

RESEARCH BRIEF, JULY 2019

# SANITATION POLICIES, PRACTICES AND PREFERENCES IN KUMASI, GHANA



## SUMMARY

- In Kumasi, the majority of low-income households use public toilets, but would prefer private facilities.
- Low-income residents prefer low-volume flush toilets that require little space and infrequent emptying.
- Pit-emptying in Kumasi's low-income areas is mostly done by vacuum trucks.
- A fecal sludge treatment facility does exist in Kumasi, though it is not fully operational.

## BACKGROUND

Limited access to safely managed sanitation infrastructure and services compromises public health and economic growth in the developing world. Low-income households are the most affected: they often cannot afford to construct and manage on-site sanitation facilities or connect to sewerage networks (Daudey, 2017). Understanding the economics of sanitation service improvements, including both life-cycle costs and affordability, is essential for expanding safe sanitation in low-income settings.

The Aquaya Institute is conducting this research on urban sanitation economics under the Urban Sanitation Research Initiative, a program managed by Water and Sanitation for the Urban Poor (WSUP). The research goal is to assess the extent to which low-income households can bear the financial costs of safely managed sanitation in five cities across Kenya (Nakuru, Malindi, and Kisumu), Bangladesh (Rangpur), and Ghana (Kumasi). This brief is on sanitation policies, practices, and preferences in the city of Kumasi, Ghana.

## KUMASI, GHANA

Kumasi is the second largest city in Ghana and the capital of the Ashanti Region. It is located about 270 kilometers northwest of the capital, Accra. The city has a population of approximately 2.5 million and a population growth rate of approximately 5.4% per annum. Kumasi has about 40 low-income areas, constituting approximately 50% of the population. In low-income areas, almost 94% of households have access to an improved water source (Ghana Statistical Service, 2014).

The legal responsibilities for sanitation service provision and fecal sludge management are outlined in Table 1.

## METHODS

We conducted reviews of 36 national and local documents describing sanitation policies and programs. In the city of Kumasi, we conducted 14 transect walks, 15 key informant interviews, and 6 focus-group discussions with low-income residents. Through these activities, we identified water and sanitation stakeholders; located and characterized low-income neighborhoods; identified existing sanitation facilities, practices, and services; and examined sanitation preferences and gender concerns.

**TABLE 1:  
SANITATION LEGAL FRAMEWORK**

National policies
<ul style="list-style-type: none"> <li>• <b>National Environmental Sanitation Policy (NESP)</b> (2010): provides the overarching vision for improving sanitation in Ghana and recognizes environmental sanitation as an essential social service for improving health and quality of life. The policy promotes the adoption of cost-effective, appropriate, affordable and environmentally-friendly sanitation technologies, such as water closet and septic tank systems, pour-flush latrines, and Ventilated Improved Pit (VIP) latrines, with an emphasis on low-income areas.</li> <li>• <b>National Building Regulations</b> (LI 1630) (1996): requires all new buildings or building extensions to have a toilet. Water-based toilets are required in buildings with a piped water connection.</li> </ul>
Local policies
<ul style="list-style-type: none"> <li>• <b>Kumasi Metropolitan Assembly Bylaw</b> (2018): requires every house to have a toilet and outlines the penalties for landlords who violate this provision.</li> </ul>

## KEY FINDINGS

- 1) In Kumasi, public toilets are dominant in low-income areas.** The majority of low-income households do not have private household facilities due to space constraints. Instead, they use either public toilets or shared toilets within the compound. These public sanitation facilities include cistern-flush toilets (referred to as water closets, WCs) or pour-flush toilets to lined pits, or dry pit latrines such as the Kumasi Ventilated Improved Pit latrine (KVIP), which uses alternating pits. In Kumasi, 40% of residents rely on public toilets and less than 10% of households are connected to a sewer network (Ghana Statistical Service, 2013). Sewer networks connected to simple treatment plants are serving three low-income communities (Asafo, Chirapatre, and Ahinsan) (Ghana Statistical Service, 2014). Overall, approximately 2.5% of residents do not have access to sanitation facilities.
- 2) In low-income areas of Kumasi, residents prefer private, low-volume flush toilets that require little space and infrequent emptying.** Residents expressed preferences for flush toilets, including pour-flush toilets, or dry lined pit latrines, known as Ventilated Improved Pit latrines (VIPs) or KVIPs. Pour-flush toilets use less water than flush toilets and dry toilets require less space and less frequent emptying compared to water-based solutions. Though low-income residents prefer private toilets, water-based public toilets are also deemed acceptable. Additionally, residents are interested in toilets that require less frequent emptying, such as bio-digester systems or biofil toilets (an onsite treatment system that uses aerobic decomposition and macro-organisms to breakdown fecal sludge). Some residents also deemed container-based sanitation an appropriate option; however, other residents expressed concerns about the reliability of emptying services and associated odors. Residents prefer toilets with handwashing facilities and waste receptacles for menstrual hygiene management.
- 3) Pits are not prone to collapsing and there is little risk of flooding in Kumasi.** The city's relatively stable soil conditions allow for durable pits and the city's flat topography reduces the risk of flooding. In Kumasi, low-income areas are also characterized by a high water table. Pits typically take about two to three years to fill up before they need to be emptied.
- 4) In Kumasi's low-income areas, pit emptying is mostly done by vacuum trucks, or occasionally by the Kumasi Metropolitan Assembly's manual emptying service.** There are currently 32 active vacuum trucks that serve public toilet facilities and household toilets in Kumasi. Low-income residents perceive the cost of vacuum truck services to be high, at approximately 50-100 USD per emptying service, depending on the volume of sludge that needs to be emptied and capacity of the vacuum truck. This cost, largely influenced by the high cost of fuel, distance to the treatment site, and vehicle maintenance costs, is the main barrier for servicing low-income areas. Accessibility is generally not a challenge for vacuum trucks to service low-income areas: most roads are paved and wide enough for trucks to navigate. For inaccessible areas, the Kumasi Metropolitan Assembly (KMA) provides a manual emptying service, whereby manual emptiers fill buckets and use KMA's truck to transport the fecal waste to the municipal waste stabilization ponds. However, this service is not commonly used. Some households have connected their toilets directly to drains or "gutters," though this practice is also uncommon.

**5) A fecal sludge treatment facility does exist in Kumasi though it is not fully operational.**

The Waste Management Department of KMA manages a fecal sludge treatment facility at Dompouse, a suburb of Kumasi, which shares premises with a landfill site. The treatment facility consists of waste stabilization ponds (six anaerobic ponds, one facultative pond, and two maturation ponds), though only two ponds are currently operational. The waste stabilization pond has been designed to treat 600m<sup>3</sup> of septage daily and receives fecal sludge from the 32 active vacuum trucks, or approximately 500m<sup>3</sup> daily. In addition, the wastewater treatment plant (in Asafo, a suburb of Kumasi) has a capacity of 1,124 m<sup>3</sup>/day but is not used to full capacity. The Kwame Nkrumah University of Science and Technology has its own wastewater treatment plant.

**6) In Kumasi, current and ongoing sanitation programs focus on improved sanitation facilities and wastewater treatment.**

The “Toilet in Every Compound” program is a five-year program funded by Water and Sanitation for the Urban Poor (WSUP) (2015-2019) aimed at toilet construction in compounds through market-based incentives. Two other programs funded by WSUP (2016-2018) and the Netherlands Government (SANIFish Project) (2018) focus on rehabilitating waste stabilization ponds in the Kumasi Metropolis. The WSUP program focuses on rehabilitating KMA’s main treatment facility at Oti/Dompouse, while the SANIFish project focuses on upgrading KMA’s stabilization pond for serving the Chirapatre sewer system, for wastewater treatment and aquaculture use. In addition, several toilet technologies have been promoted in Kumasi, including container-based sanitation (privately managed by Clean Team Ghana), Kumasi Ventilated Improved Pit latrines (KVIP), and the Enviro Loo, though rarely used and no longer promoted. WSUP and KMA also promoted bio-digester and biogas sanitation technologies, though implementation was conducted by private companies.



**NEXT STEPS**

In Kumasi, we are currently conducting detailed cost evaluations and a household survey to elicit stated willingness-to-pay for different high-quality sanitation facilities and services: pour-flush toilets to septic tanks, pour-flush toilets to biofil, container-based sanitation, and mechanized pit emptying. Specifically, we are examining willingness-to-pay for different cost structures (i.e., upfront payments and installments) for both landlords and tenants.

This investigation will allow us to assess the gap between the costs of providing high-quality sanitation products and services to low-income areas and the amounts that low-income households are able to invest in sanitation improvements. We will apply these gap assessments to develop recommendations for delivering high-quality sanitation solutions to urban, low-income residents.

**REFERENCES**

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