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# APPROACHES FOR SANITATION ACCESS IN PASTORALIST AREAS WITHIN THE ARID AND SEMI-ARID LANDS OF KENYA

## FINAL REPORT

**SEPTEMBER 2021**

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Cover Photo: Focus group discussion in Turkana County  
Credit: Brian Mwangi

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## **DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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# ACRONYM LIST

AMREF	African Medical and Research Foundation
ASAL	Arid and Semi-Arid Land
CHEW	Community Health Extension Worker
CHV	Community Health Volunteer
CLTS	Community-Led Total Sanitation
CLTS RTMS	Community-Led Total Sanitation Real-Time Monitoring System
EQND	Equality and Non-Discrimination
FGD	Focus Group Discussion
FUM	Follow-Up MANDONA
GoK	Government of Kenya
HH	Household
IBM-WASH	Integrated Behavior Model for Water, Sanitation, and Hygiene
KES	Kenyan Shilling
KII	Key Informant Interview
KIWASH	USAID Kenya Integrated Water, Sanitation, and Hygiene Project
NGO	Nongovernmental Organization
ODF	Open Defecation Free
PHO	Public Health Officer
RQ	Research Question
RTMS	Real-Time Monitoring System
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
VSLA	Village Saving and Loan Association
WASH	Water, Sanitation, and Hygiene
WASHPaLS	Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability

# EXECUTIVE SUMMARY

Community-led total sanitation (CLTS) has been widely used and adapted as a strategy for reducing open defecation. The Government of Kenya has adopted CLTS as a core strategy, but standard methods have been difficult to implement and have achieved limited success among pastoralist groups in low-density, water-scarce regions. Pastoralists' lives often involve movement to find water and pasture for livestock, potentially decreasing the value of stationary sanitation infrastructure, while other contextual constraints (e.g., soil conditions and durability of local materials in arid regions) may also hinder sanitation implementation. Therefore, this research examined the underlying factors and constraints affecting sanitation adoption among pastoralists and identified strategies to achieve greater levels of improved sanitation coverage.

Across three counties (Samburu, Turkana, Kitui) in the arid and semi-arid lands (ASALs) of Kenya with varying contexts of sanitation and pastoralism, the Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability Project (WASHPaLS) conducted qualitative research in 17 pastoral communities. In total, the team completed 34 focus group discussions and 154 interviews with household members, community leaders, government officials, and implementing partners, which they then analyzed via the Integrated Behavior Model for Water, Sanitation, and Hygiene (WASH) (IBM-WASH). The team's summarized findings with respect to three core research questions are presented below.

## **Research Question 1. What are the underlying factors and constraints affecting sanitation adoption in the ASALs?**

The team's findings indicate that **pastoralists face a number of distinct and intense barriers to latrine adoption**, many of which agree with those reported in previous literature. These barriers tend to relate to the fact that pastoralists often live and move throughout remote, arid, difficult-to-reach areas, resulting in conditions that can reduce the effectiveness of conventional CLTS approaches. In particular, WASHPaLS found common constraints that cut across all study contexts and align with previous research:

- **Water scarcity, poverty, and insecurity** contribute to movement of pastoral groups and reduce the degree to which sanitation is seen as a high priority.
- The combination of **limited access to durable materials and challenging environmental conditions** (e.g., unstable soils, flooding) makes pit excavation difficult and results in frequent latrine collapse, which becomes demoralizing and reduces the likelihood that households will (re)build.
- **Settlements are often dynamic**, changing in composition due to migration, seasonal movement, insecurity, and other factors, which can reduce both social cohesion and previous sanitation progress that was made.

The team also noted distinct constraints that affected sanitation success in specific situations. In particular, existing latrines in study villages that are at least partially mobile do not meet cultural requirements related to latrine sharing and the defecation behaviors of certain groups (e.g., *morans*), while poverty and provision of basic needs (e.g., food, water) take priority and tend to override other considerations among more nomadic communities. CLTS has been more successful in Kitui, which contains primarily settled, agro-pastoral communities; however, challenges still exist in harder-to-reach areas containing newly formed or relocated communities, with low household density and difficult environmental conditions.

## **Research Question 2. What are acceptable standards for sanitation in pastoralist communities, with regard to both user experience and public health?**

Despite these numerous constraints, WASHPaLS also sees evidence that **pastoralists are interested in latrines and would use them, if they conform to certain standards**. However, the team sees a stark distinction between populations that are more settled and those that are nomadic.

- Households in **settled and semi-settled communities want durable latrines that do not collapse** in the face of challenging environmental conditions (e.g., unstable soils, flooding).
- **Privacy, safety, and pride** are key concerns among these communities, and latrines should be designed and sited to maximize privacy and discretion. People also emphasize the value of latrines that do not put their livestock at risk (as livestock are highly valued) and the pride they feel in being able to offer visitors a latrine to use.
- **Nomadic communities see open defecation as the best option** for their mobile lifestyles and are resistant to latrine use, as it is difficult to carry latrine materials with them. However, they may be open to latrine use if they were to transition to a more settled way of life.

Notably, WASHPaLS also sees evidence of recent trends that offer opportunities for improved sanitation adoption, some of which relate to how **pastoral lifestyles, beliefs, and values are evolving**. In particular:

- **Nomadic lifestyles are changing**, with communities often becoming more settled and reducing barriers to latrine adoption associated with high levels of mobility. These new lifestyles also expose people to new ideas concerning the dangers of open defecation and the value of latrines.
- **Cultural beliefs that promote open defecation and constrain latrine adoption still exist in some cases but are becoming less prevalent**, and many respondents feel that sanitation interventions and designs can be adapted to align with remaining cultural considerations.
- **Education is highly valued** across the team's study villages, which offers opportunities to promote sanitation in schools and involve schools in community-wide interventions.

## **Research Question 3. What potential adaptations to CLTS will address the challenges associated with sanitation among pastoral communities in the ASALs?**

Following from these constraints and opportunities, WASHPaLS provides several recommendations for governments and implementers.

Governments can create a strong enabling environment for sanitation interventions by:

- **Strengthening implementation and reporting structures** by consolidating and increasing coordination across areas currently acting in parallel, while also clearly defining roles and responsibilities. The Kenya Public Service Commission has developed general guidance on crafting effective organizational structures that is applicable to many of the challenges identified.
- **Identifying committed sanitation champions** at both the county and community levels, to coordinate activities, disseminate success stories, and create healthy competition.
- **Dedicating funding to sanitation** in county budgets, with detailed items to ensure funds are allocated appropriately and are sufficient to cover complete implementation of CLTS, including ensuring that local staff are able to conduct monitoring and follow-up activities.

- **Providing nuanced guidance on initiatives to leave no one behind**, including pro-poor programs in challenging contexts. This may be an area where the national government can assist in developing overarching policies or guidelines related to strategies such as cash transfers, vouchers, or rebates, based on experiences in other countries or from programs beyond sanitation within Kenya.

**Implementers can tailor implementation approaches to specific pastoral communities based on their characteristics.** Implementers can employ a simple questionnaire to conduct a contextual analysis during the pre-triggering phase, using the results to identify and tailor appropriate implementation approaches to a particular community. Building on IBM-WASH, the team developed an example questionnaire specifically designed for pastoral communities. It includes a small set of targeted questions about key sanitation drivers related to such topics as environmental conditions, culture, economic status, and community leadership in order to tailor strategies for program implementation. Additional research and piloting can refine it for use in pastoral communities.

Given the constraints and opportunities WASHPaLS identified, the following recommendations for implementers may be appropriate in certain contexts (based on the results of a contextual analysis):

- 1) **Tailor latrine designs and messaging to pastoralists' values and contextual challenges**, particularly focusing on key concerns such as privacy, pride in offering a latrine to visitors, protection of livestock, and preventing pit collapse in unstable soils.
- 2) **Engage schools and community leaders in the initial stages of (or before) triggering.** Schools provide opportunities for installing demonstration facilities, increasing community involvement in triggering, and supporting sanitation champions.
- 3) **Target specific groups for education**, when those groups may be especially resistant to latrine adoption due to cultural or other factors (e.g., peer-to-peer education among *morans*) or when those groups may provide particular opportunities for improving sanitation (e.g., solidarity funds).
- 4) **Consider pro-poor initiatives in challenging contexts**, where assistance may be needed to ensure that households with high poverty levels and/or limited market access have the ability to install durable latrines.
- 5) **Among highly nomadic groups, focus on sensitization rather than full CLTS implementation**, as these communities continue to perceive open defecation as the best option for their mobile lifestyle, are unlikely to adopt latrines at this point, and may be less vulnerable to health risks associated with open defecation due to frequent movement. WASHPaLS is not recommending pushing communities toward more settled lives. Rather, implementers should meet communities where they are, and these sensitization efforts will be particularly valuable as existing trends toward more permanent settlement progress and people begin to consider latrine adoption.

Moving forward, this knowledge on constraints, opportunities, and strategies for tailored implementation can inform rural sanitation programs that are equitable, sensitive to local considerations, and effective in reducing open defecation among pastoral populations.

# I.0 MOTIVATION AND OBJECTIVES

## I.1 THE NEED TO ADAPT COMMUNITY-LED TOTAL SANITATION FOR PASTORAL COMMUNITIES

Community-led total sanitation (CLTS) has been widely used and adapted as a strategy for reducing open defecation, but it has achieved limited success in certain contexts (Rama, 2016). The CLTS approach is based on the premise that changes in sanitation behavior must come from within a community through psychosocial mechanisms and collective action. It focuses on stopping open defecation by guiding community members to become more aware of the social and public health consequences of poor sanitation. This strategy has found success in some settings, especially in communities with high initial rates of open defecation, no prior history of subsidies, high social cohesion, and strong leadership (Rama, 2016). Generally, a range of environmental and contextual factors likely contribute to CLTS outcomes, requiring nuanced and adaptable approaches for targeting populations across different contexts (Tillett & Jones, 2021; USAID, 2018). CLTS has been adopted in official rural sanitation strategies or policies in 31 countries (Zuin et al., 2019), and Kenya adopted CLTS as a core strategy within its Open Defecation Free (ODF) Rural Kenya Campaign, initiated in 2011.

However, CLTS has not always led to the adoption or sustainability of improved sanitation facilities, and efforts in pastoral communities have been particularly unsuccessful (Karanja et al., 2018; O. J. Otieno, 2015). Pastoral populations are prominent in Kenya’s arid and semi-arid lands (ASALs), which include 23 counties and are defined by annual rainfall that ranges from 150–500 mm per year in arid areas to 550–850 mm in semi-arid areas (Government of Kenya, 2013). The ASALs cover 89 percent of the country’s landmass, support 70 percent of its livestock, and contain 36 percent of the total human population (State Department For Development of the Arid and Semi Arid Lands, 2019). ASAL counties tend to be poorer than other areas, and CLTS has been largely unsuccessful in reducing high rates of open defecation, moving households up the sanitation ladder, and preventing slippage among communities that had been declared open-defecation (Brian Atuhaire, 2013; Karanja et al., 2018; O. J. Otieno, 2015). Recent data from Kenya’s 2019 Census (Kenya National Bureau of Statistics, 2019) reveals high open defecation rate in many ASAL counties, particularly those in more arid regions (Figure 1).

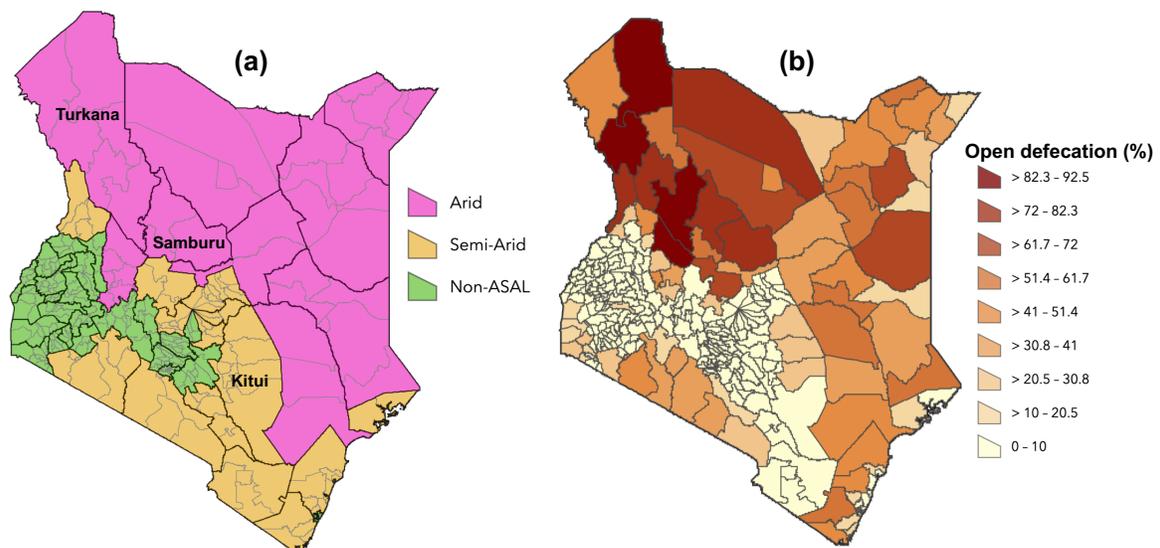


Figure 1. (a) Counties in Kenya classified as arid, semi-arid, and non-ASAL, and (b) sub-counties shaded according to open defecation rates reported in Kenya’s 2019 Census. The three labeled counties are where

*this study's field work was conducted.*

**Accordingly, rural sanitation programs must be adapted to effectively support efforts toward reducing open defecation within pastoral communities in the ASALs, but there is limited evidence concerning the factors that influence CLTS success in these settings** (Fostvedt-Mills et al., 2018). Numerous contextual, technological, and psychosocial constraints hinder sanitation implementation in the ASALs, and previous work has begun to identify some important factors associated with latrine installation and use, such as soil conditions, durability of local materials, and availability of sanitation products and suitable financing mechanisms (Table 1) (Karanja et al., 2018; Rama, 2016). However, a deeper understanding is needed to uncover the precise constraints that affect different groups, the local perceptions and practices that contribute to how people define acceptable sanitation standards in these contexts, and the means to overcome persistent social and environmental challenges (Tillett & Jones, 2021). This knowledge can inform appropriate sanitation interventions and CLTS adaptations, providing guidance for context-specific rural sanitation strategies that produce equitable outcomes, are sensitive to local considerations, and are effective in significantly reducing open defecation.

**Table 1. Factors identified from previous work that may affect latrine adoption among pastoralists.**

Category	Factor	Key points	References
Physical	Soil conditions	<ul style="list-style-type: none"> <li>• Unstable, rocky, or flood-prone soils can hinder pit construction.</li> <li>• Unstable and flood-prone soils can lead to pit collapse, especially during rains.</li> <li>• Pits that are shallow (due to unstable soils) can fill quickly and flood during rainy seasons.</li> <li>• Tailored design guidelines may be needed.</li> </ul>	(Karanja et al., 2018; Munai et al., 2018; Thitu & Augustine, 2017)
	Weather patterns	<ul style="list-style-type: none"> <li>• Flash flooding and drought can exacerbate poor soil conditions.</li> </ul>	(Thitu & Augustine, 2017; World Vision, 2020)
	Durability of local materials	<ul style="list-style-type: none"> <li>• Low-quality materials may not be able to support the slab or superstructure, causing latrines to fall into disrepair.</li> <li>• This experience may discourage households from repairing or replacing latrines when they fail.</li> </ul>	(Karanja et al., 2018)
Socio-cultural and gender	Knowledge and perceptions of toilets	<ul style="list-style-type: none"> <li>• Limited knowledge on toilet construction may deter their installation.</li> <li>• Toilets are often seen as dirty, smelly, and full of flies.</li> <li>• Risks associated with open defecation in dry, sparsely populated regions may be relatively low, reducing the perceived need for latrines.</li> </ul>	(Axweso, 2011; Brian Atuhaire, 2013; Cummings et al., 2011; Greaves, 2016; Karanja et al., 2018; Mshida et al., 2018; Munai et al., 2018)
	Familiarity with animal feces	<ul style="list-style-type: none"> <li>• Pastoralists' close association with animals and their feces reduce the effectiveness of triggers related to shame and disgust concerning human feces.</li> </ul>	(Fostvedt-Mills et al., 2018)
	Ethnic differences	<ul style="list-style-type: none"> <li>• Heterogeneous cultures with ethnic differences may limit social cohesion and collective action.</li> </ul>	(Greaves, 2016; Hazard et al., 2012; Karanja et al., 2018)
	Gender roles and traditions	<ul style="list-style-type: none"> <li>• Men are responsible for latrine construction, while women are responsible for latrine cleanliness.</li> <li>• Some traditions prevent men and women from using the same latrines or forbid men from being seen entering a latrine.</li> </ul>	(Axweso, 2011; Kayser et al., 2019; Maro et al., 2012; Mshida et al., 2018; Otieno, 2015)

Category	Factor	Key points	References
Economic	Income and poverty status	<ul style="list-style-type: none"> <li>• Appropriate sanitation facilities may be unaffordable for poor households.</li> <li>• High poverty levels and other household needs make sanitation less of a priority.</li> </ul>	(Otieno, 2015; WaterAid, 2009)
	Availability of sanitation products and financing	<ul style="list-style-type: none"> <li>• Communities in regions with harsh weather or unstable soils lack appropriate local materials for durable structures.</li> <li>• Insufficient support has been given to households to improve the latrines they have constructed, and availability of appropriate sanitation products is limited.</li> </ul>	(Karanja et al., 2018; Rama, 2016)

## 1.2 RESEARCH QUESTIONS

CLTS has been the primary approach for reducing open defecation in Kenya’s rural areas. However, standard CLTS methods have been largely unsuccessful among pastoralist groups and communities located in low-density, water-scarce regions. Achieving sustainable sanitation improvements in these contexts will likely require adaptations to CLTS approaches or other interventions that address distinct social, environmental, economic, and political conditions. USAID’s Water, Sanitation, and Hygiene Partnerships and Learning for Sustainability (WASHPaLS) project has undertaken research to investigate how rural sanitation programs must adapt to respect and account for the distinctive characteristics of pastoral communities in Kenya’s ASALs.

Specifically, to generate the information necessary for developing appropriate intervention strategies in the ASALs, the team has focused on answering the following three research questions (RQs):

- 1. What are the underlying factors and constraints affecting sanitation adoption in the ASALs?**
- 2. What are acceptable standards for sanitation in pastoralist communities, with regard to both user experience and public health?**
- 3. What potential adaptations to CLTS will address the challenges associated with sanitation among pastoral communities in the ASALs?**

## 2.0 SUMMARY OF CONTEXT AND METHODS

### 2.1 CHARACTERISTICS OF SELECTED COUNTIES

This work involved qualitative research in three counties located within the ASAL region of Kenya. The team selected the three ASAL counties (of the 23) to ensure that they could collect qualitative data of sufficient depth to identify key sanitation constraints and inform future sanitation programming. WASHPaLS selected the three counties—Samburu, Turkana, and Kitui—to provide insight into a variety of pastoral contexts (e.g., differing pastoral mobility, sanitation status) where sanitation remains a challenge, while also avoiding major security concerns. Some of key characteristics of the three counties are summarized below.

**Pastoral mobility.** Samburu and Turkana represent arid regions of the country with high levels of pastoralism and small-scale crop farming in rural areas. Pastoralists tend to be at least partially mobile, with many communities falling along a continuum of mobility (Table 2). Commonly, the men of the household (including *morans*, who are young men with traditional warrior roles) move with livestock during the dry season, while women, children, and the elderly remain at the homestead (Axweso, 2011; FAO, 2001). Splitting responsibilities in this way enables children to attend school throughout the year. Another common model involves households with multiple wives, where the husband will move with one wife, while the other(s) remain at home to care for the children. Finally, especially in areas closer to urban centers with alternative livelihood opportunities, households may entrust the care of livestock to relatives in more remote rural areas, while culturally they continue to consider themselves pastoralists (Balfour & Mutuku, 2018).

These two counties also contain *highly nomadic* communities (e.g., especially in Turkana West, North, and East Subcounties). These groups are pure pastoralists and move frequently in response to seasonality and insecurity (Hazard et al., 2012). At the extreme, communities may move with housing and other materials to use wherever they stop, while others may have a permanent base where they return periodically. In remote areas of Samburu East and Samburu North, for example, many communities are reported to periodically migrate with their whole family, demolish their previous housing, and bring everything with them. They may eventually come back to the same area but do not return to a specific homestead there.

In contrast, communities in Kitui tend to be settled and practice *agro-pastoralism*, with large cropland areas and relatively small livestock herds (de Glanville et al., 2020). Households' primary economic activity tends to be crop farming (e.g., maize, sorghum, and millet) while they raise livestock in clearly demarcated areas. Some limited livestock movement occurs in parts of Mwingi North and Kitui East Subcounties bordering Tsavo National Park, where pasture is scarce during the drought season. Households maintain permanent structures, while men move with livestock during this period.

**Table 2. Refined definitions of pastoral mobility categories based on field experiences.**

Pastoralist category	Mobility characteristics	Livelihood characteristics
<b>Highly nomadic</b> <i>Full mobility</i> (Turkana, Samburu)	a) Whole family moves in irregular patterns with household structure and household assets.	<ul style="list-style-type: none"> <li>Exclusively livestock producers</li> </ul>
	b) Whole family moves with household assets but has a permanent homestead.	
<b>Transhumance</b> <i>Partial mobility</i> (Turkana, Samburu)	a) Some family members (e.g., young men, husbands) move seasonally.	<ul style="list-style-type: none"> <li>Primarily livestock producers</li> <li>May also produce some crops for their own use</li> </ul>
	b) Household hires laborers to move with livestock during dry seasons.	

Pastoralist category	Mobility characteristics	Livelihood characteristics
<b>Agro-pastoralism</b> Sedentary (Kitui)	Limited movement (practice tethering of livestock) with greater investment in local infrastructure	<ul style="list-style-type: none"> <li>Combine mixed crop production and livestock keeping</li> <li>Herds tend to be smaller than other categories</li> </ul>

**Sanitation status and other characteristics affecting sanitation adoption.** The three counties tend to have high poverty rates (particularly Turkana) and low population density (Table 3). Kitui has a higher population density than the other two counties, but the more remote regions where the team focused tend to have lower densities, due to large areas of farmland and highly dispersed communities. Improved sanitation coverage in Samburu (26%) and Turkana (23%) remains quite low while open defecation remains high, at nearly 70 percent of households (Kenya National Bureau of Statistics, 2019). However, similar to the rest of the country, some gains were made between 2009 and 2019, with Turkana seeing more of an improvement than Samburu (e.g., open defecation dropped by 14% in Turkana and 8% in Samburu; Table 3). Sanitation coverage in Kitui is better (e.g., 68% of households with improved sanitation in 2019), similar to levels within Kenya as a whole (74%) (Kenya National Bureau of Statistics, 2019). However, while all of Kitui is reported to be ODF certified (defined in Kenya as all households using a latrine with no active open defecation sites (GoK, 2012)), census statistics indicate that nearly 10 percent of households still practice open defecation. WASHPaLS’ field work in difficult-to-reach communities confirmed that open defecation persists, at least in these more challenging contexts.

CLTS implementation progress is also different across these three counties, with Kitui reported to be fully ODF, while triggering and certification is ongoing in Samburu and Turkana. According to Kenya’s CLTS Real-Time Monitoring System (RTMS), approximately half of *Vijiji* (sub-villages, the primary unit for CLTS implementation) in Samburu and Turkana have been triggered, while substantially fewer have achieved ODF certification, particularly in Samburu (Table 3). However, the team’s findings from the villages visited, along with local Community Health Volunteer (CHV) reports, suggest that there may be some confusion regarding what truly constitutes CLTS triggering and certification. In Kitui, although all villages are recorded as ODF certified in Kenya’s CLTS RTMS, CHVs in some villages reported never having been formally triggered (discussed further in later sections). WASHPaLS encountered some similar circumstances in Samburu and Turkana, and it is worth noting that some highly nomadic communities in these two counties may not be captured in the CLTS RTMS, given the difficulties associated with tracking these more mobile groups (Randall, 2015). For example, security challenges (often along national or county borders) can constrain where sanitation interventions can occur and implementing partners can operate.

Several partners, such as UNICEF; the USAID Kenya Integrated Water, Sanitation, and Hygiene Project (KIWASH); and the African Medical and Research Foundation (AMREF), have been involved in CLTS implementation across these three counties (Serem, 2012; IFRC, 2018; KIWASH, 2017), with many nongovernmental organizations (NGOs) working in Turkana because of the refugee populations there. While county governments have adopted “no subsidy” policies for sanitation, implementers often used subsidies in the past, and some continue to employ them for sanitation or other projects. As a result, communities come to expect material or monetary aid, whether for water, sanitation, and hygiene (WASH) programs or other types of interventions.

**Table 3. Sanitation status and other characteristics in Samburu, Turkana, and Kitui. In the CLTS RTMS, sub-villages (“Vijiji”) are the primary unit for CLTS implementation.**

County	Population in poverty (%) <sup>a</sup>	Pop. density (per km <sup>2</sup> ) <sup>b</sup>	Open defecation rates (% of HHs) <sup>c</sup>		Improved sanitation coverage (% of HHs) <sup>c</sup>		CLTS triggered (% of Vijiiji) <sup>d</sup>	CLTS certified (% of Vijiiji) <sup>d</sup>
	2017	2019	2009	2019	2009	2019	2021	2021
<b>Samburu</b>	78%	15	73%	66%	19%	26%	50%	2%
<b>Turkana</b>	93%	14	82%	68%	13%	23%	47%	21%
<b>Kitui</b>	62%	37	20%	9%	58%	68%	100%	100%
<b>Kenya</b>	<b>45%</b>	<b>82</b>	<b>14%</b>	<b>7%</b>	<b>65%</b>	<b>74%</b>	<b>45%</b>	<b>24%</b>

<sup>a</sup> Njuguna & Muruka (2017)

<sup>b</sup> Kenya National Bureau of Statistics (2019)

<sup>c</sup> Estimated from Kenya National Bureau of Statistics (2009, 2019)

<sup>d</sup> As of April 12, 2021, according to the Kenya CLTS RTMS (GoK, 2021)

## 2.2 CHARACTERISTICS OF SELECTED VILLAGES

The 17 villages that were selected for field work span fairly large geographic areas in each county. However, it is important to note that these villages do not necessarily provide a representative sample of the entire county, as WASHPaLS focused on depth within villages and was unable to visit certain areas because of security concerns. When selecting villages in collaboration with county officials, the team generally focused efforts on difficult contexts and villages where CLTS implementation has been particularly challenging, although they did seek to include a more successful village in each county for comparison. While the selected villages generally aligned with WASHPaLS' initial set of selection criteria, the team did make slight adjustments based on available information from local officials (more details on village sampling are provided in Appendix A). The team often used CLTS status (e.g., untriggered, triggered, certified) when selecting villages with county officials, but what was observed or reported on the ground did not always agree with Kenya's CLTS RTMS (GoK, 2021). A summary is provided here, with further details on selected villages in Appendix B and representative photographs in Appendix C.

Generally, the five villages visited in Samburu County had a number of similar characteristics, with all practicing transhumance pastoralism and most exhibiting low latrine coverage (Table 4). Villages tend to have low household density, and soil conditions often create difficulties for pit latrine construction and maintenance, either due to difficult excavations (in rocky conditions) or pit collapse (in sandy conditions). Of these five villages, local CHVs reported that two were untriggered, two were "officially" triggered, and one had recently been triggered by an NGO but had not been recorded as such by the government. However, both the officially triggered villages had failed ODF certification.

**Table 4. Characteristics of study villages reported by CHVs and verified by WASHPaLS' rapid observational surveys.**

Village characteristics	Samburu	Turkana	Kitui
Total villages visited	5	7	5
Range of village size (approximate number of households)	80–400	20–100	40–126
Primary mobility category			
Highly nomadic	0	1	0
Transhumance	5	6	0
Agro-pastoralism	0	0	5
CLTS status			
Untriggered (some sensitization)	2 <sup>a</sup>	4 <sup>a</sup>	4 <sup>a,b</sup>
Recently triggered	1 <sup>c</sup>	0	0
Triggered, failed certification	2 <sup>d</sup>	1 <sup>b</sup>	0
Certified, reverted to open defecation	0	1	0
Certified, maintaining ODF status	0	1	1

Village characteristics	Samburu	Turkana	Kitui
Sanitation conditions			
Functional latrine coverage $\leq 35\%$	4	6	2
Functional latrine coverage $\geq 50\%$ <sup>e</sup>	1	1	3
Diarrhea is common	4	4	4
Remoteness			
Close to urban centers (3–20 km)	2	1	4
Far from urban centers (40–200 km)	3	6	1

<sup>a</sup> “Informal” triggering by NGOs may have occurred in some villages.

<sup>b</sup> Recorded as certified in CLTS RTMS.

<sup>c</sup> Not found in CLTS Database.

<sup>d</sup> One recorded as certified in CLTS Database.

<sup>e</sup> No villages were reported to have 35–50% functional latrine coverage.

The seven Turkana villages were a bit more diverse than those from Samburu. Most are located in remote areas, with one community being a highly nomadic group known as a *Kraal*. In contrast, another village was located fairly close to an urban area and was more settled (though some transhumance pastoralism was still practiced), and these characteristics may play a role in its greater success with regard to ODF achievement and sustainability. Some other villages were extremely remote (up to 200 kilometers from a major urban center). Four villages were reported to be untriggered by local CHVs, one village was triggered but failed ODF certification, while another was ODF certified but had reverted to significant levels of non-functional latrines and open defecation. Finally, one village was certified and has maintained its ODF status (Table 4).

Although CLTS implementation in Kitui County is more widespread, the team found some villages in more remote areas where latrine coverage remains fairly low. Residents of these villages tend to practice agro-pastoralism with small numbers of livestock, and household density was low. These remote communities are generally dynamic, evolving as new families arrive seeking safety. These frequent changes can contribute to lower levels of latrine coverage and social cohesion.

WASHPaLS did note some discrepancies between the CLTS status reported by local CHVs and the data available in Kenya’s CLTS RTMS (according to a full download accessed in February 2021; Table 4). For example, in Samburu and Turkana, CHVs reported that some villages had been triggered but failed to achieve ODF certification, while the database records them as having been certified. Of the five Kitui villages, local CHVs reported that four were untriggered, despite the fact that the CLTS RTMS records all Kitui villages as ODF certified. According to the local CHVs, other sanitation interventions and sensitization efforts had occurred, and sometimes a few village members had attended triggering events in other communities. However, according to CHVs’ perceptions and understanding, these specific villages had not been formally triggered. Additionally, the team was unable to match certain communities with database records (one of these was the highly nomadic *Kraal* in Turkana; see Table B1). WASHPaLS expects that data may be especially sparse for highly mobile communities, which are likely difficult to identify and track (Randall, 2015; Tillett & Jones, 2021).

### 2.3 SUMMARY OF QUALITATIVE DATA COLLECTION

The WASHPaLS team spent two days in each of the villages leading focus group discussions (FGDs), conducting interviews among households and community leaders, and performing a rapid observational survey. In each village, the team completed two FGDs: one among males and one among females, each typically made up of eight to ten participants. WASHPaLS conducted six interviews with households representing different levels of sanitation status (functional latrine, non-functional latrine, or no latrine when various levels existed within the village). On average, they interviewed two community leaders, typically CHVs or Community Health Extension Workers (CHEWs) as they are the most

familiar with sanitation interventions and conditions. The team performed a rapid observational survey in each village with assistance from the CHV, consisting of visiting and observing numerous households within the community to understand such factors as environmental conditions, typical construction materials, household density, and available water sources.

WASHPaLS complemented this village-level data collection with additional key informant interviews (KIIs) among local government officials (typically Public Health Officers [PHOs] at the county and sub-county level) and with implementing partners playing a role in CLTS or other sanitation interventions. Across the three counties, the team completed the following data collection activities:

- 14 KIIs with local government officials
- 10 KIIs with implementing partners
- 17 rapid observational surveys in selected villages
- 34 interviews with community leaders in selected villages
- 34 FGDs in selected villages
- 96 household interviews in selected villages

Fortunately, COVID-19 did not deter WASHPaLS' data collection efforts. The team took the necessary precautions (e.g., wearing masks, using hand sanitizer frequently) and was often able to conduct FGDs and interviews outdoors. As noted above, the team did avoid certain regions due to security concerns and traveled with security guards when visiting more remote areas of each county. Accordingly, WASHPaLS cautions that the set of study villages does not necessarily provide a fully representative picture of each county.

## **2.4 SUMMARY OF QUALITATIVE DATA ANALYSIS**

With the aid of local translators, the team conducted interviews and FGDs in local languages and transcribed them into English. From the transcriptions, they coded and analyzed the data using the IBM-WASH framework (Dreibelbis et al., 2013) to sort responses according to the dimensions in the IBM-WASH matrix (made up of contextual, psychosocial, and technological dimensions) and to identify patterns and themes across counties and communities. The team used these results to explore constraints related to sanitation adoption (RQ1), define acceptable standards of sanitation in pastoral communities (RQ2), and offer recommendations for how sanitation interventions can be supported and adapted to effectively promote sanitation among pastoralists. WASHPaLS used Nvivo software to support coding and analysis.

## 3.0 FINDINGS

The findings presented here represent the WASHPaLS team’s observations during data collection and the results of the data analysis. The team cites existing literature primarily to show when findings agree with or relate to results from previous work, and they note explicitly when findings appear to show something novel or a departure from previous work.

### 3.1 CONSTRAINTS AND BARRIERS TO LATRINE ADOPTION (RQ 1)

Through analysis of village- and county-level interviews and FGDs, the team identified several constraints on latrine adoption and sanitation programming. Generally, the team categorized these into the three dimensions of the IBM-WASH framework (contextual, psychosocial, technological). WASHPaLS also incorporated a fourth category specifically related to the enabling environment, as interviews with local government officials and CHVs revealed a number of challenges concerning local government policies, funding, capacity, and structure. The team did identify constraints common across all counties and mobility levels, including water scarcity, a lack of accessible and affordable appropriate materials, and limited willingness to share latrines, which generally agreed with the findings of existing literature (Table 1), but they also noted numerous issues that were especially prominent among villages in certain mobility categories or in specific counties (Table 5).

Among the study villages characterized by partial mobility (often located in Samburu), current latrines do not align with cultural beliefs against toilet sharing among relatives or neighbors (e.g., in-laws may not share a facility, or men may not share with women) and against storing feces in a housing structure (which is how some people see latrines). Latrines also do not account for beliefs concerning the defecation habits of certain groups (e.g., *morans*), who must not be seen defecating or entering a toilet. In Turkana, similar cultural beliefs play a role among more mobile populations, but especially in communities with high poverty levels, respondents noted that providing for basic needs (e.g., food, water) takes precedence over sanitation infrastructure (Rama, 2016), and these considerations seemed to override any other potential constraints. The high number of NGO interventions and sensitization efforts in Turkana county may also be reducing the importance of cultural barriers. In Kitui, where village residents were commonly practicing agro-pastoralism, the team saw substantial environmental challenges (e.g., difficult soil conditions, water scarcity), reducing the effectiveness of latrine structures built using locally available materials. Some communities were also located in more remote areas of the county and were newly formed due to migration, relocation, and insecurity associated with bordering counties. Implementers have difficulty reaching these locations, and communities exhibit varying levels of social cohesion because of their dynamic nature. Further details are provided below.

**Table 5. Constraints on latrine adoption and sanitation programming. Points in italics represent findings that, to the team’s knowledge, have not been identified in previous work.**

County	Dimension			
	Contextual	Psychosocial	Technological	Enabling environment
<b>General</b>	<ul style="list-style-type: none"> <li>Area is characterized by water scarcity.</li> <li>Low density affects behaviors and reduces the perceived risk of open defecation</li> </ul>	<ul style="list-style-type: none"> <li>Dynamic communities (i.e., new or frequently changing in composition) impact social cohesion.</li> <li>Willingness to share latrines with neighbors is limited.</li> </ul>	<ul style="list-style-type: none"> <li>There is a lack of access to and unaffordability of appropriate materials.</li> <li>Collapsing latrines (due to wind, rain, soil, termites) are</li> </ul>	<ul style="list-style-type: none"> <li>Funding constraints limit capacity to monitor CLTS progress.</li> <li>Presence of untrained staff and lack of coordination.</li> </ul>

County	Dimension			
	Contextual	Psychosocial	Technological	Enabling environment
	<ul style="list-style-type: none"> <li>Area is characterized by insecurity.</li> </ul>	<ul style="list-style-type: none"> <li>Perceived value of latrine relative to other needs is low.</li> <li>Some community resistance to shaming exists.</li> </ul>	demotivating and costly.	<ul style="list-style-type: none"> <li>Previous subsidy programs cause challenges for coordination among government actors and implementing partners.</li> </ul>
<b>Samburu study villages</b> (mostly transhumance or semi-settled communities)	<ul style="list-style-type: none"> <li>Presence of land ownership disputes.</li> <li>Households categorized as partially mobile/ presence of temporary housing.</li> <li>There are episodes of heavy rainfall and flooding.</li> <li>There is limited access to skilled labor/artisans.</li> <li>Rocky soils make for difficult excavation.</li> </ul>	<ul style="list-style-type: none"> <li>People open defecate far away from villages, causing fewer opportunities for shame.</li> <li>There is a belief that feces should not be indoors.</li> <li>People experience challenges sharing among in-laws, and between men and women.</li> <li>Beliefs about <i>morans</i> limit their latrine use.</li> <li>Communities are accustomed to receiving aid and expect support.</li> <li>New community members come from areas without latrines.</li> </ul>	<ul style="list-style-type: none"> <li>Temporary latrines (i.e., built from local, non-durable materials) are susceptible to extreme weather.</li> <li>Partially damaged latrines are unlikely to be used due to a lack of privacy.</li> <li>High costs are the main reason many households (HHs) do not construct or rebuild latrines.</li> <li>Pit excavation cost is high (due to rocky soils).</li> </ul>	<ul style="list-style-type: none"> <li>There is no county-specific policy on sanitation.</li> <li>There are no dedicated funds to facilitate CLTS activities (any funds come from a general pool).</li> <li><i>County officials typically do not try to trigger satellite camps or highly nomadic communities.</i></li> </ul>
<b>Turkana study villages</b> (mostly semi-settled or settled communities, one nomadic community)	<ul style="list-style-type: none"> <li>Poverty and food scarcity mean that basic needs take priority over sanitation.</li> <li>More nomadic communities do not have permanent structures.</li> <li>Some communities move frequently due to insecurity.</li> <li>Rocky and sandy soils and heavy rains cause challenges.</li> </ul>	<ul style="list-style-type: none"> <li>Cultural beliefs limit latrine sharing among more mobile groups.</li> <li>Groups experience fear (collapse) and discomfort with latrines (smell, dirty).</li> <li>Community members are accustomed to receiving aid and therefore expect support.</li> <li>Groups prioritize education above sanitation.</li> </ul>	<ul style="list-style-type: none"> <li>Access to building materials such as cement and iron sheets is especially limited and costly.</li> <li>There is a lack of digging tools and excavation presents challenges.</li> <li>Latrines made with local wood are destroyed by termites.</li> <li>Frequent latrine collapse is demoralizing.</li> </ul>	<ul style="list-style-type: none"> <li>Community health strategy and funds for sanitation exist, but funds have not been allocated carefully.</li> <li><i>Limited funds for CLTS facilitation are not well allocated: CHVs have not been paid for 1 year.</i></li> <li>There is a long history of aid and subsidies (linked with refugees).</li> </ul>
<b>Kitui study villages</b> (mostly settled communities)	<ul style="list-style-type: none"> <li>Nomadic lifestyles are rare.</li> <li><i>Many study communities have been recently settled</i></li> </ul>	<ul style="list-style-type: none"> <li>HHs cannot or are unwilling to share with neighbors.</li> </ul>	<ul style="list-style-type: none"> <li>Most latrines built from local materials only last a few months.</li> </ul>	<ul style="list-style-type: none"> <li><i>Previous governor was engaged in sanitation, but there has been a change in leadership.</i></li> </ul>

County	Dimension			
	Contextual	Psychosocial	Technological	Enabling environment
	<p>or experienced migration.</p> <ul style="list-style-type: none"> <li>Houses are far apart, making open defecation easier.</li> <li>Area experiences instances of heavy rains and has sandy/ loose soils.</li> </ul>	<ul style="list-style-type: none"> <li>Social cohesion is especially variable (dynamic communities).</li> <li>Some HHs will excavate a pit out of pressure from the CHV or PHO, but do not complete the latrine.</li> </ul>	<ul style="list-style-type: none"> <li>Wood slabs are vulnerable to termites.</li> <li>SaTo Pan products are available, but there is low uptake among study communities.</li> </ul>	<ul style="list-style-type: none"> <li>During devolution, some sub-villages were combined into large villages that are difficult to trigger.</li> <li>Regarding sanitation marketing, there is minimal uptake in remote communities.</li> </ul>

### 3.1.1 CONTEXTUAL CONSTRAINTS

#### **Nomadic lifestyles and low population densities hinder the motivation for latrine building.**

Communities, households, and individuals with higher levels of mobility generally see less tangible value in permanent latrine structures built in a single location. Among partially mobile communities where only certain household members move with livestock, those who move (e.g., men, *morans*) are most likely to express this view: “When you consider the time required to build a proper house and a latrine, you will prioritize how to look after the livestock, which will be moved several times in a year, rather than a settled lifestyle. When you move and you have built a latrine, people who are left behind will use the latrine and most probably destroy the latrine. Therefore, you do not need to have the latrine” (Male FGD participant, Samburu County). Additionally, low household densities offer large open spaces where individuals can defecate in the bush with a reasonable level of privacy, reducing the perceived need for a private latrine: “The scattered nature of our families is also a reason. People are in remote areas and have no neighbors with different latrines to emulate. There is also availability of bushes where people can hide and defecate without being seen” (Male FGD participant, Kitui County). In a few other contexts, the WASHPaLS team found evidence of the opposite: households in settled and partially mobile communities might copy neighbors who were digging latrine pits. However, in nomadic settings and locations where households are far apart (and neighbors are not regularly seen), emulating those who have installed latrines is less of a possibility. Particularly for nomadic populations that frequently move throughout arid, low-density areas, the public health risks associated with open defecation are also likely to be lower than for more settled communities. Additionally, the lack of motivation to construct latrines in these contexts may be compounded by prior sanitation programs that have set a general precedent for subsidized latrine construction across various types of communities, despite current government policies against sanitation subsidies.

#### **Though women are more likely to adopt latrines, men are often the decision-makers.**

Gender roles and decision-making structures can also play a role in latrine construction and use. Women tend to be the ones encouraging latrine adoption and use, and among partially mobile communities in Turkana and Samburu, they are often responsible for building the facility. However, men are typically the final decision-makers in the household, and they see less need for a latrine. Men are the ones who commonly move with livestock and they are accustomed to open defecation during these times. Therefore, they see less value in a permanent structure located at the homestead. These trends suggest that it can be particularly important to reach men in sensitization and education efforts. In addition, highly gendered household tasks, such as water collection (that requires long travel distances and wait times), leave women with limited time to participate in latrine construction (Kariuki et al., 2012).

**Soil conditions result in challenges with pit excavation and pit collapse.** In some areas, rocky soils also make pit excavation difficult (Thitu & Augustine, 2017), and there is limited access to skilled labor and artisans with the tools and experience to handle such challenges: “We stopped [excavating the pit] because the soil was rocky, and we also did not have money to pay someone to dig the latrine” (Household interview, without latrine, Samburu County). Unstable soils, combined with heavy rains and flooding during wet seasons, often cause pit collapse (Karanja et al., 2018; Thitu & Augustine, 2017). The WASHPaLS team saw these conditions in study villages in all three counties. The frequent and repeated collapse of latrines caused by these conditions (especially when local materials are used for construction) becomes demoralizing and, over time, reduces the likelihood of rebuilding (Munai et al., 2018). However, the team did find a few villages where rebuilding was common, often due to high levels of county government and/or CHV engagement.

**Other basic needs take priority over sanitation, particularly for highly nomadic populations.** Poverty, food insecurity, and water scarcity are characteristic of many rural pastoral households (Balfour et al., 2020), and many communities engage in frequent movement to provide themselves and their livestock with basic necessities. Movement of more nomadic communities is also often linked with avoiding unsafe areas. The team observed the most severe challenges related to poverty and a lack of basic needs in Turkana villages, where these concerns take precedence over the installation of sanitation infrastructure (Rama, 2016). “The benefits of these toilets are that they make the nation developed, but here we have shortage of water. Latrines need water, issues of hygiene need water, and your body depends on water; if there is no water and you have a toilet—if you have a visitor and children are there—how will you clean the latrine without water?” (Male FGD participant, Turkana County). Even among more settled communities in Turkana, the lack of basic household needs and poverty were still barriers to latrine adoption.

**Remoteness and insecurity limit the locations that sanitation programs, including CLTS, are able to reach.** Some county officials in Samburu and Turkana reported that they and implementing partners tend to avoid communities that are highly nomadic or located in insecure areas, due to the difficulties involved. Nomadic lifestyles are rare in Kitui, but some of the rural, settled, agro-pastoral communities WASHPaLS visited had recently expanded due to migration—either because larger plot sizes attracted them to the area (linked with land demarcation) or because of security concerns where people lived previously. While Kitui is classified as a semi-arid county overall, some of the more remote and dynamic communities visited were located in more marginal and arid areas. According to Kitui’s CLTS Coordinator, approximately 200 villages in the county are similar to the remote, dynamic ones the team visited, and he confirmed that CLTS messaging and implementation had not yet reached many of these communities. To the team’s knowledge, these communities have not been studied previously, and untriggered status is not reflected in Kenya’s CLTS RTMS (GoK, 2021).

### 3.1.2 PSYCHOSOCIAL CONSTRAINTS

**People dislike sharing latrines, and social cohesion is low.** People are often unwilling to share latrines with neighbors: “We share when you are a visitor to my family but coming to my household solely to use my latrine is very wrong and it is not done here. I can even [scold] that person” (Male FGD participant, Kitui County). The variable levels of social cohesion among Kitui study communities (related to their dynamic nature) seem to play a large role in this unwillingness to share latrines. Sharing may also be impractical in some cases when households are surrounded by bushes and separated by large distances. Among study villages with low latrine coverage, it was also uncommon for households to support neighbors with latrine construction. Generally, study communities tend to be somewhat dynamic, with frequent migration due to security concerns, land tenure disputes, and seasonal movement with livestock. This ever-changing community composition can negatively impact social cohesion and could limit the effectiveness of approaches like CLTS that rely on collective action.

**Sociocultural beliefs related to latrine sharing and the defecation habits of certain groups are barriers to latrine construction and use, particularly among communities with higher levels of mobility.** Certain beliefs state that defecation should not occur within a house, and some people see a latrine structure in this way. When a household does build a latrine, it may not be acceptable for every household member to use it (SNV, 2020). It is often seen as taboo for certain in-laws (e.g., a man’s mother-in-law) to share the same latrine with the man, and more generally, men might not want to share latrines with women: *“It’s very shameful for men to share a toilet with women because they should not see sanitary pads inside the toilet. Sometimes someone can just drop a sanitary pad on the slab and that is bad if men see them”* (Female FGD participant, Samburu County). Finally, specific beliefs related to *morans* often hinder their use of latrines. *Morans* often move with livestock, but there are taboos against anyone (especially women) discussing or witnessing the eating or defecation habits of *morans* even in the community, which limits any sensitization efforts. Because others are not supposed to see *morans* going to defecate, they often openly defecate far from households in the community. According to one woman, *“It is also shameful for a woman to see a moran going or coming out of the toilet ... It is believed morans do not defecate”* (Female FGD participant, Samburu County). However, many communities, especially those that are partially or fully settled, acknowledged that these cultural beliefs are changing over time as people send their children to school and become more educated: *“This cultural belief is observed by those who are not educated and do not understand about the latrine, because they see it as a house and considered it to be a house”* (Male FGD participant, Samburu County). Among more settled study communities, these taboos did not seem to be as prevalent, but people did express fear related to the possibility of latrine collapse (while someone is using it) and concerns about smells and cleanliness.

### 3.1.3 TECHNOLOGICAL CONSTRAINTS

**Generally, households are not satisfied with their existing sanitation facilities, which are prone to collapse.** Current latrines typically are not sufficiently durable for the difficult environmental contexts in these regions. Latrines, especially those made using local materials, frequently collapse (in some cases, they only last a few months) due to unstable soils, heavy rains, high winds, or termites (e.g., in latrines with wood slabs) (Karanja et al., 2018). Some respondents (particularly in partially mobile communities) noted that even facilities that are only partially damaged might not be used because they do not provide adequate privacy, or they increase fears of collapse. Repeated collapse is demotivating and becomes quite costly over time.

**Higher-quality sanitation is largely unaffordable.** Across all three counties, respondents mentioned the high costs of pit excavation and latrine construction: *“We don’t have toilets because we don’t have the financial ability to purchase materials required to put up a good toilet. We have other financial responsibilities such as school fees and food, and we try to minimize sale of livestock often since it’s our main source of income”* (Female FGD participant, Samburu County). In rocky soils, pit excavation might cost a household 1,000 to 2,000 KES (approximately 10 to 20 USD) per foot. For a latrine that is at five to seven feet deep, excavation can represent a major portion of the total latrine cost. Respondents estimated that a “permanent” latrine structure (built using materials such as cement blocks, bricks, iron sheets, and concrete slabs) can cost 20,000–50,000 KES (200–500 USD), while a “temporary” latrine (built using local materials) might cost 10,000 KES (100 USD). For comparison, previous research has estimated that rural households in Kenya might consider a price up to 140 USD as being affordable (Otieno et al., 2013). Other research focusing on three Kenyan cities estimated that the cost of constructing a lined pit latrine is between 854 and 1,041 USD, while households are willing to pay an average of 210–367 USD (Delaire et al., 2021). The WASHPaLS team would expect households’ ability to pay to be considerably lower in rural areas of the ASALs.

### 3.1.4 CONSTRAINTS RELATED TO THE ENABLING ENVIRONMENT

**County-level funding for sanitation programming, particularly in nomadic communities, is limited.** Officials in Samburu report that there is no county-specific sanitation plan and no dedicated funding to facilitate CLTS activities (they must pull from more general health funding), limiting what county officials are able to do even if they are motivated to work toward improving sanitation. “During implementation, there is concern of inadequate budgets and low staff levels not matching with the population size and acreage of the county. The county size is 21,119 km<sup>2</sup>. The number of staff vs. population indicates a huge gap that needs to be addressed” (Key Informant Interview, Samburu County Official). These officials note that they typically cannot trigger highly nomadic communities and satellite camps (where herders stay temporarily during dry months), as these are more difficult contexts in which to work. In Turkana, available funding to facilitate CLTS is limited, and CHVs (who are supposed to receive monthly stipends for their work) have not been paid for approximately one year. Generally, the limited funding available can result in rigid and rushed interventions with little flexibility for the specific characteristics of a given community. As a counterexample, Kitui officials reported that the county had allocated an estimated 78 million KES (780,000 USD) to be used specifically for CHV stipends, allowing them to support 2,100 CHVs for approximately 18 months (with stipends of 2,000 KES [20 USD] per month) during their efforts to achieve ODF across the 4,931 sub-villages that exist within the county. This dedicated funding enabled monitoring and follow-up activities to track community progress toward ODF status.

**Capacity for monitoring and follow-up by community- and county-level staff is limited.** Low capacity and funding levels also limit the ability of local staff to conduct follow-ups and monitoring, document learnings, and train staff and the degree to which staff can coordinate with implementing partners (e.g., related to how CLTS is implemented and enforcement of no-subsidy policies). Disparities in staff training and coordination can lead to differences in people’s understanding of CLTS (e.g., specific triggering activities), uncertainties regarding the CLTS status of communities, and discrepancies in reporting. Additionally, Kitui officials noted that some sub-villages had been combined to form much larger administrative units during the devolution process, and these larger groups of households are more difficult to trigger (Stuart et al., 2021), due in part to the large amount of monitoring and follow-up needed.

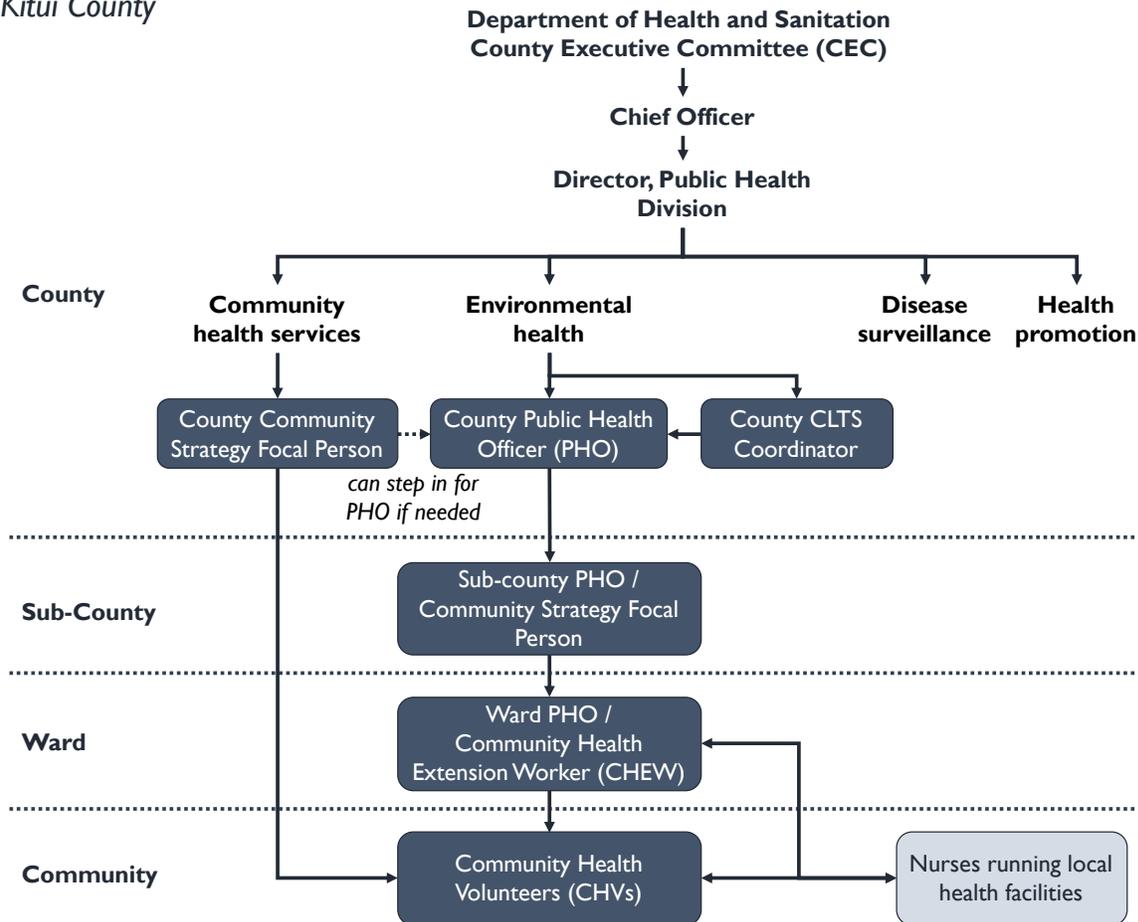
**Some contexts lack leadership that prioritizes sanitation, while others push for progress with aggressive approaches that do not sustain the desired behavior change.** If there are no personnel dedicated to supporting sanitation at the highest levels of the county government, progress can be difficult. These individuals set priorities for the county and have some control over where funding is allocated. As an example of the impact of top-level leadership, the previous county governor in Kitui made sanitation a key priority, ensuring that funding was available and that the government was engaged in local efforts to eliminate open defecation and encourage latrine adoption. While other sanitation champions continue to work within various levels of the county government, that top-level prioritization has changed with the current office holder, and now less funding is available for sanitation activities. At the community level, some people in more settled communities reported aggressive tactics from local CHVs or PHOs, who might threaten to jail someone without a latrine, but this pressure does not result in sustained motivation to complete the latrine. In other research, the team found that traditional leaders in Cambodia who take a more casual approach toward persuading households to construct latrines were more successful, and by-laws with consequences enforced by traditional leaders were widely accepted by community members in Ghana. Critically, without support from multiple actors internal and external to the community (e.g., follow-up from CLTS facilitators, active traditional leaders), sustained success is difficult to achieve (Tribbe et al., n.d.).

**County government frameworks for CLTS reporting and implementation can be complex and unclear.** Through interviews with government officials in each county, the WASHPaLS team learned about differences in the structures used to implement and report on CLTS programming, from

the upper levels of the county government to the village-level staff working within specific communities. The team does not know the full extent to which individual county governments are able to alter the structure of their departments and personnel under devolution, but the differences observed suggest that they do have a certain degree of latitude. Generally, the team found that the reporting structure is well coordinated and clear in Kitui, where the environmental health department (containing public health officers) and the community health services department have implemented CLTS collaboratively. Certain roles within these two departments have been consolidated, being performed by single individuals, which limits confusion and complexity and improves coordination (Figure 2). In contrast, structures are more complex in Samburu and Turkana, where public health departments are primarily responsible for implementation and community health officers operate in parallel, with limited coordination. In Samburu, the formal structure differs from the reality on the ground. The public health and community health departments are meant to implement CLTS collaboratively, but in reality, they conduct separate, independent activities in parallel. Because local CHVs and CHEWs tend to work more closely with the community health department, the PHOs within the public health department can become sidelined in the CLTS process, not being aware of planned or ongoing activities. In Turkana, there does appear to be a clear line of reporting (in principle) from the community level to the county-level Directors of WASH and Public Health. However, this line involves a number of officials operating in different sub-departments, some of which are not directly connected to WASH programming. This level of complexity can hinder reporting and implementation processes, leading to inconsistencies or discrepancies when tracking CLTS progress. Additionally, supervisors may not be aware of all activities being undertaken by their subordinates, and reports made by subordinates may not reach the correct individuals higher up in the structure.

## Hierarchical Framework for CLTS Reporting

Kitui County



**Figure 2. Framework for CLTS reporting in Kitui. Dark blue shading indicates actors directly involved in CLTS reporting and implementation at multiple levels, while whitelike shading indicates upper-level management overseeing all health-related activities in the county.**

### 3.2 ACCEPTABLE SANITATION STANDARDS (RQ 2)

In this section, the WASHPaLS team presents a few different approaches to identifying what pastoral communities consider to be acceptable standards for sanitation. First, the team considers direct statements from respondents in different types of communities (semi-settled/settled, and nomadic) to understand what they feel appropriate latrines should include or whether they perceive open defecation as an acceptable sanitation strategy. Second, the team records specific reasons why respondents stated they would be interested in adopting latrines (or what reasons led to adopt latrines they already have). Third, WASHPaLS considers direct suggestions from respondents on how communities could improve sanitation and reach acceptable standards. Section 3.3 then presents three case studies of villages that have seen greater success and consider the key factors at play in each circumstance.

#### 3.2.1 SEMI-SETTLED AND SETTLED: DURABLE, PRIVATE, AND APPROPRIATE FACILITIES

**Semi-settled and settled populations want durable latrine structures.** Despite the common programmatic emphasis on local materials, nearly all respondents indicated a preference for durable technologies constructed from materials that would typically be purchased in an urban center. In

Samburu study villages, households discussed preferences for latrines with concrete slabs, iron sheets (walls and roof), and a vent pipe. Respondents in Turkana and Kitui study villages prefer cement/iron mesh slabs, brick or cement block walls, and iron sheet roofing. These preferences for durable materials align with previous findings from research conducted in other pastoral and agrarian communities across rural Kenya (Otieno et al., 2013). In all cases, respondents indicated a desire for strong doors that would ensure high levels of privacy and not damage the superstructure. Respondents also suggested two-door designs in cases when sharing between men and women, or with in-laws, is a concern. Given the unstable soil conditions common in many villages, households often discussed the importance of including a lined pit (referred to as “building from the bottom up”). Some households also mentioned the importance of including handwashing facilities with soap (in particular, this sentiment was expressed in an FGD from the second village in Turkana, which is currently maintaining its ODF status).

**The exact location of latrines is important for durability, privacy, and safety.** Appropriate siting is also a key concern to provide sufficient levels of privacy, prevent flooding, and ensure prevailing winds carry smells away from the house. According to a male FGD participant in Samburu, *“Again in regard to the location of the latrine, it should be built in a hidden area within the homestead so that someone is not seeing when someone is going to the toilet”* (Male FGD participant, Samburu County). Others (e.g., among Turkana study villages) feel the latrine should be located outside the compound. With regard to safety, people feel latrines should be designed and sited to minimize the risk of children or livestock falling into the pit.

**SaTo Pans have been introduced, but there is limited uptake.** Households in Kitui are aware of SaTo Pans (plastic toilet pans designed to provide a seal between the latrine pit and outside environment) becoming available and see them as being easy to clean. A separate product (the SaTo Stool) is considered to be a good option for elderly individuals. However, uptake of these products was low in the team’s remote study communities. Implementing partners reported that although SaTo Pans were being purchased, installation is a challenge due to lack of trained artisans.

### 3.2.2 NOMADIC: OPEN DEFECATION IS PERCEIVED AS THE BEST OPTION

**There is limited interest in latrine facilities among nomadic populations who generally perceive open defecation to be the best option for their mobile lifestyle.** Generally, all households who grazed cattle away from their villages for extended periods practiced open defecation during these times, including those with latrines at their homestead in the settled village. Because these households move frequently and do not have permanent structures in the remote areas where they are grazing cattle, they are not interested in carrying additional materials for constructing temporary latrines (a strategy suggested by individuals in more settled communities). People would consider installing a latrine if they could transition to a more settled lifestyle. *“A latrine is not something I can carry around when moving from one place to another. If you want me to have a latrine, then build a permanent house for me and relocate me to a different area”* (Female Focus Group Discussion participant, highly nomadic community, , Turkana County). Additionally, given that there is plenty of space to offer privacy, they do not find a latrine necessary. Some semi-settled communities offered suggestions for nomadic households and individuals, such as: public latrines in areas where cattle are grazed (forests or near water bodies) promoting the “cat” method (i.e., digging holes and burying feces), or provision of iron sheeting for temporary latrines. Providing mobile herders with dedicated sanitation facilities at grazing locations could have the additional advantage of providing a high level of privacy, far removed from the village where others might see someone entering a latrine. However, few of these suggestions were validated by nomadic households themselves, who expressed concerns regarding the maintenance and durability of dedicated facilities in grazing areas.

### 3.2.3 REASONS FOR ADOPTING LATRINES

**People adopt latrines because of privacy, safety, and pride.** In general, many respondents demonstrated a basic understanding of WASH knowledge, specifically with regard to the health risks associated with open defecation. However, as described previously, the team’s findings suggest that open defecation remains common in many communities, and there are numerous constraints limiting latrine uptake. Accordingly, it may be worthwhile to consider and incorporate other reasons for adopting latrines when sensitizing communities. Despite the various constraints enumerated in Section 3.1, many people do want to use latrines. Respondents that the team interviewed emphasized the importance of privacy and safety (from wild animals or from crime), noting that well-built latrines offer a private place to defecate without having to walk long distances. Pride is another key consideration, particularly when a household receives visitors from outside the community. Having a latrine allows them to feel a sense of pride, because they will not be forced to ask visitors to walk long distances and open defecate. *“If a visitor comes from Nairobi, they don’t know how to go and defecate in the bush. Therefore, you have to have a latrine in your homestead, and when the visitors come they feel comfortable and safe”* (Household interview, Samburu County). This sense of pride is also linked to land tenure. For example, current efforts to transition from communal land to an individual land ownership model are underway in Samburu, while land demarcation is largely complete in Kitui. The status and personal satisfaction that comes with legally owning a piece of land can lead people to want to develop that land by installing infrastructure such as a latrine. Where land has not yet been officially demarcated but the process is underway, households may prefer to wait to construct latrines until the process has been completed and they feel confident in the legal status of their residence.

**Some pastoralist populations believe that sanitation facilities have the potential to increase the safety of livestock, which have high perceived value.** Of particular interest is the fact that pastoralists often see livestock as having high inherent value or as representing a type of wealth that surpasses their strict monetary value. As a result, people whose wealth consists primarily of livestock herds may be unwilling to sell one or more animals to construct a latrine. One relevant strategy could be to promote latrines as providing safety for livestock. Particularly in Samburu, respondents noted concern related to livestock eating or coming into contact with human feces: *“I think livestock get sick by eating fecal matter left open after open defecation. Having a latrine reduces incidences of animals getting sick”* (Female household interviewee, Samburu County). Although the WASHPaLS team is not aware of specific evidence confirming that livestock can contract diseases from consuming human feces, promoting latrines as a physical barrier between livestock and human feces may be a worthwhile strategy to capitalize on the perceived value of livestock. Similarly, people expressed concern about livestock falling into latrines, so it is important to ensure that latrine designs will minimize these risks. Alternatively, education efforts could be developed to promote latrines as a different type of value from livestock, perhaps one that can reduce a household’s health care costs (and the need to sell livestock to cover these costs).

**Exposure to latrines in urban areas has encouraged latrine adoption.** Respondents also noted that exposure to other communities and ideas has increased their interest in latrines. People experience modern latrines while visiting towns or attending school, and they bring these ideas with them when they return to their households and communities. *“Youth who are educated and have jobs [outside the community] are also coming back to help build latrines for their parents”* (Community Leader, Samburu County). Similarly, relatives or friends from other areas might visit a family and encourage them to build a latrine: *“I saw it as a good thing; even when you have a visitor, the first thing he or she asks is about the toilet. Will you let your visitor go to the bush at 10:00 pm at night?”* (Male Focus Group Discussion participant, Turkana County).

### 3.2.4 SUGGESTIONS FROM COMMUNITIES ON HOW TO IMPROVE SANITATION

**Education.** With regard to behavior change, many people feel that cultural beliefs constraining latrine adoption are evolving, and that education (which is highly valued) combined with latrine sensitization efforts will help to overcome remaining cultural barriers. For more nomadic populations, sensitization efforts can specifically target individual groups within a community. For example, peer-to-peer education for *morans* could allow those who are older, more respected, and/or more educated to provide tailored messaging related to latrine use. This type of strategy may be especially necessary for *morans*, as other members of the community may feel unable to discuss such topics with them (due to cultural norms).

**Community leadership.** To ensure that sensitization efforts are conscious of any special local issues or difficulties, community leaders (i.e., chiefs, village elders) can be involved in the process, both to inform implementing organizations before programming and to participate directly in activities. Community leaders can construct their own toilets as examples to the rest of the community. As an additional approach to sensitization, a community can also develop by-laws to restrict open defecation or require new households to construct latrines when they arrive. Some communities already have such by-laws and enforcement mechanisms (e.g., requiring someone caught open defecating to carry the feces to a latrine), and they have seen success in using them. Other communities have similar considerations in place to regulate cattle grazing, providing a foundation to adapt and use for sanitation.

**Financial support.** Given the high poverty levels of communities and the need for durable latrine structures to handle challenging environmental conditions, many respondents suggest that some form of support is necessary. People typically understand what is required (materials, skilled labor) to install a more permanent toilet, and they want to have greater access to (or be given) the appropriate items. Demonstration facilities that model suitable construction materials and techniques are also desired. These could, for example, be installed in local institutions (e.g., school, health center) or at the homes of respected leaders. To incentivize latrine construction, respondents suggested offering gifts or financial assistance to households after installing a latrine, while sanitation-focused savings groups can provide an opportunity for members to collectively support one another, constructing one latrine at a time.

### 3.3 CASE STUDIES OF SUCCESS

While high levels of open defecation and limited latrine coverage are characteristic of many communities studied, the WASHPaLS team identified a few that have seen greater success. Generally, these villages typically had highly motivated CHVs and community leaders who were dedicated to improving sanitation conditions, and they also tended to have higher levels of market access (e.g., less than 10 kilometers from an urban center), making it easier to source construction materials and engage with skilled labor for latrine construction. However, the team also found some distinctive characteristics in each village that may have contributed to success. We describe these details below, as this information may offer lessons that can be applied in other communities. Photographs from these villages are included in Appendix C.

### 3.3.1 SAMBURU VILLAGE 1: SUBSIDIES AND HIGH-LEVEL COUNTY ENGAGEMENT

One village in a sandy area of Samburu Central Sub-County was reported to have failed ODF certification, but the team observed that it exhibited relatively good sanitation behaviors. Approximately a quarter of households still practiced open defecation, but most households (50–63%) had functional latrines, with nearly all latrines built from “permanent” materials such as concrete slabs and iron sheets, which are likely less prone to collapse than “temporary” latrines constructed from local materials. Many of these facilities had been constructed with support from the AMREF, which provided cement and iron sheets after a household had excavated a pit and then employed a mason to install the slab and superstructure. While not all households had latrines, many of those who received the subsidy seemed to be using and maintaining their facilities.



Additionally, the county CLTS Coordinator was directly involved in triggering and follow-up activities, and this commitment from the county government likely provided strong additional motivation for households to adopt and use latrines. Generally, this case represents an instance where material subsidies were combined with CLTS’s behavior change messaging and follow-up from multiple levels of the county government. This combination gave households the desire to use latrines, as well as the tools they needed to install appropriate facilities.

### 3.3.2 TURKANA VILLAGE 2: INSTITUTIONAL TRIGGERING, BY-LAWS, AND SHARING



A village in Turkana South Sub-County was the first to be certified in the county and continues to maintain its ODF status. While only 74 percent of households had latrines, no open defecation was occurring because households were willing to share with one another. Most latrines were “permanent,” constructed using concrete slabs, brick or block walls, and iron sheet roofing, while a few are made from local materials. In this village, CLTS implementation began with “institutional triggering,” in which the CHEW (in collaboration with the Fred Hollows Foundation) initially targeted local schools and community leaders. The CHEW selected and trained teachers from different villages, giving them tailored sanitation lessons to teach in schools. After triggering at the school, children became

change agents within the community, promoting latrines to their families and friends. Students were also involved in sanitation promotion through art and drama (e.g., skits, songs, poems). After triggering, households’ willingness to share (and to help poor households build basic latrines) had been encouraged through by-laws against open defecation, which the community developed to arrest or publicly shame those who are found open defecating. Additionally, the community was holding monthly sanitation meetings and village cleanup initiatives. It is also worth noting that this village had access to livelihood opportunities (e.g., nearby oil exploration) that were not available in other Turkana villages, and these improved economic conditions may have also contributed to households’ ability and willingness to pay for constructing latrines. Generally, this case may involve fewer contextual challenges than other areas of the county (e.g., greater livelihood opportunities due to local oil exploration and a nearby urban center), but the development of local institutions (school and community leader triggering, community by-laws, monthly sanitation meetings, and village cleanups) also contributed to the village’s success.

### 3.3.3 KITUI VILLAGE I: HOUSEHOLD TRIGGERING AND GOVERNMENT ENGAGEMENT

One village in Kitui Rural Sub-County was also the first to be certified in its county and was maintaining its ODF status. In this case, in contrast to the typical practice of starting triggering at the community or institutional level, triggering began with individual households (i.e., each household would be made aware of open feces in or near their compound). Community triggering followed and also involved targeted sensitization of children in schools (similar to the Turkana case). Local CHVs followed up with households and were directly incentivized by the government to assist vulnerable households with latrine construction (i.e., a CHV received 2,500 KES [25 USD] after building a latrine for a vulnerable household). The county governor (who has since left office) also demonstrated high levels of county government support and engagement by being present at the community's certification celebration. Many members of the community remember and are proud of this fact, and it provides motivation for them to rebuild latrines if they collapse. Generally, this case involves more intensive activities in the early parts of CLTS implementation (e.g., household triggering, CHV incentives), but these activities, coupled with political goodwill from the previous county government, seem to have increased the sustainability of latrine use in this community.



## 4.0 RECOMMENDATIONS (RQ 3)

The WASHPaLS team's analysis explored the characteristics of pastoral communities, the constraints that limit latrine adoption and the effectiveness of sanitation programming (RQ 1), and opportunities for promoting and implementing sanitation in acceptable and appropriate ways (RQ 2). Based on these findings, the team developed recommendations on potential adaptations to address the challenges in pastoral communities within the ASALs of Kenya. These recommendations fall into two categories: (1) strengthening the enabling environment for sanitation programming, and (2) tailoring implementation strategies to better address the specific needs, concerns, and barriers that exist within pastoral communities. A central recommendation involves a concept for a new and easily implementable questionnaire to aid in contextual analysis of pastoral communities during pre-triggering. Implementers can use such a questionnaire prior to initiating a sanitation intervention to establish an understanding of the key characteristics that may affect sanitation in a particular community, leading to specific tailored strategies that can overcome constraints and capitalize on opportunities. The set of questions and illustrations of tailored implementation approaches provided here offer a starting point that can be refined through additional research and piloting.

### 4.1 ENABLING ENVIRONMENT: RECOMMENDATIONS FOR GOVERNMENT

The Government of Kenya has prioritized sanitation in the ASALs through its Vision 2030 Development Strategy for ASALs (Government of Kenya, 2012), which includes a policy focus on pastoralism. Kenya's constitution, adopted in 2010, also committed to investing in improved sanitation access in pastoralist areas within the ASALs (Odhiambo, 2013). Currently, county governments are responsible for delivering public services such as sanitation, but reduction of open defecation has become a relatively low priority due to competing concerns such as drought resilience (Karanja et al., 2018). Additionally, Axweso (2011) has argued that pastoralists have been sidelined in decision-making processes, resulting in chronic under-investment in pastoralist communities. These concerns, combined with institutional challenges identified during the study, suggest a need for stronger enabling environments within county governments to support partners in developing and implementing appropriate intervention strategies. Recommendations that may provide a starting place for county governments to strengthen the enabling environment are provided below.

**Clarify and consolidate government structures to strengthen sanitation reporting and implementation.** An important first step in ensuring effective support and monitoring of sanitation programming involves developing reporting and implementation structures that are clear and streamlined. All three counties have existing structures in place, but their effectiveness varies. Generally, as the structure becomes more complex, involving individuals from multiple departments and uncoordinated activities operating in parallel, discrepancies can arise in monitoring and documentation, duplication of efforts can occur, roles and responsibilities can become confused or ill-defined, and high-level actors may not be aware of important developments on the ground. These issues can lead to inconsistent program implementation, especially if different contact points in the local government have different conceptions of CLTS programming and are not coordinating with one another. Additionally, the structures that develop in practice may not align with the formal frameworks that have been defined on paper (as was seen in Samburu). Kitui's approach of consolidating the public health and community health divisions to jointly implement and oversee CLTS activities seems to have worked relatively well, and other counties may consider learning from this strategy to strengthen the overall structure and ensure that at least one department has sanitation as a core aspect of its mission. Furthermore, with respect to sanitation programming, each actor's specific role should be clearly defined, especially when someone working at the community level reports to multiple individuals, to ensure all parties are aware of conditions on the ground and how to report any challenges or successes.

A good starting place to build toward these changes may be to map the relevant actors across multiple levels (as presented in Appendix D) and precisely define each actor's role within sanitation programming. More broadly, Kenya's Public Service Commission has issued guidance on the design of public sector organizational structures (Government of Kenya, 2015), which noted similar challenges throughout the government such as functional overlaps, duplication of roles, and undefined responsibilities. The guidelines emphasize mapping what is currently in place, identifying strengths and weaknesses with respect to achieving priorities and goals, and revising the structure with stakeholders to remove redundancy, facilitate effective communication, and reflect the overarching strategy for meeting objectives (Government of Kenya, 2015). Coordination and learning, both within and across counties, can provide avenues for identifying structures and strategies that have been successful in other departments or contexts, while still allowing individual county governments the freedom to craft an approach that will work for them. In addition to strengthening programming, these measures may also help to minimize discrepancies in reporting (e.g., observed when comparing local perceptions of CLTS status to what is recorded in the national online database) and promote effective documentation of lessons learned.

**Identify, engage with, incentivize, and support committed sanitation champions.** In many contexts, the progress and success of CLTS implementation have been connected with the presence and engagement of sanitation champions, both in and out of government (Chambers, 2009; Venkataramanan et al., 2018). Within each county structure, identifying one or more individuals who are especially committed to sanitation improvements can be a key factor in ensuring that sanitation programming has continued momentum. (Along with governments, implementers can also benefit from engaging with champions.) At higher levels of the county government, these individuals can act as a keystone within the structure, continuing to make progress despite changes in leadership or available funding. At the community level, local health workers who are particularly dedicated to sanitation improvement can often find creative ways to promote latrine adoption and sustained use. A strong reporting structure can ensure others learn from these experiences, while programs that provide direct incentives for CHVs who are able to trigger and certify villages (and sustain ODF status) may engender healthy competition among community-level staff and increase interest in sanitation interventions. In general, sharing performance of neighboring communities, sub-counties, or counties would help promote competition that could engage even high-level officials in sanitation. For example, the CLTS RTMS provides ongoing comparisons of progress toward triggering and ODF certification across counties and sub-counties (GoK, 2021), while stakeholder meetings among government officials and implementing partners can be effective avenues for sharing experiences, success stories, and ideas for addressing common challenges. The WASHPaLS team was able to attend a few meetings in Turkana initiated by donor organizations (e.g., Water Sector Trust Fund), where they heard about funding and implementation challenges that constrain implementers.

**Establish a budget planning process that takes into account all necessary CLTS activities and accounts for the unique challenges of triggering and monitoring hard-to-reach, difficult communities.** CLTS often relies on CHVs to conduct triggering and follow-up with households, and monetary incentives are often required to compensate CHVs for these activities. Because these incentives require funding, it is important to ensure these funds are provided for and effectively allocated. According to county officials, Kitui already has a dedicated budget for sanitation, but in other cases sanitation typically falls under the health department's purview. Functionally, within the health department, funds act as pools for broad programs (e.g., public health and sanitation, which includes all public health activities), and those funds end up being allocated based on the priorities, interests, and experiences of high-level staff. A first step in many cases, then, is to dedicate specific funding for sanitation as a separate line item. After that, the next step would involve developing a detailed sanitation budget to reduce the possibility of misallocation of funds. For example, the team was informed that the Kenya Sanitation and Hygiene Improvement Program has spent 70,000-120,000 KES (700-1,200 USD)

per village in ASAL counties for CLTS activities (excluding administrative costs), compared with 12,000 KES (120 USD) per village in other counties. In a specific county, details can be developed using strategies such as micro-planning, which has been employed in Kitui to estimate specific funding needs for CLTS implementation in individual villages. ASAL counties are likely to have additional cost requirements in order to sufficiently staff and implement CLTS due to remoteness and insecurity levels or costs of goods and services. Using a micro-planning approach would help government staff to think through the costs associated with implementation and staff training in difficult and hard-to-reach contexts before interventions occur. Developing detailed cost estimates in different local contexts, in conjunction with identifying opportunities for cost savings, may be a valuable area of future study.

Detailed sanitation budgets should include transportation funding for follow-up monitoring (post triggering), as this is critical in promoting sustained engagement and helping to address any challenges to latrine adoption that remain after the triggering process. For example, the estimated 78 million KES (780,000 USD) allocated in Kitui provided 2,100 CHVs with stipends of 2,000 KES (20 USD) per month for approximately 18 months. However, as noted above, different counties and sub-counties may have different cost requirements. For example, on average, a sub-village in Turkana contains nearly twice as many people than in Kitui (Kenya National Bureau of Statistics, 2019); moreover, Turkana is one of the largest counties in Kenya, with a land area more than twice that of Kitui (Kenya National Bureau of Statistics, 2019). On a per village basis, Turkana may require levels of transportation and follow-up funding that were higher than those provided in Kitui. Also, additional funding may need to be allocated for contextual and baseline analysis, as well as training of government staff and implementing partners who do not have previous experience with CLTS and behavior change programs, as county officials often find this a challenge during interviews.

As above, sharing experiences across counties, and combining that knowledge with a local understanding of factors such as village size and spatial requirements, could help governments to plan for appropriate levels of funding. It is also possible to use existing datasets to identify local conditions that may influence CLTS program outcomes and requirements (Stuart et al., 2021), based on the understanding developed in this study. Finally, implementing improved budget tracking mechanisms could improve the sector's understanding of how funding for CLTS is utilized in practice, which could inform where budget shortfalls are impacting implementation. Alternatively, adopting performance-based approaches to funding could help ensure budgets and activities are aligned, while also incentivizing key staff involved in implementation.

**Consider assistance programs to ensure that no one is left behind.** Especially in contexts with high levels of poverty and challenging environmental conditions that lead to frequent collapse of latrines made from local materials, it may be particularly valuable to provide guidance and funding for pro-poor initiatives that support construction of more durable latrines by households that are most in need (Karanja et al., 2018). Such approaches should act in concert with other activities recently found to be effective such as institutional triggering and Follow-Up MANDONA (FUM), which involves a series of facilitated community sessions after initial CLTS triggering to collectively identify and undertake small, immediate, and doable actions toward ending open defecation (England, 2016). For example, Ghana has developed guidelines for pro-poor targeting to support households that would not otherwise have the capacity to construct appropriate latrines (Ghana Ministry of Sanitation and Water Resources, 2018). Current work in Northern Ghana is testing the efficacy of a pro-poor approach that identifies poor and vulnerable households through community consultation meetings and provides these households with vouchers for durable latrines that are available in local markets and installed by local artisans (USAID, 2020). Such an approach is distinct from blanket hardware subsidies, which have typically been ineffective in the team's ASAL study areas. Rather, strategies that are more market-based and focused on accurate and transparent targeting offer opportunities to ensure that the most vulnerable households and most challenging contexts are not left behind. Guidance on effective targeting of poor and

vulnerable households could come from the Equality and Non-Discrimination (EQND) Handbook for CLTS Practitioners (WSSCC, 2019) that, for example, defines the most disadvantaged households (“Category C”) as those without support from extended family members and with limited means to pay for latrine installation. In addition, there may be lessons about how to target households in need from the Government of Kenya’s Hunger Safety Net Programme, which is implementing unconditional cash transfers to poor and vulnerable households in the ASALs. One implementing partner in Kitui noted that their NGO-led cash transfer program appeared to have positive spill-over effects on sanitation in their program communities.

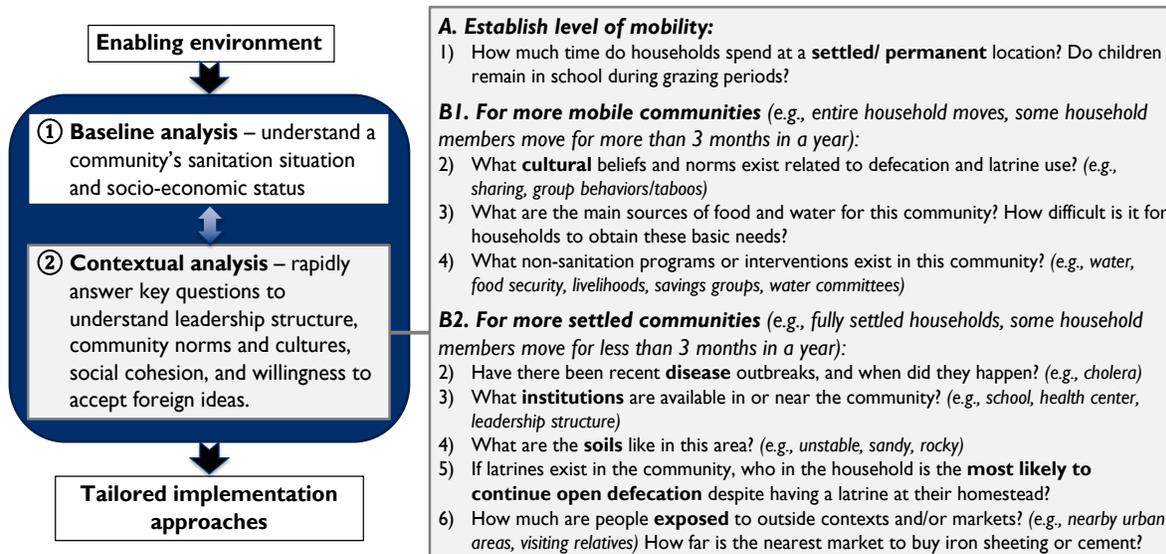
#### **4.2 TAILORED IMPLEMENTATION STRATEGIES: RECOMMENDATIONS FOR IMPLEMENTERS**

Some implementing organizations and governments have already incorporated effective adaptations and experimental ideas into CLTS interventions for pastoral communities (see the case studies in Section 3.3; other recent interventions have also found success by incorporating institutional triggering and FUM, used by the NGO Peace Winds Japan in Turkana), but these have not been implemented broadly across the ASALs. Here, WASHPaLS provides specific recommendations of strategies (some that align with existing adaptations) that may be especially effective in settled or semi-settled pastoral contexts, given the constraints and opportunities identified.

First, however, the team notes an overarching theme from this work: each community is unique, with distinct characteristics related to leadership, environmental conditions, social cohesion, cultural norms, exposure to outside ideas, and numerous other factors. Many of these considerations can impact the success of sanitation interventions, and tailoring implementation strategies to align with the features of a given community is key in improving the likelihood that households will adopt, use, and maintain appropriate latrines.

Accordingly, the team recommends **employing an easily implementable questionnaire to accompany pre-triggering to tailor interventions for pastoral communities**. Evidence from this study indicates that CLTS can be effective, particularly among settled and semi-settled communities, but it is important to ensure that implementation is tailored to the specific needs, constraints, and opportunities that exist within different pastoral communities. Many organizations conduct baseline analyses to understand existing sanitation infrastructure and community entry points, and existing CLTS guidelines already recommend that pre-triggering activities include assessments of social, physical, and institutional conditions (Kar & Chambers, 2008). However, further guidance on how to collect information in a rapid, systematic way, particularly among pastoral communities in challenging contexts, can ensure that implementers with limited time and funding uncover the most salient points.

The WASHPaLS team has built upon the IBM-WASH framework to develop a concept for a questionnaire that can supplement implementers’ existing baseline assessments and provide guidance on how programs might be tailored to best serve a given pastoral community (Figures 3 and 4). As illustrated here, the team recommends that CLTS facilitators gather data using a set of several simple questions focused on characterizing the key contextual, psychosocial, and technological constraints and opportunities identified here as particularly important among pastoral communities. The questions cover topics such as exposure to outside contexts, market access, household priorities, and cultural norms, and the relevance of certain topics may depend on the community’s level of mobility (Figure 3). These questions can be asked of a community leader and/or a CHV to provide a general understanding of the community’s characteristics. The team designed this illustrative set of questions to be easy for an implementer to include while performing a typical baseline analysis, without requiring additional time or funding. The information gained could be particularly valuable in developing or identifying specific strategies to improve the success of sanitation interventions within the community.



**Figure 3. Incorporating a simple contextual analysis into pre-triggering to guide sanitation implementation for individual pastoral communities with differing levels of mobility.**

Once these key points about the community are understood, a team could use them to tailor interventions by focusing on certain individuals or institutions, promoting certain types of toilet designs (or working with additional partners and local institutions, artisans, and material suppliers to develop new ones, if possible), designing behavior change messaging that emphasizes how toilet features align with cultural beliefs, or coordinating with complementary programs. Based on responses to the questions in the assessment, certain constraints or opportunities can suggest which intervention approaches may be most appropriate (examples provided in Figure 4) and the ways in which those approaches can be integrated together (e.g., through specific sequencing or complementarity). These examples correspond with many of the specific implementation recommendations described below.

**Table 5. Examples of potential implementation approaches tailored to a specific community based on constraints or opportunities identified during a contextual analysis. For each of these strategies, the team found or heard about at least one example in the field (except for CLTS implementers working with non-sanitation actors to address other issues simultaneously). However, conducting additional field piloting would likely be appropriate to test the strategies on a broader scale.**

	Community Constraint/ Opportunity	Implementation Approach
Context	Schools/ high enrollment	Coordinate with WASH in Schools Programs, engage schools in triggering.
	Struggling to meet <b>basic needs</b> (e.g., food, water).	Complement standard CLTS with interventions that seek to address basic needs; identify non-sanitation implementing partners working in the area.
Psychosocial	Strong <b>cultural barriers</b> around latrine use/sharing; low <b>social cohesion</b> reduces willingness to share	Promote designs that counteract cultural barriers and privacy concerns (e.g., 2-door toilets or separate facilities for males and females).
	Household or community decision-makers, or specific household members, <b>unlikely to use latrines.</b>	Start by triggering individual groups (e.g., women, morans) and change agents (elders, church leaders) before communal triggering
	Previous <b>cholera outbreaks</b> , or demonstrate basic <b>knowledge on water quality.</b>	Target sanitation and health messaging during the onset of rainy season when households are experiencing diarrhea cases
	<b>Limited exposure to urban environments/ modern latrines.</b>	Share success stories through village/household exchange programs; emphasize pride in having a latrine for visitors to use
Tech nolog	High perceived <b>inherent value of livestock</b> ; resistance to selling livestock for latrine construction.	Emphasize latrines as protecting livestock safety; promote latrines as alternative type of wealth
	Existing <b>savings groups</b> , limited resources, and/or low market access.	Leverage existing groups (or promote new ones) for shared financing of latrines/division of labor/procurement of supplies

<b>Rocky or sandy soils.</b>	Promote appropriate designs (e.g., offset pits, Sato pans, brick-lined pits).
Lack access to <b>markets/ artisans; strong leaders/</b> change agents; <b>dynamic communities</b>	Construct demonstration toilets for institutions or leaders/change agents

The following specific recommendations may be appropriate in a given community, depending on the results of the contextual analysis. With each recommendation, the WASHPaLS team notes key questions that may provide the most salient information regarding its appropriateness, as well as suggestions for how it should be integrated into broader sanitation programming.

***Tailor durable latrine designs to pastoralists’ values and contextual challenges.***

*Key contextual questions:* What cultural beliefs and norms exist related to defecation and latrine use? What are the soils like in this area?

*Integration into broader programming:* Ask community members and leaders about any concerns related to cultural requirements, sharing, or livestock health during triggering (or pre-triggering), and then collaborate with local artisans and material suppliers to return with siting strategies or designs that address those concerns (e.g., separate facilities, separate doors, fences around latrines). Accordingly, developing these designs can become part of the follow-up process.

To promote adoption and sustained use of latrines, the facilities should meet certain minimum standards that reflect pastoralists’ values and the environmental challenges they often face.

- A key concern for many people is privacy, so latrines should be designed and sited in locations to promote privacy and safety (e.g., fully enclosed with strong doors to enable discreet entry).
- Latrines designed to prevent animals from falling in could also be promoted, as livestock are highly valued in these contexts.
- With regard to environmental challenges, common factors such as unstable soils and flooding increase the likelihood of pit collapse in pastoral communities, and frequent collapse can become demoralizing. Latrine designs should be specifically tailored to address local environmental challenges, and implementers can explore opportunities to scale solutions that are currently working well in certain settings. For example, some adaptations the team observed included: lining pits with bricks to increase their stability, using wood treatment to guard against termites, or offsetting pits from superstructures to reduce the weight on the pit and address safety concerns related to falling in.

***Focus on messaging that emphasizes privacy, pride, and value.***

*Key contextual questions:* Who in the household is most likely to continue practicing open defecation despite having a latrine at their homestead? How much are people exposed to outside contexts (e.g., through visiting relatives)?

*Integration into broader programming:* This recommendation may be especially valuable among communities that are transitioning toward more permanent and densely populated settlement patterns, placing emphasis on the greater privacy provided by latrines (compared with open defecation). Privacy was a key concern among many respondents. Messaging can be integrated into triggering events, complementing (or perhaps replacing) more conventional techniques related to shame and disgust.

- In particular, messaging can focus on the pride that people feel when they are able to offer visitors a private facility to use, as respondents often reported that they would feel embarrassed if they are unable to provide this convenience to visitors from outside the community.

- Messaging could emphasize the value of latrines in forming a physical barrier between livestock and human feces, to capitalize on the fact that many pastoralists view livestock as having high inherent value and want to ensure their safety.
- Highlighting the value of latrines as an alternative type of wealth (representing, for example, modern infrastructure and healthy living) may help to persuade households that are resistant to selling livestock to finance latrine installation. Essentially, they would be diversifying their wealth portfolio beyond their (highly valued) livestock herds.

**Engage schools and community leaders.**

*Key contextual questions:* Do children remain in school during the grazing period? What institutions are available in or near the community?

*Integration into broader programming:* Triggering activities at schools reach students as well as others (peers, family, community members). Accordingly, engaging schools either before or in parallel with community triggering can create additional triggering agents (teachers and schools) who perform a nexus role during community activities and can participate in or coordinate promotion for activities such as poems, quizzes, drama skits, or songs.

Including school-based interventions and other key actors (e.g., community leaders) in CLTS implementation can make an impact on the triggering process (van den Ouden, 2013). In communities with schools (and particularly those with high enrollment and/or where households highly value education), inclusion of school-based interventions can enhance both short-term and long-term efforts (e.g., short-term improvements in receptivity to latrines as well as longer-term shifts in culture around sanitation) (Magogwa & Olekao, 2013). The WASHPaLS team encountered five communities (including at least one in each of the three counties) where residents reported that school-based sanitation interventions, or simply the presence of latrines at schools, had exposed students to latrines and improved attitudes toward these facilities in the communities, providing a better starting point for community-based interventions and messaging.

- Triggering activities in schools can begin with external facilitators training teachers and/or WASH club members, who in turn trigger the rest of the school. During subsequent community triggering, children can increase community awareness through activities such as sanitation skits, poems, and songs, while teachers, community leaders, and external facilitators back up the legitimacy of the children’s activities. In the long run, this strategy can create momentum among children for self-help local initiatives such as digging pits, constructing latrines, installing handwashing facilities, and cleaning the community. These strategies may be especially effective in communities where households highly value education (for example, ensuring that children are able to stay at the permanent homestead throughout the school year, even while other members of the household move with livestock). The team notes that this recommendation may raise concerns around the social implications of children’s participation in relation to local cultural norms, respect for elders, and hierarchical decision-making structures. Accordingly, such approaches should be designed to suit the local context by employing the simple contextual analysis provided above to tailor and adapt triggering activities led by children (if appropriate) so that they can impart a greater sense of understanding and tolerance among community members. Generally, school-based interventions may be an important area for further research concerning the degree to which these activities create sustainable sanitation improvements within the broader community (including adults and households beyond the school itself).
- Triggering efforts can also begin by focusing on community leaders who can act as exemplars within the community, perhaps by constructing demonstration latrines that provide models of durable structures appropriate for local conditions. This strategy would likely be most effective when such

leaders are strong and/or charismatic, act within clear leadership structures, and are able to influence behavior within the community.

**Target specific groups for education.**

*Key contextual questions:* What non-sanitation programs or interventions exist in the community? Who in the household is most likely to continue practicing open defecation despite having a latrine at their homestead?

*Integration into broader programming:* Before triggering the community as a whole, it may be valuable to engage in specific education efforts when there are groups that may be especially resistant to latrine use and/or groups that may have particular insight into what resources are available and needed for latrine installations (e.g., village saving and loan associations [VSLAs] or solidarity funds).

- For example, peer-to-peer education among *morans* of the same age group may help to circumvent the cultural taboos related to others discussing the defecation habits of this group and make them more receptive to conventional CLTS programming once triggering begins.
- Triggering other key influential figures, such as elders or religious leaders, prior to communal triggering may also facilitate greater support for sanitation programs.

CLTS programming can also focus on leveraging existing internal support mechanisms such as VSLAs (in some communities, these may be referred to as “merry-go-rounds” or “solidarity funds”). These groups offer an opportunity to promote shared financing of latrines (e.g., many households contribute to help one household build a latrine, and the process is repeated for other households in the group). Similar types of collective action may also help to procure the necessary supplies for installing more durable facilities. Previous programs in Madagascar, Ethiopia, Uganda, and Ghana have reported at least preliminary success leveraging VSLAs or self-help groups to improve WASH outcomes. While many of the programs did see utilization of the groups for construction of latrines, some of the challenges noted in these programs included: not all households in a community are involved, establishment of new VSLAs can be challenging, and the focus on income-generating activities can result in strict requirements on repayments and interest rates, which may not be well-suited for latrine construction

(Aboma & Osterwalder, 2020; Prottas et al., 2018; USAID, 2013; Zares, 2015). Many villages the WASHPaLS team visited already had VSLAs, women’s groups, or similar local support mechanisms, although they had not typically been used for sanitation loans. However, respondents discussed how these groups could help to finance and/or build latrines one member at a time, particularly in cases where sanitation facilities are already desired.

While a more complex sanitation financing program utilizing VSLAs may not be realistic in the ASAL communities (especially for more remote communities with limited access to supplies or sanitation marketing opportunities), these groups still offer an additional entry point for sensitization and action-planning exercises. Action planning is highlighted in the CLTS handbook (Kar & Chambers, 2008) and in adaptive strategies like FUM as an effective way to establish concrete next steps toward latrine construction. While action planning is typically done at the household level, VSLAs could offer a way for communities to view sanitation as a community-wide challenge that can be addressed with community resources—a practice they are already familiar with in the operation of the VSLA. Action planning with VSLAs might include taking an inventory of locally available materials, assessing the product needs for an entire community to construct latrines, and identifying whether or not resources can be pooled to purchase supplies and support latrine construction.

**Consider pro-poor support to ensure no one is left behind, especially in challenging contexts.**

*Key contextual questions:* How much access do people have to markets?

*Integration into broader programming:* In several of the WASHPaLS team's study locations, previous implementation of blanket hardware subsidies (e.g., provision of latrine slabs) was unsuccessful, but challenging soil conditions that promote latrine collapse and limited access to markets make it very difficult for households to install latrines that will be resistant to collapse. In these challenging environmental conditions, some assistance may be needed to ensure that households with high poverty levels have the ability to install durable latrines. Depending on the degree to which markets are accessible, this assistance may take the form of unconditional cash transfers, vouchers, or rebates for durable toilet construction. Any efforts in this area should occur through government systems and align with any policies or guidance developed by local or national governments, including those on how to target the most vulnerable or disadvantaged households. Implementing partners should ensure that any such programs operate at a level that is feasible given government capacity and funding constraints, and these programs should be implemented after initial behavior change efforts have achieved success, to increase the likelihood that facilities will be used.

- The effectiveness of a program that targets poor and vulnerable households through community consultation and provides vouchers redeemable with local artisans for durable latrine substructures is currently being tested in Ghana (USAID, 2020). Learning lessons from this or other pro-poor initiatives will help to determine the effect they can have on sanitation in the ASALs. Guidance on key targeting criteria could come from the EQND Handbook for CLTS Practitioners (WSSCC, 2019).
- The Government of Kenya's Hunger Safety Net Programme currently provides unconditional cash transfers to poor and vulnerable households in the ASALs. Learning lessons from this program or other similar programs may provide useful insight into how such programs could support improvements in sanitation.

### **Complement standard CLTS with other relevant interventions.**

*Key contextual questions:* How difficult is it for households to obtain food, water, and other basic needs? What non-sanitation programs or interventions exist in the community? Have there been any recent disease outbreaks?

*Integration into broader programming:* Households that are struggling to meet basic needs are unlikely to see latrines as a high priority. Accordingly, partnering with interventions that seek to address basic needs such as health, water, food, nutrition, veterinary services, or solid waste management may offer opportunities to remove barriers and combine efforts in hard-to-reach areas. These other interventions can use, reorient, or add to their own platforms to assist in introducing sanitation components.

- Communities may be particularly receptive if sanitation is linked with a program that has previously led to benefits and has the potential to demonstrate the value of latrines. In Samburu, the team saw an example of this type of synergy where Feed the Children was implementing a maternal health intervention in a hard-to-reach area. They used the opportunity of the positive impact derived from that program (and the trust that was built as a result) to introduce a sanitation intervention that resulted in the construction of a communal sanitation facility.
- Rather than incorporating health education as a primary element of sanitation interventions, it can be linked with the challenges that have direct causal relationship with sanitation. For example, diarrhea outbreaks often experienced during the onset of the rainy season can offer one opportunity to sensitize the community on the causes of diarrhea and the need for latrines to prevent future occurrences. Livestock disease outbreaks or wild animal attacks at night that result from open defecation are other potential entry points to introducing sanitation components. This information provided can include strategies for reducing risks including latrines and appropriate hygiene behaviors. As above, communities are more likely to be receptive to this information when

provided by individuals who already engage with and are trusted by the community. Local health workers and veterinarians may be appropriate people to spearhead such an approach.

- Another valuable area of further research is to assess the cost-effectiveness of these more integrated approaches in these contexts.

***Incorporate exchange programs into sanitation interventions.***

*Key contextual question:* How much are people exposed to outside contexts?

*Integration into broader programming:* Especially in more remote locations, communities may have limited exposure to more built-up environments, potentially lessening awareness of health concerns related to open defecation. Beginning sanitation programming with exchange visits, in which households from remote locations with limited latrine exposure travel to contexts where latrines have been installed successfully, can give households the opportunity to see and experience these facilities. This exposure is often critical in the beginning to change attitudes and perceptions of defecation behaviors.

***Focus on sensitization (rather than full CLTS implementation) among highly nomadic groups.***

*Key contextual question:* How much time do households spend in a settled or permanent location?

*Integration into broader programming:* The study team notes that this recommendation may raise concerns regarding equity between highly nomadic groups and more settled populations (and nomadic groups are often marginalized already). However, as pastoral behaviors evolve with time, and as processes such as land demarcation progress, the team also notes that these people may eventually settle into a less mobile lifestyle, at which point latrine adoption will be an important consideration (and the examples of nearby settled communities may encourage emulation and latrine construction). Accordingly, the team recommends sensitizing these groups on the benefits of latrines now to ease any future transitions to a more settled life. It is not being recommended that sanitation programming push communities toward more settled lifestyles. Rather, the recommendation is to meet communities where they are with an understanding of the public health implications of different settlement patterns.

Public health risks associated with open defecation are likely lower for highly nomadic populations moving frequently throughout arid regions. The team's findings also indicate that these groups perceive open defecation to be their best option, and they are not interested in carrying additional materials to build temporary latrines wherever they stop. Pushing them to construct latrines at this stage would likely require large amounts of resources (on a per capita basis) while being ineffective. One implementing partner reported initial success with the introduction of "trench latrines" for more nomadic communities, but more research is needed to understand the uptake rate and potential public health risks of this practice. Additionally, the sector may benefit from additional research to quantify the health risks of open defecation for certain populations in remote, arid regions versus the costs of constructing and sustaining traditional latrines in these locations.

## 5.0 CONCLUSIONS AND KEY TAKEAWAYS

Based on the study team's findings from three counties (Samburu, Turkana, Kitui) in Kenya's ASAL region, **pastoralists face a number of distinct and intense barriers to latrine adoption**, many of which concur with those reported in previous literature. These tend to relate to the fact that pastoralists often live and move throughout remote, difficult-to-reach areas characterized by arid and relatively unproductive land, water scarcity, poverty, and insecurity. These conditions can reduce the effectiveness of conventional CLTS approaches and often result in dynamic settlements that change in composition due to migration, seasonal movement, and other factors. Accordingly, sustainable sanitation progress is difficult and social cohesion can be low, limiting collective action to make improvements. Additionally, low access to durable materials and challenging environmental conditions (particularly unstable or rocky soils) make pit excavation difficult and lead to frequent latrine collapse.

Despite these numerous constraints, **pastoralists are interested in latrines and would use them, if they conform to certain standards**. However, the team does see a stark distinction between populations that are more settled and those that are nomadic. Nomadic communities see open defecation as the best option for their mobile lifestyle and are resistant to latrine use. In contrast, households in settled and semi-settled communities want durable latrines that do not collapse and that offer adequate privacy. Designing latrines to maximize privacy and the safety of livestock and children are key concerns.

The team also sees several opportunities for improved sanitation adoption, some of which are related to trends independent of sanitation programming. In particular, **pastoral lifestyles, beliefs, and values are evolving**, with communities often becoming more settled and involving greater interaction with other (e.g., more urban) contexts. These trends reduce barriers to latrine adoption, enable children to attend school throughout the year (which is highly valued), and expose people to new ideas concerning the dangers of open defecation and the value of latrines. Cultural beliefs that constrain latrine adoption are also becoming less prevalent, and many feel that sanitation designs can align with remaining cultural considerations.

Effectively capitalizing on these opportunities requires a **strong enabling environment** and a simple process for **tailoring interventions to specific communities**. Governments can cultivate stronger enabling environments by streamlining implementation and reporting structures, identifying committed sanitation champions at multiple levels, dedicating line item funding to sanitation in county budgets, and providing nuanced guidance on targeted subsidies or cash transfer programs when they may be appropriate.

Implementers can tailor interventions to address key constraints and opportunities in individual pastoral communities. For example, a focus on durable latrine designs and messaging related to privacy, safety, and pride can align with pastoralists' values and contextual challenges, while specific institutional targeting of schools, community leaders, and special groups prior to full community triggering can cultivate champions and preemptively address populations that may be most resistant to latrine adoption. Implementers can use rapid contextual assessments and questionnaires to help identify key community features and select specific strategies for adapting sanitation programming to that community.

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# APPENDIX A. SELECTION OF STUDY VILLAGES

The WASHPaLS team worked closely with the local governments in Samburu, Turkana, and Kitui to identify a list of randomized villages with the desired characteristics that the team had identified previously in collaboration with USAID. The criteria did need to be modified slightly in each county, due to the knowledge and data that were available (Figure A1). The specific criteria used to identify and select villages are described below.

### Samburu County

In Samburu, the team categorized the villages according to two criteria: mobility and CLTS implementation. The sub-county officials selected multiple villages that fit each combination of criteria.

The team asked local government officials to purposively select ten un-triggered villages from Samburu East and Samburu Central. The team did not include Samburu North due to security concerns. To ensure difficult contexts were identified, and to reduce the possibility of biased selection, WASHPaLS specified the following additional sub-criteria:

- Nearby triggered villages
- Hard-to-reach areas rarely targeted for interventions
- Marginalized with little or no access to development projects
- No access to latrines

The team randomly selected one village from Samburu Central and two from Samburu East out of those identified by local officials. WASHPaLS also targeted villages that had been triggered or certified but that had slipped back to open defecation. At this point, few of these villages exist. The team identified one village that failed certification in Samburu East and four in Samburu Central. The team selected the village in Samburu East and used random sampling to pick one from Samburu Central.

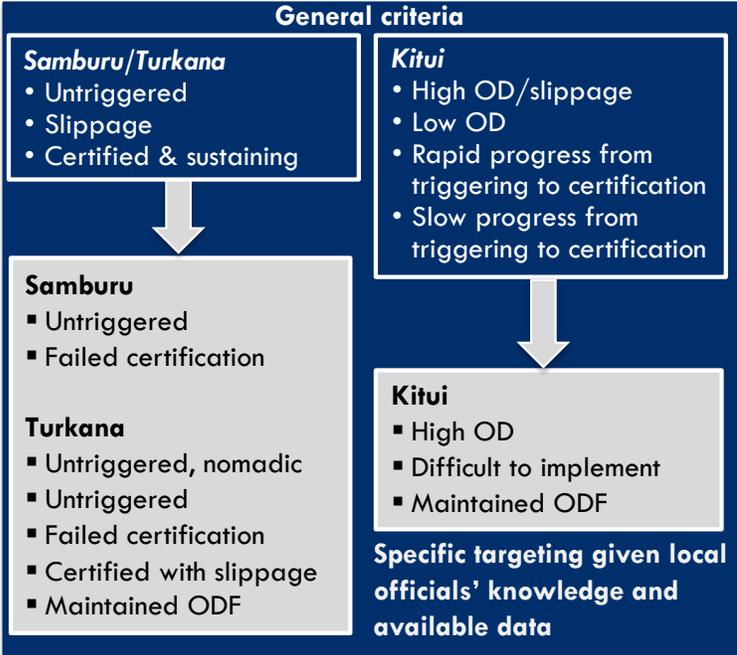


Figure A1. Criteria for village selection in each county, including adaptations based on available information.

	Sub-county	Characteristic	Village category
a)	Samburu Central	More settled populations (agro-pastoralists), high sanitation interventions	Slippage (1), un-triggered (1)
b)	Samburu East	Highly and partial nomads, fewer sanitation interventions	Slippage (1), un-triggered (2)

The team targeted more villages in Samburu East because it has more livestock keepers, has fewer targeted interventions, and is drier than Samburu Central.

### Turkana County

The team selected villages from five sub-counties, excluding one sub-county with high security risks (Turkana East). Village selection was determined using mobility and CLTS implementation status, and sub-counties were targeted to cover various levels of latrine coverage, poverty level, and accessibility indicators. For the village types targeted, local officials purposively selected five villages in each county, and the team used random sampling to determine the final selection, as detailed below.

	Sub-county	Characteristics	Village category
a)	Turkana Central	More settled populations, more sanitation interventions	1: Slippage
b)	Turkana South	First to implement and certify CLTS	2: Maintained ODF, un-triggered
c)	Loima	High slippage rates	1: Slippage
d)	Turkana West	High sanitation interventions, existence of highly mobile communities (low insecurity compared to the other areas having a high number of nomads)	1: Un-triggered (highly nomadic)
e)	Turkana North	High poverty level, minimal sanitation interventions, hard to reach	2: Slippage, un-triggered

### Kitui County

The team began by characterizing CLTS implementation status and socio-economic activities for each sub-county (see below). They then defined specific village types for each sub-county based on the sub-county CLTS implementation period (indicators: CLTS triggering, ODF certification, slippage after attaining ODF status). In each sub-county, five villages with the defined dimensions were purposively selected. Further, the team ensured that villages were selected from every ward to promote fair representation. Local government officials purposively identified five villages from each sub-county, and the team used random selection to determine the final list of villages.

	Sub-County	Characteristic	Village Category
a)	Kitui South	Very remote, low exposure to sanitation, development projects, low socio-economic status	Challenging to implement
b)	Kitui Rural	CLTS implementation started, with the first villages certified ODF	Successful and sustained ODF status
c)	Kitui East	High slippage rates due to loose soils with high incidences of latrine collapse, remote	Slippage
d)	Mwingi Central	High exposure to development activities, majority are economically well off, existence of religious beliefs related to health issues	Challenging to implement
e)	Mwingi North	Hardship area, high poverty level, very remote	Successful and sustained ODF status

# APPENDIX B. DETAILED SUMMARY OF STUDY VILLAGE CHARACTERISTICS

## SAMBURU COUNTY

The five villages visited in Samburu County had a number of similar characteristics, with all practicing transhumance pastoralism and most having low latrine coverage rates. Villages tend to have low household density, and soil conditions often create difficulties for pit latrine construction and maintenance, either due to difficult excavations (in rocky conditions) or pit collapse (in sandy conditions). Further details are described below.

**Water, sanitation, and health.** Of the five villages visited in Samburu County, local CHVs reported that two were untriggered (S2, S5), two were triggered (S1, S3), and one (S4) had recently been triggered by an NGO but had not been recorded as such by the government (Tables B1 and B2). However, villages S1 and S3 had both failed ODF certification. It is worth noting that Kenya's CLTS RTMS records village S1 as certified (according to a full download of Samburu data accessed in February 2021), while the study team was unable to match S3 with any records in the monitoring system (Table B1).

Generally, the number of households with functional latrines was quite low ( $\leq 10\%$ ) in four of the villages, while S1 had higher latrine coverage ( $\geq 50\%$ ). Four of the five villages reported that organizations (e.g., AMREF, World Vision, Kenya Red Cross) had implemented other sanitation interventions beyond CLTS. These interventions included: education on latrines and the health risks of open defecation, construction of latrines in schools, and subsidized provision of concrete latrines slabs. However, the government stopped a subsidized latrine slab program that had begun in S5 because it was in conflict with the no-subsidy approach promoted as part of the CLTS framework, and latrine construction was not completed for any of the slabs that had been distributed.

Most villages collect water from seasonal streams and rivers during the rainy season, but solar-powered boreholes have been installed in two of the villages. Typically, collecting water from these sources takes households approximately 30 minutes, but some households in S2 may need to set aside about five hours for water collection, due to their distant locations relative to the borehole. Diarrhea is reported to be common in four of the five villages (all except S1), likely due to contaminated water sources, especially during the rainy season. Two of the villages (S4 and S5) also contain health clinics that provide health care to members of the community.

**Socioeconomic conditions.** The predominant economic activity in all five villages is pastoralism, although some households also participate in additional activities. For example, households in two villages (S1 and S2) engage in small-scale crop farming. Some households in S3 collect and sell firewood and sand from nearby river banks, a few members of S4 are employed by local conservancies, and S5 contains some traders who purchase goods from other locations to sell locally. Some form of transhumance pastoralism is practiced across all villages, involving partial movement with livestock during the dry seasons. This practice typically involves adult men and *morans* moving with the livestock, but two villages (S3 and S4) contained households with multiple wives who separate during the dry season. One wife remains at the permanent homestead to care for the elderly and the children attending school, while the other wife accompanies the husband with the livestock.

**Housing and latrine characteristics.** Generally, household density in the five villages is low, with households dispersed across wide areas of land (providing substantial room for large herds of livestock). Sometimes, households are found in small clusters, but the broader community still covers a large area. Typically, wealthier households build more permanent structures using materials such as iron sheet

roofing, concrete floor slabs, and cement block walls, while poorer households live in temporary structures (*manyattas*) built from materials including mud, polythene sheets, sticks, and boxes. *Manyattas* were especially common in villages S1 and S5. Similarly, latrines tended to be either permanent facilities made using iron sheets and concrete slabs or temporary structures built from mud and sticks. Permanent latrines structures were more prominent in villages S1, S2, and S3 (despite the fact that housing in S1 tended to be more temporary), while temporary latrines dominated in villages S4 and S5. Additionally, it may be easier for villages S1 and S3 to obtain construction materials from urban centers, as centers are only about 3 kilometers away in both cases. In contrast, villages S2 and S4 are approximately 30 and 40 kilometers from urban centers, and S5 is 90 kilometers from an urban center but has only been using locally available materials to build the temporary housing and latrine structures found there.

**Environmental context.** Villages are typically located in areas with sandy and/or rocky soils. Rocky soils are especially dominant in villages S3 and S4, making it difficult to dig latrine pits (although toilets in these villages tend to collapse less frequently). Some rocky areas where digging is difficult are also found in village S2, and pit latrines also often collapse there during the rainy season. Village S5 has sandy soil with some patches of clay. Excavation is not difficult, but pits do tend to collapse. Residents of village S4 noted that high winds can also cause latrine collapse. Finally, village S1 has sandy and loamy soil, with easy excavation and rare instances of collapse. Generally, flooding is rare across the five villages, although it does sometimes occur in certain areas of village S2.

## TURKANA COUNTY

The seven villages the team visited in Turkana County were perhaps a bit more diverse than those from Samburu County. Most were found in remote locations, with one community (T1) being a highly nomadic group known as a *Kraal*, which moves from place to place in search of water. In contrast, village T2 was located fairly close to an urban area and was more settled (though some transhumance pastoralism was still practiced), characteristics that may play a role in its greater success with regard to ODF certification and sustainability. Some other villages were extremely remote; T7 is located approximately 200 kilometers from a major urban center (Table B2). Further details are below.

**Water, sanitation, and health.** Of the seven villages visited in Turkana, three were reported to be untriggered by local CHVs (T1, T5, T7), although there seemed to be some confusion about the status of T7, as the local CHEW reported it as triggered. Recent sensitization efforts have occurred in village T6, but the government records it as untriggered and nearly all households still practice open defecation. Village T4 was triggered but failed ODF certification. Similarly, T3 was certified but has slipped back to open defecation, with most households having latrines that are no longer functional. Finally, T2 was certified and has thus far maintained its ODF status, and households without latrines share with others. As with Samburu, the team did note some discrepancies with the data available in Kenya's CLTS Monitoring System. In particular, T4 is shown to be certified, although the local CHV reports it failed certification. Additionally, the study team was unable to match T1 and T5 with database records. It is expected that data may be especially sparse with regard to highly mobile *Kraals* (such as T1) that are likely difficult to identify and track (Randall, 2015; Tillett & Jones, 2021) and that represent cases where construction of permanent latrines may be extremely rare.

Coverage rates of functional latrines in most villages were low, including 0 percent coverage in T1 and T5. The exception to this trend is T2 (74%), which has been certified and is maintaining ODF status. The success of T2 may be related to its proximity to an urban center and the larger number of economic and employment opportunities available.

The seven villages use different types of water sources. Five of the villages (T2, T4, T5, T6, T7) typically use either boreholes or water kiosks, but some households in T4 reportedly have access to piped

water. While water kiosks are located within the village and are usually easy to access, some of the boreholes may be quite far away (e.g., two to three hours). Village T3 commonly uses a river that is located approximately two hours away, while T1 migrates to find seasonal water sources such as rivers and springs. Diarrhea is reported to be common in four of the villages (T1, T3, T6, T7), and malaria is also highly prevalent in T3. Two villages contain health facilities (T6, T7), while T2 and T3 have access to facilities in nearby areas (within a few kilometers). Residents of T5 must travel farther to reach a health facility (approximately 25 kilometers), while T1 and T4 have no facilities in surrounding areas.

**Socioeconomic conditions.** The primary economic activity is pastoralism, particularly in villages that are more remote. Members of the *Kraal* are exclusively engaged in raising livestock, while other activities are also present in other villages. These activities include small-scale farming during the rainy season, selling firewood and charcoal, small businesses and trading, and casual labor. In particular, residents of T2 have opportunities to engage in other work, likely due to this village's proximity to an urban center. This village is also somewhat more settled. Few households do own livestock, and some household members may relocate to raise the livestock in different areas. Movement during the dry season to find pasture is characteristic of most other villages, while T1 is highly nomadic. This community does have a permanent location where elderly people remain, but all others move frequently to find water and protect against insecurities due to land conflicts and livestock theft (this community is located in Turkana West, which is very close to the border with Uganda).

**Housing and latrine characteristics.** Household densities across the seven villages were somewhat variable, ranging from a low-density, scattered community (T5) to denser settlements (T2, T4). The other four villages fall in between these extremes, often with households clustered in small groups. The housing in five of the communities (T1, T3, T5, T6, T7) is mostly temporary (constructed from materials such as mud, twigs, leaves, and reeds), while the remaining two communities contain a mixture of temporary and more permanent housing structures. Where latrines exist in villages T2, T4, and T7, they are typically constructed using materials such as concrete slabs and iron sheet roofing, while T3 contains latrines made from locally available materials (e.g., reeds, twigs). It is worth noting that many of the latrines in T3 have become non-functional. As discussed below, this situation may be related to the soil conditions that make latrines (perhaps especially those made from local materials) prone to collapse. The remaining communities contain no or very few latrines. The prominence of more durable construction materials in T2 is likely related to its proximity to an urban center, while the other villages tend to be much farther from areas where such materials can be purchased. For example, T7 (located in Turkana North) is reported to be approximately 200 kilometers from Lodwar, the major urban center in the county where construction materials are obtained.

**Environmental context.** These villages tend to be located in areas with sandy and/or rocky soils. In five villages (T2, T4, T5, T6, T7), residents reported that pit latrine excavation was difficult because of the rocky conditions. In T7, for example, a household may have to pay 1,000-1,500 KES per foot when digging a pit, as the rocky soil requires experienced labor and specialized techniques. In contrast, the sandy soil in T3 allows for easier excavation, but latrines are prone to collapse. It is worth noting that the team found numerous non-functional latrines in T3 that were typically constructed from local materials that may not be durable enough to prevent issues of collapse. Additionally, flooding (during the rainy season) was reported as a challenge in five of the communities (T1, T3, T5, T6, T7).

## **KITUI COUNTY**

Although CLTS implementation in Kitui County is more widespread than it is in Samburu or Turkana, the WASHPaLS team found some villages in more remote, harder-to-reach areas where latrine coverage remains fairly low. Residents of the villages visited in Kitui tend to practice agro-pastoralism with relatively small numbers of livestock, and household density was observed to be low (Table B2). Further details are described below.

**Water, sanitation, and health.** Of the five villages visited in Kitui County, four were reported to be untriggered by the local CHVs (all except K1). Notably, these reports stand in contrast to the fact that the CLTS RTMS records all Kitui villages as certified. According to the local CHVs, other sanitation interventions and sensitization efforts have occurred, and sometimes a few members of a village had attended triggering events in other communities. However, at least according to CHVs' perceptions and understanding, these specific villages had not been formally triggered.

Latrine coverage levels vary considerably across the five villages. In the village reported to be certified by the local CHV (K1), nearly all households (99%) have a functional latrine. Village K3 also has a high level of functional latrine coverage (94%), while K2 and K5 exhibit much lower levels (14%). Village K4 stands at an intermediate level (65%). Four of the five villages use rivers (between 2 and 20 kilometers away) as their primary water source, while K5 uses a borehole.

Village K1 contains a health center, while residents of K3 and K4 can access health facilities nearby (between 5 and 12 kilometers). Diarrhea is reported to be rare in K1 and either occasional or common in the other villages. Malaria is also a frequent issue during the rainy season in K5.

**Socioeconomic conditions.** Households across the five villages engage in crop farming as their primary economic activity, growing crops such as maize, sorghum, and millet. Households generally raise small numbers of livestock and lead settled lifestyles (practicing agro-pastoralism). Some also engage in other economic activities including small-scale trading, and there are a few teachers living in K2. Villages K1 and K4 are located close to urban centers (between 5 and 8 kilometers away), while K2 is much more remote (100 kilometers from an urban center)—perhaps contributing to its lower levels of latrine coverage. Villages K3 and K5 are both approximately 20 kilometers from an urban center.

**Housing and latrine characteristics.** Household densities are fairly low across the five villages, and most housing tends to consist of lower-cost structures made from locally produced mud bricks, mud flooring, and iron sheet or thatched roofing. A few houses are built using materials such as kiln-fired bricks, cement blocks, and cemented floors. Village K4 includes a larger proportion of houses built from these types of materials. Most latrines might also be classified as temporary structures, built from materials such as mud, local mud bricks, and iron sheets. Villages K1, K2, and K4 include a more balanced mix of permanent and temporary latrine structures (although the total number of latrines in K2 is relatively low).

**Environmental context.** As with the other two counties, the villages the team visited tend to be located in regions with sandy and/or rocky soils, and pit excavation was reported to be difficult due to rocky conditions across all five villages. Latrine collapses were also reported to be common during the rainy season in K3 and K5. Flooding does not appear to be as much of a challenge in these five villages, although some flooding is reported to occur near the rivers in K3 and K4.

**Table B1. Sanitation status of study villages, as reported by local CHVs during rapid observational surveys and as recorded in Kenya's CLTS Real-Time Monitoring System (GoK, 2021).**

County	Sub-county	Village	Information from field data collection and reported by local CHVs (December 2020–February 2021)						Data from Kenya CLTS Data Hub (accessed February 2021)		
			Mobility category	CLTS status	Total HHs	HHs with toilets	HHs with functional toilets	HHs practicing open defecation	CLTS status	Total households	Households with toilets
Samburu	Samburu Central	S1	Transhumance	Triggered, failed ODF certification	80	55-70 (69-88%)	40-50 (50-63%)	20 (25%)	Certified (no date)	(No data)	(No data)
	Samburu Central	S2	Transhumance	Untriggered	400	23-30 (6-8%)	20 (5%)	350 (88%)	Untriggered	(No data)	(No data)
	Samburu East	S3	Transhumance	Triggered, failed ODF certification	240	22 (9%)	20 (8%)	220 (92%)	(Not found in CLTS Database)		
	Samburu East	S4	Transhumance	Triggered by NGO, but not recorded by government	230	24 (10%)	24 (10%)	206 (90%)	Untriggered	(No data)	(No data)
	Samburu East	S5	Transhumance	Untriggered	84	1 (1%)	1 (1%)	83 (99%)	Untriggered	(No data)	(No data)
Turkana	Turkana West	T1	Highly nomadic	Untriggered	57	0 (0%)	0 (0%)	57 (100%)	(Not found in CLTS Database)		
	Turkana South	T2	Transhumance	Certified	58	43 (74%)	43 (74%)	0 (0%)	Certified (7/26/17)	42	42 (100%)
	Turkana Central	T3	Transhumance	Certified, but has slipped back to open defecation	35	30 (86%)	4 (11%)	31 (89%)	Certified (2/13/19)	33	33 (100%)
	Loima	T4	Transhumance	Triggered, failed ODF certification	48	16 (33%)	15 (31%)	32 (67%)	Certified (11/2/18)	28	23 (82%)
	Turkana South	T5	Transhumance	Untriggered	100	0 (0%)	0 (0%)	100 (100%)	(Not found in CLTS Database)		
	Turkana North	T6	Transhumance	Officially untriggered, but recently sensitized by NGO on latrine construction	20	2 (10%)	2 (10%)	18 (90%)	Untriggered	(No data)	(No data)
	Turkana North	T7	Transhumance	Untriggered, but CHEW thinks it had been triggered	35	7 (20%)	3 (9%)	31 (89%)	Untriggered	(No data)	(No data)
Kitui	Kitui Rural	K1	Agro-pastoralism	Certified	67	67 (100%)	66 (99%)	0 (0%)	Certified (no date)	(No data)	(No data)
	Kitui East	K2	Agro-pastoralism	Untriggered, but PHOs threatened to put people without latrines in jail	126	20 (16%)	18 (14%)	108 (86%)	Certified (4/11/18)	71	71 (100%)
	Kitui South	K3	Agro-pastoralism	Untriggered, but other latrine sensitization efforts	50	50 (100%)	47 (94%)	3 (6%)	Certified (no date)	(No data)	(No data)
	Mwingi Central	K4	Agro-pastoralism	Untriggered, but a few were selected to attend triggering in	40	29 (73%)	26 (65%)	14 (35%)	Certified (3/28/18)	33	33 (100%)

County	Sub-county	Village	Information from field data collection and reported by local CHVs (December 2020–February 2021)						Data from Kenya CLTS Data Hub (accessed February 2021)			
			Mobility category	CLTS status	Total HHs	HHs with toilets	HHs with functional toilets	HHs practicing open defecation	CLTS status	Total households	Households with toilets	
				neighboring village and other latrine promotion efforts								
	Mwingi North	K5	Agro-pastoralism	Untriggered	58	8 (14%)	8 (14%)	50 (86%)	Certified (no date)	(No data)	(No data)	

**Table B2. Additional information gathered on each study village from rapid observational surveys.**

County	Sub-county	Village	Reports and observations from rapid observational surveys										
			CLTS status	Water sources	Health	Mobility	Economic activities	HH density	Soil conditions	Housing materials	Latrine materials	Proximity to urban	Flooding
Samburu	Samburu Central	S1	Triggered, failed certification	Seasonal rivers, 20–30 min.	Regular PHO visits, rare diarrhea	Transhumance; men and <i>morans</i> move during dry season	Pastoralism, small-scale farming	Clustered households, but clusters are far apart	Sandy, loamy; toilets rarely collapse	Temporary <i>manyattas</i> (mud, polythene)	Permanent structures (iron sheets, concrete)	3 km	No flooding
	Samburu Central	S2	Untriggered but education on latrine importance	River, solar borehole 1–10 km (0.5–5 hours)	Diarrhea common during rains	Transhumance; men and <i>morans</i> move during dry season	Pastoralism, small-scale farming	Scattered households	Sandy, some rocky areas; collapses common; excavation difficult	Mostly permanent housing (cement blocks, iron roofs); poorer HHs have <i>manyattas</i>	Permanent structures (iron sheets, concrete)	30 km	Rare flooding, but occurs more often in certain areas
	Samburu East	S3	Triggered, failed certification	Seasonal rivers, 1.5 hours	Diarrhea common during rains	Transhumance; 1 wife goes with husband, other remains	Pastoralism, some sell firewood and sand	Highly dispersed households	Sandy, rocky; excavation difficult	Some permanent housing, some <i>manyattas</i>	Permanent structures (iron sheets, concrete)	3 km	No flooding
	Samburu East	S4	Triggered by NGO, but not recorded by government	Streams during rains, solar borehole (20–30 min.)	Diarrhea common, health center in village	Transhumance; 1 wife goes with husband, other remains	Pastoralism, a few employed in local conservancies	Dispersed but clustered households	Sandy, rocky; excavation difficult	Some permanent housing, some <i>manyattas</i>	Temporary structures (no roof, mud, sticks)	40 km	No flooding

County	Sub-county	Village	Reports and observations from rapid observational surveys										
			CLTS status	Water sources	Health	Mobility	Economic activities	HH density	Soil conditions	Housing materials	Latrine materials	Proximity to urban	Flooding
	Samburu East	S5	Untriggered, some slabs donated, but local gov. stopped subsidies.	River, 20–40 min.	Diarrhea common, health center in village	Transhumance; men and <i>morans</i> move during dry season	Pastoralism, some small-scale businesses (traders)	Dispersed but clustered households	Sandy, rocky, some clay; collapses common	Temporary <i>manyattas</i> (mud, polythene)	Temporary structures (no roof, mud, sticks)	90 km; local materials used for latrines	No flooding
Turkana	Turkana West	T1	Untriggered	Varies with location; seasonal rivers, springs	Diarrhea common	Highly nomadic; elderly stay at permanent residence.	Pastoralism	Clustered households	Loose sand and loam, some rocky areas	Temporary <i>manyattas</i> (mud, twigs)	(No latrines)	Approx. 100 km	Flooding during rains
	Turkana South	T2	Certified	Water kiosk (20 min.), borehole (3 hours)	No diarrhea, health facility in nearby town	Transhumance; some family members take livestock to other locations	Informal jobs, small businesses in nearby town, a few teachers & doctors	High household density	Sandy, rocky; excavation difficult	Some permanent housing, some <i>manyattas</i>	Mostly permanent structures, a few temporary	3 km	No flooding
	Turkana Central	T3	Certified but slipped back	River (2 hours)	Diarrhea & malaria common, health facility 5 km away	Transhumance; youth move for approx. 1 month	Pastoralism, small-scale farming, charcoal selling	Clustered households	Loose sand; collapses common	Temporary <i>manyattas</i> (reeds, twigs)	Temporary structures (reeds, leaves, mud, twigs)	40 km; local materials used for latrines	Flooding during rains
	Loima	T4	Triggered, failed certification	Borehole (0.5-1 hours), few have piped water	Diarrhea rare	Transhumance; children not in school take livestock to nearby hills	Pastoralism, gold mining, sell charcoal & firewood, small businesses	High household density	Sandy, rocky; excavation difficult	Some permanent housing, some <i>manyattas</i>	Mostly permanent VIPs, a few temporary	90 km	No flooding
	Turkana South	T5	Untriggered	Borehole 5 km away (2 hours)	Diarrhea rare, health facility 25 km away	Transhumance	Pastoralism, small-scale farming, charcoal selling	Scattered households	Sandy, rocky; excavation difficult	Temporary <i>manyattas</i>	(No latrines)	70 km	Flooding during rains
	Turkana North	T6	Officially untriggered, but recently sensitized by NGO on latrine construction	Borehole (0.5 hour)	Diarrhea common, health center in village	Transhumance	Pastoralism, small-scale farming, charcoal & firewood selling	Clustered households	Sandy, rocky; excavation difficult	Mostly temporary <i>manyattas</i>	One temporary latrine, one permanent latrine	150 km	Flooding during rains

County	Sub-county	Village	Reports and observations from rapid observational surveys										
			CLTS status	Water sources	Health	Mobility	Economic activities	HH density	Soil conditions	Housing materials	Latrine materials	Proximity to urban	Flooding
	Turkana North	T7	Untriggered, but CHEW thinks it had been triggered	Water kiosk (5 min.)	Diarrhea common, health center in village	Transhumance	Pastoralism, small-scale farming, charcoal selling	Clustered households	Sandy, rocky; excavation difficult	Mostly temporary <i>manyattas</i>	Mostly permanent structures	200 km	Flooding during rains
Kitui	Kitui Rural	K1	Certified	River 6–10 km away (4 hours)	Diarrhea rare, health center in village	Agro-pastoralism	Farming, few livestock	Scattered households	Sandy, rocks deeper; excavation difficult	Mostly temporary housing	Some temporary latrines, some permanent	5-8 km	Flooding rare
	Kitui East	K2	Untriggered	River 20 km away (6 hours)	Diarrhea common	Agro-pastoralism	Farming, few livestock, a few teachers	Scattered households	Sandy, some rocks; excavation difficult	Mostly temporary housing	Some temporary latrines, some permanent	100 km	No flooding
	Kitui South	K3	Untriggered	River 2 km away (3 hours)	Some diarrhea, health center 10–12 km away	Agro-pastoralism	Farming, few livestock, small-scale traders	Scattered households	Sandy, some rocks; excavation difficult, collapse during rain	Mostly temporary housing	Mostly temporary structures	20 km	No flooding, except near river
	Mwingi Central	K4	Untriggered	River 3 km away (3 hours)	Some diarrhea, health center 5 km away	Agro-pastoralism	Farming, few livestock, sell rocks	Scattered households	Sandy, rocky; excavation difficult	Some permanent and some temporary housing	Some temporary latrines, some permanent	5 km	No flooding, except near river
	Mwingi North	K5	Untriggered	Borehole 1 km away (1 hour)	Diarrhea & malaria common during rain	Agro-pastoralism	Farming, few livestock, small-scale traders	Scattered households	Sandy, rocky; excavation difficult, collapse during rain	Mostly temporary housing	Mostly temporary structures	20 km	No flooding

# APPENDIX C. REPRESENTATIVE PHOTOGRAPHS

## I. Latrine and Housing Structures

### a. Housing Structures



Samburu Village 5



Kitui Village 4



Kitui Village 2



Turkana Village 6

b. Latrine Structures



Turkana Village 6



Turkana Village 2



Kitui Village 1



Samburu Village 4

## 2. Soils/Landscapes



Samburu Village 3



Turkana Village 1



Kitui Village 4



Turkana Village 3

# APPENDIX D. COUNTY GOVERNMENT CLTS REPORTING AND IMPLEMENTATION STRUCTURES

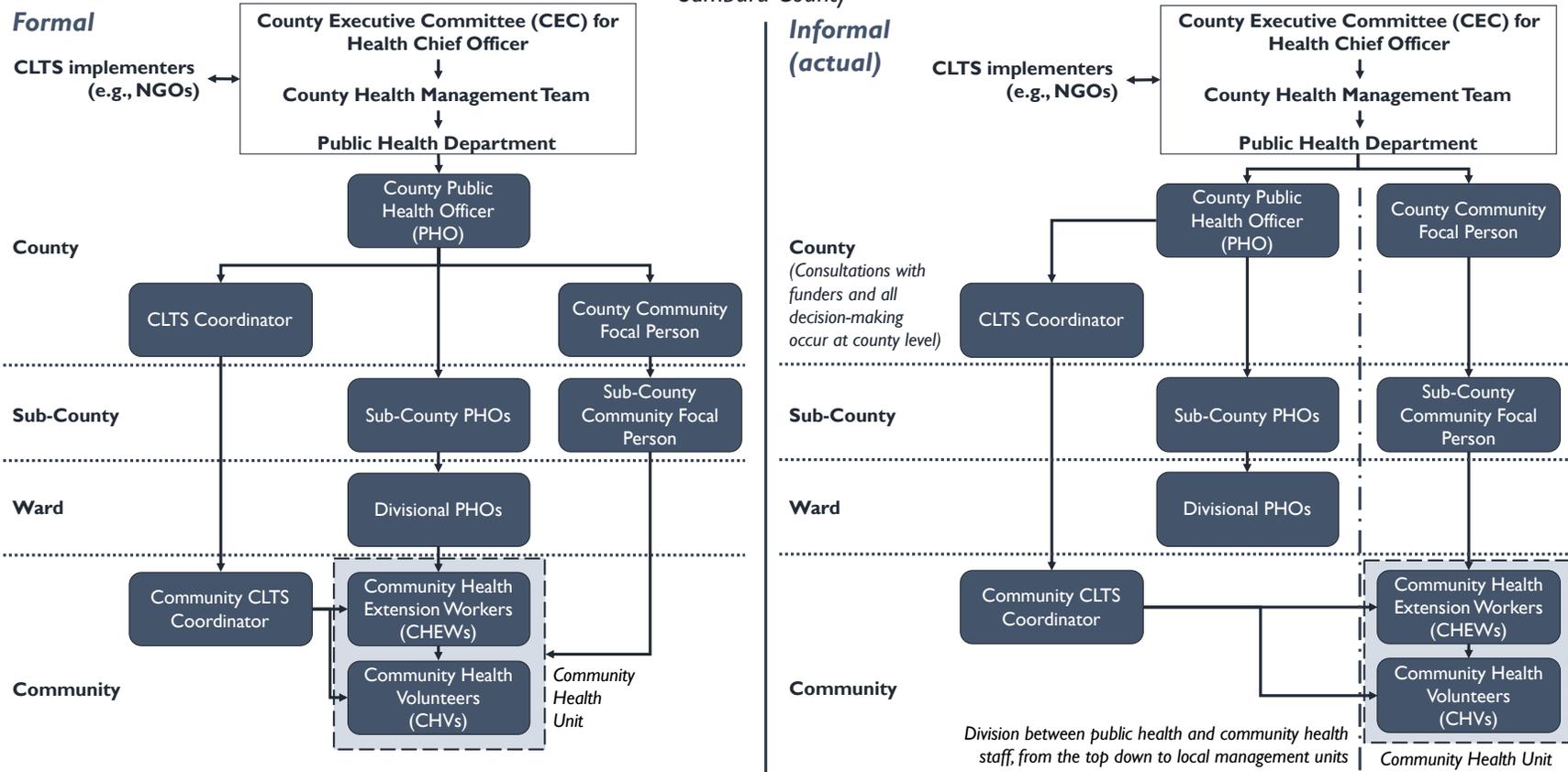
## SAMBURU

**Limited coordination between parallel departments hinders reporting and awareness of activities in Samburu.** In Samburu, decisions about CLTS strategy and implementation come from the upper levels of the county government, in consultation with implementing partners. Within the Public Health Department, the three key players at the county level are the County PHO, the CLTS Coordinator, and the County Community Focal Person. Formally, the County PHO is the leader of this group, but in practice these individuals operate on more equal footing (see formal and informal structures in Figure D1).

Below these three county-level officers, local officials support CLTS implementation within their areas of operation. Community CLTS Coordinators assign CLTS-related activities to CHEWs and CHVs, who play a large role in CLTS triggering and follow-up at the village level, helping to shepherd their communities toward ODF certification. Formally, these actors are also expected to report to the Divisional PHO (equivalent to the Ward PHO in other counties) and Sub-County Community Focal Person. In practice, however, a separation has developed between the department's community and public health streams, and generally CHVs and CHEWs work under the Sub-County Community Focal Person. With the CHEWs and CHVs not reporting to their supervisors in the public health stream, Sub-County and Divisional PHOs can become sidelined in the CLTS process, and they may not be aware of planned or ongoing activities. Accordingly, documentation and reporting of CLTS implementation may not reach the County PHO, while implementing partners or funding agencies working with PHOs across all levels may not be able to connect effectively with activities on the ground. Similarly, at higher levels, the County Community Focal Person should report to the County PHO, but these two actors actually run parallel programs, with each sub-department engaging in independent activities (Figure D1).

## Hierarchical Framework for CLTS Reporting

Samburu County



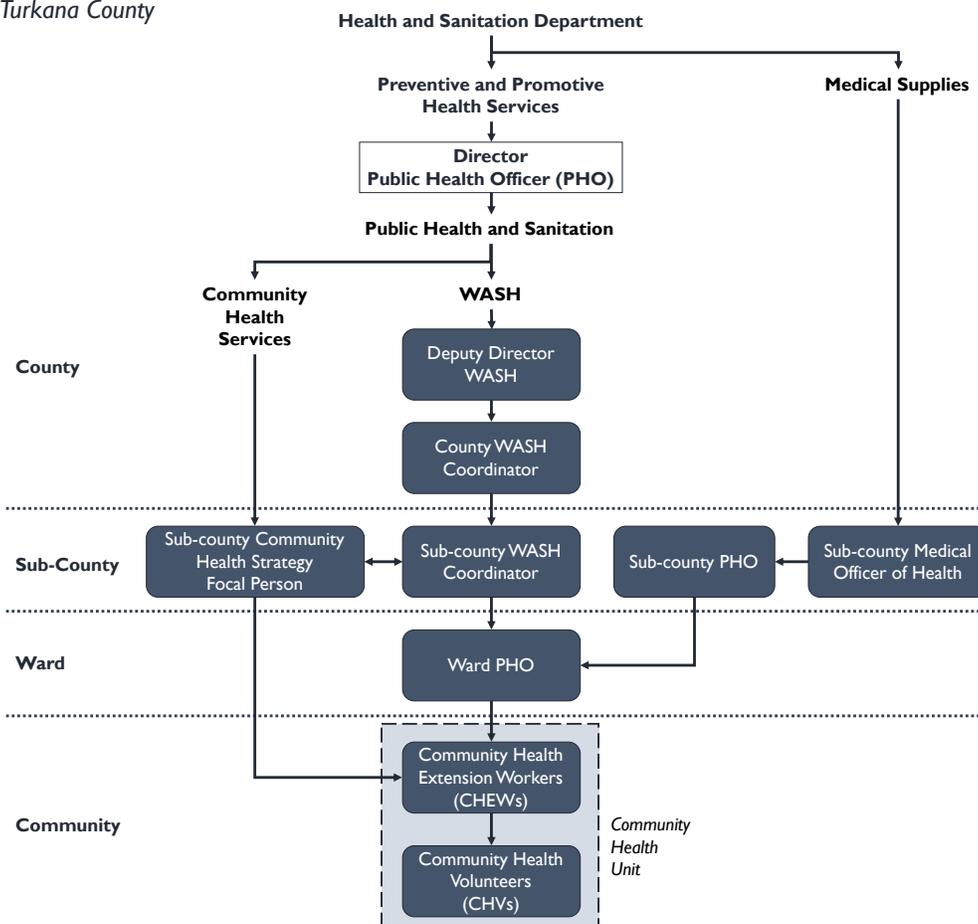
**Figure D1. Framework for formal (left) and informal (i.e., actual; right) CLTS reporting in Samburu. Dark blue shading indicates actors directly involved in CLTS reporting and implementation at multiple levels, while white/no shading indicates upper-level management overseeing all health-related activities in the county.**

## TURKANA

**Complex structures can create challenges or inconsistencies in Turkana.** At the community level in Turkana, CHEWs and CHVs work to implement and support WASH activities, and these actors report to their Ward PHO. As in Samburu, CHEWs and CHVs are also directed by the Sub-County Community Health Focal Person, who collaborates with the Sub-County WASH Coordinator to define and support WASH-related activities. At this intermediate level, Ward PHOs report to their Sub-County WASH Coordinator with respect to WASH activities but also report to the Sub-County PHO in a more general capacity. However, the Sub-County PHO reports to the Sub-County Medical Officer of Health, who operates within Medical Supplies, an entirely different section of the Health and Sanitation Department that is separate from WASH activities (Figure D2). Overall, while there does appear to be a clear line of reporting in principle from the community level up to the Directors of WASH and Public Health at the county level, the multiple layers of officials operating in different sub-departments can hinder reporting or implementation processes. Supervisors may not be aware of all activities being undertaken by their subordinates, and reports made by subordinates may not reach the correct individuals higher up in the structure. The large number of NGOs that implement various programs in Turkana may also contribute to inconsistent programming and reporting, potentially confusing or conflicting with strategies and policies adopted by the government.

### Hierarchical Framework for CLTS Reporting

Turkana County



**Figure D2. Framework for CLTS reporting in Turkana.** Dark blue shading indicates actors directly involved in CLTS reporting and implementation at multiple levels, while white/no shading indicates upper-level management overseeing all health-related activities in the county.

## KITUI

**Consolidated and clear structures in Kitui enable streamlined coordination.** In Kitui County, CLTS implementation is implemented collaboratively by the county government and implementing partners. Generally, existing structures for implementation and reporting are well defined and help to ensure institutional accountability. Certain roles have been combined to minimize duplication and promote a high level of involvement from all parties. In particular, similar activities falling under the community health and public health sections have been combined (Figure 2), whereas they are implemented separately in Turkana and Samburu.

At the county government level, the health and sanitation department heads high-level decision-making with implementing partners. The Public Health Division acts as the anchor for all health-related issues, with WASH activities streamlined under the environmental health section. This section is headed by the County PHO, who directs WASH interventions jointly with the County WASH Coordinator and the Community Strategy Focal Person (who leads the community health services section). The WASH Coordinator organizes county-level WASH activities and manages the real-time CLTS monitoring system.

Beneath the county-level structure, PHOs oversee CLTS implementation at the sub-county level, but they also act as sub-county Community Strategy Focal Persons, reporting to the County PHO. Ward PHOs play a critical role in managing CLTS activities at the ward level while also functioning as CHEWs, working to strengthen CLTS implementation activities at the community level. Below them, CHVs engage in sensitization and follow-up exercises to support a community's efforts toward achieving ODF status, and they report the community's progress and current status to the Ward PHO.

Combining roles and responsibilities in this way has helped local officials to maximize the usefulness of existing structures and coordinate and effectively track CLTS implementation. In particular, the streamlined structure and high level of coordination, from top-level management to the community level, has led to strong social cohesion between communities and the county government (although this is not always the case for the more remote communities the team visited).

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