



Assessment of Challenges Experienced Among Households on Promotion of Sanitation Practices in Tigania West Sub County, Meru County, Kenya

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ABSTRACT: A poorly constructed toilet may deter its use and provoke open defecation. Globally, 2.5 billion people do not have access to improved sanitation facilities. In Kenya, over 5 million people are forced to defecate in the open due to challenges associated with toilet construction and use resulting in high prevalence of water, sanitation and hygiene-related diseases such as diarrhea. This study therefore sought to profile the challenges experienced on promotion of sanitation practices among households in Tigania West, with a view of yielding insights on promotion of safe disposal of human waste. Questionnaires, interview guide and observations were used to collect data in a mixed study design. Systematic and purposive sampling technique was employed to select respondents and the data analyzed using SPSS version 21.0 and audio recordings were transcribed into text and then analyzed thematically. 73.4% of the residents lacked adequate space for toilet construction and (26.6%) who did not. (69.1%) of respondents had limited toilet construction materials, (11.8%) had challenge in toilet construction in rocky soils. Loose/collapsing soils were 9.4% (4.6 %) and financial constraints were (5.1%). 75.3% encountered culture challenges which affected toilet construction. More than half 64.9% had problems with sanitation facilities sharing (n=225). Sanitation practices had a significant positive correlation with cultural practices (0.119 (p=0.003<0.05), sharing of toilets (0.142; p=0.002<0.05), space availability in the household (0.098; p=0.004<0.005) and financial challenges (0.074; p=0.004<0.005). Innovative approaches to toilet construction using locally available materials, training and subsidies together with behavioral change sensitization could improve sanitation among households of Tigania West Sub-County.

KEYWORDS: Challenges, Culture, Space, Sharing, Sanitation.

INTRODUCTION

The United Nations Sustainable Development Goal 6, target 6.2, aims to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations 2030', yet the global state of safe sanitation access is alarmingly off-track. Approximately 2.5 billion people lack access to improved sanitation [1] toilets and sewage systems are still out of reach for most people and poor communities are at risk of being left behind. A sanitation facility is considered improved if it is able to separate human excreta from human contact hygienically [2]. Improved facilities include flush or pour flush, septic tanks or Ventilated Improved Pit latrine. As per [1], sanitation facilities such as unventilated pit latrines shared among many households are not considered to be improved. Worldwide, 71% of those who do not use improved sanitation live in the rural areas where 90% of all cases of open defecation take place [1]. In Kenya, 47.3% of the population lack access to adequate sanitation, 29% have access to improved sanitation, 26% share sanitation facilities, 31% possess unimproved toilets and 14% (5 million) people practice open defecation

EPHIRICAL REVIEW

Several studies have revealed various challenges which attribute to poor toilet use and construction. According to [3] sanitation is one of the most fundamental rights for well-being and health. Scholars have revealed that financial constraints are among the barriers to safely managed sanitation. Kenya, being a developing country, faces major sanitation challenges. Residents in rural regions in developing countries generally lack access to formal, regulated faecal sludge management services [4]. In rural settlements, faecal sludge is mainly disposed of into the environment and the emptiers use their bare hands to remove the sludge. These unhygienic practices or poor sanitation practices pose risk to household members, emptiers and also to the environment as stated by [5]. This could be due to the fact that safe emptying and disposal practices are more costly than informal practices of



emptying and disposing of human waste due to licensing requirements, cost of transporting faecal sludge to designated treatment point and also dumping fees [6]. In recent years, the sanitation challenges have manifested themselves in the perennial disease outbreaks like dysentery and cholera, as well as air contamination, pollution of water resources, land and loss of aesthetic beauty, particularly in low income residential areas. Densely populated areas could imply that externalities resulting from unsanitary conditions will impact more people negatively [6].

Poverty in Meru as indicated in a study by [7] was among the barriers to adoption of improved toilets. Poverty as a barrier in construction of sanitation facilities was also noted by [8] in Turkana County who found that a significant number of residents constructed rudimentary toilets made of sacks, polythene papers and grass, as they could afford toilet construction materials. Findings reported by [9] in a study that was carried out in rural coastal Odisha India stated that financial challenges was the major theme through all qualitative study and most common reason cited for not opting for a sanitation facility, keeping the unfinished toilet and not investing to make the sanitation facility functional. Indeed, construction of unimproved sanitation facilities could expose the population to the risk of directly or indirectly interacting with excreta which is a potential source of diarrhea-causing pathogens. Another study carried out in Kisumu by [10] established that the use of sanitation facility was mainly hindered by lack of finances for toilet construction due to poverty. They also established that majority of members of the community were not able to construct sanitation facilities due to financial constraints hence leading to open defaecation.

In addition, respondents in Kisumu perceived toilet installation as expensive and that male household heads controlled the household budget and were not keen to build toilets. A number of residents with little finances were reluctant to prioritize the construction of sanitation facilities. The same financial issues were noted by [8] who established that due to financial constraints, many households depended on the government subsidies to build their toilets. However, residents in Kisumu were reluctant to use freely-donated sanitation facilities because they were not user-friendly as stated by [10]. Another study by [3] also established that lack of finance and poor quality of government's subsidized sanitation facilities were constraints in adopting good sanitation facilities. Financial constraints to sanitation facility construction could pose an indirect negative impact to the type of toilet to be adopted since many of them would be constructed poorly, affecting toilet use, therefore encouraging the practices of open defaecation.

Imperial evidence shows that the distance to sanitation facilities could facilitate reduced or minimal use of toilets. In Turkana, [8] showed that the use of sanitation facilities was depended on households' proximity to the toilet and was also associated with non-health socio-cultural factors such as convenience, security, improved privacy, prestige and time-saving. Sanitation improvement drivers are context-specific according to [8]. As established by [11], toilet sharing is limited by household member constrained in terms of maintenance and operation standards and users level of responsibilities. All shared sanitation facilities are classified as unimproved because they are shared without considering service quality and any externalities is therefore a limitation [3].

Toilet structure, conditions and design may deter good use of sanitation facilities and provoke the reversion to open defecation. Findings from a study carried out in Turkana [8] indicated that 20% of the residents feared using latrines with the reasons being the fear to collapse inside pits constructed in loose soils. As stated by [11], it takes only one careless individual perhaps a child avoiding the frightening squat hole, to contribute to a chain of toilet misuse for which no person is willing to be responsible.

[6] argued that faecal sludge containment and safe disposal are crucial steps to stop water and environmental pollution by human waste. A study carried out in rural India by [9] proposed that increasing the onsite containment and government monitoring on subsidy-based approaches are best in solving problems related to safe containment and disposal of human waste. From the study carried out in Kisumu, [12] reported that all sanitary facility users may not have or share the same intention, beliefs or have the same attitudes. In addition, one person's effort may not be the same compared to group's effort. However, the same study also established that there are individual or group dynamics and behavior determinants when it comes to sharing of sanitation facility. Culture in sanitation means the customary beliefs on how they believe in disposal of human waste, social forms, and material traits of a racial, religious, or social group. It is the characteristic features of everyday existence (such as diversions or a way of life) shared by people in a place or in a community. It is also the set of shared attitudes within sanitation, values, goals, and practices that characterizes an institution, community or organization [13]. Cultural factors and failure to safely integrate



sanitation systems have led to a persistence of unsustainable sanitation systems and missed opportunities to tackle overlapping and interacting rural challenges [3].

Beliefs around impurity and pollution and the required rituals for purification and cleansing post-defecation in societies, may thus play a big part in the choice to continue defecating in the open. Human faeces have always been considered ritually impure as well as physically filthy [14]. However, clothes changing and bathing rituals are deeply culture ingrained practices, post-defecation and after many other kinds of ritual defilement in Indian society [15]. All these cultural practices and beliefs explain the strong importance that households have placed on the need for water provision inside the latrine to accomplish required cleansing acts following defecation [5]. Relating to a study by [16], some people believe that faeces are not pure and having toilets within or next to the house makes the entire house impure. These kinds of strong traditional beliefs can hold back people from adopting the new and good sanitation practices of defecating safely inside the sanitation facility [16].

Other cultures are tied to the sharing of sanitation facilities. A report in rural Zimbabwe by [17] yielded that some cultures such as staying with in-laws as an extended family was a barrier to sharing sanitation facilities. Participants in the same report indicated that sanitation facilities were not suitable for an extended family where in-laws were staying together. [10] in Nyakach of Kisumu also had similar findings where although there were sanitation facilities in households, some people did not use them as there existed various traditions and beliefs hindering toilet use. In the Nyakach community, sanitation facilities were commonly constructed by men and sharing the same with young children or in-laws was prohibited. Children faeces were thrown out in the environment as a strategy of faecal disposal. The norms and beliefs governing use of toilets were observed around sanitation and hygiene practices and any deviation from those beliefs and norms was considered taboo as it attracted curse. This study implied that norms and traditional beliefs could negatively impact sanitation and hygiene practices and constrain adoption of sanitation facilities while encouraging open defaecation which has negative implication on the environment and people's health. Beliefs could however differ with region thus the necessity to explore the beliefs tied to sanitation in the study area.

Sharing of sanitation facilities has been cited as one of the challenges to the use of toilets as it poses a great challenge in their maintenance [18]. In a study carried out in rural areas of Bangladesh, [18] indicated that, of the households that needed to share toilets, 74.5% were not satisfied with sharing the sanitation facilities because they were rarely cleaned. Similar findings were established in Uganda by [5] where 62% of the shared toilets were not regularly cleaned and were sometimes characterized with maggots. Inadequate maintenance of shared sanitation facilities was associated with lack of cooperation from all toilet users and poor toilet designs which were not easily cleanable. Although sharing of sanitation facilities among households living in the same compound could be economically friendly, and could offer a practical solution to sanitation improvement and also improvement of living standards of many people [11]. [5] and [18] revealed that such facilities could be ignored because no one was willing to take the responsibility of cleaning them. Indeed, inadequate maintenance of sanitation facilities could facilitate habitation of disease-causing microorganisms in toilets. Sharing of sanitation facilities is therefore dependent on how the facilities are constructed, used and maintained.

The construction of sanitation facilities requires that there is adequate space and good soils. However, inadequate space and loose soils which do not support the construction of strong toilets has been reported in different regions. In Ethiopia, [19] established that shortage of space to construct toilets facilitated the practice of defecating in bushes. As well, participants in another study by [20] in Ethiopia reported that, among the obstacles for constructing household toilets was inadequate space for the construction of sanitation facilities. Although availability of spaces for toilet construction determines toilet adoption, the available land can only be suitable if the type of soil can accommodate the construction of toilets.

Researchers like [21] found that digging of toilet pits was difficult in rocky areas. The same study also indicated that it was not feasible to construct sanitation facilities in flood affected areas where soils were loose and that residents in such areas needed to construct very shallow pits or partially elevate pit above the ground to prevent groundwater contamination. Shallow pits gets filled up quickly hence are prone to frequent emptying which could be expensive especially to the economically unstable households. Other findings from a study carried out in Turkana by [8] indicated that 20% of the residents feared using latrines because they were constructed on loose soils that did not support good-quality pits. These studies were however carried out in regions that were geographically different from the study area and the soil situation and land challenges could be different in other areas. It was necessary to find out whether these challenges were also encountered in Tigania west Sub County.



PROBLEM STATEMENT

In Kenya, WHO/UNICEF (2021) estimated that the population that had achieved basic sanitation was only 33%, whereas 9% still defecated in the open. Pit latrine coverage in Meru County was 62.3% and sewer coverage was only 0.3%, thus encouraging open defecation (KNBS, 2019). Out of 47 Counties, Meru County was ranked number 43 in terms of sanitation as indicated in the County sanitation bench marking report, in fact, inadequate sanitation is common in many rural settings within the County despite numerous efforts to address the matter (MOH, 2014). Poor sanitation related diseases such as diarrhea account for 16% of diseases among children below 5 years and stand second to pneumonia in Meru County, (MOH, 2013).

Tigania West Sub-County is not covered by sewerage system and residents mostly use on-site sanitation solutions (KNBS, 2019). Diarrhea diseases among the under five children account for 12% and are ranked among the top three causes of outpatient illness in most of Health Facilities in Tigania West Sub County (MOH, 2021). Further, the County government of Meru loses 816 million KES each year due to poor sanitation. This includes losses due to access, time, premature death, health care cost and productivity (Meru County Revised Annual Development Plan, 2018). If the sanitation situation is not addressed, infections and diseases such as diarrhea, trachoma, soil-transmitted helminths and stunting due to poor sanitation will continue to be a problem (WHO, 2018).

This research therefore sought to document comprehensive information on sanitation practices on containment and disposal systems across sanitation service chain in Tigania West Sub County with view to give recommendations on how to upgrade the sanitation facilities on promotion of proper household human waste disposal. Adopting a new practice however, is normally hard for a majority of people and therefore breaking old habits on containment and disposal of human waste to the environment difficult.

The findings will therefore assist sanitation stakeholders such as community members, local government of Meru County, partners and sanitation experts in their operations to come up with sustainable access and disposal practices on promotion of proper human waste disposal at household level.

METHODS

Study location and design

The study was carried out in rural communities of Tigania West Sub County, Meru County in Kenya. Tigania West Sub County has a total population of 139,961 and total 35,202 households (KNBS, 2019). The sub county has five wards namely; Kianjai, Nkomo, Akithi, Athwana and Mbeu.

The study used mixed methods approach, specifically convergent parallel mixed methods. This is a form of mixed methods design in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem. In this design, the investigator collected both forms of data at the same time and then integrated the information in the interpretation of the overall results.

Target population, sample size, and sampling

The study targeted household heads aged above 18 years from the households within Tigania West Sub-County. The study also targeted 3 Community Health Volunteers, a Public Health Officer, and 2 Community Health Assistants.

The sample size for the study was calculated using the sample size calculation designed by Fisher *et al.* (1998) as detailed below:
 $n = z^2 pq / d^2$. Where n = sample size = standard Normal Deviation (.96 which corresponds to 95% confidence interval and p = Expected prevalence (0.19), $q = 1 - p = 0.81$, d = Degree of accuracy = 0.05, $n = (1.96)^2 \times 0.19 \times 0.81 / (0.05)^2$
 $n = 236$ Sample size. Systematic sampling and purposive sampling to select key informant was employed to select the 236 sample households.

Research instruments and data collection

The data collection tools were observations, interviews and questionnaires. The questionnaires were tested using five people from target group on the reliability of data collection instruments. The data collection took place between the month of December 2021 and January 2022. Research assistants were recruited and trained on data collection. All the respondents were exposed to the standardized questionnaire, observation checklist and same system of coding their responses.



Data management and analysis

The collected data were coded and entered into the SPSS database Version 21.0. The data was checked for any missing values and for completeness. Valid percentages and frequencies were employed to analyze the data and quantitative data represented in form of tables and also correlation analysis was done.

Ethical considerations

The study focused on sanitation practices across the sanitation service chain. There was respect and also face appreciation to avoid stigma. Participation in the study was voluntary, informed consent was obtained prior to data collection by signing in the questionnaire, personal identifiable information such as participant's names were not collected and maximum confidentiality of information gathered was assured to all participants throughout the study process. The researcher sought ethical clearance, Research authorization and Research Clearance Permit was obtained from NACOSTI and also Meru University of Science and Technology. The researcher also sought approval from the local administration including chiefs, sub chiefs and (Nyumba kumi) in all locations in Tigania West Sub County before conducting the study.

The data collected was coded and had password to conceal the identity of the respondents and ensure data is accessible by researcher only. The respondents were informed on the expectations of the study for them to give informed consent. No respondent was manipulated against their will to satisfy the needs of the study. The researcher carried out sampling, handled respondents without bias and included short paragraph on the questionnaire to explain who was doing the research and why the research is being done. The study participants were made aware that their participation was voluntary with no payment involved and they were free to withdraw from the study at any time during the study.

RESULTS

Sanitation challenges experienced at household level.

Table 1.1 Challenges experienced in toilet construction and use in Tigania West Sub-County

Variables	Categories	Yes (%)	No (%)
Lack of land/space	Yes/No	173(73.4)	63(26.6)
Toilet construction challenges	Limited construction materials	163(69.1)	-
	Loose/collapsing soils	22(9.4)	-
	Rocky soils	28(11.8.)	-
	Financial constrains	11(4.6)	-
	Others	12(5.1)	-
Presence of culture	Yes/No	177(75.3)	58(24.2)
Problem with toilet sharing	Yes/No	146(64.9)	79(35.1)

The findings on the sanitation challenges in Tigania West Sub-County are indicated in Table 1.1.

Majority 73.4% of the residents lacked adequate space for toilet construction and (26.6%) who did not. The highest number (69.1%) of respondents had limited toilet construction materials, followed by those (11.8%) who had challenge in toilet construction in rocky soils. Those who possessed a challenge in loose/collapsing soils were 9.4% (4.6 %) encountered financial constrains while those who possessed other challenges were (5.1%). Majority of the residents 75.3% encountered culture challenges which affected toilet construction and use while only 24.2% never had any culture that hindered toilet use and construction. Of the population possessing toilets, more than half 64.9% had problems with sanitation facilities sharing and only 35.1 who were comfortable with shared toilet (n=225).

Tigania West Sub-County is characterized by various challenges that hinder or affect toilet construction and use which predisposes the residents to risk of contact with human waste.



Correlation analysis.

The study targeted to examine some of the challenges experienced during toilet construction and use in Tigania West Sub-County. The correlation analysis in Table 1.2 shows the link between sanitation practices and presence of challenges in Construction of sanitation facilities, presence of enough space in the compound for construction or reconstruction, financial challenges that make people fail to construct good sanitation facilities, cultural practices hindering toilet use and construction, and problem with sharing the toilet.

Table 1.2 Correlation analysis

		Sanitation practices
Presence of good sanitation promotion activities	Pearson Correlation	1
	Sig. (2-tailed)	0.56
	N	236
Presence of challenges in construction of sanitation facilities	Pearson Correlation	-.030
	Sig. (2-tailed)	.678
	N	236
Cultural practices hindering toilet use and construction	Pearson Correlation	.004
	Sig. (2-tailed)	.003
	N	236
Problem with sharing latrines	Pearson Correlation	.002
	Sig. (2-tailed)	.048
	N	236
Presence of enough space in the compound for construction/ reconstruction of latrines	Pearson Correlation	.004
	Sig. (2-tailed)	.011
	N	236
Financial challenges that make people fail to construct good toilets	Pearson Correlation	.002
	Sig. (2-tailed)	.004
	N	236

From Table 1.2, a correlation coefficient of 0.119 ($p=0.003<0.05$) showed a positive significant relationship between sanitation practices and cultural practices (elderly men should not be seen by young ones going to the toilet and also the circumcised ones should not be seen going to the toilet).The correlation between sanitation practices and sharing of toilets was 0.142 ($p=0.002<0.05$) indicating that sharing of toilets had a significant influence on the sanitation practices adopted in the region. Toilets filling up quickly and getting dirty frequently were the reasons given by the respondents who were not willing to share their toilets The correlation between sanitation practices and presence of space in the household was 0.098 ($p=0.004<0.005$), meaning that sanitation practices were influenced by presence or absence of space around the household for construction of new pit latrine when needed. Also, there was a significant positive correlation (0.074, $p=0.002<0.005$) between sanitation practices and financial challenges.

DISCUSSION

The study sought to establish the challenges faced during construction of sanitation facilities at household level. 163 (69.1%) respondents cited limited materials, 9.4% loose /collapsing soils, and 4.6% financial constraints. Others (5.1%) said hard or rocky soils, high water table and lack of proper disposal and emptying strategies. This implies that the residents will end up constructing sanitation facilities with poor materials which will not be durable hence water contamination in high water table areas and use of filled up sanitation facilities in rocky soils. This conforms to the study which was carried out in Lodwar Turkana County by Busienei et al, (2019) who found that a total of 20% of the residents feared using a latrine with the more than half 74% of the reasons being loose soils that do not support good-quality pits. A total of (80%) participants stated that latrine construction materials influenced latrine use. Researchers like Okechukwuet et al. (2015) found that digging of toilet pits was difficult in rocky



areas. The same study also indicated that it was not feasible to construct sanitation facilities in flood affected areas where soils were loose and that residents in such areas needed to construct very shallow pits or partially elevate pit above the ground to prevent groundwater contamination. Shallow pits gets filled up quickly hence are prone to frequent emptying which could be expensive especially to the economically unstable households. The findings were also supported by the study carried out in Kisumu by Wasonga et al. (2016) established that the use of sanitation facility was mainly hindered by lack of finances for toilet construction due to poverty. They also established that majority of members of the community were not able to construct sanitation facilities due to financial constraints hence leading to open defaecation

Majority of the respondents indicated that more than half 173 (73.4%) said that they did not have space or land to construct a new sanitation facility, while 63 (26.6%) of the respondents indicated space was available. This implies that if residents will continue abandoning filled up latrines, to a new one will end up not having the sanitation facility due to lack space. Hence there is need to create awareness on modern sanitation facilities which can be emptied instead. Similar findings were established in Southeast Ethiopia by Dagaga et al. (2022) who reported that open defaecation in open field (26.9%), bushes (28%) or in house compound (38.5%), were as a result of shortage of land or space and also income to construct a new sanitation facility. The findings also conforms to the study carried out by Hernandez et al. (2019) in Amhara in Ethiopia, where households without sanitation facilities mentioned various reasons for not constructing the latrines. The major reasons behind the obstacles are mainly associated with lack of adequate land and skills. Lack of owning the land that can be used to build a sanitation facility (12.2%), economic and physical barriers (11.7%), shortage of land that can be used to build a latrine (11.3%), lack of skills to build a toilet (9.1%), lack of expert mason in the area (4.3%) and also cost implication (4.3%), were the major reasons why majority of the respondents for not constructing.

The study also established that 146 (64.9%) of the participants did not like sharing toilets with any other households, while 79 (35.1%) were comfortable with sharing toilets with their neighbors. From the results, majority of the residents were not comfortable with use of shared sanitation facilities as supported by findings from the qualitative study where participants disliked sharing toilets as it would easily get dirty and filled up faster. The following statement was uttered by a respondent from the focus group discussion:

"I do not like sharing the toilet because it will get dirt and nobody will clean it and also the toilet gets filled up quickly and some of us we do not have enough space or land and funds to construct another one."

The results also corresponds with the study carried out by Jain et al. (2020) in rural Bihar who showed that sharing of sanitation facility had implications on how the facilities are constructed, used, and maintained. Some challenges such as religion, proximity and socio-cultural issues including privacy and security impact negatively on the management of human waste at household level.

The respondents faced cultural challenges 178 (75.3%) on use of sanitation facility while 58 (24.2%) indicated there were no cultural factors that hindered them from using sanitation facilities. This shows that the largest number of residents in the rural areas of Tigania West Sub-County faced cultural challenges on disposal of human waste at household level. This was also supported by interview report.

"Elderly men should not be seen going to the toilet especially by young ones. Circumcised men should not also be seen going to the toilet or sharing toilets with women."

Similar findings were also reported by Kanda et al. (2022) in a qualitative study carried out in rural Zimbabwe that established that some social cultures such as staying with in-laws as an extended family was observed as a barrier to sanitation. A participant explained: *"The sanitation facility may not be suitable for an extended family where in-laws are staying together"*.

These beliefs have the potential of holding people back from adopting good sanitation practices such as using toilets when defecating (O'Connell, 2014). This implies that the residents will not be able to construct more than one sanitation facility in one household, mainly due to cultural believes and at the same time the issue of inadequate land and financial constrains to the family will also be a determining factor.

Sharing of toilet among households had a significant influence on the sanitation practices adopted in the region this is because it had a Pearson correlation of 0.142 ($p=0.002<0.05$). This may encourage open defecation among those without toilets. The following statement was uttered by a respondent from the interview discussion:



“I do not like sharing the toilet because it will get dirt and nobody will clean it and also the toilet gets filled up quickly and some of us we do not have enough space or land and funds to construct another one.”

Presence of cultural beliefs hindering toilet use had a significant effect on sanitation practices to be adopted in the region with a correlation of 0.119 ($p=0.003<0.05$). This implies that circumcised young men will end up open defecating in the open to avoid being seen going the toilet hence contaminating the environment with human waste with disease causing pathogens. This was supported by O ‘Connell (2014) who argued that these beliefs have the potential of holding people back from adopting good sanitation practices such as using toilets when defecating. This was also supported by qualitative study.

“Elderly men should not be seen going to the toilet especially by young ones. Circumcised men should not also be seen going to the toilet or sharing toilets with women.”

Financial challenges also had a significant effect ($p= 0.002<0.05$) on sanitation practices to the people of Tigania West. Other challenges were limited materials (69.1%), 9.4% Loose /collapsing soils, and 5.1% were hard or rocky soils, high water table and lack of proper disposal and emptying strategies. This implies that the residents will end up constructing sanitation facilities with poor materials which will not be durable hence water contamination in high water table areas and use of filled up sanitation facilities in rocky soils.

CONCLUSION

The study was formulated to assess challenges experienced during toilet construction and use among rural households. The study concludes that challenges such as material unavailability, financial constraints as well as soil types influenced the type of sanitation facilities to be adopted in Tigania West Sub County. Cultural beliefs, availability of space to construct a toilet and sharing of sanitation facility also influenced the sanitation practices to be adopted in the region.

The findings from the study are not only beneficial to specific households but will also inform Meru County policy makers, sanitation experts, community members, academics and partners on sanitation challenges experienced in the study area. The findings are also useful in promoting good sanitation practices at household level.

RECOMMENDATIONS

The County Government of Meru in collaboration with the ministry of health should therefore initiate training activities in the area on the construction of acceptable and sustainable improved toilets using cheap and locally available materials as well as training members on the best alternative sanitation solutions for poor soils.

Subsidizing the toilet construction cost to the needy in the region could be essential in enabling them to construct improved sanitation facilities. Some people lack enough funds to construct and maintain their latrines, therefore they need to be assisted to get better facilities.

The citizens should be educated on the significance of keeping their households clean to improve their hygiene. This might help people with several cultural factors limiting their hygiene levels to leave their customs and adopt better customs.

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REFERENCES

1. World Health Organization (2021). Progress on household drinking water, sanitation and hygiene 2000-2020: five years into the SDGs. <https://www.unicef.org/reports/state-worlds-sanitation-2021>
2. World Health Organizations & United Nations Child Fund (2017). Innovative sanitation approaches could address multiple development challenges. Water Science and Technology <https://doi.org/10.2166/wst.2017.600>
3. Anderson, K., Dickins, S., & Rosemarin, A. (2016). Towards “sustainable” sanitation: challenges and opportunities in rural areas. Sustainability. <https://doi.org/10.3390/su8121289>



4. Gedefaw, M., Amsalu, Y., Tarekegn, M., & Awoke, W. (2015). Opportunities, and challenges of latrine utilization among rural communities of Awabel District, Northwest Ethiopia, 2014. *Open Journal of Epidemiology*, 5(02), 98., <https://doi.org/10.1016/j.ijheh.2015.05.004>
5. Tumwebaze, I. K. (2014). Prevalence and determinants of the cleanliness of shared toilets in Kampala slums, Uganda. *Journal of Public Health*, 22(1), 33-39.
6. Balasubramanya, S., Evans, B., Hardy, R., Ahmed, R., Habib, A., Asad, N. S. M., & Fernando, S. (2017). Towards sustainable sanitation management: Establishing the costs and willingness to pay for emptying and transporting sludge in rural districts with high rates of access to latrines. *PLoS One*, <https://doi.org/10.1371/journal.pone.0171735>
7. Mwirigi, S. N., Muchiri, E. M., Kubai, P., & Kamari, K. M. (2020). Effect of social demographic factors on utilization of pit latrines in Tigania East, Meru County, Kenya
8. Busienei, P. J., Ogendi, G. M., & Mokuu, M. A. (2019). Latrine structure, design, and conditions, and the practice of open defecation in Lodwar town, Turkana County, Kenya: A quantitative methods research. *Environmental health insights*, <https://doi.org/10.1177%2F1178630219887960>
9. Routray, P., Torondel, B., Jenkins, M. W., Clasen, T., & Schmidt, W. P. (2017). Processes and challenges of community mobilization for latrine promotion under Nirmal Bharat Abhiyan in rural Odisha, India. *BMC Public Health*, 17(1), 1-15.
10. Wasonga, J. (2016). Sociocultural Determinants to Adoption of Safe Water, Sanitation, and Hygiene Practices in Nyakach, Kisumu County, Kenya: A...
11. Jain, A., Wagner, A., Snell-Rood, C., & Ray, I. (2020). Understanding open defecation in the age of Swachh Bharat Abhiyan: Agency, accountability, and anger in rural Bihar. *International journal of environmental research and public health*, <https://doi.org/10.3390/ijerph17041384>
12. Simiyu, S., Swilling, M., Cairncross, S., & Rheingans, R. (2017). Determinants of quality of shared sanitation facilities in informal settlements: case study of Kisumu, Kenya. *BMC public health*, 17(1), 1-13
13. Dwipayanti, N. M. U., Rutherford, S., & Chu, C. (2019). Cultural determinants of sanitation uptake and sustainability: local values and traditional roles in rural Bali, Indonesia. *Journal of Water, Sanitation and Hygiene for Development*, 9(3), 438-449
14. Bonu, J.Kin, C., Fisher, M. B., Luyendijk, R., Hossain, R., Wardlaw, T., & Gordon, B. (2017). Cultural practices on water supply and sanitation: history, methods and future challenges. *International journal of environmental research and public health*. <https://doi.org/10.3390/ijerph110808137>
15. O'Reilly, K. (2016). From toilet insecurity to toilet security: creating safe sanitation for women and girls. *Wiley Interdisciplinary Reviews: Water*, 3(1), 19-24.
16. O'connel, O. A. (2014). Toilet practices among the inhabitants of Kintampo District of northern Ghana. *Journal of Medicine and Medical Sciences*, 3(8), 524. <https://doi.org/10.1080/09603123.2012.713095>
17. Kanda, A., Ncube, E. J., & Voyi, K. (2022). Drivers and barriers to sustained use of Blair ventilated improved pit latrine after nearly four decades in rural Zimbabwe. *PloS one*, <https://doi.org/10.1371/journal.pone.0265077>
18. Nelson, K. B., Karver, J., Kullman, C., & Graham, J. P. (2014). User perceptions of shared sanitation among rural households in Indonesia and Bangladesh. *PloS one*, <https://doi.org/10.1371/journal.pone.010388>
19. Dagaga, D. T., & Geleta, G. D. (2022). Water and Latrine Services and Associated Factors among Residents of Negele Town, Southeast Ethiopia: A Cross-Sectional Study. *Journal of Environmental and Public Health*, (2022). <https://doi.org/10.1155/2022/1203514>
20. Hernandez, O., Dejene, M., & Faris, K. (2009). Potential motivators behind household toilet adoption: results from a study in Amhara, Ethiopia
21. Okechukwu, O. I., Okechukwu, A. A., & Noye-Nortey, H. (2015). Owusu-Agyei. Toilet practices among the inhabitants of Kintampo District of northern Ghana. *Journal of Medicine and Medical Sciences*, 3(8), 524. <https://doi.org/10.1080/09603123.2012.713095>

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