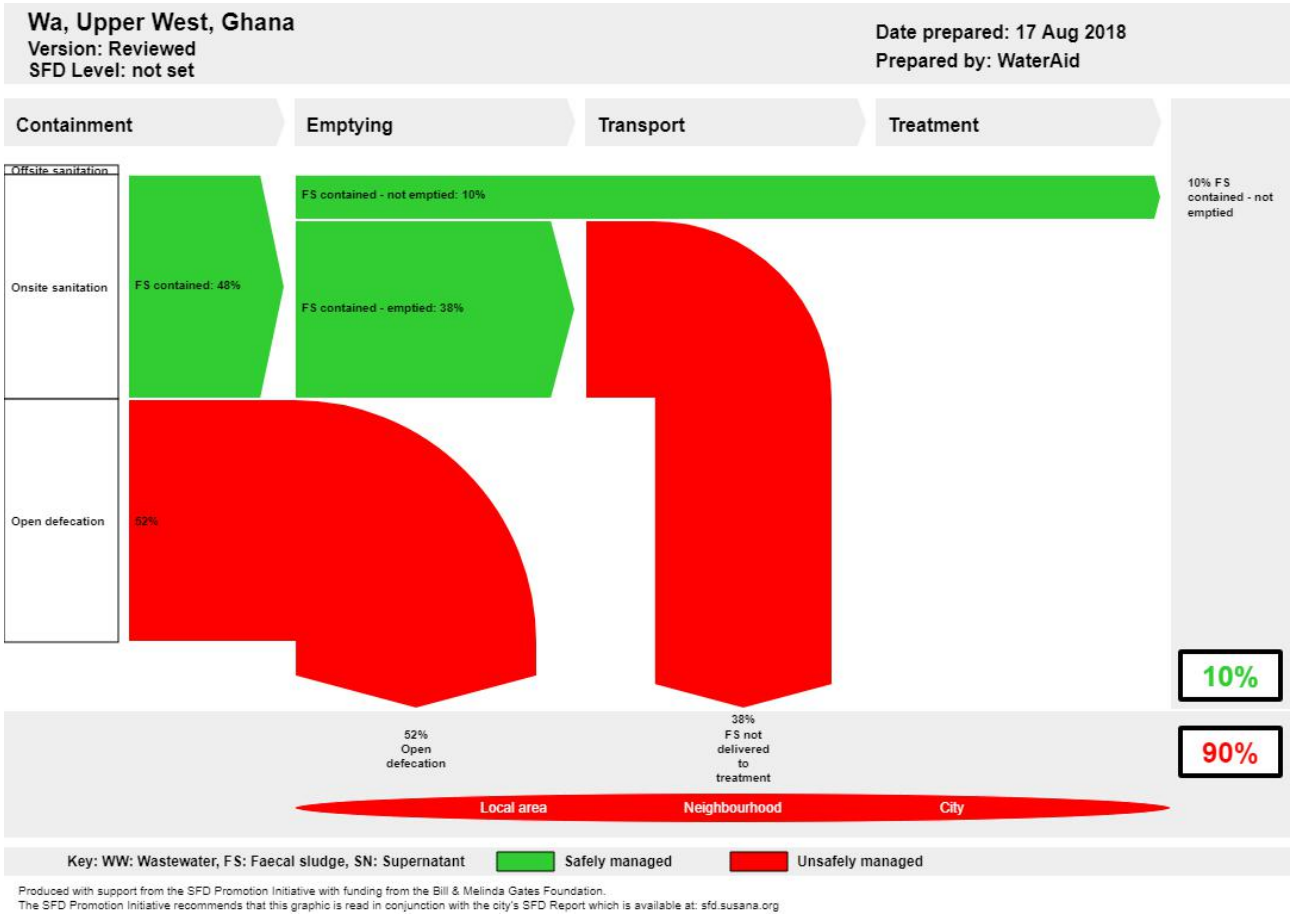
SFD Lite Report

Wa
Ghana

This SFD Lite Report was prepared by WaterAid Ghana.

Date of production/ last update: 22/08/2018

1 The SFD Graphic



Produced with support from the SFD Promotion Initiative with funding from the Bill & Melinda Gates Foundation.
The SFD Promotion Initiative recommends that this graphic is read in conjunction with the city's SFD Report which is available at: sfd.susana.org

2 SFD Lite information

Produced by:

- WaterAid Ghana

Collaborating partners:

- Wa Municipal Assembly (WMA)
- Dominic Awizah, Environmental Health and Sanitation Unit, Wa Municipal Assembly
- Emmanuel Volsuuri, Operations Manager, Urban Waste Company, Wa

Date of production: 17/08/2018

3 General city information

The Upper West Region of Ghana is located in the north-western corner of Ghana, and is bordered by Upper East Region to the east, Northern Region to the south, and Burkina Faso to the west and north. Wa lies between latitude 9°55'N to 10°15'N and longitude 2°20'W to 2°35'W (Figure 1) and it is situated at elevation of 326 meters above sea level. It has a land area of approximately 580 square kilometres, which is about 6.4% of the Region. Wa Municipality is in the south-eastern part of the Upper West region and shares boundaries with Nadowli District to the north, Wa East to the East, Wa West to the west and Sawla-Tuna-Kalba districts to the south (Figure 1). Currently, the total population of the Municipality stands at 127,284 (male: 61,826, female: 65,458) (*GSS, 2012*). The Municipality has an urban population growth rate of 4% as compared to the national urban growth rate of 3.4% (MESSAP, 2018-2022; *GSS, 2005; GSS, 2012*). The population density is 542 persons per square kilometre with associated development implications in the areas of housing, education and health facilities, environmental sanitation, water supply, pressure on land and socio-economic infrastructure due to the high rate of urbanisation (*GSS, 2010*).

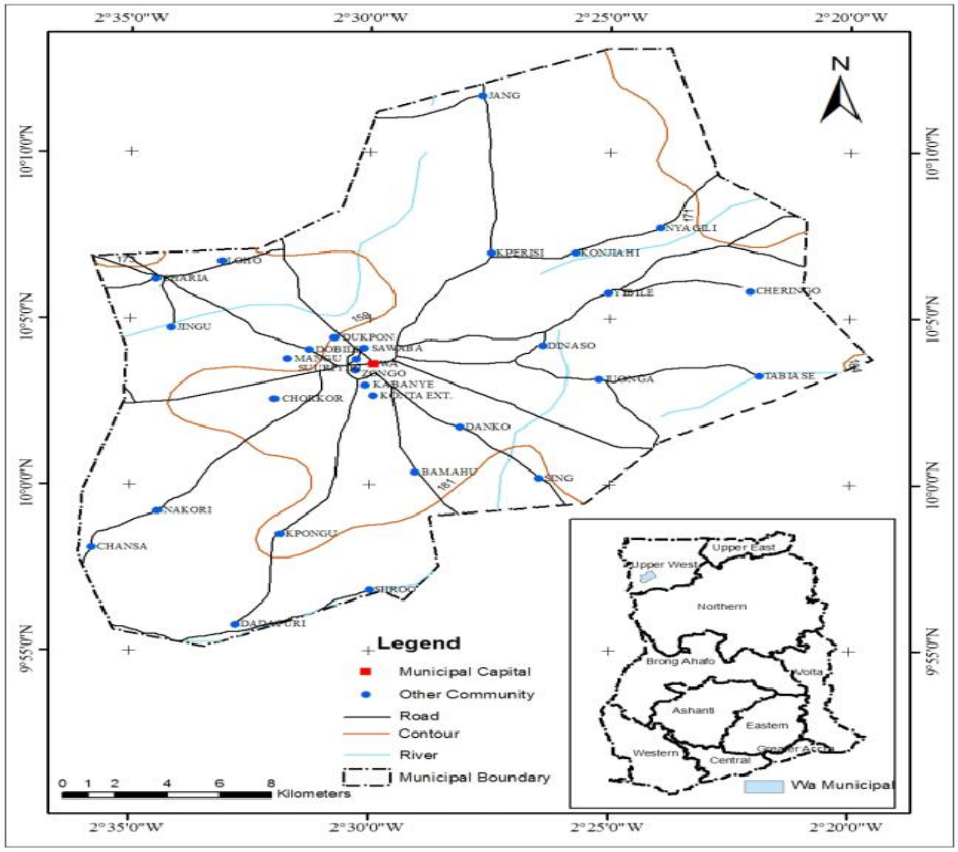


Figure 1: Map of Wa Municipality boundary and major towns including Wa
Source: Ghana Statistical Service, GIS

Average incomes are low, with nine out every ten of the population classified as poor. The average household size in Wa Municipality is 5 persons. Children constitute the largest proportion of the household structure accounting for 42 percent of the household population.

The spatial distribution of the population displays typical characteristics of a young municipality – a heavy concentration of population in Wa town surrounded by smaller towns and rural settlements. The significance of this type of distribution is that Wa town provides the highest-level services (first level services and functions) in health, water, sanitation & hygiene, education, finance, administration of justice and security, commerce and transportation, amongst others, to its hinterland and patent services for resource mobilization, peace building and community needs identification (*IJEPP, 2015*). Wa town has a population of 78,107 making it the biggest city in Upper West (*MESSAP, 2018-2022*) and 61% of the Municipality.

Wa depends largely on mechanized boreholes (groundwater) distributed through yard connections and public standpipes (*GWCL, 1995*). Together with handpump boreholes, groundwater source water supplies constitute about 73.3%. Recently, part of the city has been hooked onto the Jambusi water system, a surface water source. The commonest toilet facility is public toilet and is used by 37 percent of households in the Municipality. The use of WC is the second commonest. About 42 percent of the households in the Municipality have no toilet facility. Regarding solid waste, 45 percent of households in Wa Municipality dispose of their solid waste in a public container while 24 percent use a designated open space. Only 4% of solid waste is collected door-to-door by a private company, Urban Waste (*GSS, 2010*)

The Wa Municipality is without a sewer system. Excreta and wastewater are discharged to septic tanks, soakage pits, gutters and vacant lots/open space/bush. Some households use inadequately built septic tanks whose content infiltrates underground and occasionally overflows and is carried into streams. Most residents release wastewater into vacant open spaces and bush areas. The wastewater from households, car-washes, institutions, restaurants and hotels is released without treatment. Thus, one of the highest priority challenges to be addressed in environmental sanitation in Wa Municipality is safe excreta disposal. Open defecation from various sources, including the disposal of faeces from children under five and potties into the environment is widespread, and most excreta disposal facilities fail to meet technical standards, often resulting in seepage.

In Wa, the wet season is hot, oppressive, and overcast and the dry season is sweltering and partly cloudy. The hot season lasts for 2.6 months, from February to April, with an average daily maximum temperature above 36°C. The cool season lasts for 2.6 months, from July to September, with an average daily maximum temperature below 31°C. Between the driest and wettest months, the difference in precipitation is 199 mm (*Climate-Data.org*). The rainy period of the year in Wa lasts for 8 months, from March to November.

The landscape is undulating, transacted by major water courses. Most areas are waterlogged particularly during the rainy season (*MESSAP, 2018-2022*). The topography within 2 miles of Wa contains only modest variations in elevation, with a maximum elevation change of 66m and an average elevation above sea level of 317m.

4 Service outcomes

Wa, Upper West, Ghana, 17 Aug 2018. SFD Level: not set
Population: 127284
Proportion of tanks: septic tanks: 100%, fully lined tanks: 100%, lined, open bottom tanks: 1

System label	Pop	F3	F4	F5
System description	Proportion of population using this type of system	Proportion of this type of system from which faecal sludge is emptied	Proportion of faecal sludge emptied, which is delivered to treatment plants	Proportion of faecal sludge delivered to treatment plants, which is treated
T1A2C5 Septic tank connected to soak pit	15.0	96.0	0.0	0.0
T1A3C10 Fully lined tank (sealed), no outlet or overflow	25.0	95.0	0.0	0.0
T1A5C10 Lined pit with semi-permeable walls and open bottom, no outlet or overflow	3.0	5.0	0.0	0.0
T1A6C10 Unlined pit, no outlet or overflow	2.0	0.0	0.0	0.0
T1B11 C7 TO C9 Open defecation	52.0			
T1B7C10 Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow	3.0			

Table 1: SFD Matrix for Wa (2018)

4.1 Overview

This section gives an overview of sanitation technologies/toilet types, methods and services designed to support the management of faecal sludge (FS) through the sanitation service chain in Wa.

4.1.1 Containment

According to the GSS 2010 Population and Housing Census, the sanitation technologies used in Wa Municipality are KVIPs (6.8%), pit latrines (3.9%), Water Closet connected to septic tanks (10.1%), public toilet WCs and KVIPs (37.0%) and bucket/pan latrine (0.1%). The remaining 42.1% of excreta disposal is recorded as 41.8% open defecation and others 0.3%. However, according to the Wa Environmental Health and Sanitation Unit (EHSU), only 48% of the population in Wa (city) have access to some form of toilet and 52% of the

populace practice open defecation, mainly in the informal settlements, and the tertiary student population, whose hostels and rented rooms generally lack adequate toilets. Septic tanks are the primary onsite sanitation technology utilized by the middle- to high income population in Wa (*EHSU, 2017*). The proportion of the people relying on public toilets made up of WCs, and KVIPs with bottom-sealed septic tanks or pits, and the proportion of people who rely on lined or unlined pit latrines, was estimated from key informant interviews (*KII 1, 2018*) and the Wa EHSU report (*EHSU, 2017*).

4.1.2 Emptying services

Legal emptying services in the city consist of cesspit emptiers (vacuum trucks). There are two cesspit emptiers in Wa – one belonging to the WMA and the other to Urban Waste, a private company. An interview with Mr. Dominic Awizah, Wa Environmental Health Engineer (*KII 2, 2018*), revealed that the WMA cesspit emptier has a capacity of 9m^3 while the interview with Mr. Emmanuel Volsuuri, Operations Manager, Urban Waste Company, Wa (*KII 3, 2018*), revealed that the Urban Waste cesspit emptier has a capacity of 15m^3. The 96% and 95% proportion of T1A2C5 and T1A3C10 system types respectively from which faecal sludge is emptied was estimated together with Mr. Dominic and Mr. Volsuuri based on the number of trips the two cesspit emptiers make in a month. For instance the Urban Waste truck makes 70trips/month while the WMA truck makes 30-40 trips/month. Aside from this, there are informal workers who carry out unhygienic manual emptying. Subsequently the 5% proportion of T1A5C10 system type from which faecal sludge is emptied was estimated from FGD based on local knowledge. This figure is low due to the fact that most T1A5C10 system types are not emptied but covered with soil when full. The WMA environmental bye-laws and EPA regulations (*EPA, 1999*) on disposal of liquid waste into the environment prohibit this method, so it is generally practised on the blind side of those who enforce the laws. There are however penalties for offenders, including imprisonment. The commonest systems in the municipality, especially in urban areas, largely Wa, are the T1A2C5 and T1A3C10 systems while open defecation is common in the rural areas of the municipality. This could account for the difference between tanks and pits.

4.1.3 Transport by sewers

There is no sewer system in Wa. Liquid waste contained in septic tanks or other containments is often dislodged by the two cesspit emptiers in the city. Interactions with the Environmental Health Unit of the Assembly and Urban Waste revealed that on average, the two trucks desludge 1,590m^3 of faecal sludge from Wa per month.

4.1.4 Treatment

No faecal sludge treatment system exists in Wa.

4.1.5 End-use / Disposal

Material dislodged from toilets is transported by the cesspit emptiers to a final disposal site in an area demarcated as a landfill site (but operational as a waste dump site) near Siriyire community. The initial idea was to develop the place into an engineered landfill site. The WMA has entered into public-private partnership (PPP) arrangement with a private contractor to manage the waste dumping site. The site has compartments for collecting solid and liquid

waste. The liquid waste section consists of deep ponds for dumping the liquid waste. However, since there is no monitoring of the cesspit emptiers, it is not clear whether all sludge emptied from septic tanks and pits ends up here. FGD also revealed that farmers do pay for the waste to be dumped on their farms, and that crude open dumping in bush areas cannot be ruled out. Currently there is an ongoing WaterAid Project, with funding from HSBC, on Community-Led Total Sanitation (CLTS) in Wa Municipality. The project, which has already trained Wa Municipal Assembly, local NGO, Ghana Health Service and EHSU staff on how to trigger hygiene behaviour change among the populace, has an overarching aim of stopping open defecation and disposal of faecal sludge in the open environment and bushes. Additionally, there is a governance body, the Municipal Inter-Agency Coordinating Committee on Sanitation (MICCS) with representation from all key sector institutions and actors. There is a planned capacity development for MICCS on how to steer sanitation demand and management in the Municipality. Further to this, the HSBC-funded WaterAid project also plans to train inter-sectoral staff on use of a creative process to influence hygiene behaviour change among the populace. Collectively, these interventions, together with other interventions from the Municipal Assembly, are expected to bring the safe management of faecal sludge in the Municipality to a higher level.

4.2 SFD Matrix

Pollution of surface and underground water, though no assessment has been conducted, can be presumed to be on the high side (*MESSAP, 2018-2022*). Underlying the Municipality are predominantly Pre-Cambrian, granite and metamorphic rocks that have seen lesser weathering than similar rock types elsewhere in the country due to low rainfall, high evapo-transpiration and less vegetation. Nevertheless, sourcing water from boreholes has been successful because the rocks have well-developed fracture systems. About 90% of the population in Wa rely on a GWCL water system using groundwater as its source. From personal knowledge on groundwater exploration and exploitation in the region (having worked as a hydrogeologist with GWCL from 1999 – 2005), most aquifers in the Upper West Region are intercepted beyond 40m from ground level. Consequently, groundwater (for drinking purposes) in the city is at low risk of faecal contamination.

Through FGDs and interviews, it was established that a few households empty the faecal sludge into off-set pits and cover them with soil. The 3% figure was then estimated by discussants during Focus Group Discussion (*FGD 1, 2018*). The remaining figures were estimates from the Municipal Environmental Engineer and an officer from Urban Waste.

5 Data and assumptions

The sources that were available for a service delivery context analysis include: Wa Municipal MESSAP (*MESSAP, 2018-2022*), GSS PHC, 2010 District Analytical Report, Wa Municipality; the Rural Sanitation Model and Strategy (*RSMS, 2010*), the EHSU Report, 2017 and the NESP, 2009. However, qualitative data for the creation of the SFD was obtained mostly from KIIs and FGD which were based largely on expert opinions. The EHSU Report, 2017 provided additional information on rates of open defecation and access to toilets in Wa. There was no other information source to support the analysis of containment technologies, although types of toilet were indicated in the MESSAP. The volume of septage dislodged from septic tanks and all other figures provided on liquid waste generation and emptying were estimated, as no document on these was available.

6 List of data sources

6.1 Reports and literature

1. Climate-Data.org: Climate data for cities worldwide
2. GSS, 2010 Population and Housing Census Report, 2010
3. GSS, 2010. Ghana Statistical Service PHC, District Analytical Report, Wa Municipality
4. GWCL, 2015. Upper West Ghana Water Company
5. IJEPP, 2015. International Journal Environmental Protection Policy
6. MESSAP, 2018-2022. Wa Municipal Environmental Sanitation Strategy and Action Plan
7. NESP, 2009. National Environmental Sanitation Policy
8. NWP, 2007. National Water Policy
9. The Rural Sanitation Model and Strategy (RSMS).
10. EHSU, 2017. Wa Environmental Health and Sanitation Unit Report
11. Wa Municipal Sanitation and Building Bye-Law.

6.2 Key Informant Interviews

Overall, 3 key informant interviews (KIIs) were conducted with different stakeholders in the city, involving the EHSU, the University of Development Studies (UDS) and Urban Waste Company, a subsidiary of Zoomlion. The meetings were arranged through phone calls and then followed up with face-to-face meetings with the Environmental Health Engineer (EHSU) and the Operations Manager (Urban Waste) to collect data on faecal wastewater/faecal sludge management in Wa city. In the case of UDS, the interview was conducted by telephone. Prior to KIIs, little information was known on faecal sludge emptying in the city. The interviews contacted provided much information on the service delivery context. All interviewees emphasised the lack of an engineered treatment plant in the city, and that the existing final disposal site for liquid waste can best be termed a controlled dumping site. The interview with the EHSU provided relevant information about weak management and control of the only municipal cesspit emptier, for which reason there is a perception that faecal sludge is frequently emptied into nearby bushes.

6.3 Focus group discussions

One FGD was held to better understand popular opinion and knowledge on liquid waste management in the city as well as to obtain more detailed information on the containment systems and emptying methods. The FGD was carried out with members from the Municipal Assembly (Planning, Budget, Waste Management, Works Departments, EHSU), NGOs and the Municipal Health Service. The FGD was beneficial in providing information on stakeholder engagement, as well as data triangulation/confirmation and information on available onsite sanitation technologies. One key recommendation from the FGD is that there should be dedicated EHSU staff for each cesspit emptier to ensure faecal sludge is hygienically discharged at the official final disposal site.

6.4 Field Observations

As part of data collection in the city, a visit was made, in the company of the Environmental Health Engineer, to the final disposal waste site at Siriyire. The aim was to make general

observations of the disposal site, such as its accessibility, topography and hygienic maintenance, as they relate to the emptying and transport service providers. The site, which accepts both solid and liquid waste, is designed such that faecal sludge is collected in several deep ponds created for cesspit emptiers to discharge waste (Figure 2). A borehole, installed as part of a grand scheme of developing the site as landfill, is currently used by a nearby community for washing clothes (*EHSU Engineer, 2018*). There was no evidence that the cesspit emptiers have discharged waste into the ponds for the past three days, as no truck tyre marks were observed. The Engineer was the first to notice it and drew the data collector's attention to it. This confirmed his assertion that there is the likelihood of the truck drivers discharging liquid waste into nearby bushes.

Figure 2: Final disposal site of faecal sludge at Wa