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Sustained or Slipping? Community Sanitation and Hygiene Practices Four Years Post-ODF Certification in Balaka District, Malawi

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Abstract

Malawi adopted the Community-Led Total Sanitation (CLTS) approach to eliminate open defecation (OD) through behavioural change. Balaka District, an open defecation-free certified model district, was among the first four open defecation-free (ODF) status-certified districts in Malawi. This study assessed the sustainability of sanitation and hygiene practices in Balaka four years after ODF certification. A descriptive cross-sectional study design was employed, using both quantitative and qualitative methods. Data were collected from 438 household heads, 19 key informants, and six focus group discussions involving sanitation stakeholders. Latrine coverage remains high (89%) but falls short of the 100% target required for ODF re-verification. Hand washing facility (HWF) coverage is low (36%), with only 24% of respondents reporting hand washing with soap after toilet use. There was a positive and significant association between age (β = 0.012, p = 0.003), household size (β = 0.126, p = 0.008), and latrine use. Marital status and religion were significantly associated with both HWF availability (β = 0.056, p = 0.019; β = -0.293, p = 0.000) and hand washing with soap (β = 0.060, p = 0.008; β = 0.187, p = 0.002). Community CLTS knowledge was significantly associated with HWF availability (F = 2.349, p = 0.008) and hand washing with soap (F = 5.188, p = 0.000). Attitude was a significant predictor only for HWF availability (F = 2.774, p = 0.005). Findings indicate marginal improvements in sanitation and hygiene behaviour four years post-ODF certification. To sustain sanitation gains, increased focus is needed on promoting latrine construction and handwashing facilities and encouraging handwashing with soap.

Keywords: Certification, Community Led Total Sanitation, Hand-washing with soap, Open defecation, Sustainable sanitation.

1. INTRODUCTION

Community-Led Total Sanitation (CLTS) is a non-subsidy, participatory approach aimed at eliminating open defecation (OD) through behaviour change and latrine promotion, particularly in rural areas (Kar & Chambers, 2008; Cairncross et al., 2010). CLTS focuses on achieving Open Defecation Free (ODF) status by encouraging households to construct and consistently use latrines and practice hand washing with soap after defecation (Jensen et al., 2015). It is aligned with Sustainable Development Goal 6.2, the National Research Agenda II (2023-2030), and the Malawi 2063 MIP-1 agenda, which aims to end open defecation and ensure universal access to sanitation by 2030 (GoM, 2023; NPC, 2020).

Malawi targeted to achieve open defecation free status by 2015 using the Open Defecation Free (ODF) Malawi Strategy (2011-2015), aiming to surpass 95% latrine and hand washing facility coverage and 100% usage post-ODF certification (GoM, 2018). Despite progress, the 2015 ODF target was not fully achieved. Latrine coverage and latrine usage were 85% and 95%, respectively. By 2018, four districts, Balaka, Dowa, Nkhotakota, and Ntchisi, were certified with an ODF status, with Balaka as a model ODF District (Taulo et al., 2018). This study therefore assessed sanitation and hygiene practices in Balaka four years after ODF certification. The findings aim to inform strategies to enhance behaviour change and support sustained sanitation and hygiene practices beyond initial ODF certification.

2. METHODOLOGY

The study embraced a mixed-methods cross-sectional design, capturing both independent and dependent variables at a single point in time to assess their relationships (Mosler et al., 2018). Data were collected using structured interviews, focus group discussions (FGDs), and direct observations, guided by standard FGD guides and observational checklists.

A total of 438 household heads were selected through systematic random sampling, while 19 key informants were purposively selected based on their roles in community sanitation initiatives. FGD participants were also purposively sampled to ensure the inclusion of diverse perspectives.

Quantitative data were analysed using IBM SPSS Statistics version 25.0. Descriptive statistics (frequencies and percentages) were used to summarise socio-demographic characteristics and sanitation practices. Chi-square tests and analysis of variance (ANOVA) were used to look for relationships between independent and dependent variables, with statistical significance defined as $p < 0.05$.

3. RESULTS

Socio-demographic characteristics of respondents

A total of 438 household heads were interviewed. The majority were female (57.8%), married (79.0%), and aged 45 years or older (31%). Most respondents had primary-level education (62.3%), were Christian (63.2%), and belonged to the Yao ethnic group (74.2%). Farming was the predominant occupation (65.1%). Although most households resided in brick-walled houses, 36% had grass-thatched roofs. Regarding family size, the majority had between 3 and 4 children (29.2%) and 5 and 5–6 children (29.0%).

Sanitation and Hygiene practices of community four years after ODF certification.

Latrine availability

Latrine ownership was high, with 94.1% of households reporting having a latrine. However, direct observations showed a slightly lower figure (89%). Most latrines were grass-thatched simple pit latrines (85.1%), while only 13.3% had a simple pit latrine with a slab. Among households without latrines (5.9%), the majority cited collapse of previous latrines (84.5%) or never owning one (7.7%). (Table 1)

Following ODF certification, 38% of households reported taking no action regarding their latrines. About 35% improved their latrines, 25% experienced latrine collapse, and 2% reported dilapidation. Among those whose latrines collapsed or were dilapidated (n=119), 20.3% constructed new ones, while 3.4% repaired them, while another 3.4% did nothing (Table 1).

Construction was primarily carried out by husbands (57.5%). Most respondents (71.9%) stated that individuals assisting latrine construction or repairs are not given anything as a reward. Very few (12.8%) are rewarded in return for supporting latrine construction. (Table 1)

Qualitative findings revealed that most latrines were built quickly for ODF certification. often using substandard materials due to cost and unavailability of durable supplies like mature poles or roofing sheets. An extension worker noted:

"The community was willing to build lasting latrines, but strong and mature poles for pit covering and roofing were unavailable locally. As a result, most households built temporary pit latrines, often without drop hole covers or roofs."

One VDC member said:

"*Latrines that were built with temporary roofs were falling down in the rainy season."*

A female VDC member added:

"PCI, an NGO, supported us with slabs and plastic for roofing. When they left, people lost interest in constructing durable latrines."

Participants also cited that enforcement of local bylaws requiring latrine construction had diminished after ODF celebrations. A male VDC member said that:

"Local rules were made that every household should construct a latrine by a certain date; mainly it was after two weeks. This really helped, as almost every household constructed one. But immediately after ODF celebrations, the bylaws were not being enforced; those whose latrines fell down never maintained them nor replaced them."

Latrine use

The vast majority (95.7%) reported always using latrines. At a household, 88.1% of the members always used latrines, though 3.9% indicated that some did not. (Table 1). Among households without latrines (n=26), 70.6% used neighbors' latrines, while 29.5% still practiced open defecation. Groups that struggled with latrine use included children (42.3%), the elderly (7.5%), and the sick (11.5%). Fear of falling into the pit latrine (40.4%) and mobility issues (30.8%) were the key barriers to latrine use. (Table 1)

Open defecation is prohibited in Balaka such that those found open defecating are fined (70.3%) or forced to remove their faeces (23.5%). Mothers with children under five typically disposed of faeces in pit latrines (71.0%), while a few used the bush (2.8%). (Table 1)

FGDs and KIIs highlighted community agreements that limited latrine sharing to two weeks during or after CLTS triggering. This prompted swift construction of latrines.

One VDC member lamented that:

"Sharing of latrines was not being encouraged. There were only two weeks that were agreed upon soon after CLTS triggering where people were allowed to share

T latrines while those without were to construct their own.his led to immediate latrine construction and use by households.

One Group village headman also added that:

"People are no longer defecating in the open, not because they are forced to pay a fine if found, but because it is embarrassing and shameful when childre laugh at you. I have also noticed that there are no longer reports of cholera cases and deaths in my area."

Table 1. Latrine availability and use

Latrine Availability		
Variable	**Frequency (N)**	**Percent (%)**
Latrine Availability (n=438)		
Yes	412	94.1
No	26	5.9
Reasons for not having a latrine (n=26)		
Collapsed/fell down	22	84.5
Dilapidated	2	7.7
Never had one	2	7.7
Latrine available now same one after ODF certification (n=412)		
Yes	115	27.9
No	297	72.1
What happened to latrine after ODF Certification (N=438)		
Nothing	166	38
Improved	153	35
Collapsed	109	25
Dilapidated	10	2
What was done if latrine collapsed/dilapidated (N=119)		
Nothing	15	3.4
Repaired	15	3.4
Built new one	89	20.3
Type of Latrine available (N=412)		
Simple Pit Latrine	351	85.1
Simple Pit Latrine with slab	55	13.3
Ventilated Improved Pit latrine	1	0.3
Septic tank Latrine	1	0.3
Composting Latrine (Folsa Alterna)	4	1
Those involved in latrine construction (N=438)		
Husband	252	57.5
Wife	23	5.3
Brothes and Sisters	42	9.6
Children	65	14.8
Friends and Relatives	56	12.8
Anything given to those helping latrine construction (N=438)		
Never	315	71.9
Sometimes	67	15.3
Always	56	12.8

Latrine Use		
Variable	**Frequency (N)**	**Percent (%)**
Use of latrine by Heads of households		
Never	16	3.7
Sometimes	3	0.7
Always	419	95.7
Do all household members use the latrine (n=438)		
Never	17	3.9
Sometimes	35	8
Always	386	88.1
Where do those without latrine defecate (n=17		
Neighbours latrine	12	70.6
Bush	5	29.5
River/Stream	0	0
Household members who never/ sometimes use latrine (n=52)		
Elderly	7	13.5
Sick	21	40,4
Children	22	42.3
Disabled	2	3.8
What makes them fail to use the latrine (n=52)		
Engaged	9	17.3
Negligence	6	11.5
No privacy	0	0
Can't walk	16	30.8
Afraid of falling in	21	40.4
What is done to open defecators (n=438)		
Pays a fine	308	70.3
Forced to Remove	103	23.5
Is Wooed	27	6.2
Mothers disposal of children excreta (n=438)		
Bury in the soil	16	3.7
Dispose in pit-latrine	311	71
Throw in the bush	13	2.8
Don't know	98	22.4

Hand Washing Facility Availability and Washing Hands with Soap after defecation

Only 36.5% of households had a handwashing facility, and just 36.3% reported always using one after defecation. Over half of respondents (54.3%) admitted to not washing hands with soap after latrine use, while 24.7% said they always did, and 21% reported occasional use. Among those who did not regularly wash hands with soap (n=330), the main reasons cited were lack of water in the facility (57.9%) and lack of soap (24.8%) (Fig. 1).

Extension workers noted that HWFs were common during the PCI intervention, but most deteriorated afterward and were not maintained. One male VDC member remarked:

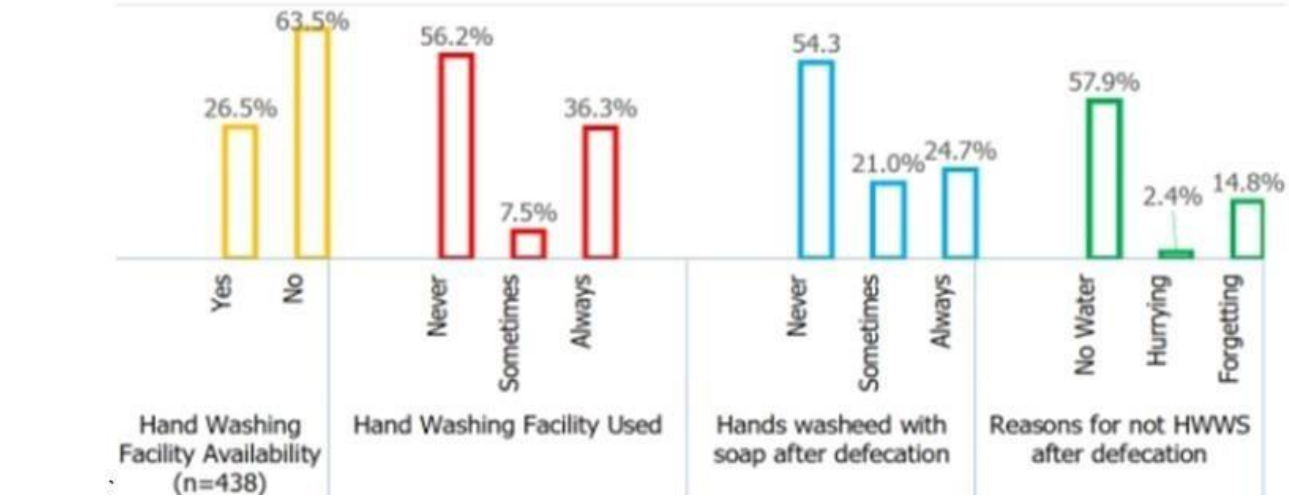
"Most HWFs were broken or destroyed by animals. People no longer maintain them or buy soap due to its rising cost."

An innovative solution shared by one respondent involved a foot-pedal-operated "Mpondagiya" HWF to reduce contamination:

"*Our improved HWF uses a pedal to release water without touching the bottle, which prevents recontamination."*

During FGD, a male VDC member added that:

"Most HWF got broken, and some were vandalised by animals like goats and pigs. The animals go for the water and soap. As a result, people do not maintain them or even buy soap for hand washing with the current increase of soap prices."



HWF: Hand Washing Facility; HWWS: Hand Washing With Soap

Figure 1: Hand washing facility availability and hand-washing with soap after defecation

Physical and environmental conditions of latrines and hand washing facilities.

The majority of the latrines are located at a distance of less than 50 meters from the household (93.1%). Only slightly less than half of the latrines had drop hole covers (45.0%), and nearly two-thirds did not have drop hole covers (45.0%). This indicates that of the drop hole covers available (n = 176), some were not being used to cover the drop holes (61.8%). Actually, they were in the latrine but not covering the sheet drop hole. It was also observed that most of the latrines had no doors (80.6%), no sanitation platform (sani-plat) or floor slab (86.7%), and no roof (30.1%) (Fig. 2).

On cleanliness of the latrines and the surroundings of the latrine and the household, a sheet was seen on the floor (30.8%), on the wall (7.7%), and outside the latrine (3.8%). Sheet was also seen on the footpath to the latrine (1.4%), in the bush around the latrine (1.1%), and on the path to the house (0.20%). On evidence of latrine use, the majority had a well-trodden footpath (62.3%) and were clean (40.5%). In addition, few latrines were clean (25.1.5%), with some producing foul smells (31.5%). (Fig. 2)

Most of the HWFs were located less than two meters away from the door (68.2%). Slightly above one-third of the HWH had soap placed within the vicinity of the HWF (8.7%). It was also observed that the HWF are locally made using recycled small plastic bottles. One head of household explained how they improved the HWF.

"We are now using improved HWF. The first one is not acceptable. It had two bottles, one for storing water and the other one for drawing the water from the storage bottle. Water was draining from there to wash our hands. With this, there were chances of contaminating the handle of the small bottle because we were touching it before washing hands. The new one, Mpondagiya. We use our foot on the pedal on a stick with a string, which pulls down the neck of the storage bottle, and water comes out for us to wash our hands without touching anything."

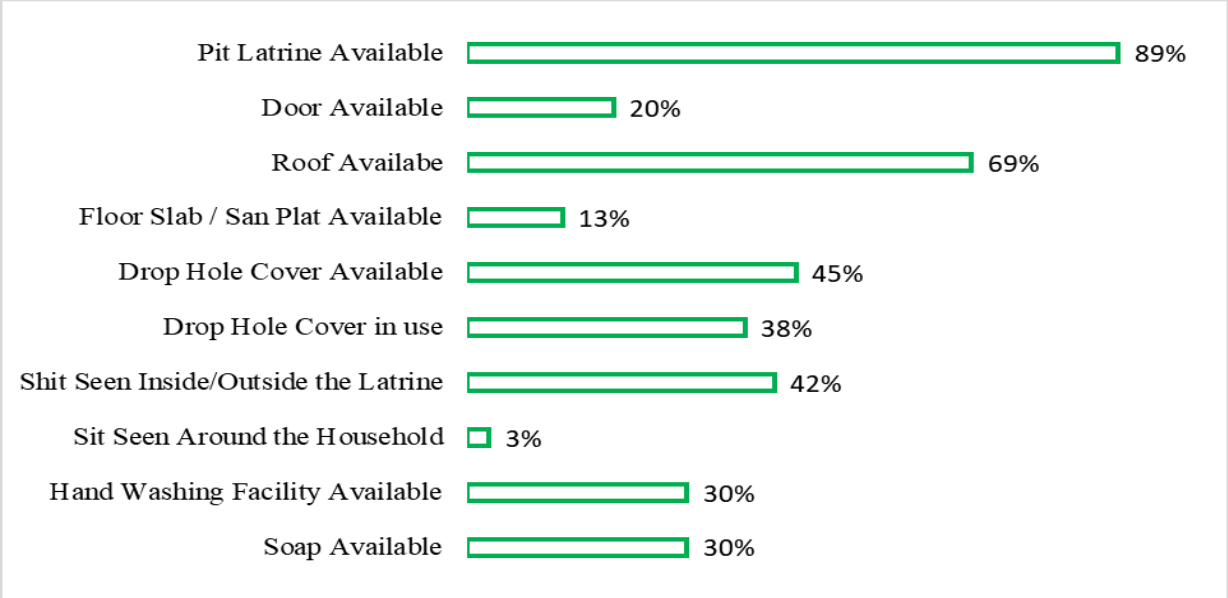


Figure 2: Latrine and Hand-Washing Facility physical conditions

Table 2 presents the influence of demographic factors on latrine availability and latrine use. The results show that as people get older and as household size increases, the availability of latrines decreases (β = -0.008, p = 0.034 for age; β = -0.071, p = 0.014 for household size), and there is a weak link between age and household size with how often latrines are used (β = 0.012, p = 0.033 for age; β = 0.126, p = 0.008 for household size). The type of house is also negatively associated with latrine use (β = -0.223, p = 0.001).

Table 3 presents the effect of demographic factors on HWF availability and HWWS after using a toilet. Regression coefficient results show that marital status has a significant relationship with HWF availability (β = 0.012, p = 0.019) and washing hands with soap after defecation (β = 0.060, p = 0.008). Religion also has a positive significant relationship with HWF availability (β = 0.293, p = 0.001) and washing hands with soap after defecation (β = 0.14, p = 0.002). In general, Table 4.9 indicates that the analysis of the variance regression model for HWF availability is statistically significant with HWF availability (F = 2.774, p < 0.005) while not statistically significant for washing hands with soap after defecation (F = 0.562, p < 0.454). This suggests that the independent demographic variables collectively affect HWF availability and not washing hands with soap after defecation.

Relationship between demographic factors and latrine availability and latrine use

Regression coefficient results suggest that there was a positive and significant relationship between age (β = 0.012, p = 0.003) and household size (β = 0.126, p = 0.008) and latrine use sustainability. Table 4 indicates that the analysis of variance regression model for latrine construction is not statistically significant (F = 0.054, p < .0477), while that for latrine use is statistically significant (F = 7.566, p = 0.001) with demographic characteristics. This suggests that the independent demographic variables collectively have no effect on latrine construction but have a significant effect on latrine use sustainability.

Relationship between demographic factors and HWF availability and washing hands with soap after defecation

Regression coefficient results suggest marital status and religion have a positive and significant relationship with both HWF availability (β = 0.056, p = 0.019, OR = -0.010), (β = -0.293, p = 0.000, OR = 0.084) and washing hands with soap after defecation (β = 0.060, p = 0.008, OR = -0.014), (β = 0.187, p = 0.002, OR = 0.004), respectively. Analysis of variance in Table 5 indicates that demographic characteristics are statistically significant for HWF availability (F = 2.845, p = 0.001, OR = 0.110) and hand-washing with soap after defecation. This suggests that the independent demographic variables collectively have an effect on HWF availability and washing hands with soap after defecation. (Table 5)

Table 2 Univariate Analysis of association of demographic characteristics of communities and latrine availability and use.

Demographic Characteristics	Latrine Availability					Latrine Use				
	Standardised Coeff (Beta)	Std Error	t-value	p-value	95% CI	Standardised Coeff (Beta)	Std Error	t-value	p-value	95% CI
Gender	0.058	0.023	1220	0.223	-0.017 - 0.073	-0.046	0.037	-0.095	0.340	-0.108 - 0.037
Age (Years)	-0.08	0.001	-1.681	0.094	-0.003 - 0,001	0.012	0.001	-1.681	0.033	0.000 - 0.004
Marital status	0..028	0.06	1.26	0.208	-0.020 - 0.089	-0.034	0.014	-0.712	0.477	-0.036 - 0.017
Ethnicity	0.001	0.015	0.314	0.754	-0.001 - 0.002	0.034	0.001	0.716	0.474	-0.001 - 0.003
Religion	0.067	0.024	-1.4	0.162	-0.079 - 0.013	0.038	0.081	1.709	0.089	-.0.010 - 0.140
Education level	-0.007	0.027	-0.147	0.883	-0.058 - 0.050	0.012	0.003	-0.032	0.974	-0.060 - 0.058
Occupation	0.013	0.002	-0.27	0.787	-0.004 - 0.003	0.012	0.003	0.252	0.801	.0.801 - 0.005
Size of HH	-0.071	0.005	-1.478	0.014	-0.018 - 0.00	0.126	0.008	2.645	0.008	0.006 - 0.038
Type of House	0.016	0.002	-0.336	0.737	-0.006 - 0.004	-0.223	0.004	-4.779	0.001	-0.026 - -0.001

Coeff=Coefficient; Std=Standard; CI=Confidence Interval; OR=Odds Ratio; HH=Household.

Table 3 Univariate Analysis of association of demographic characteristics of communities and hand washing facility availability and hand washing with soap.

Demographic Characteristics	Hand Washing Facility Availability					Washing hands with Soap after defecation				
	Standardised Coeff (Beta)	Std Error	t-value	p-value	95% CI	Standardised Coeeff (Beta)	Std Error	t-value	p-value	95% CI
Gender	0.014	0.047	0.285	0.776	-0.078 - 0.0105	0.02	0.042	-1.485	-1.485	-0.014 - 0.020
Age (Years)	0.013	0.002	0.272	0.786	-0.003 - 0.003	0.029	0.001	0.606	0.545	.0.002 - 0.004
Marital status	0.012	0.056	2.35	0.019	-0.022 - 0.243	0.060	0.126	2.651	0.008	-0.034 - 0.232
Ethnicity	0.055	0.001	1.142	0.254	-0.01 - 0.004	0.072	0.001	1.515	0.130	-0.001 - 0.004
Religion	-0.293	0.046	-6.402	0.001	0.035 - 0.141	0.147	0.043	-3.098	0.002	.0.010 - 0.140
Education level	-0.012	0.056	-0.256	0.798	-0.107 – 0.135	0.004	0.050	0.008	0.930	-0.094 - 0.102
Occupation	0.063	0.003	1.326	0.185	-0.002 - 0.011	0.056	0.003	1.168	1.243	-0.002 - -0.012
Size of HH	0.014	0.047	0.285	0.776	-0.078 - 0.105	0.020	0.042	-1.485	-1.485	-0.014 - 0.020
Type of House	0.013	0.002	0.272	0.786	-0.003 - 0.003	0.029	0.001	0.606	0.545	.0.002 - 0.004

Coeff=Coefficient; Std=Standard; CI=Confidence Interval; OR=Odds Ratio; HH=Household.

Table 4: Demographic characteristics and Latrine Availability and Larine use Model Summary

ANOVA[a]

	Latrine Availability					Latrine Use				
	Sum of Squares	Df	Mean Square	F	Sig.	Sum of Squares	Df	Mean Square	F	Sig.
Regression	0.539	10	0.054	0.961	0.477[b]	2.741	10	0.274	7.566	0.000[b]
Residual	23.914	426	0.056			15.433	426	0.036		
Total	24.453	436				18.174	436			

a. Dependent Variable: S4 Latrine available
b. Predictors:(Constant), Type of House, Occupation, Ethnicity, Size of Household, Gender, Religion, Education Level, Marital Status, Age (Years),

Table 5: Demographic characteristics and HWF Availability and Washing Hands with Soap after defecation

ANOVA[a]

	HWF Availability					HWWS after using a Latrine				
	Sum of Squares	Df	Mean Square	F	Sig.	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.471	11	1.225	5.918	.000[b]	5.577	11	0.507	2.845	.001[b]
Residual	87.948	425	0.207			75.732	425	0.178		
Total	101.419	436				81.309	436			

a. Dependent Variable: S4 Latrine available
b. Predictors:(Constant), Type of House, Occupation, Ethnicity, Size of Household, Gender, Religion, Education Level, Marital Status, Age (Years),

4. DISCUSSION

Latrine construction and use four years after ODF certification

The study found that most households have latrines (94%), but respondents reported a lower figure of 89% based on observations. Shame of not having a latrine to attain ODF status in the community as well as fear of social accords may contribute to people claiming to own latrines even if they do not. This could explain the difference in the reported number of households with latrines as compared to those actually observed.

Participants revealed that it was embarrassing to use another household' pit latrine. This could be one of the reasons that make people construct their own toilets and use them. Local guidelines of sharing latrines while one is constructing his/her own also facilitated the habit of constructing latrines to stop sharing. Latrine sharing goes hand in hand with latrine cleanliness (Okullo et al., 2017). Latrine sharing and queuing are expected where latrines are clean. This was a common practice in Balaka after ODF certification until households constructed their own latrines. Most of the latrines available were simple grass-thatched pit latrines (324, 78%). Very few toilets/latrines had sanitation platforms (San-Plats), plastic papers for roofing, and drop-hole covers. San-plats were being provided on subsidy by PCI, an international NGO, while drop-hole covers were being made by carpenters at a cost. PCI left as the project closed, and communities cannot afford to make the san-plats and pay the carpenters for the drop hole covers. Construction of latrines is mainly done by men (husbands), with very few artisans getting a reward for supporting latrine construction or maintenance.

After ODF certification, several things happened to their latrines. The majority of those whose latrines were dilapidated and/orfell down constructed new ones, but some (12.6%) never did anything and could contribute to OD.

Regarding toilet use, there is a high rate of toilet use (95.7%) in Balaka, with 70% taking toilet use as part of their life. In the households, those who mainly fail to use latrines are children (42%), the sick, and the physically challenged. Those who do not use latrines (44, 5%) indicated that they practice open defecation because they are afraid of falling in, fail to walk, and are negligent. Since OD is not allowed in Balaka, as indicated by 99% of the households, sanctions, punishments, and social punishments like booing, paying fines, and removing the faeces are made to those found defecating in the open. The results are similar to those made in Nepal and Indonesia, which indicate that anyone found defecating in the open could get laughed at (Odagiri et al., 2017 and

Celia, 2018). Availability of pit latrines influences the use of pit latrines while at the same time promoting positive behaviour towards ODF sustainability.

A study by Musyoki (2016) found that even when communities have access to latrines, water points, and other hygienic services, OD still is a common phenomenon among communities, especially those in rural and poverty-associated areas. Sanitation promotion is very important. As has been indicated in this study, people may be forced to comply with “having latrines and using latrines” due to fear of social sanctions as a result of conformity. This is true in line with a study in Western Kenya, which found that promotion of ODF in communities contributes to the high number of people with latrines and continued use of latrines (Wasonga et al., 2014).

Hand washing facility availability and hand washing with soap

Handwashing with water and soap after toilet use is very important. Inadequate hand washing or even failure to wash hands exposes people to getting infected with bacterial, viral, or parasitic organism infections, which causes diarrhoeal diseases. Availability of a handwashing facility close to a toilet and washing hands with soap supports good hygiene behaviours, although it is hard to sustain such behaviours within everyday settings without actual behaviour change. Of those who had HWF, over half (56.2%) do not use the HWF, and only one-third use the HWF available at their latrine. Washing hands with soap helps to kill pathogens in the hands. In this study, over half of the households (55%) do not wash hands with soap. Reasons found for failing to wash hands with soap were unavailability of water in the HWF, negligence, forgetting, and hurrying for other things after defecation. In this study, there were no HWFs (76%) close to a toilet. Most of the HWF that were there during ODF certification were vandalised by animals like goats for the water and soap, and they ended up breaking them.

Key informants and FGD discussions: members expressed concern that the moving out of PCI from the district was not good. PCI was supporting them with HWF. Even the cost of soap is high, and people cannot manage to buy soap for hand washing. As a result, HWF and soap for hand washing are not available now, which can lead to an increase in diarrhoeal diseases. This is in line with many studies that documented the benefits of handwashing with soap in the prevention and control of sanitation- and hygiene-related infections and the challenges of soap provision and use. (Sifat-E-Rabbi and Dey). According to Dajaan et al. (2018), over 10,000 children die of diarrhoea, which is preventable by hand hygiene, which is very low (Dajaan et al. 2018). A study in Burkina Faso found that hand washing with soap is able to reduce diarrhoea incidence by over 40% and intestinal infections (cholera, dysentery, and diarrhoea) by over 50%. (Curtis and Cairncross, 2013). Contrary to this, the results differ from those of studies in Bangladesh and Tanzania that show that lack of soap and failure to wash hands do not prevent diarrhoeal diseases. (Wasonga et al., 2014)

5. CONCLUSION

Behaviour change, a CLTS-ODF main component is a prerequisite in sustainability of sanitation and hygiene practices. Knowledge if translated into practice (nothing if nobody has knowledge), and if major attitudinal change is initiated, behavior change will occur leading to sustainable sanitation practices such as latrine use and hand washing with soap..

The results revealed that there was a high latrine coverage though below ODF plus re-verification of 100%..This stimulated OD among communities. The remaining 30% who do not take latrine use as part of their daily life, children, elderly, the sick and physically challenged need to be supported to facilitate for sustainable sanitation

There are inadequate HWF which leads to only a quarter of the community washing hands with soap. Breaking down and vandalism of HWF by animals and failure to maintain them being the main reasons for low HWF coverage. Unavailability of water, negligence, forgetting and hurrying being the reasons for failure to wash hands after using a toilet.

The study re-verified ODF certification by weighing the knowledge, attitude and practices of communities in Balaka two years or more after ODF certification. The study concludes that the communities in Balaka inadequate practices in latrine use and hand washing with soap which is insufficient for behaviour change for sustainable sanitation after CLTS implementation and ODF status sustainability.

Changing hygiene and sanitation behaviour is a multifaceted happenstance. Sustainability of such sanitation practices take years. Inclusion of activities in CLTS program that will encourage local people to consider investing in improving sanitation and hygiene practices to sustain ODF status. Intensive public health education on HWF and HWWS is required to emphasize its health benefits so that households adopt and maintain HWWS behaviour as a habit and a priority. Future research in sanitation should focus on ways of improving knowledge diffusion to household and bridge the gap of sanitation knowledge to ensure behavoiur change for the sustenance of sanitation practices.

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