




Review Paper

Trends for sanitation practices in Tanzania: the history from colonial to current times

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ABSTRACT

Although sanitation is a fundamental human right, over 26,500 people die annually due to inadequate sanitation in Tanzania. This situation involves a loss of approximately 301 billion TZS (US\$ 206 million). Administrative challenges are part of inadequate sanitation contributors as government actors who took over power after colonization were trained by and emulated the former rulers. Although researchers have researched sanitation practices, few have examined Tanzania's history of sanitation. The paucity of studies on the history of sanitation hinders efforts to address sanitation issues resulting from historical flaws. This review examines the history of sanitation practices in Tanzania, especially the provision of sanitation facilities from colonial times to the present time. In this study, Dar es Salaam received more attention because it was Tanganyika's major urbanized area during colonialism. Thus, it exerted more pressure on sanitation infrastructure. The findings indicate that inequity characterized colonial sanitation provision. After independence, the government's role to improve sanitation was strengthened. However, the emphasis was put on interventions which were top-down, prioritizing latrine construction of any form while disregarding the history of sanitation practices. Further progress could be achieved by considering home-grown solutions and equality in the provision of sanitation services.

Key words: colonial times, history, sanitation practices, Tanzania

HIGHLIGHTS

- Sanitation practices during colonial times in Tanganyika.
- Post-independence Government Plan to promote access to sanitation for all.
- Sanitation practices after independence in Tanzania.
- The article may contribute to the academic community and practitioners who work with sanitation management in Tanzania.

INTRODUCTION

Tanzania continues to make slight progress in improving sanitation practices despite efforts dating back to the 1970s. Therefore, it is important to review Tanzania's sanitation practices to identify historical underlying causes of inadequate sanitation. Inadequate sanitation has increasingly become a threat to the economy and people's health in Tanzania as deaths from sanitary disease have led to 301 billion TZS (US\$206 million) loss, or 1% of gross domestic product (GDP) (World Bank 2018). This cost is comparable to US\$5 per citizen annually, with an estimated 26,500 deaths every year (The Economic and Social Research Foundation 2016; World Bank 2018).

Since the 1970s, sanitation interventions have been launched nationwide to educate the public about the value of hygiene (Malebo *et al.* 2012, 2016). These interventions which had prospects to improve sanitation included *Mtu ni Afya (Health is Life)*, *Health through Sanitation and Water (HESAWA)*, and *National Sanitation Campaign (NSC)*. Despite all these efforts, inadequate sanitation persists. Partly, inadequate sanitation is linked to the little attention accorded to Tanzania's history of sanitation practices. Inadequate attention to Tanzania's history of sanitation practices has made it difficult to identify the administrative challenges that might have led to inadequate sanitation. As a result of ignoring historical-grown solutions, interventions emphasizing human behaviors that changed from time to time, with varied scales of coverage, and the target population have been employed to address the crisis for about 50 years.

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Sanitation appears to be adequate in planned settlements compared to unplanned settlements (Simiyu *et al.* 2017; Muanda *et al.* 2020). Construction of sanitation infrastructure in unplanned areas is difficult because such areas are located on unfavorable terrains vulnerable to flooding or/and landslides (Sinharoy *et al.* 2019). Tanzania has a strong tradition of tolerating unplanned settlements dating back to colonial times (Andreasen *et al.* 2017). Unplanned settlements have been home to low-income citizens while high-income citizens reside in planned areas (Andreasen *et al.* 2017; Hambati & Yengoh 2018). The way these arrangements take place is not accidental as they occur in the presence of political leaders and government actors who are responsible for the enforcement of regulations. Low-income citizens' right to access a planned area for developing settlements is denied because of high land prices in such areas. Thus, they are forced to live in unplanned areas (Kironde 2006). Consequently, low-income citizens construct substandard sanitation facilities without adherence to legislation. Unplanned areas have been experiencing a lack of water and sanitation services due to their location in the peripherals of cities (Sinharoy *et al.* 2019).

While ignoring the history of sanitation practices in Tanzania, many studies that have been undertaken to discover the basis of inadequate sanitation have concentrated on negative human actions and poor development planning on the part of political institutions (Kamara *et al.* 2017; Mshida *et al.* 2017). The negative human actions and poor development planning which have been cited as the causes of inadequate sanitation include uncontrolled population growth, unplanned urbanization, lack of coordination, poor WASH practices, inappropriate behaviors (Kamara *et al.* 2017; Mshida *et al.* 2017; Safari *et al.* 2019), and low political commitment (Kasala *et al.* 2016).

Previous studies have emphasized negative human actions and poor planning on the part of political institutions while ignoring the influence of historical flaws on sanitation practices. In view of this, the current review examines the history of sanitation practices in Tanzania in order to understand the influence of historical administrative flaws on sanitation practices.

REVIEW PROCEDURES

Search method

This study considered scientific articles, review articles, and grey literature that discuss sanitation practices from colonial times to the current times in Tanzania. Articles published in English were selected. No restriction on the date of publication was imposed on the search. The inclusion of grey literature was aimed at broadening the scope of the publication searched. In addition, grey literature is important for scientific case studies and technical guides.

Searching for the database

The relevant documents selected for this review were derived from various databases including Sage Journal, IWA Publishing, British Library, Google Scholar, Google, Cochrane Library, and PDFDRIVE. The sources of grey literature on the institutions involved in sanitation were websites of the Ministry of Health in Tanzania, Community Total Led Sanitation, Water and Sanitation Library, WHO, and the World Bank. Key terms related to sanitation were paired with key terms associated with sanitation practices during the colonial rule or during the German and British rule. The key terms were used to search the titles or abstracts using the following associations: latrine OR toilet OR sewerage OR drains OR water supply OR refuse collection OR colonial policy/ordinance. Other associations included German OR British OR Policy/Ordinance OR after independence OR Tanzania OR Tanzania water policy. The pairing process resulted in 36 combinations. For the purpose of identifying review papers that might contain indications regarding sanitation practices during colonial times, we searched the title alone for the following pairing: Sanitation AND practices during colonial periods AND review. Thus, the search involved 37 combinations (Figure 1: Supplementary Materials).

Study selection

The results of the database search were 84 titles. These titles were set out in an Excel file and thereafter 31 duplicate titles were removed. The remaining 53 titles were evaluated independently. During the selection of relevant titles, the criterion used was the presence of at least one of the key terms in the title. We continued to read the abstracts of the remaining publications to assess their relevance for the proposed objective of the review. The criteria used to evaluate the abstracts were the presence of information about sanitation, water supply, and refuse collection during colonial times. The abstracts that failed to meet the criteria were removed from the list. Therefore, six publications were removed either because they lacked information on sanitation practices or were irrelevant. By the end of the selection process, 47 publications were included in

the present review (Figure 2: Supplementary Materials). These publications were reviewed, and the information gained was used to construct this review study.

RESULTS AND DISCUSSION

Sanitation practices during colonial periods

There are two periods of colonial rule in Tanzania. These are the times when the Germans and the British ruled (URT 2013). In these two periods, sanitation practices were managed differently and guided by different policies and ordinances. However, despite the variation between the German and British rule in sanitation management, some aspects such as zoning residential areas based on racial perspectives were similar. The German rule took place in the period between 1889 and 1914 while the British rule took place between 1918 and 1961 after World War I (Kironde 1994; Emig 2010).

Sanitation practices during the German colonial rule

Sanitation practices during German rule were characterized by inequality in access to sanitation facilities. The Germans in Tanzania were the first colonialists to set the groundwork for sanitation especially waste collection. The provision of sanitation services was segregative in nature as the waste collection was done only in the areas inhabited by Germans. In Dar es Salaam, German settlements were located in the eastern part of the town while the natives lived in the western part with poor living conditions and sanitation facilities (Emig 2010). Residential places were determined by race, economic status, and occupation; all these were in the hands of Germans. Due to the low incomes earned from low-wage employment, Africans lived without adequate sanitation.

Latrine facilities used by the natives in Dar es Salaam during the German colonial times were different from those used by the rulers. Kironde (1994) points out that the low-income natives relied on pit latrines which were poorly maintained. This condition arose as a result of overcrowded native populations and limited income, both of which hampered the development of improved latrines. Evidence shows that during colonialism, Africans were mainly employed in the crop plantations, railway construction, and operation sectors. They were also employed as porters and servants and in government services arranged in order of the sector which absorbed a higher number of employees. In all the employment positions, Africans were paid low wages (Pallaver 2014). Due to their limited income, Africans experienced poor living conditions with inadequate sanitation.

Despite the low income and type of settlements' constraints, Bruchhausen (2003) shows that in areas outside of Dar es Salaam, there were sanitation campaigns aimed at constructing latrines. However, Africans built latrines for fear of punishment and therefore these latrines remained unused. In this scenario, it can be noted that cultural barriers influenced sanitation practices among low-income natives.

Despite their importance, sewers and drains as sanitation facilities were also limited during the colonial period. They were highly needed during the anti-malaria campaign to fight against the disease. However, instead of constructing drains to serve all residential areas, drains were constructed only in German residential areas (Kironde 1994). The scarcity of these facilities in low-income native residential areas during German colonial rule was attributed to the inadequate financial resources of the German Government. The small amount of revenue collected by the German Government was used to construct sanitation facilities only in German residential areas (Kironde 1994). The determinants of the provision of health and sanitation facilities were economic, social, and political requirements of the colonial rulers rather than the need for such services by the African population (Turshen 1977). From these modes of sewer and drain construction based on settlements where the rulers lived, Africans had no access to sewers and drains. In addition, since the Africans did not own the economy or have political positions, they could not make decisions on how to manage sanitation such as the construction of a certain type of sanitation system.

Regarding water supply during the German rule, the supply continued to be poor in Dar es Salaam. However, water wells were constructed in the German part of the town where each compound had its own water supply system. In the natives' settlements, water remained a challenge. Water supply systems were planned to be improved in 1900 through the construction of boreholes at the shore of Kurasini for Dar es Salaam town. However, this water project aimed to cater solely for the needs of Europeans (Kironde 1994). Thus, before World War I, Dar es Salaam City was poorly serviced and whatever services were available during that period were concentrated on German settlements (Kironde 1994). The services continued to be provided in areas which already had such services. This means that sanitation and water services in underdeveloped areas were not prioritized. The segregation between the colonialists and natives in terms of the provision of social services

was based on racial and economic grounds. This type of segregation resulted in an uneven access to water and sanitation services (Kironde 1994; Emig 2010).

Apart from water supply, refuse collection facilities as one of the sanitation facilities were also assessed. During the German colonial times, community unions (*Kommunal Verbande*) were in charge of refuse collection, among other duties, in various districts including Dar es Salaam. The *Kommunal Verbande* were put into effect by the *Imperial Decree of 29th March 1901*, and their duties were to establish schools, street lighting, and refuse collection among others (Emig 2010). During this time, the German government permitted communal unions to collect waste collection fees. This was a replication of the long-time British system of collecting charges for waste collection in other colonies (Kironde 1994; Emig 2010).

As time went on, the *Kommunal Verbande* did not work well, resulting in much refuse not being collected in Dar es Salaam. The inadequate working of the *Kommunal Verbande* was mainly attributed to their too many responsibilities (Kironde 1994; Emig 2010). This situation resulted in their abolition in April 1909. The *Kommunal Verbande* of Dar es Salaam and Tanga remained in place. Nevertheless, they were working only in German residential areas. The *Kommunal Verbande* eventually achieved the status of a city known as *Stadtgemeindes*. In their duties of waste collection, *Stadtgemeindes* continued to collect charges for waste collection due to the high population in Dar es Salaam and Tanga compared to other towns (Kironde 1994).

The discussion about the establishment of Town Councils in the colony started in 1908/09. This discussion resulted in the creation of Municipal Councils by the *Order of Imperial Chancellor of 1910* in the German East Africa. Since refuse was collected in German residential areas only, African settlements were overwhelmed by refuse. A new ordinance concerning waste collection called '*Müllabfuhrverordnung*' that involved fee collection and forcing all owners to participate in the waste collection services was put in place. This ordinance resulted in increased revenue from waste collection. Even with this new ordinance, the issue of inequality in access to sanitation services between the natives and the Germans persisted (Table 1).

Despite the presence of the ordinance, leadership deteriorated waste collection during the German colonial times. The leadership problem happened when the governor refused to pay for waste collection services for government-owned buildings that were used by the German East African Company. This scenario happened after the correspondence made by the City Councils of Dar es Salaam, District Authority, German East African Company and the Governor. In a common situation, leaders were involved in the preparation of the sanitation guidelines and their implementation. However, in unusual circumstances, the governor refused to pay for waste collection services. The governor used power illegally and thus won the discourse unrighteously and draconically. Emig (2010) gives a comprehensive explanation of what happened regarding the governor's refusal.:

'Problems in terms of responsibility in payment occurred. In September 1914, correspondence about the responsibility of payment of the waste collection services for the government-owned houses utilized by German East Africa Company was carried out by the city council of DSM, the District Authority, the German East Africa and the Governor. As the premises were owned by the governor, he refused to pay the German East African Company, consequently, there was inadequate money for waste collection (Emig 2010).'

Table 1 | Legislation for sanitation during German rule in Tanzania

Type of legislation	Purpose of the legislation	Impact on sanitation	Reference
Ordinance of March 1901	<ul style="list-style-type: none"> Waste collection and street cleansing Provision of waste collection services without fund. 	<ul style="list-style-type: none"> The law was segregative on sanitation provision as its prioritized access to services at German residential area 	Kironde (1994), Emig (2010)
Müllabfuhrverordnung 1910	<ul style="list-style-type: none"> Waste collection via emphasis on premises owners to join the services Involved fees in waste collection. 	<ul style="list-style-type: none"> The low-income native remained with poor sanitation. 	Emig (2010)
Bauordnung for Dar es Salaam 1914	<ul style="list-style-type: none"> Zoning Dar es Salaam city in zones I, II and III for European, India and the native, respectively 	<ul style="list-style-type: none"> Improved sanitation in German and Indian residential areas Poor sanitation in native residential areas 	Kironde (2007)

Source: Kironde (2007).

During the German rule, one of the remarkable policies which had significant effects on sanitation practices was the 1891 Bauordnung for Dar es Salaam aiming at segregation based on residential places. According to Bauordnung 1891, residential areas were zoned based on race. Under 1891 Bauordnung, Dar es Salaam was divided into three zones where variation in building standards prevailed (Table 1). The first zone was for Europeans where a certain standard of buildings was allowed. The second was for Indians where buildings were constructed by solid materials that did not fall into the native category. The third category was the near periphery of the city where no building category was specified. The zone occupied by the natives had poor buildings which were not supplied with water and other important sanitation services. The 1891 Bauordnung had an ulterior purpose of legalizing segregation (Kironde 1994). The policy was racial and laid a foundation for inadequate services in the native residential areas. Water supply and other sanitation facilities were supplied in European and Indian settlements (Kironde 1994). This was because of the power of authority and the economy, respectively. Consideration of economic and political capacities left the low-income natives out of the sanitation system. Table 1 shows the legislation used by Germans for sanitation management in Tanzania.

Sanitation practices during the British colonial rule

German East Africa was renamed Tanganyika Territory during the years 1918–1961 when the British took over the administration of Tanganyika after World War I. There were no significant differences between British and German sanitation practices during the British colonial era. Like the German government, the British government in Dar es Salaam lacked proper drainage and sewerage systems. Drainage and sewerage systems were built in the residential areas of the British. Poor drainage and sewerage systems persisted until 1950. The inadequate sewerage and drainage systems were caused by the colonial government's prioritization in planned settlements. This means that residents of unplanned settlements disposed of the waste haphazardly as there were no sewers and drains. The practice of disposing of waste at random persists to the present day. Even if drainage and sewerage systems are established, people still dispose of waste at random.

Regarding water supply during British colonial times, the supply started in the 1930s. Water supply was confined to urban areas and farming settlements owned by settlers. In this period, the policy of the British government required the beneficiaries to contribute 25% of the cost while the local government contributed 75% (URT 2008). Given the natives' level of income, the 25% needed as a contribution from the beneficiaries was significantly higher. As a result, the low-income natives did not contribute and thus remained without water service.

The British government periodically carried out mosquito extermination as one of its cleanliness activities. During the British colonial era, the Dar es Salaam township rules that were created under the *Regulation of Peace and Good Order* and which went into force on 1 November 1919 oversaw sanitation standards (Kironde 1994). The laws for the Dar es Salaam Township included a wide range of topics for municipal management including cleanliness, particularly the control of mosquitoes.

Mosquito control was implemented in order to remove infections, particularly malaria. This strategy went together with the release of sanitation rules for Dar es Salaam in 1920. These regulations addressed hygienic annoyances and unsanitary premises in their fight against mosquitoes (Emig 2010). The British government, therefore, had a deliberate plan to advance sanitation through the release of laws and regulations that might control sanitation-related issues. The issue arose when these laws and regulations were only in the Britons' best interests. British residential areas saw the implementation of the mosquito control plan while the low-income natives' residential areas never did.

In a similar vein to publishing rules and regulations, the Township Ordinance was passed towards the end of 1920. The Township Ordinance gave the Governor the authority to designate a region as a Township and establish regulations for the Township's cleanliness, order, and efficient administration. Dar es Salaam and the other 29 communities in Tanganyika became Townships once the Township ordinance was passed. As a result, the Township sanitation ordinance's primary goal was to establish sanitation regulations that would aid in town sanitation management (Kironde 1994; Emig 2010; URT 2013).

Due to the importance of high-quality buildings for proper sanitation, the British government released Township Building standards in 1922 under the Township Ordinance. These regulations had a sanitation focus since they forced people to construct buildings that followed hygienic regulations. Likewise, Township building regulations required anyone wishing to construct a dwelling to obtain a building permit. The Township Building Rules operated for a very short time before they were quickly replaced by the Township Rules of 1923 which took effect on 1 April of that year for all Townships in the nation (Kironde 1994; Emig 2010).

Township regulations played a crucial role in enforcing a particular building standard. The natives, however, were unable to attain the required standard. Thus, they constructed low-quality buildings in a specific portion of the city without access to

sanitation amenities (Kironde 2006). The inability of low-income citizens to meet guideline requirements still exists today. The inability to comply with regulations has compelled them to live in unplanned areas just like they did during the colonial era (Tenga & Mramba 2015). The government rarely implements policies that advocate for low-income people to get plots in planned areas. Table 2 presents legislation that were used for sanitation management during the British colonial period.

Until today, low-income citizens continue to face injustice in a variety of situations. Those in large towns such as Mwanza and Dar es Salaam, for example, have decided to construct settlements in unsafe locations since they are unable to purchase plots in planned areas (Hambati 2013; Hambati & Yengoh 2018; Andreassen *et al.* 2020).

The Dar es Salaam Township Rules of 1919, the 1920 Sanitary Rules of Dar es Salaam, and the 1922 Township (Building) Rules of Dar es Salaam were amalgamated into the 1923 Township Rules. As they outlined the kinds of buildings that were necessary depending on zones, these amended laws had an impact on sanitation practices. The revised regulations, however, were predicated on the segregation of Europeans, Indians, and low-income natives. Another novelty in this upgrade was that dustbin provision was now the owner's duty. The Building Regulation for the Dar es Salaam Township was published in 1924 as a result of a later plan to revise the rules (Table 2) (Kironde 1994).

Dar es Salaam's construction zones were planned on a segregated basis. For Europeans, Indians, and low-income natives, there were zones I, II, and III, respectively (Emig 2010). Because of this arrangement, the residential areas for Europeans and Indians received water and sanitary facilities, but it was not so for the low-income natives. Similar planning was made for Dar es Salaam in 1891 by the German Bauordnug. Thus, despite having different titles, the British policy and the German Bauordnug 1891 policy had the same objective. It should be borne in mind that there was never a rule that favored low-income natives in access to better sanitation as compared to the current situation (URT 1999, 2000, 2007).

In Tanganyika, sanitation administration reforms were proposed in 1944. These reforms were proposed as a result of the Medical Health Officers (MOH) being overburdened with tasks. Prior to the proposal, the Medical Health Department, led by MOH, was in charge of all sanitation-related matters. The proposal was made to assign some of the health department's responsibilities including cleansing of the city to other divisions. These processes were made by assigning the Director of Health and Sanitary Services to write a letter to the Province Commissioner (PC). This was to convince the Chief Secretary

Table 2 | Legislation for sanitation during the British Rule in Tanganyika

Type of legislation	Rules made under the respective ordinance	Purpose	Nature of service provision and impact on sanitation	Reference
Regulation for Peace and Good Order 1919	<ul style="list-style-type: none"> Rules for the Township of DSM Township ordinance of 1920 	<ul style="list-style-type: none"> Sanitation management Suppression of mosquitoes, dealing with sanitary nuisance and insanitary premises 	<ul style="list-style-type: none"> Provision of sanitation and water services were segregative and services concentrated in areas resided by European 	Kironde (1994), Emig (2010)
Township Ordinance of 1920	<ul style="list-style-type: none"> Township (Building) rules Township Rules of 1923 	<ul style="list-style-type: none"> Settlement planning had to adhere to sanitation rules Provision of building permits To combine the following rule: <ul style="list-style-type: none"> Rule for Township of DSM 1919 Sanitary Rules for DSM aimed at suppression of mosquitoes, sanitary nuisance, and insanitary premises Township (Building) Rule aimed at provision of permits for erecting buildings The combination could make rule for Health, Order, and good governance of the Township 	<ul style="list-style-type: none"> Building permit provided based on residential zones. In Zone III where native buildings were erected, any building could be built Provision of sanitation and water services was segregative based on racial and services concentrated in areas set aside for European compared to Natives. 	Kironde (1994), Emig (2010) Kironde (1994), Emig (2010)

Source: Kironde (1994) and URT (2013).

of the proposal. Although some staff members supported the proposal, it was ultimately judged to be in violation of the laws. As a result of the proposal's non-implementation, other amendments were made. These were changes in the composition of the committee for urban authorities. The Township Development Subcommittee was established by the Planning Committee to address the concerns pertaining to the Township such as sanitation initiatives (Emig 2010). Despite the reforms, there was miniscule sanitation progress.

Segregation between races in spatial patterning was another factor that exacerbated the issue of poor sanitation during the British colonial times between the British and the low-income natives. Segregation had its roots on racial, economic, and political bases (Kironde 1994). In reaction to the spread of diseases in the late 19th and early 20th centuries, spatial patterning was initiated. The fear of contracting African diseases gripped the Europeans. Dar es Salaam's spatial patterning encouraged the growth of townships based on social classes. Africans lived in overcrowded settlements lacking space. Due to a lack of space, Africans erected dwellings that were near to one another. Construction of closely spaced buildings still exists in Tanzania today, leading to the location of latrines in inappropriate sites of the household compound (Kasala *et al.* 2016). Residents of overcrowded settlements use pit latrines which are threats to their health (Gwaleba 2018).

The British government intended to control malaria through better sanitation standards in order to keep people healthy. The British segregated themselves from the native population as a malaria prevention approach. (Kironde 1994). The British government's decision called for enhanced sanitation in residential areas. The low-income natives were mistreated, and dirt in their neighborhoods persisted. In these malaria preventive measures, segregative approaches were used.

Similar to how segregation first occurred, urban residents' living conditions were controlled by the Residents' Ordinance of 1920. These were either exclusive to Europeans or employed Africans. This regulation created gaps between Europeans and employed Africans, with adequate sanitation on one side while unemployed low-income natives lived in the suburbs with inadequate sanitation on the other side (Kironde 1994).

Similarly, this type of segregation prevailed in West Africa where the Chief Medical Officers met and decided that the best way to prevent sickness was to separate people based on where they lived. Nevertheless, West Africa's segregationist policy differed in some ways from that of Tanganyika. A rule that mandated all Europeans to live in a separate reservation of 400 yards from the closest African residential zones was put in place in West Africa. It was believed that this distance was broad enough for neither rats nor mosquitoes to pass through (Kironde 1994).

Post-independence government plan to promote access to sanitation for all

Water and sanitation services were first offered for free to the low-income natives after independence in 1961. Small fees were levied on residents of high-income. This was a strategy to address the issue of unequal access to water and sanitation (Kasala *et al.* 2016). During the post-independence period, equality in access to water and sanitation facilities was implemented as these services were provided free of charge to the low-income natives and low fees were charged to high-income natives. This was done to end the colonial-era practice of providing water and sanitation in a segregated manner.

In addition, between 1971 and 1991, the Government of Tanzania (GOT) invested the most in water supply. The actual coverage achieved was 42% of the expected 80% (URT 2006). Increasing water supply helped to ensure that more people had access to water services. In addition, the 1991 launching of the first National Water Policy (NAWAPO) was a response to the failure of the 1970s and 1980s sanitation management strategies (URT 2006). The NAWAPO of 1991 ensured equitable access to services, through the creation of water utilities that charged services on an equal basis (URT 2006; Thomas *et al.* 2013).

Similarly, the NAWAPO of 1991 was replaced by the Tanzania NAWAPO of 2002 (Thomas *et al.* 2013). Contrary to the colonial times when access to sanitation was restricted to a specific class, through the social principle, NAWAPO established access to water as a right of all citizens (URT 2002). Tanzania has also declared a national roadmap towards Sustainable Development Goals (SDGs) especially Goal 6 that focuses on universal and equitable access to safe water and sanitation (UN 2018a, 2018b; Musakwa & Odhiambo 2020). The lack of policies guaranteeing human rights to sanitation and water services during colonial times contributed to inequities in access to water and sanitation services, unlike today where there are SDGs. The SDGs are among the advocacy policies for the rights of low-income citizens' access to sanitation and water services.

With the release of the National Human Development Policy in 2002, inequality relating to low-income citizens' inability to access planned plots was addressed. The policy acknowledges how unplanned settlements affect sanitation and mandates for the creation of distinct low-income citizens' neighborhoods and the provision of at least the level of services that low-income citizens can afford (URT 2000). Making serviced land available for housing, increasing the degree of infrastructure provision,

and helping the poor acquire good settlements are additional concerns for enhanced sanitation in the Human Settlement Development Policy (URT 2000).

Additionally, the Land Act No. 4 of 1999 and the Urban Planning Act No. 8 of 2007 also provide for the identification of unplanned settlements if they are situated in habitable areas (URT 1999, 2007; Andreasen *et al.* 2017). As a result, after recognition, the government upgrades unplanned settlements that meet the aforementioned criteria and supply those areas with water and sanitation services. Thus, today, equal access to water and sanitation services is a part of the sanitation sectoral policies (URT 2000, 2002, 2006).

Management of sanitation practices after independence in Tanzania

In 1961, Tanganyika got its independence. The nation was committed, among other things, to modernizing its cities. These updates considered sanitation-related infrastructure and services. However, since African governments carried on inherited norms and practices from former rulers, sanitation practices were managed the same way as during colonial times. The sanitation management strategy was imitative. The Urban Land Policy continued to be applied through imitation. The continuation of the Urban Land Policy was a result of leaders who inherited power from colonial rulers being trained by and trying to emulate the previous rulers (Kironde 1994). Local governments were still in charge of providing services for water supply and sewage disposal. However, local administrations' independence and dominance were diminished, and progress on sanitation practices was minimal.

The adoption of a one-party system by Tanzania in 1965 brought about political change that also had an impact on sanitation advancements. In these reforms, all metropolitan authorities were required to be Tanganyika African National Union (TANU) members. The Mayor's post was eliminated and the District Party Chair took over. The Central Government exercised oversight over the Urban Government's operations. The removal of the poll tax which was used to fund sanitation services led to a deterioration of sanitation conditions. Poor waste collection occurred between the 1960 and 1970s (Kironde 1994; Emig 2010).

During the period after independence, the government aimed at razing squatter settlements. The policy of razing squatter areas was politically inefficient. The policy remained with the intention of razing squatter areas in order to present a true picture of the new nation. The actual situation showed that the government was unable to handle the urban expansion that sharply increased after independence. The squatter area development phenomenon was disregarded by the authorities (Kironde 1994; Andreasen *et al.* 2017). Since then, low-income citizens have been building settlements in squatter areas thus contributing to insufficient sanitation in Tanzania (Tenga & Mramba 2015).

Politics and demographic developments such as an influx of individuals from rural to urban looking for better opportunities had an impact on urban sanitation as well. The 'Back to Village Campaign,' operations, and rural development programs were all initiated as part of the government's efforts to address this issue. However, the government's intention for people to stay in villages was not aided by these initiatives. Many of these people increased unplanned settlements, which continued to expand unabatedly. Over 60% of the Dar es Salaam city residents were living in unplanned settlements by the late 1970s (Kironde 1994), compared to 75% today (Andreasen *et al.* 2017). This situation shows an increase in the proportion of unplanned settlements.

The government supplanted local governments, between 1972 and 1974, with central authorities under the pretext of decentralization. Urban infrastructure and services like water supply, waste collection, sewage disposal, and drain provision and maintenance suffered greatly during this period. Therefore, there were major changes that dominated the early years of independence. These were the establishment of a one-party system which was attributed to changes in leadership; the influx of people from rural areas to towns leading to increased squatter settlements; and the pretext of decentralization. These changes had a negative impact on sanitation practices (Kironde 1994; Emig 2010). Emig (2010, p. 44) reported the following:

'During the decentralization phase, the Treasury supported the complete budget of urban councils. However, urban services and infrastructure experienced a considerable deterioration. As services including water supply, power supply, sewage disposal, waste collection, road and drain provision and maintenance, land-use regulation, fire protection, and malaria control drastically deteriorated, the population expressed displeasure over the rapidly worsening urban circumstances (Emig 2010, p. 44).'

Sanitation practices during the second decade of independence 1970–1980

In the period between 1970 and 1980, the GOT emphasized the provision of housing for citizens' decent settlements. The provision expanded to other spheres of socio-economic development including land tenure records; services and

infrastructure like roads, water supply, sewage, electricity network, and public open space. Unplanned settlements received recognition. Some unplanned settlements were upgraded and received sanitation services. Between 1971 and 1991, the highest investment in the rural water supply as one effort to improve sanitation was made (Marobhe 2008). However, during the 1970s and 1980s, service providers turned a blind eye to equality (Kironde 1994). As a result, service schemes remained concentrated on high-income groups and political leaders while many areas inhabited by low-income citizens remained with limited services. In addition, the limited scope in upgrading unplanned settlements resulted in low-income citizens living in unplanned areas. Unplanned areas lacked most basics of sanitation facilities and services. Hence, they were exposed to higher impact of pollution as well as health hazards.

Strategies for improving sanitation in Tanzania

In the early 1970s, the Tanzanian government sought to upgrade the sanitation and water sectors. The employment of interventions and campaigns intended to educate the community about the value of cleanliness, and was the primary tactic employed to accomplish the goal. One of these campaigns, *Mtu ni Afya*, increased latrine use from 20 to 90% (Malebo *et al.* 2012; Jiménez *et al.* 2014; SHARE 2014; ESRF 2016; Mwakitalima *et al.* 2018). However, the latrines constructed as part of the *Mtu ni Afya* Campaign were of poor quality (URT 2012, 2016). After the *Mtu ni Afya* initiative, Health through Sanitation and Water Supply program (HESAWA) was introduced. HESAWA was conducted in the Lake Zone center in the three regions of Kagera, Mara, and Mwanza. Although HESAWA sought to improve water and sanitation, it was ineffective. This was because, in its final years, it turned its attention away from water supply and sanitation towards water supply *per se* (Tufvesson *et al.* 2005; Rautanen *et al.* 2006).

Additionally, Dar es Salaam Water Supply and Sanitation Project (DWSSP) was developed to provide sanitation and design sanitation facilities in Dar es Salaam (DSM). However, it had the disadvantage of insufficient coverage, thus leaving a vast population without sanitary services (UN-Habitat 2010; Thomas *et al.* 2013). Another project was the Citywide Action Plan developed to increase services in informal settlements of Dar es Salaam. The Citywide Action Plan aimed at upgrading 50% of informal settlements, improving waste disposal by 2020 and preventing the creation of new informal settlements (UN-Habitat 2010). Nevertheless, the Citywide Action Plan was unsuccessful due to small-scale coverage (Thomas *et al.* 2013). The NSC which appeared to have succeeded in enhancing sanitation, particularly in the Njombe district, did so by considering the physical environment conditions (Antwi-Agyei *et al.* 2017; Safari *et al.* 2019). When building sanitation infrastructure, the physical environment is a crucial factor to take into account (WHO 2018; Pedro *et al.* 2020).

CONCLUSIONS AND RECOMMENDATIONS

During colonial times, sanitation practices were marked by disparities as sanitation and water were unequally supplied. Water and sanitation infrastructure were mostly provided to European residential areas, while low-income natives were left out. Tanzania attempted to create policies aiming at ensuring universal access to water and sanitation after independence. However, the goal was not achieved because the policies were not implemented as planned. Similarly, post-independence political and demographic changes resulted in poor sanitation. Since the 1970s, the Tanzanian government has been involved in programs to enhance sanitation. These interventions, in most cases, have been ineffective due to a top-down approach that has prioritized hardware while ignoring the history of sanitation practices. Approaches to interventions have tended to be forceful and prescriptive, focusing primarily on specific groups, shifting focus, targeting the easy-to-reach, taking small-scale coverage, and undermining home-grown solutions. Therefore, during colonialism sanitation practices were characterized by inequalities.

It is recommended that in addition to managing sanitation by taking some components from colonial governance systems, equality in service provision between higher- and lower-income citizens should be considered. Home-grown solutions must be considered in community education initiatives since they are easily comprehended because they are sourced from the local community.

DATA AVAILABILITY STATEMENT

All relevant data are included in the paper or its Supplementary Information.

CONFLICT OF INTEREST

The authors declare there is no conflict.

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