and inform pipeline development activities
- Inform private sector dialogue and the design of a private sector engagement forum
- Identify gaps in service delivery that can be filled as potential partnerships are considered by CUs
- Identify areas where private sector participation can be leveraged

This report will inform private sector partners who work with CUs to fulfil their expanded mandate for WASH service provision. The assessment identifies opportunities and barriers that promote and limit private sector participation. The major impediments include:

- Willingness and ability to pay for cost effective water and sanitation services
- Low regulatory leverage for cost-effective tariffs that can attract the private sector
- Community acceptance of unsanitary methods, such as open defecation
- Limited access to credit facilities that can allow existing private players to extend operations in project areas
- Lack of technical know-how of water schemes for smooth operation
- Absence of entrepreneurial skills
- Under-utilization of scheme potential
- Poor operations and maintenance regimes
- Inadequate funding to implement requests for water points from wards
- Lack of resources for training and monitoring

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ANNEX I. INTERVIEW GUIDE

Existing service providers (Willingness and Capacity Assessment)

Title: Water or San

Name of the business:

Scope of the business:

Name of the person being interviewed and position:

Date of the interview:

1. How long have you been doing this business ?
2. How did the business start?
3. What service do you provide exactly?
4. Is that the only service your provide or are there others?
5. Who is your customer base (detail rural/peri-urban(rural growth center)
6. How many services do you provide on average (week/month)
7. How much do you charge per service (detail the different types of services)
8. Is your customer base satisfied with your costs or do they think you're too expensive?
9. Are you able to generate profit, break even or are you operating at a loss (and if so, how do you cover it)?
10. Are you monitored/overseen in any way/accountable towards Local Authority and/or Utility? If so, please detail how.
11. What skills do you currently have/need that enables you to do this business?
12. What equipment do you currently have that enables you to do this business?
13. Do you experience any challenges with equipment/spare parts provision? Please elaborate.
14. To what extent are you able to operate safely (for sanitation, checking on occupational health and safety)
15. What operating constraints does the business face?
16. What opportunities do you have in expanding to new (usually low-income) markets?
17. What barriers may you have in expanding to new (usually low-income) markets?
18. Do you have the capacity to expand water/sanitation service provision?

19. What would you need to grow your capacity(access to credit, better customer engagement tool, demand creation strategies etc)?

20. What payment and credit systems, incl. (in)formal savings and loan systems for (a) households and (b) small-scale local businesses?

21. How much revenue do you generate? Is your revenue stable over the year or seasonal?

22. What is the operating cost breakdown?

23. What are the supply chains and prices for construction goods (materials, components) and pit emptying services and how are these prices determined and set?

Potential service providers (Willingness and Capacity Assessment)

1. Are you interested in starting water/sanitation service provision?

2. How do you anticipate the service demand to look like (who/what/how often/at what cost?

3. Do you have the capacity to start sanitation service provision?

4. Have you ever done this type of work before? If yes, please elaborate.

5. Kindly elaborate your answer to 1 and 2 above.

District wash coordinator or designate

Water

1. How many water service providers outside the utility are in this peri urban area/rural growth center/rural area?

2. How are they selected?

3. What skills and capacities do they have for the work they provide?

4. What skills are lacking?

5. Do they make a profit? If so, what is the estimated amount

6. What opportunities exist in expanding water supply in the said area?

7. What opportunities exist in expanding water supply in the said area?

Sanitation

1. Which sanitation value chain providers exist in this peri urban area/rural growth center /rural area? Hint: Masons, Artisans, Pit Emptiers, Vacuum Tanker Operators

2. What skills and capacities do they have for the work they provide?

3. What skills are lacking?

4. Do they make a profit? If so, what is the estimated amount.

5. What opportunities exist in expanding sanitation service provision the said area?
6. What barriers exist in expanding sanitation service provision in the said area?

ANNEX 2. INTERVIEW PHOTOGRAPHS

- **WESTERN PROVINCE**

A. Ntumbi Mandandi with her daughter selling Toilet Basket rings at Kashuwa Market

B. Kalenga Bemba his business partner the Sanitation Platforms (Sanplats) maker displaying his merchant along Limulunga road in Winela Village in Mongu

C. Base of Based is sharpened for easy installing into ground and coupling the baskets if the pit in deeper usually for shallow wells

D. Well covered baskets and reed mats for construction of toilet super structure at Mandanga Market

General Remarks:

Ntumbi recently started the business of selling Basket rings and relocated to Mulombwa areas, which is close to Kashumwa Market. She is expectant of a rise in sales with time.

A. Well-built basket rings for toilets at Mandanga Market

B. Abandoned Public toilet at Mandanga main Market

C. Poorly constructed Toilet in Mandanga Community

D. Toilet base surface not even with sand as required

General Remarks:

Mandanga has high uptake of Basket rings in Mongu owing to wide and large compound size of this peri-urban area

A. Community Champions Supervisor trying the borehole Mutalai B Village

B. Typical Homesteads in Mutalai B Village

C. Likezo Liwakala of Mutalai indicated she and other households pay K5 every month for maintenance of the Borehole

D. Part of the Homesteads in Mutalai B Village

General Remarks:

The operations and maintenance regime for the boreholes is unsustainable. Our drive through Mutalai Village revealed four Water points that were abandoned owing to spares not being available and one on account of silting.

A. Kama Primary School in the background of the plains and Zambezi River

B. Kama Main market

C. Kama Agriculture Camp Office which is also the residence for the Agriculture Extension Officer

D. Kama rural Health Center Service Kama rural Growth Center

General Remarks:

Kama growth Center is well populated up to an estimated population of 6000 residents comprising six villages namely Muyongo, Mafulo, Liembe A and Liembe B, Nakasheke A and Nakasheke B. It four government service facilities, that is the primary school, Agriculture and Veterinary camp Offices, and a fully functional Rural Health Center.

A. Consultant having a meeting with the Kama Water Scheme Committee and some of the villagers

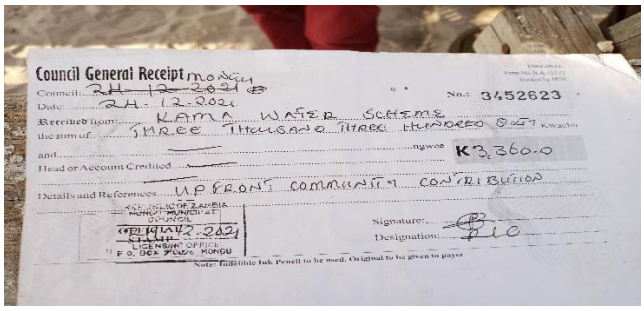
B. The Solar grid shelter comprising 36 solar panels to power the borehole pump and load into the 100m3 elevated Tank

C. Scheme Chairperson explaining the blown Control Panel and Inverter

D. The Pump House for Kama Water Scheme.

General Remarks:

Kama Water Scheme has been underutilised and is poor maintained. This can be attributed to the mode of transition from the Contractor to the Community in which no proper induction was undertaken.



A. Upfront Contribution paid to Mongu Council by the Committee for O&M

B. Poorly Constructed Toilet sub-structure

C. Community Sanitation Champion demonstrating how to frame the toilet super structure

D. A well excavated Refuse pit - : *A requirement for a household to be declared Open Defecation Free.*

A. Poorly Excavated Refuse pit

B. Consultant Faced several sand blockage on the road and the drive had to shovel loads of sand to enable vehicle passage

C. The journey to Kama Growth Center require resilience and patience as the sand terrain was a huge deterrent

D. The vehicle belaboured to arrive in Kama Area

General Remarks:

Mongu is well known for heavy sand terrain but there are locations such as Kama where appropriate prior planning is very critical

A. Bricks are placed at entrance for stamping the feet

B. A well set out Toliet base in Kama Village

C. Every toilet needs to have a Lid and a smooth Surface as seen here

D. The owner of the toilet Mr. Gilbert Mwiinga explains how he maintains it

General Remarks:

Mr. Mwiinga who is also the Agriculture Extension Officer has been helping the Community in promoting Sanitation in Muyongo Village of Kama

A. Mr. Kabeta pointing where the tip-tap should be placed in a toilet

B. The Community Champions Supervisor showing how to use the tipping tap at his toilet in SOLA village

C. Emphasizing in his words "Faeces to be washed at left at the Toilet" as he emerges out of his demonstration

D. A happy village boy drawing water at the communal borehole.

General Remarks:

There were nearly four boreholes that were abandoned in along Sola and Mutalai A villages owing to minor spares missing, and the affected family have had endure many months of not having water nearby.

	
A. The PPCR water supply and Irrigation Project in Kalabo	B. Integrated farming of Cashew nuts under the project to grow from irrigation
	
C. High breed Cashew nuts from Brazil given to community to growth plantation and manage	D. Cashew process plant under Construction

General Remarks:

PPCR Intervention method included mitigating the climate charge effects on households by planting drought resistant strains of Cashew and provide systems for irrigation.

	
A. Ufufu Water Scheme in Kalabo. Mr. Kamona a Committee member leading us to the facility	B. A well-built Water production Facility
	
C. Ufufu School that also benefited with two stand taps at Teachers homes	D. Mr. Kamona showing the Consultant his production out of the Water supplied by the Project

General Remarks:

The Facility in Ufufu Village has grossly been underutilised only Mr. Kamona has put to use part of his land and produces a variety of vegetables which he sales in the CBD of Kalabo.

	
A. In the picture in the Ngambela (Prime Minister) of Senior Chief Mweemumndu, The Liumba Water Scheme Chairperson Mr. Mubanga Machile and the District Wash Coordinator for Kalabo , Mr. Sichinga	B. Typical homestead in Liumba Village
	
C. Boreholes Spares shop opened by the Council but has been closed for a long time owing to absence of spares stocks, under the Sustainable Operation and Maintenance Practice	D. The Consultant pulled over to talk to Liseli Lubasi who walked 4kms to come and draw water at Liumba Water Scheme. She also confirmed that they do not pay anything

General Remarks:

Liumba Water Scheme like Ufufu were developed on the same principle to sustain and promote agriculture as well as provide access to clean water. However, this 6 Has equally been underutilised save for the tomatoes that the Scheme Chairperson has been growing in the section of the land

A. Chinjenge Village in Kalabo has the worst open defecation record. In the foreground is the Kalabo WASH Coordinator leading the Consultant in the Transect walk

B. Most houses the consultant came across in the transect walk had no toilets.

C. Chiyongo Kanyanga of Chinjenge village has been making basket rings for toilets for the last four years. He had a toilet at his home too.

D. A water Tap dried up in March owing to lack of Spare parts at the intake for Yuka Mission Hospital that supplied the surrounding community.

General Remarks:

Yuka is a growth center in Kalabo on the Sikongo road. A large peri-urban compound called Chinjenge Village surrounds it.

	
A. A completed toilet with an incomplete washing facility in front	B. The type of toilets previously used by pupils and staff at Nalyonwa Primary School before the AfDB project through WASH provided these new toilet and washing facilities
	
C. The Washing facility looks like it was vandalised, the WASH Coordinator indicated that it was yet to be completed after delivery of the drum.	D. This is the prototype washing facility built around toilets *(NB: The picture is from another District –MWANDI) and was used here for illustration purpose only)*
General Remarks: The school has a population of over 1,000 pupils thus require most facilities than was granted.	

NORTHERN AND MUCHINGA PROVINCES

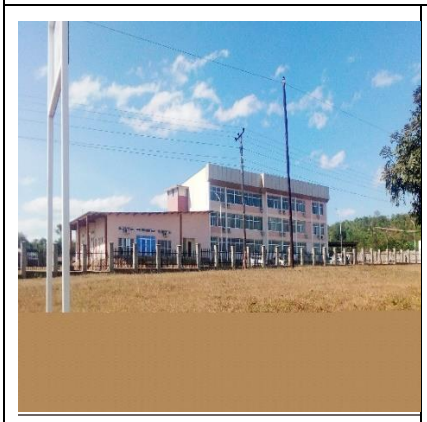


FIGURE 14. CHINSALI DISTRICT COUNCIL OFFICES

FIGURE 15. CHINSALI COUNCIL OFFICES-BACK VIEW

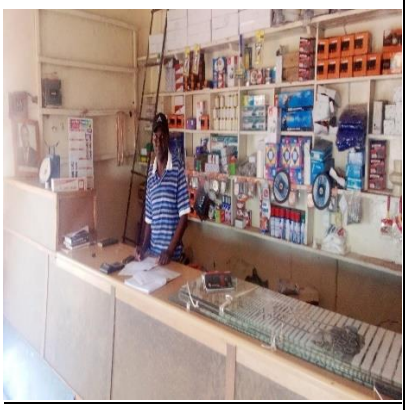


FIGURE 16. WILSON KASONDE-HARDWARE STORE

FIGURE 17. CHARLES MUTATIKWA-CONTRACTOR AND SUPPLIER.

FIGURE 18. DISPLAY OF SOME OF HIS WATER PUMPS IN HIS STORE

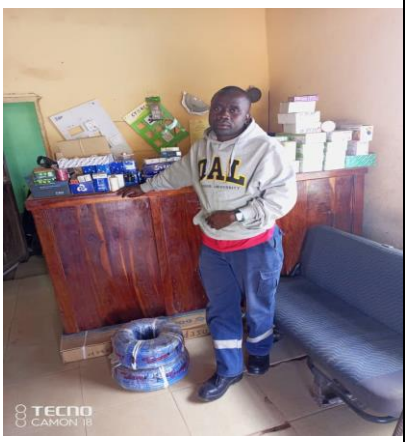


FIGURE 19. INSIDE HIS HARDWARE SHOP

FIGURE 20. LUNTE COUNCIL OFFICES

FIGURE 21. CHANSA MULENGA-GROCERY STORE OWNER

FIGURE 22. LUKA BWALYA SNR, HEALTH INSPECTOR

FIGURE 23. LUNTE COUNCIL OFFICES

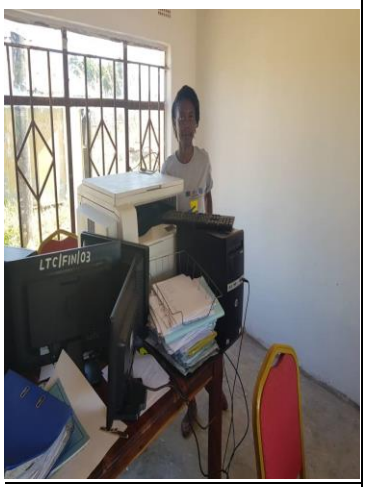


FIGURE 24. ALICE MWANZA-ACTING D-WASH COORDINATOR

FIGURE 25. CHANSA MULENGA INSIDE HIS GROCERY STORE

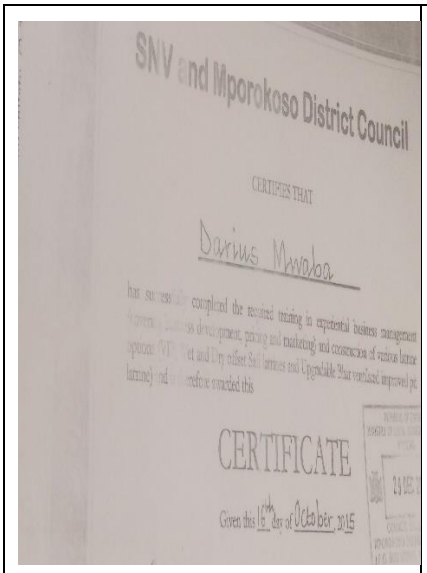


FIGURE 26. SNV ARTISAN CERTIFICATE

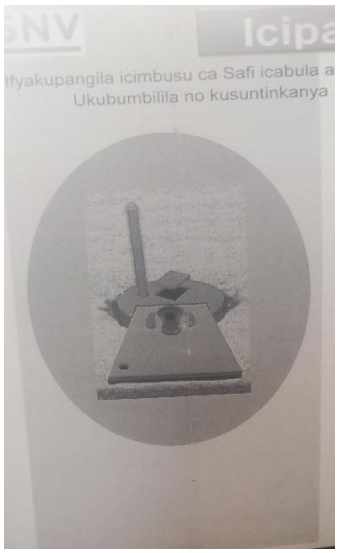


FIGURE 27. SNV-ARTISAN TRAINING MANUAL IN LOCAL LANGUAGE-BEMBA

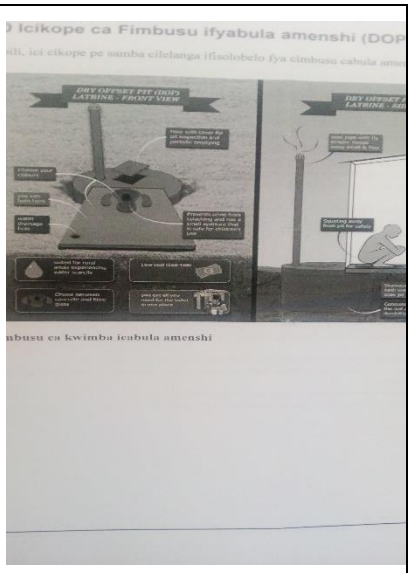


FIGURE 28. ILLUSTRATIONS IN TRAINING MANUAL

FIGURE 29. WAZIMA GENERAL DEALERS IN KASAMA

FIGURE 30. SERVING A CLIENT OUTSIDE WAZIMA HARDWARE IN KASAMA

FIGURE 31. WAZIMA GENERAL DEALERS-KASAMA

FIGURE 32. WAZIMA GENERAL DEALERS IN KASAMA

FIGURE 33. SERVING A CLIENT OUTSIDE WAZIMA HARDWARE IN KASAMA

FIGURE 34. WAZIMA GENERAL DEALERS-KASAMA

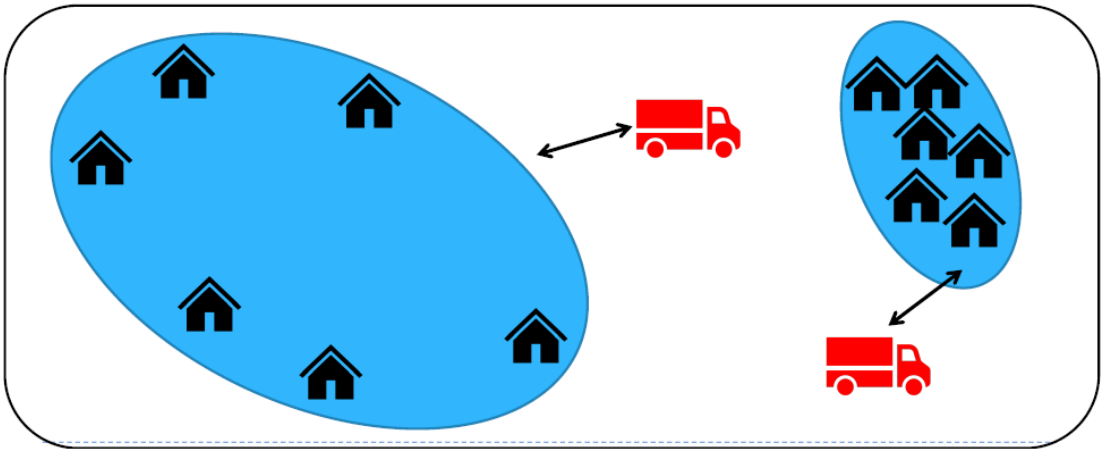
FIGURE 35. OPEN FURROW FROM NATURAL SPRING IN LUNTE (MUKUPA KAOMA AREA)

FIGURE 36. RUST-STAINED BUCKET FROM HAND PUMP WATER IN LUNTE

ANNEX 3. BEST PRACTICES IMAGES

- **DODOMA, TANZANIA**

Costs/Factors	Existing Situation	Improved Scheme
Cost control to private sector	Very unpredictable, more driving, higher fuel/maintenance costs	Scheduled services in same area→ lower fuel/maintenance costs
Impact on DUWASA	DUWASA has no control over septage in service area	DUWASA has control and can manage septage schedule



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