

Assessing the Availability of Commercialized Toilets in Kakamega Town, Kenya

Okanga Mutambi Philip¹
Immonje M. Magaret²
Sylvester Makhulo³

¹okangamutambi55@gmail.com

²mimmonje@mmust.ac.ke

³smakhulo@mmust.ac.ke

^{1,2,3}Masinde Muliro University of Science and Technology, Kenya

<https://doi.org/10.51867/ajernet.6.1.37>

ABSTRACT

Human waste management has been and continues to be a major global challenge facing urban growth. Even though sanitation is a human right, managing sanitation level is still a challenge. Most public toilets are in a mess and unhygienic forcing governments in different countries to incorporate private organizations into provision, management and maintenance. The main objective of this study was to determine availability of commercialized toilets in Kakamega town. The research was carried out utilizing the Contract Theory. The study adopted descriptive research design carried out in Kakamega Town. The target population comprised residents of Kakamega town and those on daily transit thus 63,426 residents in addition to those in transit. Purposive sampling was done for Kakamega County town and key informants, while Simple random sampling was done for town residents and business people. Systematic sampling was conducted on individuals using public toilets. A sample size of 384 participants was used and data was collected using observation, interviews, questionnaires and document review. Data analysis utilized Statistical Package for Social Sciences (SPSS) version 28. Quantitative data was analyzed using descriptive and inferential statistics and qualitative data thematically. Majority of the respondents, 207 (58.97%) were of age bracket 21-30 years and males, 254 (72.36%). A total of 14 public toilets were located within the vicinity of Kakamega Town with 57.14% being commercialized and were not adequate. The rest were free to use public toilets. 265 (75.5%) of respondents knew of public toilets and their location with only 25.9% of females being very often users. Majority of respondents 256 (72.9%) chose public toilets because of their cleanliness and appearance. In conclusion, commercializing public toilets provided revenue and improved hygienic as well as aesthetic value of the town. The study recommends the town to increase the number of commercialized toilet facilities within Kakamega Town. Since establishment of new counties in Kenya, such a study is yet to be done in Kakamega County and, therefore, would provide necessary baseline information to the county for policy implementation.

Key Words: Commercialised Public Toilets, Kakamega Town, Sanitation, Waste Management

I. INTRODUCTION

The management of human waste has historically represented, and continues to represent, a significant global challenge in the context of urban expansion (Kumar et al., 2017). United Nations International Children's Emergency Fund (UNICEF) and World Health Organisation (WHO) (2018) recognize that safe sanitation is fundamental to a healthy, comfortable, and dignified existence, with its absence imposing significant economic burdens on nations due to illness and mortality. Consequently, it necessitates the implementation of effective management strategies from the grassroots level, thereby underscoring the importance of legislation to regulate the clearance and disposal of human waste.

Uwamwezi (2016) highlights the absence of standardization in the management of excreta waste in public spaces as one of the reasons for the deplorable condition of public toilets. To improve the efficacy of human waste disposal, it is prudent to adopt a participatory approach aimed at fostering sustainable behaviour change over the long term (Augsburg et al., 2022). It is imperative for municipal councils and local authorities to guarantee that public gathering spaces are equipped with accessible public toilet facilities, which should be overseen by the appropriate town councils responsible for their upkeep, utilizing revenues generated within their respective jurisdictions (Kanuti et al., 2019). Hardin (1968), in his theory of "Tragedy of the Commons," observes that within a shared resource system, such as public toilets, individual users operate independently based on their self-interests. This behaviour ultimately undermines the collective welfare of all users, leading to the depletion or degradation of that resource through their combined actions.

The United Nations [UN] (2023) emphasizes that access to safe water, sanitation, and hygiene constitutes fundamental human necessities for health and well-being, presenting a significant challenge in the pursuit of Sustainable

Development Goals (SDG). The emerging circumstances, including the inability to access sanitation facilities due to financial constraints, prevailing social norms, and the segregation of toilets in urban environments and bus terminals, provoke significant concern, resulting in individuals resorting to relieving themselves in inappropriate locations. Many of these locations ultimately transform into repositories for solid human waste and designated areas for urination. The UN (2019) advocates for nations to prioritize waste management, as it leads to significant environmental and economic advantages.

According to Human Rights Watch (HRW, 2013), there is a notable trend in Europe regarding the criminalization of homelessness, particularly linked to the issues of open defecation and urination observed in public areas and more isolated locations. This suggests the occurrence of public urination in London. Various nations have implemented strategies aimed at enhancing sanitation standards. For example, Urilift International, as noted in the Murray Bridge Council (2017) report, features a toilet that elevates from the ground during social evenings and retracts during daylight in Australia. In contrast, the Kumutoto public toilets in New Zealand are crafted to be prominently visible from a distance to enhance their functionality. Chisukei city in Japan is recognized as one of the locations renowned for having exceptional toilet facilities. James et al. (2024) demonstrate that, in addition to offering essential services, public toilets are sites where psychological, physical, and sexual assaults have been documented. Instances of assaults have been documented by the Police Foundation (2017), highlighting the harassment faced by women in public restrooms across the UK, which consequently restricts their accessibility.

In Africa, the majority of public toilets have received insufficient attention, resulting in inadequate maintenance. Reynolds et al. (2020) observe that instances of women refraining from utilizing public restrooms due to insufficient privacy, among other apprehensions, have been documented in certain public facilities. In various West African nations, including Nigeria, the practice of open defecation remains prevalent (UNICEF, 2016c). Furthermore, Isaac et al. (2023) observe that the majority of public restrooms tend to be unclean and disorganized. In South Africa, Gibbs et al. (2020) documented instances of sexual violence affecting young women in public restrooms. Kieran (2015) notes that incidents of rape, robbery, and murder are frequently reported in South African toilets, advocating for improved management and design of these facilities to enhance dignity, safety, and accessibility.

The commercialization of public toilets serves as a strategy for ensuring their cleanliness, as the revenue generated is reinvested to uphold their hygienic standards. The Eastern Africa Region exhibits a varied response, as studies reveal that imposing a fee for toilet usage constitutes a violation of fundamental human rights. As noted by Festival (2024), numerous informal settlements in East Africa are characterized by inadequate sanitation, a lack of privacy, and restricted access, as caretakers secure doors during nighttime hours. In Rwanda, Gubic and Baloi (2020) indicate that the growing urban population has exerted significant pressure on the government, highlighting the necessity to enhance the number of public toilets to improve accessibility in public spaces. The Sudan Sanitation Program, as reported by UNICEF (2017), aimed to develop and establish guidelines for the construction, management, and operation of public toilets to enhance sanitation standards. The report by Drewko (2007) reveals that in Addis Ababa, the Water and Sewerage Authority has enhanced public toilet facilities and commercialized them to foster development and sustainability.

The commercialization of public toilets in Kenya is influenced by various factors, including the degree of cleanliness and the provision of privacy, which significantly affect their usage (Hartigan et al., 2020) indicate that Community Led Total Sanitation (CLTS) seeks to mitigate the public outcry resulting from open defecation, particularly among marginalized and vulnerable populations. The stakeholders involved in the Community-Led Total Sanitation (CLTS) initiative, including 'IKO toilet' and the Umande Trust in partnership with Goal Ireland, have undertaken the commendable task of establishing affordable or complimentary toilet facilities along with bio-center concepts to effectively manage human waste that accumulates on pathways and in drainage systems.

Sibanda et al. (2017) elucidate the complexities surrounding waste management in Kisumu County as a significant challenge. It has been observed that the poorly lit streets frequented by informal traders in the Central Business District (CBD) suffer from rampant open defecation, a consequence of the overwhelming demand on public toilets that compromises both their availability and accessibility. A comparable scenario is observed in Nakuru, Mombasa, and various other towns across Kenya. This serves as a manifestation of a fundamental human requirement encountering limitations as public restrooms become increasingly scarce. In urban areas, they are nearly as uncommon, with a select few offering modest compensation for the sake of convenience (Banks, 2019).

The UN (2019) indicates that Kakamega Town holds the distinction of being the largest town within Kakamega County. The poverty level is recorded at 39.6 percent, according to the Kenya National Bureau of Statistics in 2021. This suggests that the commercialization of public toilets in Kakamega Town may result in a limited user base, as many individuals may find the services financially inaccessible.

1.1 Statement of the Problem

According to Klasing and Smaak (2017), while sanitation is recognized as a fundamental human right, the management of sanitation levels continues to pose significant challenges. The management of bodily functions such as

urination and defecation is fundamentally linked to the essence of human dignity. The study conducted by Rotowa in 2022 highlights the deteriorating condition of latrines, inadequate management of public toilets, and the absence of facilities for individuals with physical disabilities.

In Kenya, public toilets have not garnered the necessary focus, as many are either inaccessible, unclean, or in disarray, receiving minimal attention. Furthermore, a significant number are subjected to premature commercialization. This phenomenon can be ascribed to escalating poverty rates, significant social repercussions, erosion of dignity and privacy, the potential for user victimization, and the prevalence of social violence.

In Kakamega Town, notwithstanding the aforementioned causes, the aesthetic dimensions, including beauty and environmental cleanliness, are predominantly observed in the frontal areas of the CBD. Toilets present a visually appealing and sophisticated design, while the trenches are devoid of the unpleasant odors typically associated with human waste. Nevertheless, one observes a stark contrast in the corridors, deserted structures, and areas designated for illicit urination, which are particularly evident in the less frequented alleys of the town's central business district. Anecdotal evidence has uncovered abandoned structures that are marred by human waste, alongside both overt and covert locations for illegal urination. Research has suggested the commercialization of public toilets as a means to generate user fees that could aid in their management, reduce the distance individuals must walk between facilities, and promote their unique features as potential solutions to mitigate environmental degradation.

Furthermore, although previous studies have thoroughly investigated the public health consequences of insufficient sanitation facilities (UNICEF & WHO, 2020; O'Keefe et al., 2015), there remains a notable absence of empirical evidence regarding the impact of commercialization on access and equity in the delivery of sanitation services. The commercialization model frequently emphasizes profit, which may lead to the marginalization of vulnerable populations, including low-income earners, street vendors, and individuals with disabilities (O'Keefe et al., 2015). This highlights a conceptual disparity in comprehending the convergence of commercial interests and public health rights in the sanitation sector. Moreover, research focusing on the inclusivity of sanitation facilities for individuals with disabilities remains limited, especially within the Kenyan context. In instances where studies are conducted, they predominantly emphasize policy analysis rather than examining the tangible conditions and accessibility attributes of current facilities (Mugo & Opiyo, 2020). This highlights a significant methodological deficiency, as there is an absence of empirical evaluations regarding infrastructure quality, user experiences, and management practices.

The current body of literature fails to adequately tackle the particular challenges concerning the availability, commercialization, and accessibility of public toilets in Kakamega Town. This research endeavors to address these deficiencies by offering localized data that can guide policy formulation, urban development, and public health strategies. This study aims to determine the availability of commercial public toilets in Kakamega town, Kenya.

1.2 Research Objectives

The main objective of the study was to determine availability of commercialized toilets in Kakamega Town

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Contract Theory

The research was carried out utilizing the Contract Theory proposed by Harts and Holmstrom (1986), subsequently informed by Hardin's (1968) theory concerning the Tragedy of the Commons. Contract Theory, as articulated by Harts and Holmstrom (1986), pertains to the formulation of ethical agreements that incentivize individuals with divergent interests to engage in actions that are mutually advantageous. Regarding the ramifications of the commercialization of public toilets on the socio-economic and environmental conditions of Kakamega town. The research examined the financial incentives, cost efficiency, and quality of service provided by the restroom facilities. This approach undermines the primary goal of establishing public toilet facilities that are both readily available and accessible to meet the needs of users, as well as their impact on the environment. Harts & Holmstrom (1986) examined the complexities of incomplete contracting, where multiple parties contribute resources to enhance the productivity of an asset. When unexpected contingencies emerge, these parties must engage in negotiations to determine the appropriate course of action, which may even involve resorting to litigation services. These instances have frequently resulted in various implications for social, economic, and environmental conditions. In a specific configuration within a framework of space and time, they influence the adaptability of service delivery to the taxpayer. For example, inadequate sanitation in publicly accessible restrooms could lead to the emergence of a particular disease. This situation will compel the government to intervene by supplying essential medical resources to mitigate the epidemic, consequently leading to an escalation in medication costs that can solely be offset through heightened taxation.

The concept of the Tragedy of the Commons, as articulated by Hardin in 1968, provides a framework for understanding the phenomenon of overexploitation. Hardin examines issues that elude resolution through purely technical approaches. He posits that when individuals pursue their own interests by exploiting shared resources without

consideration for others, the inevitable outcome is the eventual depletion of all resources. He consequently argues against the dependence on conscience as a method for regulating commons (public toilets in this instance). He posits that this advantageously aligns with the interests of self-serving individuals rather than those who exhibit altruistic tendencies. He further asserts that unrestricted access to resources driven by self-serving interests necessitates careful management. Hardin's theory pertains to the essential requirement for public toilets, emphasizing that such freedom may be subject to misuse if not properly regulated. Shaw (2019) advocate for the engagement of stakeholders in the design process of public toilet facilities. Fostering dialogue enriches relationships, reveals challenges while cultivating awareness, instills a sense of ownership, and guarantees that individuals' desires, demands, and needs are addressed. Shaw (2019) posited that, it is important to observe that engaging stakeholders from the outset significantly increases their willingness to pay for and utilize the public toilet facility.

By engaging in the process, stakeholders are encouraged to understand the underlying design principles and regulations, as they are primarily tasked with overseeing the approval of the establishment's sustainability efforts. Should these guidelines be adopted, the marginalization of certain societal groups, including street families and the economically disadvantaged, is significantly reduced. Hardin (1968) therefore advocates for a thorough evaluation prior to the commercialization of a public resource. The shortcomings of these economic theories lie in their failure to adequately recognize the true entrepreneur, who prioritizes the considerations of freedom and necessity over mere financial returns. They also highlight that the predominant approach of many governments is characterized by a tendency to refrain from active management, which ultimately leads to crises that necessitate the commercialization or privatization of public resources. It is important to observe that certain entrepreneurs may inadvertently exclude the impoverished and vulnerable, as their motivations are primarily rooted in the financial gains from their ventures rather than in the pressing need to improve sanitation conditions within a specific context. At this juncture, it is imperative that governments establish policies designed to stimulate the system through incentives, thereby improving the availability of sufficient public toilets that are accessible to all.

2.2 Empirical Review

The term "public toilet" applies to a facility or structure equipped with toilets (or urinals) that is not associated with a particular residence and is accessible for utilization by the broader populace, including patrons, travelers, employees, students, inmates, and others. In the study conducted by Maes and Melgaco (2023), referencing Greed (2006), a public toilet is characterized as encompassing both traditional "on street" local authority facilities and 'off-street' toilets that are accessible to the public, which can be more accurately described as "away from home toilet."

Munemo (2018) examines the availability and accessibility of public toilets, as well as their usability when required. His report indicates that these facilities may be limited to specific genders, social statuses, or social groups, consequently marginalizing other underrepresented populations. This suggests that alternative facilities may exist yet remain inaccessible owing to their economic, aesthetic, or hygienic conditions, as well as religious affiliations. House et al. (2014) assert that the availability of secure and functional toilets significantly enhances public health, human dignity, and personal safety, especially for women.

According to UNICEF (2018), sanitation systems that fail to safely treat excreta facilitate the transmission of diseases. Inadequate sanitation may lead to significant health challenges, manifesting in soil-transmitted and waterborne diseases, including cholera, diarrhoea, typhoid, and schistosomiasis, as highlighted by UNICEF (2018). This may present a significant risk to the health of the community in any locality.

UNICEF (2017) reports that 2.1 billion individuals globally lack access to safe drinking water in their homes, while twice that number are deprived of safe sanitation facilities. The 2017 update on the SDG baseline reveals a concerning scarcity of properly managed drinking water and sanitation services. The overarching conclusion underscores that a significant number of individuals, especially in rural regions, continue to be deprived of access to clean public toilet facilities. This serves as a testament to the ongoing evolution of toilets and latrines within contemporary society.

As noted by WaterAid (2017), the demand for public toilets is on the rise, correlating with population growth. This elucidates the rationale behind the commercialization of the majority of these toilets for economic benefit. Accessing toilet facilities in public areas has become increasingly challenging, often restricted to customers or those in need, highlighting their significance as essential human requirements. Access to the public toilets or latrines within a church or educational institution is typically restricted to individuals who are members of the congregation, parents, or students associated with the institution. In general, these areas are usually restricted to visitors due to considerations of hygiene and safety, and are secured with locks. This compels an individual to locate a proximate public restroom, irrespective of its commercial status or lack thereof. As a result, it places individuals at a disadvantage who find themselves unprepared and lacking either cash or an appropriate denomination to fulfill the payment for the service prompted by a natural summons.

The findings from the World Health Organization (2023a) indicate that over half of the global population, specifically 57%, had access to well-managed improved sanitation facilities. Consequently, the residual population

continued to engage in open defecation or utilized facilities that lacked proper sanitation. This report elucidates a notable enhancement in sanitation coverage. The World Health Organization oversees global initiatives aimed at maintaining this level of improvement by providing guidance to authorities on health-related directives and the administration of services to prevent the spread of pathogens. Among the strategies established to achieve this objective is the imperative to augment the quantity of public toilets linked to a sewage treatment facility. SDG 6.2 emphasizes the necessity of ensuring that every individual has sufficient and fair access to sanitation and hygiene facilities, alongside the elimination of open defecation practices. This objective places significant emphasis on addressing the distinct needs of women, girls, and individuals in precarious situations, recognizing their awareness of hazardous areas and the fact that not all safety considerations are conducive, as noted by Water and Sanitation for the Urban Poor [WSUP] (2018).

Meki et al. (2021) observed a deficient provision of sanitary facilities at market places in Zambia. It can be inferred that numerous private and public establishments, including bus stations, bars, restaurants, offices, police stations, courts, and certain government institutions, exhibit a lack of consideration for the availability and accessibility of public restrooms. This underscores the necessity of assessing the quality of care provided to any public restroom facility.

Research conducted by Pasteur and Prabhakaran (2015) revealed that towns and urban areas possess a significant number of public toilets, with the primary challenge being the inadequate and unsustainable management of these facilities. The majority of users tend to select an urban public toilet primarily based on the quality of the services offered.

III. METHODOLOGY

3.1 Study Area

The study was carried out in Kakamega Town. The town lies between longitude 34°44'0 degrees E and longitude 34°46'0 degrees E, latitude 0°18'0 degrees N and latitude 0°16'0 degrees N as in figure 3.1. Kakamega town is situated in Kakamega County, located in the western part of Kenya, adjacent to the Kisumu-Webuye Highway. The town is located 52 kilometers north of Kisumu and is part of the Lurambi sub-county. Kakamega County's administrative center is located here. The town has experienced a significant rise in population growth in recent years (Ngome & Mulinya 2018). The population of Kakamega town currently stands at 63,426, according to the UN (2019). The residents of Kakamega Town consist primarily of the Luhya community, which represents the largest ethnic group, succeeded by the Luo (Government of Kenya [GoK], 2023). Additional groups encompass the Kalenjin, Kikuyu, Kamba, Gusii, as well as European and Asian populations, among others.

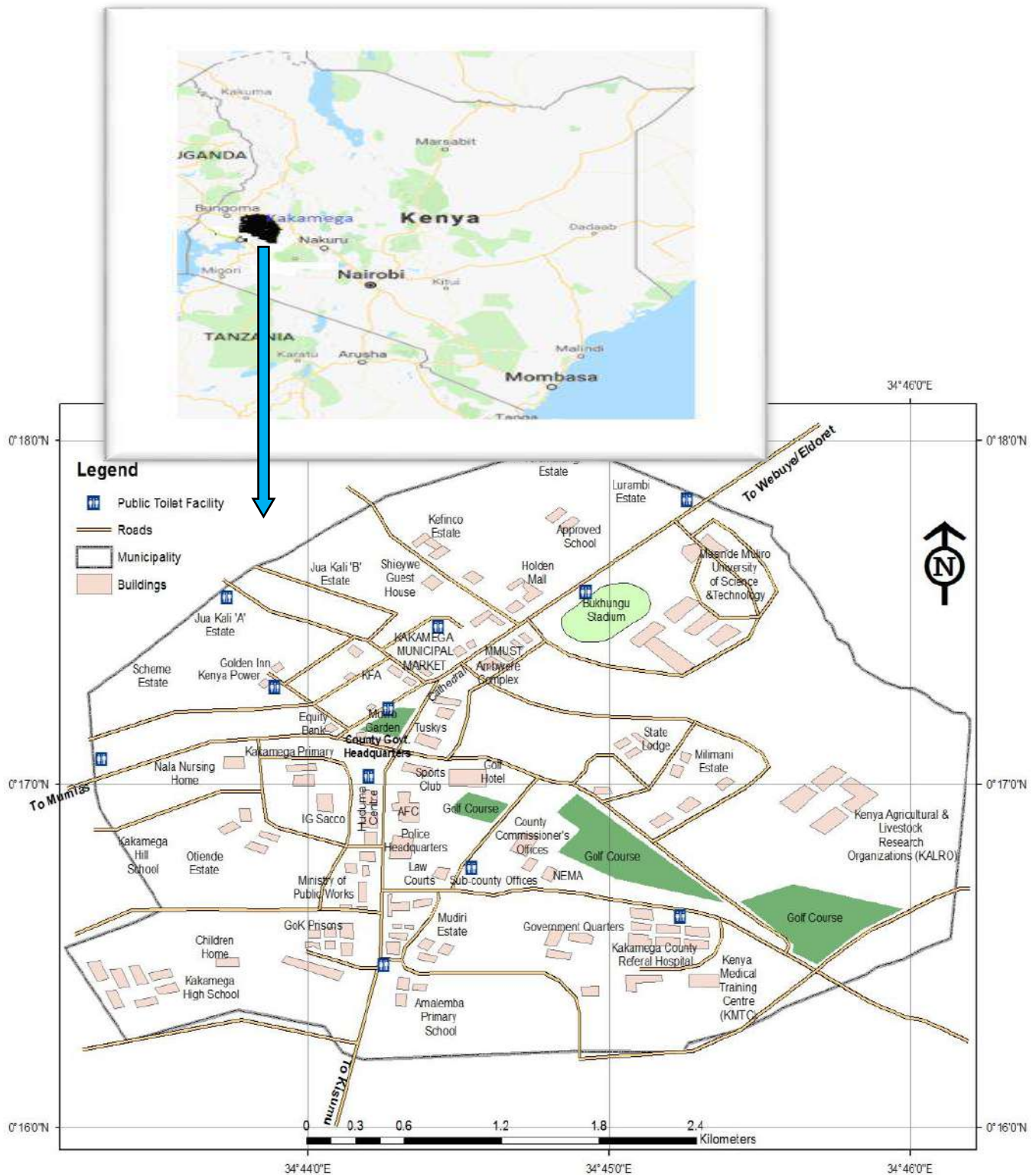


Figure 1
Map of Kakamega Town Showing Spatial Distribution of Public Toilet Facilities

3.2 Research Design

The research employed a descriptive survey design. Aggarwal & Ranganathan (2019) contend that descriptive designs enable individuals to articulate one or more variables with minimal emphasis on hypotheses, thereby elucidating, analyzing, and interpreting conditions as they are observed. This design was well-suited for the study as it allowed the

researcher to ascertain the availability of commercialized toilets, evaluate their utilization, and investigate the implications of public toilet commercialization on the environmental condition of Kakamega town.

3.3 Target Population

The population of interest consisted of the inhabitants of Kakamega Town. The World Population Prospect report by the UN (2019) indicates that the anticipated target population for Kakamega town, including those in transit, was 63,426 individuals. It was expected that these individuals would make use of the public restrooms at some juncture. The operators of sanitation facilities within the town constituted a significant group of key informants.

3.4 Sampling Procedure

The chosen study area, Kakamega town, was purposively selected from various towns within Kakamega County. This decision was influenced by factors such as the researcher's proximity, financial limitations, and its representation as a rapidly growing medium urban center in Kenya. The research utilized random sampling techniques to gather data from pedestrians, drivers, residents, and businessmen who had previously utilized public toilets in Kakamega Town. Additionally, systematic sampling was implemented, whereby every fourth individual visiting the designated public toilet was invited to complete the questionnaire. A purposive selection of toilets was made from those located at law courts, hospitals, the stadium, the central business district, educational institutions, county offices, and other public facilities within Kakamega town.

3.5 Sample Size Determination

Sample size was calculated using the formula by Mugenda and Mugenda, (2003) where;

$$n = \frac{z^2 pq}{d^2}$$

Therefore:

Z= the standard normal deviate at confidence interval of 95%, (1.96).

P= proportion is the target population estimated to have the characteristic being measured.

q= 1-p

d= level of statistical significance set of Alpha (0.5).

If the proportion of the target population with a certain characteristic is 0.5, the z statistic is 1.96 and the desired accuracy level is at 0.5 level, then sample size will be;

$$n = \frac{(1.96^2)(0.5)(0.5)}{0.05^2}$$

$$= 384.16$$

A sample frame of 384 respondents from the study area was arrived at as follows; the sample size (n) for respondents was estimated using the formulae

Where n= desired sample size (if the population is greater than 10000).

Therefore, a sample size of 384 was used plus officials such as County public health officers, water and sanitation officers, and public toilet operators interviewed.

3.6 Data Collection Instruments

The quantitative tool consisted of a structured questionnaire with yes/no questions and Likert scale responses and observation checklists. The data collection instruments were modified to fit the study and were taken from Tanujaya et al., (2023).

3.7 Validity of the Data Collection Instruments

The concept of validity was utilized to ascertain the degree of precision of the measurement instruments employed. In order to attain both internal and external validity, a pilot study was executed in Luanda Town, Vihiga County. The refinement of the tool was conducted with the assistance of supervisors. To guarantee both face and content validity, the development of the questionnaires and the measurement process was meticulously informed by the conceptual framework, aiming to assess critical socio-economic dimensions and the commercialization of public toilets in Kakamega Town. The assurance of content validity and relevance was achieved via a pilot test executed in Luanda Town (Kenya). This allowed the researcher to evaluate the precision and significance of the inquiries presented in the questionnaire. Items that could not adequately measure the specified variables were eliminated, while others were refined to enhance the quality of the research instrument, including adjustments to wording and the mitigation of bias.

3.8 Reliability of Instruments

A test reliability method is administered on same instrument to establish a Cronbach alpha coefficient value KR20 or (α), (Heale & Twycross (2015). After conducting a pilot test, inadequate items on the instruments were modified or discarded to improve on the consistency of the items in generating the required data.

Forty-eight (48) participants were used for pilot testing. The reliability was then computed from the formulae

$$(\alpha) = kR20 = \frac{k(S^2 \sum Si^2)}{S^2(k - 1)}$$

Where k=number of items in the instrument

S^2 = variance of all scores

Si^2 = variance of individual items.

The outcome of the pilot test calculation yielded an alpha (α) Cronbach coefficient value of 0.727, significantly surpassing the minimum threshold of acceptability set at 0.6. The findings suggest that the questionnaire employed in this research demonstrated a commendable degree of reliability (Cronbach = 0.727). In order to enhance the reliability of this study and reduce the potential for errors, the researcher undertook a comprehensive training program for the research assistants, spanning one week, to ensure they were well-versed in the essential skills required for the study. The researcher collaborated diligently with the assistants to guarantee the mastery of pertinent skills and the accurate entry of information. The researcher gathered qualitative data through direct, in-person engagement.

3.9 Data Collection Procedures

Data collection involved the use of observation, interviews, and questionnaires for primary data, while secondary data was sourced from unpublished anecdotal reports and documents from relevant offices. A total of 384 respondents were randomly selected to participate in the administration of questionnaires. Interview guides for key informants were utilized to gather essential information regarding the implications of commercializing public toilets on the environmental condition of Kakamega town. Interviews were conducted through direct dialogue with key respondents from public health offices, county planning offices, water and sanitation offices, and public toilet operators to gather information that was not readily accessible.

A comprehensive examination of documents was conducted to extract pertinent information from essential sources, including county offices and media, in relation to the subject of study. The primary language utilized in the questionnaire was English; however, it was open to interpretation into the local language or Kiswahili by the researcher.

3.10 Data Management and Analysis

The analysis of quantitative data was conducted through the application of both descriptive and inferential statistical methods. The analysis of demographic characteristics was conducted through the application of descriptive statistics, encompassing means, frequencies, and standard deviations. The analysis of data was conducted utilizing the Statistical Package for Social Sciences (SPSS) version 28, aimed at assessing the presence of commercial toilets in Kakamega town. The data yielded frequencies along with their corresponding percentages. In order to evaluate the usage of commercialized toilets, frequency data was meticulously gathered and analyzed in terms of percentages. A bivariate analysis was conducted to examine the demographic factors linked to the utilization of commercial toilets, with a significance threshold set at a P-Value of $P \leq 0.05$. The qualitative data were subjected to thematic analysis. An exploration of the ramifications associated with the commercialization of public toilets on the environmental condition of Kakamega town was conducted through the application of descriptive statistics, utilizing percentages, alongside a thematic analysis of qualitative data.

IV. FINDINGS & DISCUSSION

4.1 Response Rates

4.1.1 Socio-demographic Characteristics of the Respondents

The research gathered the socio-demographic attributes of the participants. This encompassed age, gender, educational attainment, reasons for being in town, and handicap status as presented in Table 1. The study revealed that the bulk of respondents, 207 (58.97%), belonged to the age group of 21-30 years. The age group of 41 and above exhibited the lowest response rate at 22, corresponding to 6.26%. In terms of gender, 254 males (72.36%) and 97 females (27.64%) utilized public toilets. This indicates that the majority of commercial toilet users were male. Regarding marital status, the bulk of married respondents were males, totalling 130 (72.2%), followed by single males at 68 (68.0%), while the fewest were separated females, numbering 8 (34.8%). The respondents were asked to indicate their degree of schooling. The majority of respondents possessed tertiary education, with 185 males (72.0%) and 72 females (28.0%). The lowest number of responders were from the primary level, with males comprising 10 (76.9%) and females 3 (23.1%).

Table 1
Socio-demographic Characteristics of Study Participants

Variable	Gender	Male	Female
	N (%)	N (%)	N (%)
Age groups	20 years and less	47(71.2)	19(28.8)
	21-30 years	147(71.0)	60(29.0)
	31-40 years	35(71.4)	14(28.6)
	41 years and above	19(86.4)	3(13.6)
Marital status	Married	130(72.2)	50(27.8)
	Single	68(68.0)	32(32.0)
	Widowed	30(62.5)	18(37.5)
	separated	15(65.2)	8(34.8)
Education Level	Primary Level	10(76.9)	3(23.1)
	Secondary Level	59(72.8)	22(27.2)
	Tertiary Level	185(72.0)	72(28.0)
Reason for being in town	Traveler	21(63.6)	12(36.4)
	Work/job	45(62.5)	27(37.5)
	Business	37(82.2)	8(17.8)
	Shopping	69(69.7)	30(30.3)
	Resident	58(76.3)	18(23.7)
	Driver	24(92.0)	2(7.7)
Are you physically challenged	Yes	14(63.0)	8(36.4)
	No	240(72.9)	89(27.1)

4.1.2. Availability of Commercialized Toilets in Kakamega Town

A total of fourteen (14) toilet facilities were meticulously selected from various locations within the Kakamega Town Central Business District. The administration of these public restrooms was subsequently divided into two classifications, with the first category consisting of entities offering complimentary services, whereas the latter category included organizations that commercialize their services for a fee, as illustrated in Table 2. The entities offering complimentary services were categorized as free public toilets or non-commercial toilets, amounting to six (6), which represents 42.86% of the total. In contrast, those providing services for a fee, classified as commercial toilets, numbered eight, accounting for 57.14%. Clients were obligated to compensate for the services rendered to them. This suggested that a significant number of the public restrooms in the area had been commercialized.

Table 2
Availability of Public Toilets by Location and Characteristics

S.N.	Free Public (Non-Commercial) Toilets		Commercial Toilets	
	Location	Characteristics	Location	Characteristics
1.	The county office headquarters situated at Milimani (Facilities chosen ...1)	-Multiple public toilet facilities. -The urinals for both males and females are connected to the sewer pipe. -Pit latrines present. -Offer free services	Muliro Garden public toilet facility (-Iko toilet facilities) (Facilities chosen ...1)	- Owned and operated by the Iko toilet organization. -Offer multiple toilet facilities -Clean and connected to sewer line -Levies its services
2.	Bukhungu Stadium (Facilities chosen ...1)	-Multiple toilet facilities -It has two pit latrines. -It is free -Maintained by the management of Bukhungu Stadium.	The power-line public toilet. (Facilities chosen ...1)	-Owned and managed by Water and Sanitation department of Kakamega County. -It was a make-shift facility on road reserve. -Levies its services
3.	Kakamega County Referral Hospital (Facilities chosen ...1)	-Multiple public toilets facilities. -It is under hospital management. - offering complimentary toileting services to the hospital.	Municipal Market both old and new each has separate facility (Facilities chosen ...2)	-Owned and managed by Water and Sanitation Department -Clean and neat -Levies its services -Offers multiple services

4.	The Law Courts of Kakamega (Facilities chosen ...1)	-Provides complimentary services -Offer free services	Kakamega fruits and vegetable Market (Facilities chosen ...1)	-Owned and operated by the Water and Sanitation Department -Levies its services -Offer multiple of services -Are clean and neat.
5	The Kakamega County Assembly grounds (Facilities chosen ...1)	-Provide complimentary free services but not to all	Kakamega Bus Station has two facilities (Kakamega Traders Association Toilets and Iko toilet (Facilities chosen ...2)	-Offer several services - Are clean -Levies their services
6	Masinde-Muliro University of Science and Technology (Facilities chosen ...1)	-Has multiple public toilet facilities, -Situated within its main campus and lecture halls in Kakamega Town, such as Shivas and Star Annex. -connected to a sewer line -Provide complimentary services.	The Kakamega Fish Market (Facilities chosen ...1)	-The facility is maintained and operated by the Water and Sanitation Department. -are clean -levies its services

Table 3 indicates that a total of 173 (49.3%) public toilets are readily available for use at any opportune time in Kakamega town, with 136 (78.6%) males and 37 (21.4%) females indicating that they were readily available. This suggests a below-average accessibility of the facility. A total of 79 respondents, representing 22.5%, affirmed that the facilities in question included a designated area for individuals with physical challenges. This suggests that their availability is quite limited. The respondents unanimously expressed that the quantity and allocation of public toilets in Kakamega town were insufficient to meet the needs, citing various factors including hygiene considerations.

Table 3

Availability of Commercial Toilets and Presence of Site for the Physically Challenged

Variable	Category	Gender		Total (N)
		Male N (%)	Female N (%)	
Facility have a special room for the physically challenged	Yes	55(69.6)	24(30.4)	79
	No	199(73.2)	73(26.8)	272
Readily available for use	Yes	136(78.6)	37(21.4)	173
	No	118(66.3)	60(33.7)	178

4.2. Discussion

4.2.1 Socio-Demographic Characteristics

The results of this study indicated that a significant proportion of the respondents were male, aligning with the conclusions drawn by Osumanu et al. (2019) and Abubakar (2018). This observation underscores the prevalence of males as household heads, often engaged in labour that necessitates their absence from home for the majority of the day.

The study revealed that a significant portion of the population using commercialized toilets in Kakamega town consists of youths aged between 21 and 40 years, accounting for 72.9% of the total users. This was primarily linked to the quantity of students enrolled in institutions located in Kakamega town, the active working-age population of youths within the local economy, and those passing through Kakamega town. The findings align with the UN (2023) report, which indicates that the majority of students in tertiary institutions fall within the age range of 18-23 years, thereby spending a significant portion of their daytime in urban areas. This is further substantiated by the presence of one of the prominent educational establishments, Masinde Muliro University of Science and Technology (MMUST), in Kakamega town. It can thus be inferred that this demographic of students significantly impacts the volume of public toilet users in the town. In a similar vein, research conducted by Sue et al. (2022) indicates that older populations necessitate enhanced accessibility in their restroom facilities, owing to factors related to physical immobility. They generally refrain from using public restrooms, which accounts for the notably low responses observed in the data.

4.2.3 Availability of Public Toilets in Kakamega Town

The research revealed that a significant portion (57.14%) of the public toilets in Kakamega town CBD were commercialized, while 42.86% remained non-commercialized. This suggests the presence of these facilities, albeit their insufficiency. The results align with a study conducted by Njagi et al. (2017), which indicates that 48% of public toilet facilities are situated within the central business district of Nairobi city, with the majority imposing a fee for their

services. Osumanu et al. (2019) present comparable findings, revealing that around 58.5% of public toilets are situated in the central business district (CBD) and its surrounding areas, with customers required to pay for their services.

The research revealed that merely 22.5% of the commercialized toilets in Kakamega town were equipped with facilities for individuals with physical disabilities, a feature entirely absent in the non-commercialized toilets. This was found to be inadequate, thus supporting the claims put forth by Munemo, (2018) concerning the provision and accessibility of public toilets and their usability when required. The findings were also in violation of Haves (2018), which references the Equality Act 2010 in the United Kingdom, underscoring the necessity for accessible toilets that adequately meet the diverse needs of all individuals. The findings of this study indicate that, concerning commercial toilets, Kakamega town stands in opposition to the WHO (2018) guidelines on sanitation and health, which stipulate that toilets should be safe and appropriate for use, taking into account the user's age, physical mobility, and gender.

V. CONCLUSIONS & RECOMMENDATIONS

5.1. Conclusion

The examination of the accessibility of public toilets in Kakamega Town demonstrates that, despite the presence of such facilities in the area, they are primarily administered on a commercial basis, which restricts access to persons who can afford to pay for their use. This commercial model presents a considerable obstacle, particularly for low-income individuals, street vendors, and marginalized communities who may lack the financial resources to reliably obtain these vital services. Moreover, the research underscores a significant deficiency in the availability of resources for those facing physical challenges. In commercial restrooms, the presence of accessible features like ramps, handrails, and adequately sized cubicles is significantly limited, posing challenges for individuals with disabilities to utilize these facilities autonomously and with a sense of dignity. This issue is compounded in non-commercial public restrooms, where the absence of accessibility features highlights a significant oversight in inclusive design and consideration for individuals with special needs. The findings highlight the pressing necessity for the County Government of Kakamega to implement policies that facilitate universal access to sanitation facilities. It is imperative that public toilets are not only economically accessible and broadly available but also thoughtfully designed to meet the varied needs of all community members, including individuals with disabilities.

5.2. Recommendations

It is recommended that the County Government of Kakamega enhance the availability of public toilet facilities throughout Kakamega Town to address the growing demand for sanitation services in the area. Expanding the number of accessible and well-distributed public toilets would significantly improve public health and the overall quality of life for residents and visitors. Additionally, the administration of public toilets within the County Government of Kakamega should prioritize improving both the standards of cleanliness and accessibility of all such facilities. Ensuring that these facilities are well-maintained, regularly cleaned, and easily accessible will contribute to a more hygienic environment and foster a greater sense of civic pride and responsibility among the residents.

REFERENCES

- Abubakar, R. I. (2018). Exploring the determinants of open defecation in Nigeria using demographics and health survey data. *Science of the Total Environment*, 6(7), 637-638. <https://doi.org/10.1016/j.scitotenv.2018.05.104>
- Aggarwal, R., & Ranganathan, P. (2019). Part 2: Descriptive studies. *Perspectives in Clinical Research*, 10(1), 34-36. https://doi.org/10.4103/picr.PICR_154_18
- Augsburg, B., Antonella, B., Zara, M., & White, Z. (2022). When nature calls back: Sustaining behavioral change in rural Pakistan. *Journal of Development Economics*, 158(9), 102933.
- Banks, L. T. (2019). The disappearing public toilet. *Seton Hall Law Review*, 50, 1061. U of Maryland Legal Studies Research Paper No. 2019-10.
- Drewko, A. (2007). *Resource-oriented public toilets in developing countries: Ideas, design, operation, and maintenance for Arba Minch, Ethiopia* (Master's Thesis, Hamburg University of Technology).
- Festival, G. B. (2024). Towards a transportation/mobility grounding for toilet access crisis in Africa. *Transport Studies Unit, School of Geography and the Environment, University of Oxford*.
- Gibbs, A., Reddy, T., Khanyille, D., & Cawood, C. (2020). Non-partner sexual violence experience and toilet type among young (18-24) women in South Africa: A population-based cross-sectional analysis. *Global Public Health*, 16(10), 1-7. <https://doi.org/10.1080/17441692.2020.1813787>
- GoK. (2023). *Ethnic & diversity audit of the county public service 2023*. National Cohesion and Integration Commission. Retrieved from https://cohesion.go.ke/images/docs/downloads/Ethnic_Diversity_Audit.pdf
- Greed, C. (2006). The role of public toilet: Pathogen transmitter or health facilitator? *SAGE*. <https://doi.org/10.1191/0143624406bt151oa>

- Gubic, I., & Baloi, O. (2020). Public open space initiatives for healthier cities in Rwanda. *The Journal of Public Space*, 5(2), 129-146. <https://doi.org/10.32891/jps.v5i2.1287>
- Hardin, G. (1968). The tragedy of the commons: The population problem has no technical solution; it requires a fundamental extension in morality. *Science*, 162(59), 1243-1248.
- Hartigan, S. M., Bonnet, K., Chisholm, L., & Kowalik, C. G. (2020). Why do women not use the bathroom? Women's attitudes and beliefs on using public toilets. *International Journal of Environmental Research and Public Health*, 17(6), 2053. <https://doi.org/10.3390/ijerph17062053>
- Harts, O., & Holmstrom, B. (1986). Theory of contracts. In T. F. Bewley (Ed.), *Advances in economic theory: Papers presented at symposia of the fifth world congress of the economic society*. Cambridge University Press. <https://dspace.mit.edu/bitstream/handle/1721.1/64265/theoryofcontract00hart.pdf>
- Haves, E. (2018). Disability in the UK: Rights and policy debate on 28 June 2018. Retrieved from <https://researchbriefings.files.parliament.uk/documents/LLN-2018-0071/LLN-2018-0071.pdf>
- Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, 18(3), 66-67. <https://doi.org/10.1136/eb-2015-102129>
- House, S., Ferron, S., Sommer, M., & Cavi, S. (2014). *Violence, gender and WASH: A practitioner's toolkit; Making water, sanitation and hygiene safer through improved programming and services*. WaterAid, SHARE.
- HRW. (2013). *Mean streets: A report on the criminalization of homelessness in Europe; Poverty is not a crime. It's a scandal*. Human Right Watch, Geneva.
- Isaac, K. A., Juventus, B. Z., Patience, B. J., & Emmanuella, N. (2023). Evaluation of Wa township's public toilet management and the adequacy of services provided to commuters and households without toilets. *Civil and Environmental Research*, 15(1), 1-14. <https://doi.org/10.7176/CER/15-1-05>
- James, S. E., Herman, J. L., Durso, L. E., & Heng-Lehtinen, R. (2024). *Early insights: A report of the 2022 U.S. transgender survey*. National Center for Transgender Equality.
- Kanuti, A., Monko, R., & Sanga, A. S. (2019). Urban public toilets management in Tanzania: Understanding cost-effective approaches. *Macro Management & Public Policies*, 1(2). <https://doi.org/10.30564/mmpp.v1i2.738>
- Kieran, G. (2015). *South Africa should invest in public toilets to combat sexual assault*. Thomson Reuters Foundation.
- Klasing, A. M., & Smaak, A. (2017). "Going to the toilet when you want": Sanitation as a human right. Human Rights Watch.
- Kumar, S., Smith, R. S., Fowler, G., Velis, C., Kumar, J., Arya, S., Kumar, R. A., Rena, G., & Cheeseman, C. (2017). Challenges and opportunities associated with waste management in India. *The Royal Society Publishing*, 4(3), 2-15. <https://doi.org/10.1098/rsos.160764>
- Maes, L., & Melgaço, L. (2023). Public Toilets in Brussels' Public Spaces: Necessity or Nuisance?. *Brussels Studies. La revue scientifique pour les recherches sur Bruxelles/Het wetenschappelijk tijdschrift voor onderzoek over Brussel/The Journal of Research on Brussels*.
- Maes, L., & Melgaço, L. (2023). Public toilets in Brussels' public spaces: Necessity or nuisance? *La Revue Scientifique pour les Recherches sur Bruxelles/Het Wetenschappelijk Tijdschrift voor Onderzoek over Brussel/The Journal of Research on Brussels*.
- Meki, D. C., Magne, B., Muchelo, C., & Moen, B. E. (2021). Poor provision of sanitary facilities in markets of Lusaka districts. *Annals of Global Health*, 87(1), 1-14. <https://doi.org/10.5334/aogh.3400>
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative approaches*. Acts Press.
- Mugo, E., & Opiyo, R. (2020). Inclusive urban sanitation: Policy and practice gaps in Kenya. *African Journal of Disability Studies*, 9(3), 45-53.
- Munemo, E. (2018). Accessibility of public and private amenities for people with disabilities in the central business district of Harare. *Advances in Social Sciences Research Journal*, 5(10), 34-38.
- Murray Bridge Council. (2017). *At your convenience: A public toilet strategy for the rural city of Murray Bridge 2017-2022*. Retrieved from https://www.murraybridge.sa.gov.au/_data/assets/pdf_file/0012/341040/Public-Toilet-Strategy-FINAL-updated-Council-resoulution-Nov-17.pdf
- Ngome, P., & Mulinya, C. (2018). The challenge of integrating street trade in the urban development plan and policies: Kakamega town, Kenya. *IOSR Journal of Humanities and Social Science*, 23(7), 78-89. <https://doi.org/10.9790/0837-2307087889>
- Njagi, L., Aponte, A. P., Ogalo, C., Foppen, H., & Gortemaker, I. (2017). Peer-To-Peer Business Models to Meet Sanitation Needs, An Applied Research Project for The Kenyan Market. <https://inclusivebusiness.se/wp-content/uploads/2020/03/AirPnP-report.pdf>
- O'Keefe, M., Lüthi, C., Tumwebaze, I. K., & Tobias, R. (2015). Opportunities and limits to market-driven sanitation services: Evidence from urban informal settlements in East Africa. *Environment and Urbanization*, 27(2), 421-440.

- Osumanu, K. I., Ategeeng, F. & Kose, E. A. (2019). Determinants of Open Defecation in Wa Municipality of Ghana. Empirical Findings Highlighting Sociocultural and Economic Dynamics among Households. *Journal of Environment and Public Health*, 20(1), 1-10.
- Pasteur, K. & Prabhakaran, P. (2015). Lessons in Urban Community Led Total Sanitation from Nakuru, Kenya. CLTS Foundation. <https://www.globalwaters.org/sites/default/files/rural-sanitation-lessons-from-clts-washpals.pdf>
- Police Foundation. (2017). Archival Review of Sexual Assault Complaints in Places of Public Accommodation: Tucson. Arizona. https://www.policinginstitute.org/wp-content/uploads/2017/07/PF_Research-Brief_JULY-2017-FINAL-1.pdf
- Reynolds, W. S., Kowalik, C., Kaufman, M. R., Dmochowski, R. R., & Fowke, J. H. (2020). Women's perceptions of public restrooms and the relationships with toileting behaviors and bladder symptoms: a cross-sectional study. *The Journal of urology*, 204(2), 310-315.
- Rotowa, O. (2022). Assessment of Public Lavatories in Akure, Nigeria. Federal University of Technology, Akure, Ondo State, Nigeria. *IJRES Volume 6, Issue 1, 2020, PP 10-18*. <https://doi.org/10.20431/2454-9444.0601002>
- Shaw, S., (2019). Annexes to technical guidelines for construction of institutional and public toilets, WaterAid. Zambia. Retrieved from <https://coilink.org/20.500.12592/3g7r9c> on 06 Feb 2025.
- Sibanda, L. K., Obange, N., & Awuor, F. O. (2017, December). Challenges of solid waste management in Kisumu, Kenya. In *Urban Forum* (Vol. 28, pp. 387-402). Springer Netherlands.
- Sue, D. W., Sue, D., Neville, H. A., & Smith, L. (2022). *Counseling the culturally diverse: Theory and practice*. John Wiley & Sons Rosewood Drive
- Tanujaya, B., Prahmana, R, C, I. & Mumu, J. (2023). Likert Scale in Social Sciences Research: Problems and Difficulties. *FWU Journal of Social Sciences* 16(4), 89-101. <https://doi.org/10.51709/19951272/Winter2022/7>
- UN. (2019) United Nation. World Population Prospects 2019 Highlights. United Nations, New York. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesapd_kf_wpp2019_10keyfindings.pdf
- UN. (2023) United Nation. Population, Education and Sustainable Development Interlinkage and Select Policy Implications. Policy Briefs 152. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesapd_2023_cpd56_policy-brief-152.pdf.
- UNICEF & WHO. (2020) United Nation International Children's Emergency Fund and World Health Organisation. State of The World's Summary Report, SANITATION, An Urgent Call to Transform Sanitation for Better Health, Environments, Economies and Societies. UNICEF and WHO, New York, USA.
- UNICEF. (2016c) United Nation International Children's Emergency Fund. Progress on CLTSH - Findings from a National Review of rural sanitation in Ethiopia. United Nations Children's Fund, New York, USA. <https://www.unicef.org/ethiopia/media/176/file/WASH-fieldnote-2017.pdf>.
- UNICEF. (2017) United Nation International Children's Emergency Fund. Progress on Drinking Water, Sanitation and Hygiene. <https://reliefweb.int/report/world/progress-drinking-water-sanitation-and-hygiene-2017>.
- UNICEF. (2018). *By 2030, Achieve Access to Quality and Equitable Sanitation and Hygiene for all and end Open Defecation, Paying Special Attention to the Needs of Women and Those in Vulnerable Situations*. United Nation International Children's Emergency Fund. <https://data.unicef.org/uploads/2018/04/S...PDF>.
- UNICEF. (2021). *Healthy Environments for Healthy Children: Global Programme Framework*. United Nation International Children's Emergency Fund. <https://www.unicef.org/media/91216/file/Healthy-Environments-for-Healthy-Children-Global-Programme-Framework-2021.pdf>.
- UNICEF. (2023). *Triple Threat how Disease, Climate Risks, and Unsafe Water, Sanitation and Hygiene Create a Deadly Combination for Children*. United Nation International Children's Emergency Fund. <https://www.unicef.org/media/137206/file/triple-threat-wash-EN.pdf>.
- Uwamwezi, G. (2016). *Knowledge, Attitude and Practices on Waste Management in Selected Secondary Schools in Westland Sub-County, Nairobi County* (Master's Thesis, University of Nairobi).
- WaterAid. (2017). *Developing Business Model for Public Toilets in Dhaka and other Major Cities in Bangladesh*. WaterAid. <https://www.wateraid.org/bd/sites/g/files/jkxooof236/files/study-on-developing-business-models-for-public-toilets-in-dhaka-and-other-major-cities-of-bangladesh.pdf>.
- WHO & UNICEF. (2017). *Progress on Drinking water, Sanitation and Hygiene: 2017 Updates and SDGs Baseline*. World Health Organization and United Nation International Children's Emergency Fund.
- WHO. (2018). *Guidelines on Sanitation and Health*. World Health Organization, Geneva. <https://www.who.int/publications/i/item/9789241514705>.
- WHO. (2017). *WHO water, sanitation and hygiene strategy 2018-2025* (No. WHO/CED/PHE/WSH/18.03). World Health Organization.



- WSUP. (2018) *Water and Sanitation for the Urban Poor. Female-Friendly Public and Community Toilet: A Guide for Planners and Decision Makers*. <https://www.wsup.com/content/uploads/2018/11/Female-friendly-public-and-community-toilets-a-guide-for-planners-and-decision-makers.pdf>.
- Zuin, V., Delaire, C., Peletz, R., Cock-Esteb, A., Khush, R., & Albert, J. (2019). Policy diffusion in the rural sanitation sector: lessons from Community-Led Total Sanitation (CLTS). *World Development*, 124, 104643.