

Evaluation of WA Township's Public Toilet Management and the Adequacy of Services Provided to Commuters and Households without Toilets

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Abstract

Around the world, commuters use public toilets, often in public places. In Ghana, most people use public toilets (PTs) because of inadequate household toilets. Due to high pressure and insufficient maintenance, these PTs are usually dirty, smelly, unhygienic, etc. This study investigated PTs' maintenance and Operation in Wa township, Ghana. A total of 44 PTs in Wa were included in the study. The geographical coordinates of the PTs were recorded using hand-held GPS receivers. The results showed that the majority (95.46%) of the PTs were in the central business districts and low-income residential areas, with an average usage of 8,022 people per day in all 44 PTs and 191 people per PT daily. The majority (95.46%) of PTs did not have adequate staff for regular cleaning, inadequate hand washing facilities, or other disinfectants needed for cleaning. The number of cesspit emptier trucks (3) was not sufficient to operate in all PTs; some PT operators momentarily closed their toilets when the septic tank was full until they finally got the trucks to pump out the excreta. Others hired workers to manually collect the sludge with a bucket and pour it into the yard. It was also found that about 70% of Municipal Assembly PTs (MAPTs) were poorly constructed, maintained, and repaired. Despite these problems, PTs can be clean and hygienic if adequately managed. This paper recommends that MAPTs be privatized to ensure proper and efficient management. PT operators who inappropriately dispose of fecal sludge should be prosecuted.

Keywords: Water, Hygiene, Public, Private, Toilet

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Introduction

Public toilets (PTs) are toilets in public places or residential areas that are accessible to all and are usually paid for but may also be free of charge (Water & Sanitation for the Urban Poor, 2011). They can also be temporal facilities for specific purposes, such as festivals, weddings, naming ceremonies, etc. (Public Toilet Strategy, 2012). PTs are available at transit stations, markets, and bus stops, but in general more people frequently use these public toilets, as some homes and workplaces in Ghana are not equipped with toilets (Planning Standards, 2010). In Ghana, the Metropolitan, Municipal and District Assemblies (MMDAs) are mandated by national legislation (Act 462) to provide sanitation services and facilities in their jurisdictions. However, these facilities have been outsourced to private operators and managers due to a lack of proper management. Public toilets in Ghana do not have a separate compartment for children. However, individual cubicles have been built for men and women.

Furthermore, public toilets are not easily accessible to persons with disabilities (Water & Sanitation for the Urban Poor (WSUP), 2011). Poor maintenance of public toilets damages the country's image. Tourists often cannot use these facilities due to their filthy condition, which negatively affects the country's tourism potential. Many public toilets are in poor condition, poorly ventilated, smelly, and unhygienic, which is harmful and detrimental to public health. These unhygienic conditions cause most people to defecate in open spaces, bushes, uncompleted buildings, etc. (United Nations Development Program, 2010).

At the end of 2020, more than 45% of the World's population did not have access to latrines. About 1.7 billion people, most of whom live in low- and middle-income countries in Asia and Africa, face the question of where to defecate every day. Again, about 494 million people globally practice open defecation (WHO, 2021).

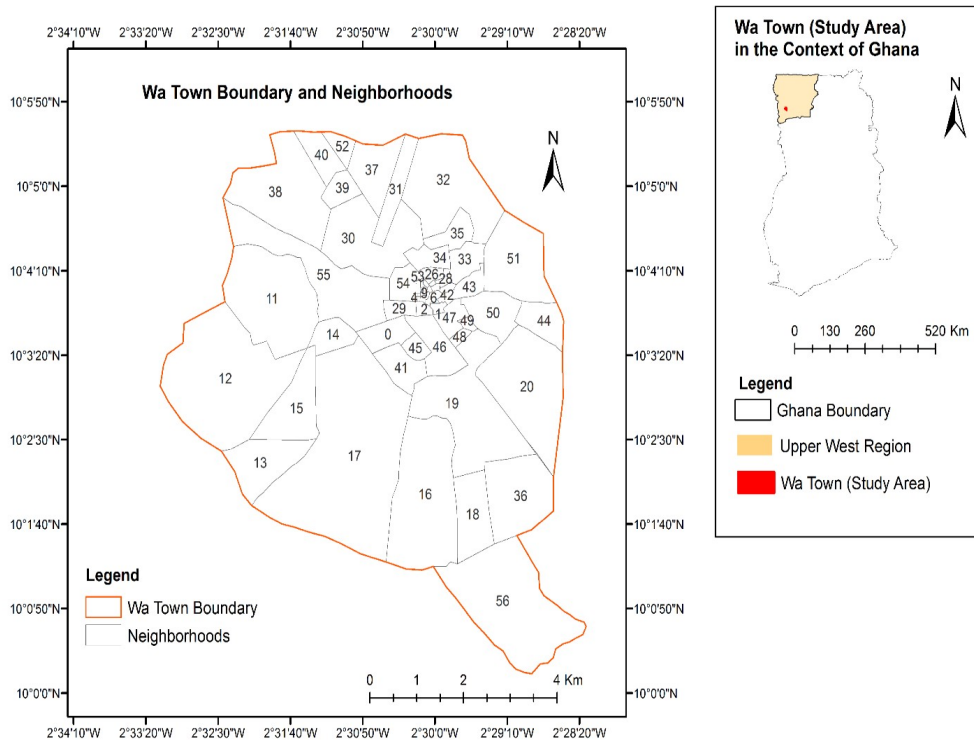
Open defecation is common in all regions of Ghana. However, it is most prevalent in the Upper East region, where about 82% of households do not have a latrine, and 78.7% in the Upper West region (Water and Sanitation Sector Monitoring Platform, 2013). In the city of Wa, approximately 72.9 percent of the population defecates in bushes and open fields (Population & Housing, 2012). Abandoning human excreta in open spaces can lead to the spread of water-borne and air-borne diseases. Improper disposal of human excreta can contaminate water sources and increase the likelihood of epidemics (Salifu, 2010; Colliver & Duffus, 2021). In 2014, Ghana experienced several cholera cases, with 16,613 cases and 130 deaths in nine of the country's ten regions. According to the World Health Organization (WHO), in 2015, there were 434 cholera cases and four deaths in 25 districts in seven regions in Ghana, with a mortality rate of 0.9 percent. The 2010 Wa Municipal Health Service annual report indicated that 624 cases of typhoid fever and 5,300 cases of diarrhea were reported, both of which are strongly associated with indiscriminate human excreta disposal. This paper is therefore going to assess the provision and management of these public toilets in Wa Township.

The specific research objectives are:

1. To collate and coordinate the locations and the number of PTs in the township of Wa.
2. To examine Wa township usage of PTs.
3. To examine Wa Township PTs maintenance culture.

The Study Area and Methodology

Figure 1.1, The study area of Wa township



The Size and the Location

The study was conducted in the capital of Upper West Region, Wa. Wa lies between the parallels 10°5'50"N and 10°0'0"S and the meridians 2°33'20"W and 2°28'20"E, as shown in Figure 1.1. Wa is the largest and most developed city in the Upper West Region, with a total area of 56.2 km², representing 32% of the region (32%) and 2.6% of the country (2.6%). According to the 2010 population and housing statistics, Wa has a population of 135,638 (65,887 women and 69,751 men) with an annual growth rate of 2.7 percent. Wa is the most densely populated city in the region, which has been covered with smaller villages and towns. The city's water and sanitation facilities are poor. Some 41.3 percent of the population suffers from severe water shortages, especially during the dry season. The primary sources of drinking water in the city are small urban water systems, wells, borehole facilities, and rainwater (UN-Habitat, 2009; Ghana Living Standard Survey, 2014; Akpakli et., 2018).

Study Design

In this study, a cross-sectional survey was conducted. There were 44 PTs in Wa, and all 44 PTs were included in the study. Interviews were also conducted with at least one employee working in each public toilet, facility, operator, and environmental health authority in Wa. Interviews were conducted with key sanitation technicians. In the absence of a department head, a direct assistant was selected. A total of eight directors representing various departments were selected. A staff represented each department.

Data Collection and Study Instrument

The geographical coordinates of each PT were determined at each collection point (PT), using a GARMIN Etrex SUMMIT hand-held global positioning system (GPS) device; the GPS device was placed near the public toilet, and the coordinates were recorded. Latitude and longitude coordinates were expressed in minutes, degrees, and seconds converted into decimal degrees. The researchers observed the PT type, construction details, PT condition, management arrangement, and other maintenance cultures during each site visit. During these visits, the research assistants participated in the usage of these PTs. They observed the hygienic conditions of the public toilets. This helped them understand the procedures and conditions these users go through each day in using these PTs. During each visit, pictures of the public toilets and their surroundings were taken using a Canon PC2006 4.3 V/16 megapixel digital camera.

A structured interview guide was used to collect participants' views on demographics, management, technology, maintenance, and hygiene of public toilets. The researcher completed the interview guide, read the questions to the participants, and then recorded the answers. This ensured that the participants understood the questions. Using the interview guide, the representatives of Wa Environmental Health and the Ghana Health Service were interviewed. The research assistant read the questions in the guide and recorded the answers. Other officials who were included in the interview were the environmental health officers, building inspectors, public health officers, Wa Public Toilet Association, Water and Sanitation Department officials, and Planning Department officials. Without relevant officials (Head of Department), interviews were conducted with their assistants or representatives.

These interviews and data collections were conducted with the assistance of two trained research assistants. A one-day practical training session was held at the beginning. Data collection continued for two months. After the research assistants were trained, the interview guide was pretested in the town of Tamale, which has similar characteristics to the town of Wa. All errors and mistakes were identified and resolved before the data collection started.

The coordinates of the geographical areas were converted into decimal values, which were entered into an Excel spreadsheet and transferred to ArcMap, where they were converted into points. These points provided information on features such as toilet type and seating (squat hole) capacity. The projection parameters were converted from a World Geographical System 1984 (WGS-84) projection to a universal Mercator projection at 30 degrees north. These data were then combined with existing shape files to create a map showing the spatial locations of public toilets in Wa.

The field data collected was analyzed using Statistical Products and Services Solutions (SPSS) software. The data was coded, descriptive responses numbered, and the raw data was converted into a suitable format for input into the software. Respondents' answers were categorized into open-ended questions until all categories were created to generate nominal scale categories for the variables of interest. There was cleaning and editing of the data to ensure accuracy and no coding errors. Descriptive statistics such as tables and frequencies were used in presenting the results. The data, which was gathered via in-depth interviews, were categorized into themes that were based on the study's purpose. For each theme, narrative threads and interview patterns were presented. This was done by transcribing and translating the data recorded in the field. The themes that emerged during the interviews were described and analyzed.

Results and Discussions

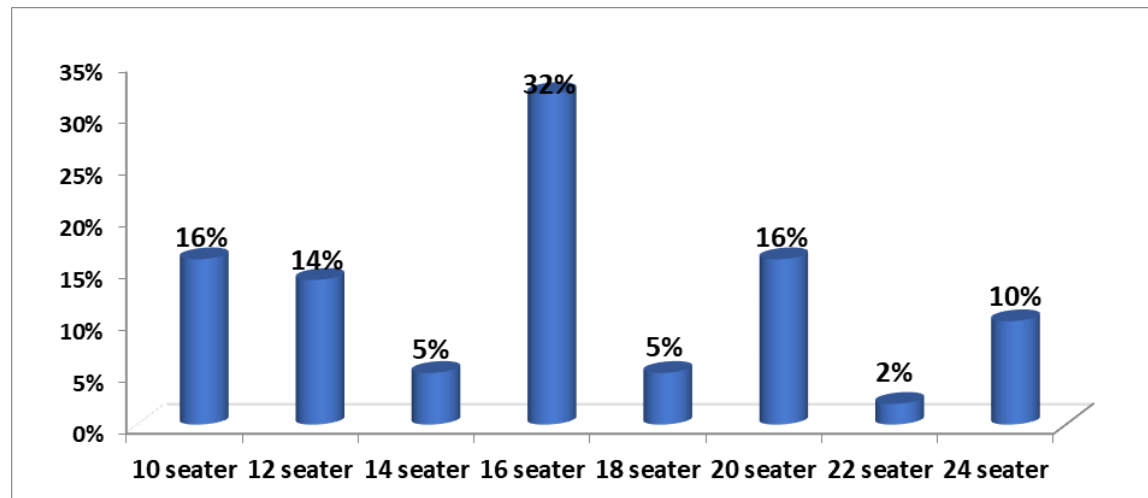
Wa Township Public Toilets

During the study, 44 public toilets in Wa township were visited. Of these, 42 (95%) were Kumasi Ventilated improved Pits (KVIP) latrines, operated, and leased to the private sector by the Municipal Authority of Wa; only 2 (5%) were latrines built and managed by private entities. All public latrines visited had separate cubicles for men and women. Each compartment had male and female pictures to show the two sections. Two of the 44 latrines were unused or out of service, and the Wa Municipal Assembly owned these. The unused latrines were in Kejetia (primary market) and Zongo (low-income community). Discussions with the head of the Wa Environmental Health department (EHD) also revealed that it was cheaper to build a KVIP than a Water closet (WC) PT.

Wa township Public Toilets Sitting Capacity

All PTs in the city have between 10 and 24 squat holes. The capacity of the toilets is shown in Figure 1.2.

Figure 1.2: Wa township Public Toilets Sitting Capacity



Source: Field Data (2020)

Sex Distribution of Respondents

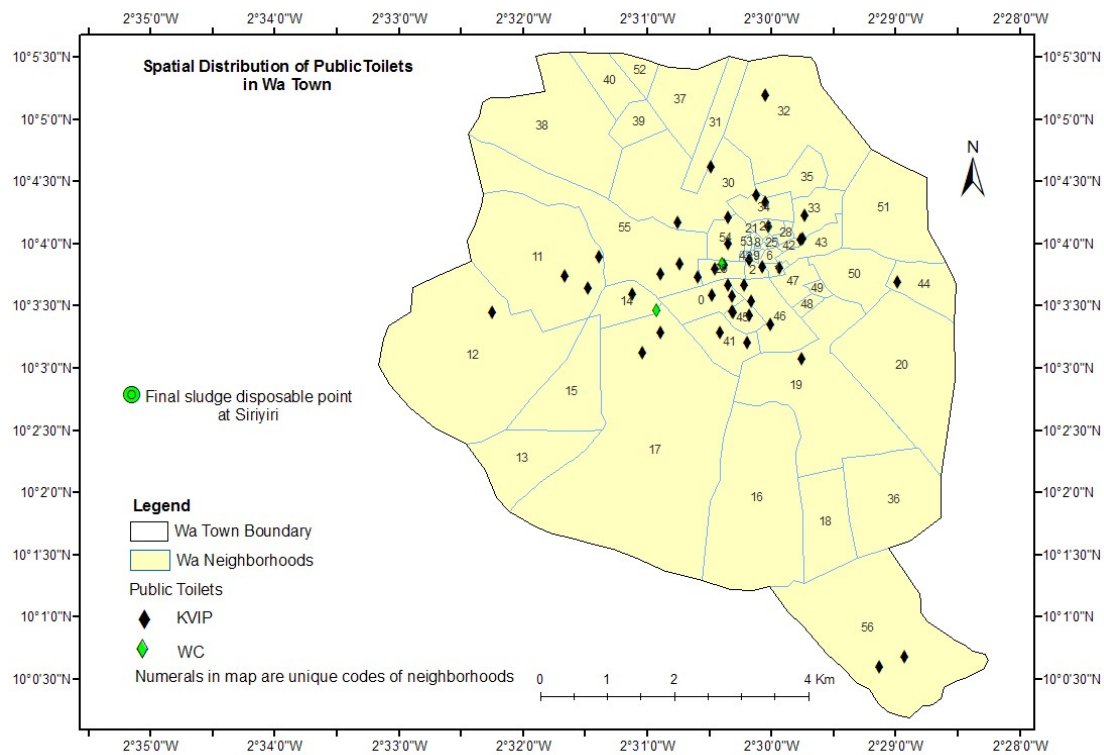
Each PT operator or manager in all 44 PTs was interviewed, of whom 59% (26) were males and 41% (18) were females. The analysis showed that the work of a toilet operator in Wa was mainly done by men (59%). This will negatively influence the maintenance of these PTs because, in Ghana, women are traditionally expected to do cleaning at home. Cleaning is more often done by women than men, which will affect the cleanliness of these public toilets. Of the 44 participants, 48% (21) were aged 51 years and above, 30% (13) were aged between 31 and 50 years, and 23% (10) were aged between 18 and 30 years. This means many of the operators were older

and less able to do the physical work required to clean and maintain order in these facilities. This can have an impact on the day-to-day care of these toilets. It was also noted that 57% (26) of the 44 participants had never received formal education. The remaining 43% (18) had secondary or tertiary education. Of the 43% (18) with formal education, about 39% (7) had completed middle school, 22% (4) had completed primary school, 22% (4) had completed Junior high school, and 17% (3) had completed high school. All toilet operators were not given formal or informal training in managing these PTs.

Respondents Marital Status

About 75% (33) of the toilet operators were married, 12% (5) were widowed, 8% (4) were single, and 5% (2) were divorced.

Figure 1.3; Public Toilet Types and Location



Source: Field Data (2020)

The map in Figure 1.3 shows the PTs' location in the city. The map shows that two Privately Owned and Managed (POMPTs) public toilets were situated at Wapani and Kpaguri communities, with the remaining 42 PTs owned by the Wa Municipal Assembly located throughout the city. The PT at Wapani has 22 squat holes (seater), while the one at Kpaguri has 24 squat holes (seater). Most (95.46%) of the PTs are situated within the city's poor communities and major market areas. The PTs serve both residents and commuters. Some of these impoverished areas include Zongo, Sokpariyiri, Wapaani, etc. However, PT could hardly be found in well-planned and developed communities like SSNIT estates, the Danko community, etc. This is mainly because more than 70% of people living in low-income areas do not have a toilet at home (Population & Housing Census, 2010). The Wa municipal assembly and other individual politicians construct these public toilets for poor communities to reduce open defecation. Some members of parliament (MP) sometimes construct some of these PTs using their common funds and hand over the PTs to the Wa Municipal Assembly to manage. However,

in some low-income neighborhoods where public toilets are not available, people still use alternative forms of defecation, such as in bushes, open spaces, or in nearby unoccupied buildings. In Ghana, Each MP receives about 50,000 Ghana cedis (5,012.53 US dollars) quarterly. This amounts to about 800,000 Ghana cedis (80,200 US dollars) each four-year term (Asante, 2018).

People who used the Public Toilets on average

In the city of Wa, an average of 8,022 people use public toilets daily. This was more common in areas with many daily human activities, such as the town center and markets. The high number of users is probably because residents, visitors, market men and women, drivers, commuters, etc., use these public toilets daily. According to the Kumasi Ventilated Improved Pit (KVIP) technical standard, one reserved squat hole is expected to serve 50 people (MWRH, 2010 & Planning standards and zoning regulation, 2010). The PTs in the study area (Wa Township) has a squat hole (seater) between 10 and 24. These PTs are expected to serve 500 to 1,200 people, respectively. According to the 2010 Population and Housing Census, there are approximately 60 247 people in Wa Town who do not have a toilet in their homes. This means that in many parts of Wa, the number of people without a toilet at home exceeds the capacity of public toilets. The small number of public toilets may be disproportionate to many people using them.

The State of Public Toilets, Ownership, and its Cleanliness

There were two types of public toilets in Wa: KVIPs (42 PTs) and water closets (2 WCs). Both WC toilets were supplied by two mechanical wells connected to a water tank that provided a constant water supply for flushing, handwashing, and scrubbing. Interviews with toilet operators revealed that most users did not know how to use the toilets. They were breaking the handles and squatting instead of sitting on the WC. None of the KVIP PT units were connected to a regular water source. Water for room cleaning was purchased daily from women who carried the water in a bucket on their head and delivered it. Therefore, only a limited amount of water is used for cleaning the premises. Interviews with all operators and managers revealed that none had technical knowledge of the principles behind the KVIP technology. They usually spend a few minutes in the morning cleaning the facility and anticipate making good sales within the day. However, they were not concerned about how the KVIP technology was expected to be operated. The operators and managers did not know that they had to provide certain conditions to enable the KVIP toilet to operate efficiently without causing public nuisance. It was noted that there should have been a wire mesh at the end of the vents, but this was not the case in most of the PTs. The cabin, cubicle, doors, and vents were also damaged.

During the study, it was observed that the WC toilets were much cleaner, safer, and neater than the KVIP PTs. Regarding the technical design, KVIP latrines should not produce odor and flies (Franceys et al., 1992). Again, per the technical design, if the wire mesh and doors are in good condition, there will be no odors or flies (Buxton et al., 2019; Ismail et al., 2020; Meki et al., 2021). However, with the water closet, faeces and urine are flushed from the toilet into a separate room/pit where it is separated from the user's urine. This makes the toilets easier to clean and maintain than the KVIP toilets.

Smoking was permitted in all Municipal Assembly Public Toilets (MAPTs) but not in the Privately Owned and Managed PTs (POMPTs) (WCs). The two POMPTs, all WC toilets, had well-established management plans and systems, unlike the MAPTs, which did not have sound management systems. Discussions with the director of the Wa-EHD revealed that this might be due to inconsistent management. As the central government changed, so did the management of MAPTs. The management of MAPTs was often in the hands of politicians or supporters of the ruling political party. However, these MAPTs operators do not comply with the agreement on the sublease contracts regarding the management and maintenance of these PTs.

The POMPTs management employed and paid full-time cleaners while MAPTs hired cleaners every morning for cleaning. MAPTs and POMPT operators and cleaners did not wear protective clothing and equipment. They used their bare hands and legs to touch, scrub, and clean the facilities, which is dangerous and can cause infections. Using water to clean the anus by clients/users is a communal problem in both facilities. Because of this practice, water was everywhere on the floor, making the rooms wet, slippery, and dirty.

The POMPTs had clean sinks, tiles, and hand washing facilities for clients to use. In contrast, most of the MAPTs toilet cubicles looked dirty, smelling, and worn out, walls were cracked and damaged, doors were loose or hanging down, and 95% (40) of the MAPTs structures had open faeces, and overgrown weeds around them. Children came around them to defecate openly around the building. There were also piles of rubbish around the toilets and overflowing bins close to the facility. Human faeces could be observed everywhere. About 74% (31 PTs) of the MAPTs were in such poor condition that they could be considered a death trap. Maggots were also found crawling inside and outside the building. Men patronizing the place had to remove their clothing before entering the rooms to reduce the smell on their bodies after using the toilet. Plates 2.0 and 3.0 shows the clean environment of the Kpaguri Ganya POMPT.

Public Toilet facilities regularity of cleaning

Only 17% of the participants cleaned the PTs three times a day. Regarding the frequency of cleaning, about 29% of the participants reported cleaning once and 54% twice daily. To clean the toilets, operators usually used brooms, liquid soap, Dettol, and Parazone (bleach). About 71% of operators asked other people or hired workers to clean, 27% cleaned themselves, and 2% asked their children to clean. About 78% of the PTs had not received any maintenance work. In contrast, the remaining 22% of operators have done maintenance work on their toilet facilities.

The survey found that 82% of respondents said they disinfected the public toilets occasionally, while 18% said they never cleaned the toilets with any disinfectants. About 47% of the respondents said that disinfection was done every 2-3 months, and 53% every four months and above. Respondents who said they sometimes disinfected the toilets indicated that this was done by the Wa Municipality Authority or Zoom Lion Ltd (a waste management company).

Public Toilet Facilities Hygiene

In terms of sanitation and hygiene knowledge, 61% of operators reported that they had some knowledge of hygiene practices related to latrine care and maintenance. However, they added that their employers did not give them formal or informal training on latrine management, operations, and maintenance. Of all facilities visited, 11% had water and soap for washing hands after using the latrines, while 89% had no hand washing facilities. Clients had to bring their water and toiletries to wash their hands after visiting the facility. Even when water was available, it was not clean, and occasionally clients did not get soap to use. Some public toilets in Wa were not well maintained and were therefore dirty. These often-attracted flies and created an unpleasant smell. This is confirmed by a 2010 report by the Ministry of Local Government and Rural Development (MLGRD), which stated that odor problems occur when the ventilation system is not working effectively. The report also found that inadequate maintenance can lead to inadequate ventilation if the nets are blocked. It could also lead to excessive flies if the nets were damaged. The analysis also showed that around 89% of the 42 public toilets were not equipped with handwashing facilities.

Plate 1.0 shows the rubbish and filth that had engulfed the surroundings of a MAPT at Kambale area within the Wa township. It also shows children practicing open defecation around the toilet.



Plate 2.0 Shows PT (WC toilet) constructed, managed, and owned by a private individual at Kpaguri Ganya community within the Wa township. The surroundings are clean and tidy.



Plate 3.0. Shows the clean entrance of a POMPT (WC toilet) in Kpaguri area. The floor tiles are clean with no flies.



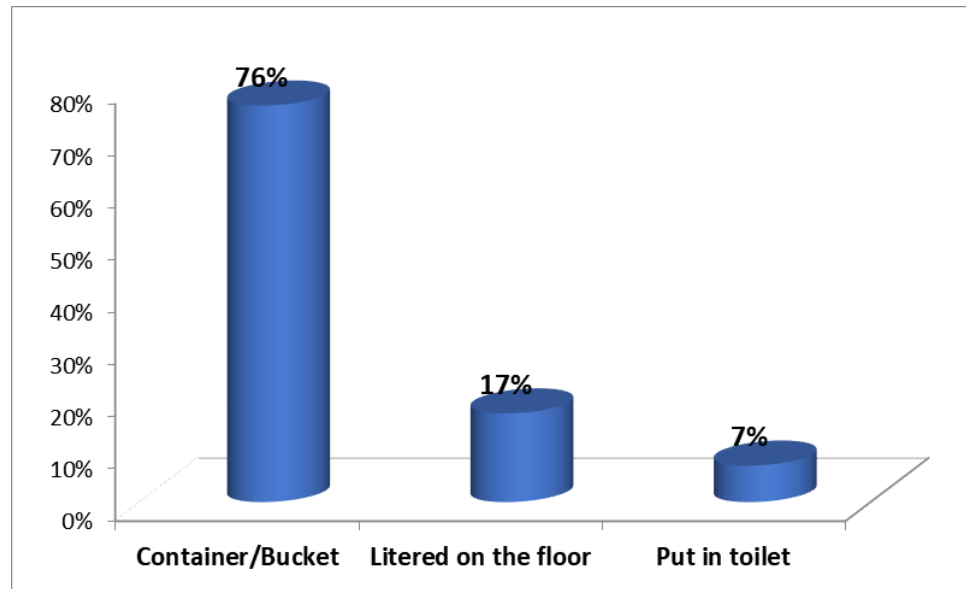
Plate 4.0. Shows the deplorable state of MAPT at the Zongo area (KVIP toilet)



Public Toilet usage and management of anal cleansing materials.

The study found that 92% of PTs operators issued old newspapers to clients, 5% issued toilet paper (tissue), and 3% relied on water to clean their anus. The survey also found that 76% of public toilets had bins where customers dumped used newspapers and toilet paper, while 17% of public toilets did not have bins. This contradicts the toilet technology principle that only soft materials (toilet paper) should be used and dropped into the toilet hole. However, the investigation showed that newspaper is cheaper than soft materials (tissue paper). The study also found that all anal cleansing materials dropped in the container or collected were either burnt or disposed off in a publicly accessible waste container. However, about 61% of the bins provided inside the PT were not in good condition. They did not have covers, and this attracted flies and other insects. Anal cleansing products should NOT be stored in a waste bin as they attract flies and other insects.

Figure 1.4 Public Toilet usage and management of Toilet Roll and Paper



Source: Field Data (2020)

Municipal Assembly role in public toilet fecal sludge management

Public Toilets Faecal Sludge Drainage

The Municipal Authority of Wa and Zoomlion Company Ltd were the two primary providers of fecal sludge removal services in the Upper West region. Septic tank emptying trucks were irregular, and some PT operators had to empty the septic tanks manually. About 79% of the operators reported that their public toilet fecal tanks were emptied by the municipality's trucks and 16% reported that their tanks were emptied by trucks of a private company (Zoomlion). About 5% of the operators reported that their PT sewage sludge was processed for biogas production. However, because some operators or managers wanted to continue their activities even though the septic tanks were full and the trucks were not available for some reason, they developed other manual methods to reduce septic tank sludge so that they could continue their activities until the trucks arrived anytime. Other public toilet operators who did not use these manual methods had no choice but to close their toilets to clients. If the toilets were closed during such a period, regular users would have no choice but find open spaces available or bushes to defecate. These practices often pollute water bodies and the environment.

According to the PT operators, the cost of hiring the cesspit emptier truck does not prevent them from using their services. However, the number of these cesspit emptiers (3) was not adequate to serve all the PTs in the region. It takes several months before an order placed can be fulfilled. The KVIP PT operators did not follow the laid-down maintenance blueprint, which states that one pit must be full, then it is closed, and the other pits are used. The full pit must stay closed and only be opened after two or more years. This will allow the fecal sludge to decay and decompose through natural processes until it becomes safe and harmless to people and the environment.

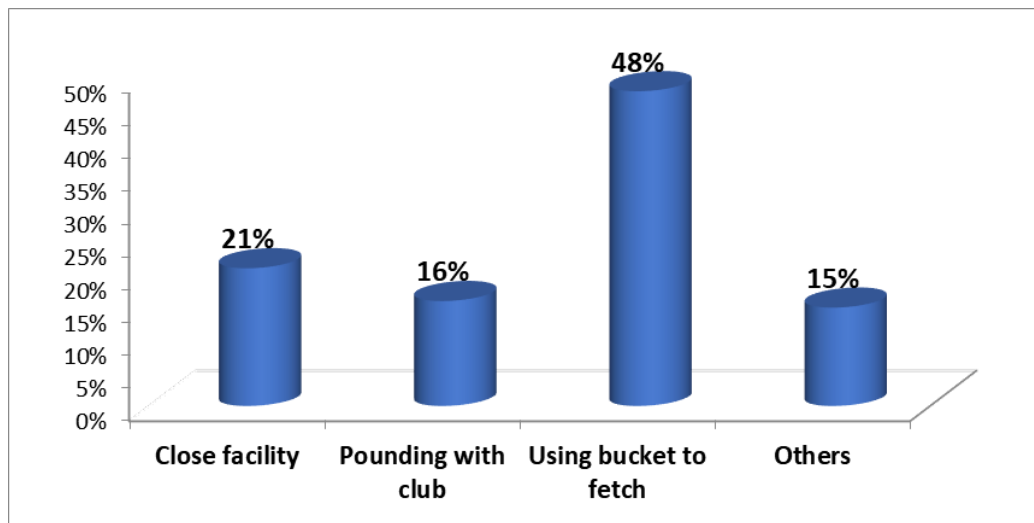
According to the Ministry of Local Government & Rural Development (2010), most PTs did not have a flush pipe; if they did, it was always completely blocked. They, therefore, serve as pits in which human excreta accumulate and are only refilled after regular emptying. These findings align with the Ministry of Health report, which states that inadequate fecal sludge collection and late emptying of public toilets lead to the release of fecal

sludge into the environment. Many KVIPs were built without pit lining, which can cause leaching and polluting underground water. Mechanical emptying can damage the bottom of the pit and, in severe cases, lead to structural collapse.

Disposal of faecal sludge in the absence of mechanical cesspit emptier trucks

Manually emptying a septic tank is preferred because once the tank is full, it becomes difficult for the truck to siphon the fecal sludge because it becomes very compact, dry, and solid. The survey found that 48% of public toilets disposed of sludge by collecting it from the septic tank into a bucket and pouring it over the edge of the building. In addition, 21% of respondents reported that if the facility is overloaded and there is no septic tank cleaning crew, the facility is temporarily closed until the sludge is removed. The analysis also showed that 16% of respondents used a sludge stick to hit to reduce the dry sludge and make room for later use of the pit. In comparison, the remaining 15% collected sludge manually and took it to the nearest landfill for disposal.

Figure 1.5: The absence of mechanical cesspit emptier truck in various methods for fecal sludge disposal



Source: Field Data (2020)

Cost of dislodging by emptier truck.

The cost of mechanical emptying varies depending on the toilet's type and size, the vehicle's size, distance, and the institution providing the service. The fees of the different providers are as follows.

Table 1.0 shows fees charged by service providers.

Name	No. of Vehicles	Capacity (Gallon)	Charge per trip (Ghana cedis)	Charge per trip (US dollars)
Zoomlion	1	3000	300	50
WaMA	2	1750	250	42

Source: Field Data (2020)

Operators of these public toilets pay a monthly fee of 100 Ghana cedis (US\$17) to the Wa Municipal Authority (WaMA).

Public toilet operation and maintenance challenges

In Wa, the management of PTs comes with some challenges that the operators and managers encounter. One of these was that most septic tanks do not have covers, and these often-attracted flies and caused a public nuisance. These pose a health risk to residents and the city. Another problem faced by public toilet operators was the lack of electricity in the public toilets. More than half (58%) of the 44 toilets were without electricity or light.

The main problems with public toilets were poor service, inadequate water, inefficient management, political interference, etc. Adequate and sufficient water is needed for frequent flushing and cleaning. Maintenance was problematic as most PTs did not have water available for cleaning. Delayed fecal disposal was also a problem, which could lead to blockages and spills into neighboring areas. In addition, about 95% of the 44 public toilets in the city were not accessible for people with disabilities, making it difficult for people who are physically challenged to use them. Operators also reported that some residents or clients could not afford the daily cost of using the toilet. Others also deliberately did not want to pay but wanted to use the public toilet for free. These affected the daily sales and thus the operation and maintenance of the facilities. These were usually common practices among people who used the MAPTs. These challenges could also be attributed to the inconsistent management caused by party politics. With the change of government, the management of sanitation facilities, including public toilets managed by the municipal assembly, had to also change. The management of public enterprises was mainly in the hands of members of political parties, especially the ruling political party members in Ghana. Members of the current ruling government were empowered to make decisions on the management of these public facilities.

Hygiene training for public toilet employees or operators were found to be inadequate, as many operators managed these public toilets without knowing the hygiene management process and the health risk involved. The majority of the operators stated that they had never received training on good hygiene practices related to the operation and maintenance of the facilities. This could be because the management of these facilities was often changed, and new staff or management was installed. Some operators occasionally hear about sanitation and hygiene education on the radio. However, this education was irregular and insufficient and needed to be expanded and reinforced.

Discussion of Findings

Types and functionality of Public Toilets in Wa Township

The study revealed that there were 44 public toilets in Wa; only two were WC toilets owned by private individuals (POMPTs), and the rest were KVIP type, owned by the Municipal Assembly. This is also in line with the MLGRD report (2010), which states that KVIP toilets are Ghana's most common type of public toilet. In Ghana, the Metropolitan, Municipal, and District Authorities (MMDAs) are mandated by law to provide and manage Sanitation within communities, cities, etc. Their mandate also includes the construction, supervision, provision, operation, and management of public toilets throughout the country, including commercial centers and densely populated low-income settlements where PTs are mostly located (MLGRD, 2010). Two of the MAPTs toilets were unusable and under maintenance. The Wa municipal authority owned these two PTs. According to the head of the Wa EHD, these two PTs were in poor condition and needed to be repaired. Operators of the two PTs usually come around in the morning to support the repair work while they wait for the maintenance work to finish. As part of the sublease contract between the Wa Municipal Assembly and the managers of the MAPTs, the assembly is expected to do essential maintenance work annually (MLGRD, 2010). However, the assembly could not fulfill their part of the agreement regularly because of the bureaucracy within the public sector system and the financial challenges these assemblies faced. Because of these challenges, it takes an average of three to five years before these MAPTs see some maintenance work.

Usage and maintenance of Public Toilets

In Ghana, most PTs are in low-income neighborhoods, marketplaces, and other busy commercial areas. These public toilets serve both residents and commuters. More than 70% of houses in Wa, especially those in low-income communities, do not have access to toilets (Population & Housing Census, 2010). The Local Government Act (Act 462), including by-laws, requires all landlords to provide household toilets for their tenants. These laws have accompanying penalties for defaulters (Antwi-Agyei, 2019).

Nevertheless, these laws are not enforced by law enforcement agencies. The MMDAs, through the district planning department, are responsible for enforcing these laws. They exercise authority through section 64(1) of the Local Government Act 1993 (Act 462). They are responsible for issuing building permits to potential homeowners. Toilet is expected to be part of the design of the building before permit is issued, and no house can be constructed without a permit. The question one should ask is, how can all these houses exist in Wa without household toilets? People living in such houses without household toilets have to depend on public toilets. Others also patronized some open fields, nearby bushes, or unfinished buildings. Enforcement of by-laws is critical in realizing the national sanitation targets set by the government of Ghana, which is in line with the achievement of the SDGs. However, law enforcement agencies hardly enforce these laws in Ghana. These laws empower the Municipal Assembly (Local Government Authority) in Wa Township to fine or prosecute house owners who default (Antwi-Agyei, 2019).

The daily maintenance of PTs in Wa comes with significant challenges that affect the cleanliness of these facilities. Most PTs do not have constant water supply for cleaning and scrubbing. Only the two WC PTs have mechanical wells connected to a reservoir, ensuring a constant water supply for washing and cleaning. The constant water supply helps ensure that their premises are always clean. However, all KVIP PT operators purchased water daily to clean the PT premises.

Interviews with all operators of public toilets showed that none had technical knowledge concerning the operation and maintenance of public toilets. None of them was interested in the efficient operation of the toilets, as they only cared about the revenue, they made daily. Cleaning was only done once or twice a day. Observations revealed that the public toilets did not have vent pipes, and some had leaking roofing sheets, etc. According to Thrift (2007), KVIP toilets are built to be odorless and fly free if all their required features are fully functional. These features include cubicles having doors and often closed to prevent light from entering the squat hole. The presence of light attracts flies. The vent pipe should be covered with a wire mesh to prevent flies' access. Again, WHO (2013) states that according to the KVIP technical plan, if the louvers, windows, and doors are intact, there should be no odor or flies. In other words, the odor and flies observed in these public toilets could have been avoided if supervisors or operators had understood the technical principle that doors should only be closed and opened when entering and the principle that the room should be dark enough to better control flies and odor.

Furthermore, because operators were interested in increasing revenue, they often used basic cleaning detergents such as Dettol and Parazone (Bleach). They hardly disinfected the facilities. This could explain why Wa Township experienced some cholera cases in 2015 (18 cases), as reported by Ghana News Agency (2015). Typhoid and diarrhea are common diseases in Wa, as reported by the Wa Municipal Health Directorate (2010). Interviews with the head of the Environmental Health Department (EHD) in Wa revealed that the operators and managers of MAPTs facilities are interested in generating revenue because of the inconsistent management due to party politics. With each change of government, there is also a change in the leadership and management of the MAPTs (Akpakli et al., 2018). Management of MAPTs was usually subleased by the municipal authority to members of the ruling government as a reward for helping the political party to win political power. Most often, the ruling party members sometimes use physical force to take over the management of MAPTs. However, the POMPTs were owned by private individuals who acquired land and sought work permits and authorization from the Municipal Assembly to construct and manage PTs within the town. The owners of POMPTs employed workers and paid them a monthly salary, while MAPT operators hired workers and paid them daily wages. These operators, especially the MAPTs, did not care about their workers; they only cared about profit. Because of that, they did not provide protective clothing or equipment to protect workers from direct contact with faeces. Workers in both POMPTs and MAPTs worked with bare hands and feet, which is dangerous and could lead to infection.

Mooijman et al. (2013) support using only soft anal cleansing tissue in public toilets. These soft tissues should be placed in the hole. It should not be kept in boxes or packaging that can be thrown away like wastepaper, as they attract flies and other insects. The findings of this study are consistent with Mooijman et al. (2013), in which

clients or users of the PTs were given newspapers and toilet paper to help them clean their anus. In contrast, the results were not in line with Mooijman et al. (2013) study on the use and management of materials used for anal cleansing. The study showed that some cubicles in the public toilets had a container to dispose of newspapers and toilet paper used by customers.

Public toilet usage in Wa Township

About 8,022 people, on average, used public toilets daily in Wa. Patronage was more widespread in areas with high daily human activities, such as markets and bus stops within and around the city center. The high number of patronages was due to combined use by residents, travelers, or the transient population. This is corroborated by the findings of WSUP (2011) and Ayee & Crook (2003). According to the Community Water and Sanitation Agency (2010) and the Planning Standards and Zoning Regulation (2010), KVIP toilets have standards that must be adhered to by all operators. The standard is one squat hole per 50 people a day. This study revealed that PTs in WA had squat hole ranging from 10 to 24. This was expected to serve between 500 and 1,200 users or clients. Even though this is the expected standard but 60,247 people did not have toilets in their houses (Population & Housing Census, 2010). All these 60,247 people were expected to use the PTs. These numbers far exceeded the carrying capacity of the available PTs within the Wa township. This explained why there were long queues of people waiting for their turn to use the toilet during rush hours (morning). People who could not wait had to use nearby bushes or uncompleted buildings for defecation. Children were also seen defecating around these PTs while their parents waited in queues. These practices have made the Upper West region the second region with the highest prevalence of open defecation after the Upper East region. Statistics show that about 78.7% of Upper West households practice open defecation (Water and Sanitation Sector Monitoring Platform, 2013).

All POMPTs charged one Ghana cedis (16 US cents), while MAPTs charged 50 pesewas per person. During the interview, the operators of these PTs revealed that they did not pay taxes on the revenues generated from the PT to the government. They only paid the surcharge to the municipal assembly. This clearly showed that managing a PT was a lucrative business, which was why members of the ruling government struggled among themselves to manage these PTs.

Management and Operation of public toilets

The study found that MAPTs in Wa were managed and operated through a public-private partnership. The Municipal authority was expected to provide cleaning and maintenance services while the private operator carried out the day-to-day management and operation. These private operators worked for profit and had little concern for properly maintaining these public toilets. Even though the municipal authority was responsible for the routine maintenance of these public toilets, unfortunately, they hardly did these maintenance work, as confirmed by Buxton et al. (2019); Meki et al. (2021).

Conclusions and Recommendations

The study has revealed that most public toilets were found in low-income areas where most households did not build household toilets. Some were also in busy commercial locations, such as bus stops, markets, etc., to serve commuters. The toilets, especially MAPTs, were usually dirty, had leaking roofs, damaged walls, overflowing septic tanks, broken or hanging doors, etc. In addition, MAPTs facilities did not have regular cleaning workers compared to PMPTs. They also lacked hand washing facilities and other required disinfectants needed for cleaning. However, POMPT facilities were professionally managed and employed workers who cleaned and scrubbed the toilet daily.

All public toilets were used on average by 8,022 people a day and 191 people used each toilet per day on average. Patronage was high in the commercial areas. There were only three trucks within the township and the region for emptying the septic tanks of PTs and household toilets. These three trucks were inadequate to serve many households and public toilets that needed their services. Some of the operators had to close or lock their PTs to the public anytime they could not get these trucks' services. Others hired people to manually empty the septic tanks with buckets, enabling them to continue with their business. Even though KVIP toilets did not have

to be emptied immediately, they became full. However, because the operators did not understand the KVIP technology, they immediately dislodged the septic tank. These practices were against the principles behind the KVIP toilets. Some of the operators did this because they wanted to meet the high daily patronage and make more revenue before there was a change of government. This was because anytime there was a change of government, the current operators lost the management of these PTs to other people who belonged to the next ruling government. These problems impeded the proper management of these public toilets. Despite all these challenges, public toilets can be clean and safe for users and clients if they are properly managed.

Based on these findings, the following recommendations were made. More private business individuals should be allowed to construct and manage PTs, especially in high-demand, low-income, and commercial areas. MAPTs should be privatized entirely for efficient and effective management by the private sector. This will reduce the management crisis that arises anytime there is a change of government. The government should increase the number of cesspits emptying trucks to ensure that they meet the increasing demand from public toilet operators and households. All public toilets should be connected to boreholes, pipelines, or wells to ensure a constant water supply for cleaning. Operators found using manual labor to dislodge the fecal sludge and throwing them inappropriately without a permit should be arrested and prosecuted. Law enforcement agencies should arrest and punish house owners who build houses without toilets. This will eliminate households without toilets within the town and subsequently reduce open defecation. Again, tenants in these houses without toilets should be encouraged and motivated to report house owners who are not complying with the Local Government Act 1993 (Act 462). The process of reporting and prosecution should be streamlined, such as the protection of the identity of the whistle-blower and a quite simple and convenient reporting procedure.

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Conflict of Interest

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