



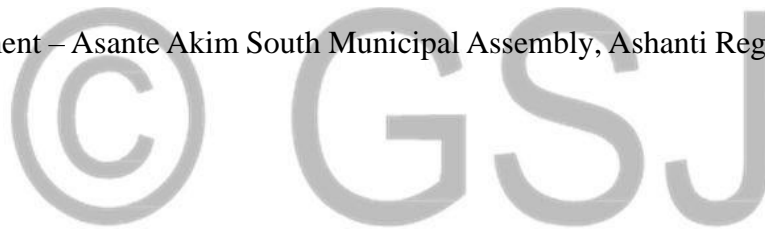
**AN EVALUATION OF THE COMMUNITY LED TOTAL SANITATION
APPROACH IN SOME SELECTED COMMUNITIES IN THE CENTRAL REGION**

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ABSTRACT

Many sanitation delivery approaches have been implemented in Ghana; however, these approaches have failed to increase sanitation coverage. In recent years, the implementation of Community Led Total Sanitation (CLTS) approach has shown some significant contribution to coverage and adoption of improved sanitation behaviour. This study assessed the Community Led Total Sanitation (CLTS) approach to sanitation delivery in selected communities in the Central region. This study adopted a mixed method research design. One hundred and forty-five householders were randomly selected from four communities. Interview guides, interview schedules and observational checklists were used to obtain the data from respondents. The SPSS software was used to analyse quantitative data while thematic and content analysis approach was used to analyse the qualitative data. Frequencies, percentages, tables and cross-tabulations were used to present the data.

The study revealed that the practice of open defecation was eradicated after CLTS implementation and community members adopted improved household latrines. Again, findings showed the triggering of community members was handled mainly by Local NGOs with the support of Plan Ghana and Community Water and Sanitation Agency (CWSA). The study identified a number of institutions involved in CLTS implementation such as CWSA, Plan Ghana, Water and sanitation management teams (WATSANs), and District Water and Sanitation Teams (DWSTs). Findings revealed that these institutions knew exactly what their roles were and roles of their partner institutions. However, the study revealed some major institutional challenges including inadequate funds for CLTS monitoring and WATSAN activities, inadequate logistical support for the WATSANs and the DWSTs, limited number of staff, and capacity at the district level among others.

It is recommended that the banks must assist community members through micro-credits for latrine construction; WATSANs given adequate financial motivation; adequate funds provided by the district for follow-up activities etc. The result of this study is useful to policymakers by formulating a national CLTS policy specifying the strategies and actions that will guide all districts and all water, sanitation and hygiene (WASH) intuitions.

Keywords: Community Led Total Sanitation, open defecation, triggering, WASH

1.0 Introduction

Sanitation remains one of the biggest development challenges of our time, and a long-neglected issue associated with taboos and stigma. Despite growing attention and efforts, many top-down approaches to sanitation have failed, reflecting that simply providing people with latrines or toilets does not necessarily guarantee its use (Mehta & Movik, 2011). Globally the WASH sector has had to grapple with the challenge of increasing sanitation coverage in developing countries and diarrheal diseases, whose roots are in poor sanitation are the major cause of death especially in children under five years in these developing countries (Mehta & Movik, 2011).

In Ghana, various institutions (such as CWSA, UNICEF, Plan Ghana, WaterAid) in the WASH sector have employed different top-down approaches such as the Subsidy approach, Sanitation marketing and sanitation financing schemes (Plan Ghana, 2010). These top-down approaches have attempted to tackle the issue of poor sanitation by trying to improve coverage with financial support for constructing toilets. However, for many years it has been evident that providing subsidies or credit systems for construction of toilets alone does not necessarily

translate into usage and also does not lead to improved sanitation and hygiene (Water and Sanitation Program, 2007). Thus, no significant results have been achieved through these top-down approaches. Additionally, some institutional problems have further worsened the sanitation situation and led to the failure of these sanitation approaches. The major challenge here is that, there is no effective inter-institutional coordination and collaboration between the various WASH institutions (i.e. Ministry of Water Resource, Ministry of Local Government & Rural Development, Environmental Health & Sanitation Directorate, Community Water & Sanitation Agency) and the limited number of staff and technical capacity to direct and support the District Assemblies (DAs) in the provision of environmental sanitation services (CWSA, 2008; GoG, 2008).

The WHO and UNICEF Joint Monitoring Program reports, 2021, indicated that out of 54 African countries, Ghana placed 48th with sanitation coverage of 24 percent. Today, Ghana is considered “off track” when it comes to access to improved sanitation and the gap between the present national coverage (both rural and urban) of 24 percent and 100 percent target by 2030 indicates that there must be about five times increase in coverage to be able to meet the SDG target. Since, 1990 to 2020, sanitation coverage has increased from 8 percent to 24 percent indicating only 16 percent points increase within a span of 30 years (WHO/UNICEF, 2021). Sanitation coverage in the Central region 65.6 percent indicating that about 34.4 percent of its populace still do not have access to improved sanitation (Ghana Statistical Service, 2018). Due to this, open defecation is widespread in the Region where 16.6 percent (about 474,730 people) of its population practice open defecation (OD) because they do not have a toilet facility (Ghana Statistical Service, 2021). This coverage and its associated OD practices is as a result of the failure of sanitation approaches being implemented in the region.

The search for a new approach to sanitation is necessary as the previous approaches have failed and it is in this background that the significant results demonstrated by the CLTS approach adopted in South Asia has drawn attention. The CLTS is a bottom-up participatory approach to rural sanitation that empowers communities to recognize their own sanitation problems (including open defecation) and take action to solve the problems and become open defecation free (ODF) (Water Aid, 2013). It emphasizes community action and behaviour change as the most important elements to achieving better sanitation.

Empirical findings from Bangladesh, India, Indonesia etc have demonstrated that the CLTS approach offers tremendous potential of ensuring open defecation free (ODF) communities, improves sanitation and hygiene behavior, and thus increases sanitation coverage (Kar & Chambers 2008; Kar & Bongartz 2006). An analysis of CLTS’ contribution to coverage conducted by Roberts and Malaga (2009) showed that CLTS pilot projects had contributed 4

percent to sanitation coverage in the intervention communities within 18 months of its implementation (i.e. 2007 to 2008). This increase was 8 times more than the annual percentage increase witnessed from 1990 to 2006. This demonstrates the potential of CLTS and why it was acknowledged by government and adopted into the National Environmental Sanitation Policy (NESP). The CLTS approach has been implemented in the Central region for years but there hasn't been any research to ascertain its effectiveness. An empirical study to assess the effectiveness of the approach in Central region is therefore imperative.

2.0 MATERIALS AND METHODS

2.1 Study Area

The study took place in the Central Region. The choice of the study area was because CLTS was initially piloted and still being implemented since 2007. The Central Region occupies an area of 9,826 square kilometers making it the third smallest area in Ghana. It shares common boundaries with Western Region on the west, Ashanti and Eastern regions on the north, Greater Accra Region on the east and the Atlantic Ocean (Gulf of Guinea) on the south. The region was the first in the country to make contact with the Europeans. Its capital, Cape Coast, was also the capital of the Gold Coast until 1877, when the capital was moved to Accra. Its population as at the 2021 population census is 2,859,821 with a growth rate of 2.1 per cent per annum (Ghana Statistical Service, 2021). The Region is the second most densely populated in the country, with a population density of 162 persons per square kilometer. There are about 32 major festivals in the region including the Aboakyer, Fetu afakye and Bakatue. The Region has undulating plains with isolated hills and occasional cliffs characterized by sandy beaches and marsh in certain areas.

The Region is endowed with rich natural resources such as gold, beryl and bauxite, diamond, tantalite, columbite, timber, quartz, muscovite, mica, granite, feldspar, rich fishing grounds along the coast, forests and rich arable land. The region is predominantly Akans majority of whom are Fantes. Other ethnic groups are Guans, Ewes, Ga-Dangmes and Mole-Dagbons. Majority of people (about 80 percent) in the region are Christians with few being Muslims and traditional worshippers. Agriculture (such cocoa, pineapple and grain farming, fishing) is the main economic activity most residents derive their income and employs more than two thirds of the work force in many districts. Other economic activities include manufacturing, wholesale / retail trading and petty trading. Sanitation coverage in the Region is 65.6 percent and water coverage is 93.1 percent (Ghana Statistical Service, 2018). Some communities CLTS have been implemented are Aboano, Bando, Ekumfi-Edukuma, Kenyakor, Bawjiase, Oboyambo, Korado etc. The Region houses 20 districts including Twifo-Hemang-Lower

Denkyira, Upper Denkyira, Komenda Edina/Eguafo/Abirem, Twifo Atti Morkwa, Agona-East districts etc.



Figure 1 Map of Central Region

Source: Adapted from Dankwa, K. e'tal (2021; pg3)

2.2 Study Design

A mixed method research design was adopted for this study - Quantitative (interview schedule / questionnaire) and qualitative (interviews and observations). The study design for this work was descriptive and evaluative research (using retrospective questioning). Because baseline data was unavailable, this study used retrospective questioning to capture the 'true' status of communities' sanitation situation prior to the start of the CLTS intervention.

2.3 Sample Size and Sampling Techniques

Using simple random sampling techniques, four communities were selected out of seven CLTS communities in the Central region. Only four communities were selected because most of the CLTS communities were very difficult to access and financial constraints of the researcher. These communities were Abodam, Aklomenu, Aboano and Oboyambo. These communities emanate from the Twifo Atti-Morkwa (TAM) and Agona East districts respectively. Again, purposive sampling technique was employed to select Water and Sanitation (WATSAN) committee members from the four communities. This was because they were knowledgeable about CLTS and were also involved in the CLTS process at the community level. Eight WATSAN members (two from each community) were selected for the study. This was because most of the members had moved out from the community and due to time constraint, those readily available were sampled for the study.

The Key informants (CWSA, Plan Ghana, and District Water and Sanitation Team) were also purposively selected. This was because these agencies fund and facilitate the implementation of CLTS approach at the community level. Lastly, the sampling frame consisting a list of 233 households was obtained from the District Assemblies (DAs) of the four communities. This list of 233 households formed the sample frame. The Krejcie and Morgan (1970) sample size determination table was used as the reference for deriving the sample size for this research. The table predicted a sample size of 145 for a population of 233. Therefore 145 out of the 233 households were used as the sample size for the study. Achieving a representative sample for the study was critical and therefore the selection of households was based on percentage allocation using the total number of households found in each community. Following this, a simple random technique was used to select the households.

Table 1: Population and Sample Distribution of Households in the Communities by Districts

Districts	Communities	Number of Households	Percentage	Number of Households Sampled
TAM	Abodam	49	21.0	30
TAM	Aklomenu	74	31.7	46
Agona-East	Aboano	43	18.5	27
Agona-East	Oboyambo	67	28.8	42
Total		233	100	145

Source: Computed by Author (2014)

2.4 Data collection methods

Interview and observations were employed as methods to collect data. Observation was used because it allowed the researcher to observe phenomenon or respondent behaviors as it occurs naturally in its own environment. Interviewing was deemed appropriate for this study because of two reasons. Firstly, most respondents were illiterates and may not understand most of the items in the instrument. The second reason is that, interviewing provides a face-to-face interaction with respondents in which the researcher can read both verbal and non-verbal signs (such as gestures, postures etc). This way, the researcher could deduce whether the respondent is giving the correct responses or otherwise.

The researcher interviewed any member of the household who was 18 years and above, and was part of the CLTS program. This is because they can better articulate and have a better understanding of the phenomenon being studied by the researcher. The researcher sent an official letter to the CLTS institutions, Unit committees and District Assemblies of the selected

communities. The aim was to introduce the researcher and his research project to the institutions, community and DAs.

Again, before households were interviewed, the aims of the study and procedures for responding were explained to them. They were also assured of confidentiality. Usually, they were interviewed during the late hours of the day when they have returned from their farms or work and in the mornings on weekends. The researcher was assisted by five assistants who were purposely trained for this exercise. In addition, the assistants were monitored from time to time to ascertain that the correct processes were followed. Data was collected for 1 month, by which time all the communities were covered.

2.4.1 Research instruments

Data collection instruments used for the study were interview schedules, interview guides and observational checklist. The interview schedule was used to solicit information from households, the interview guide for the key informants and WATSAN committee members. The interview schedule comprised of open and close ended questions. It was used because it was expected that most households were illiterate. The interview guide was considered appropriate for key informants because it helped get in-depth information about the CLTS approach.

Both interview schedule and interview guide had four sections namely; sections A, B, C, and D. The first section solicited personal data such as age, marital status, educational level etc. The second section B obtained information about the process (stages) of CLTS with at least 20 items both open ended and close ended questions. The third section C obtained information about institutional arrangements of CLTS and was made up of at least 10 items both open ended and close ended questions. The last section D assessed the effectiveness of CLTS with 20 items.

2.4.2 Sources of data

Data from both primary and secondary sources were collected for the study. Primary data are information collected directly from the respondent for a specific purpose. According to Kumekpor (2002) secondary data are information that have been gathered previously for some purpose other than the current research project. Thus, with the secondary sources, the researcher gathered information from existing literature including CWSA written records and reports, UNICEF reports, Plan Ghana reports etc.

2.5 Data analysis

The quantitative data was cleaned and carefully analyzed using Statistical Product and Services Solutions (SPSS) version 21 in line with the objectives of the study. Results were presented in simple frequencies, charts and percentages. Also, the qualitative data was transcribed manually and analyzed thematically.

3.0 RESULTS AND DISCUSSION

The results of this study were discussed based on the main objectives - examine the processes of CLTS implementation; examine institutional arrangements for CLTS implementation; assess the effectiveness of CLTS approach; make recommendation for improving the CLTS approach.

3.1 The process of CLTS implementation

The first objective of the study focused on the processes involved in the CLTS implementation. CLTS implementation involves three stages namely Pre-triggering, Triggering and Post-triggering stage.

3.1.1 Pre-triggering stage of implementation

Pre-triggering refers to community entry. That is, how implementers establish rapport and mobilise community members (CMs) for triggering at a later stage (Kar & Chambers, 2008). This also involves community profiling where basic data (e.g., number of household latrines, community dumpsites etc) of the community are collected.

Table 1: Pre-triggering stage of implementation

Community entry activities	Frequency	Percent
They first contacted the chief, some religious and opinion leaders, elders etc in the community	99	24.8
The chief and elders then summoned a meeting to introduce them to the community members	96	24.0
They had some discussions with community members and explained their purpose in the community	96	24.0
A date was set between the implementers and community members for the triggering exercise later on	85	21.2
Announcement was made to CMs	16	4.0

Don't know	8	2.0
Total	400*	100.0

Source: Field data (2014).

*Multiple responses

Table 1 shows how the pre-triggering stage of the CLTS intervention was done by the implementers from CMs perspectives. Ninety-nine respondents (24.8%) indicated that the implementers of the programme first contacted the chiefs with his elders, some religious and opinion leaders in the community before the programme was actually implemented. This confirms Kar and Chambers (2008) view that the chiefs and other important persons must be contacted during the pre-triggering stage of CLTS. Again, some community members (4%) indicated that announcements were made to them. Therefore, the findings show that appropriate community protocols were followed by Implementers before the start of the intervention.

Based on the in-depth interviews with the WATSANs and District Water and Sanitation Teams (DWSTs), the study revealed that there were two main implementers namely PLAN Ghana and Community Water and Sanitation Agency (CWSA). PLAN Ghana covered Agona-East district and CWSA covered Twifo Atti Morkwa district (TAM). During the pre-triggering stage of implementation, the implementers used similar but slightly different approach. PLAN Ghana first partnered a local non-government organisation (LNGO) called Pronet, and with their assistance some criteria were used to select Oboyambo and Aboano. They first contacted the chief with his elders and opinion leaders and explained their purpose of being in their community. Upon several other meetings, the chief summoned the CMs to meet the implementers. On this day, PLAN Ghana and Pronet introduced themselves and explained that they were there to facilitate the community to improve their sanitation problems. Later, a date was set to meet the entire community for the triggering exercise. Afterwards, PLAN Ghana and Pronet created awareness of the CLTS approach through advertising campaigns so that the entire community will know about it. They also conducted a baseline survey to collect data on the water and sanitation situation before the intervention.

On the other hand, CWSA initially contacted the DWST of Twifo Atti Morkwa district to select communities who were committed and had a sense of belongingness. These communities were Aklomam and Abodom. CWSA also partnered a LNGO called Integrated Community Development (ICD) and together, they moved into the community with lead assistance from the DWST. They met with the chief and elders and made known their intentions for the community on a few meetings. Afterwards, the chief sent an announcement to summon his people to meet the implementers on a taboo day. On that day, CWSA and ICD introduced

themselves, explained their purpose and a later date was agreed with CMs to meet for triggering. ICD conducted a baseline survey about the community’s sanitation situation before triggering was done.

From the discussions above, there were some similarities and differences adopted by the two main implementers (PLAN & CWSA). These similarities were partnership with LNGOs and the use of baseline surveys. The differences observed were that while CWSA did community entry through the district, PLAN did not. This was because PLAN was already implementing other projects in the district. Again, PLAN massively advertised CLTS in its communities but CWSA did not. Lastly, it can be observed that community’s view on the pre-triggering stage of CLTS is consistent with what the implementers said.

3.1.2 Triggering stage of implementation

This stage concerns the use of CLTS process tools to stimulate a sense of disgust and shame among community members towards open defecation. It also concerns plans to stop OD and sanitise the environment. CLTS process tools are transect walk, defecation mapping, shit calculation, medical-expense calculation, open shit to open mouth procedure, glass of water procedure and flow-diagram.

Table 2: CLTS process tools used in Triggering stage of implementation

CLTS process tools	Frequency	Percent
Transect walk	135	39.7
Defecation mapping	112	32.9
Open shit to open mouth	41	12.1
Flow-diagram	52	15.3
Total	340*	100.0

Source: Field data (2014).

*Multiple responses

Table 2 displays the CLTS process tools used during the Triggering stage of the implementation. Among the processes used by the implementers, transect walk was identified by the respondents (39.7%) as the commonest activity. The least mentioned processes were open shit to open mouth procedure (12.1%) and flow diagram (15.3%).

Also, action plans were taken by the community during the Triggering stage of implementation. Out of the multiple responses, 21.6 percent of the responses pointed out that the community agreed to stop open defecation immediately. Again, the community decided to start building household latrine (19.3%). Selecting sanitation committee was the least action plan taken representing 1.5 percent. Thus, the stimulation of disgust and shame among community members towards open defecation led to planned actions to stop the practice.

Data from the qualitative interviews revealed that the triggering stage was handled mainly by the LNGOs (Pronet & ICD) with the support of the main implementers (PLAN & CWSA) in their respective communities. It was observed that different CLTS tools were used in both districts to trigger the communities. One contravening revelation from the study was that while respondents in Oboyambo and Aboano indicated that only four CLTS process tools were used to trigger their communities, the implementers said they used six process tools. Again, the study noted variations in the sequence in which the process tools were used. For instance, in Aklomam and Abodom, transect walk preceded defecation mapping, open shit to open mouth (OSTOM) procedure and flow-diagram whereas in Oboyambo and Aboano, defecation mapping preceded shit calculation, then transect walk, OSTOM procedure, glass of water and flow-diagram. This sequence adopted by the implementers in Oboyambo and Aboano runs contrary to what literature says about the sequence in which the process tools should be used. According to Kar (2003) (inventor of CLTS), it should be done in the following sequence: transect walk, defecation mapping, shit calculation, medical expense calculation, OSTOM procedure, glass of water and flow-diagram.

Also, there were variations in how the open shit to open mouth procedure was used. Picture demonstrations was used by CWSA/ICD while prototype excrement and real food demonstrations was used by PLAN/Pronet. It was also found that the implementers did not use all the process tools. In an interview with Plan's CLTS coordinator, to find out why, he lamented that;

“Oboyambo and Aboano's response to triggering was a promising flame, so we didn't see the need to continue with the other process tools”.

This meant that majority of people in the two communities had realised OD was bad and wanted to take action to curb it, and as a result it was not necessary for the implementer to carry on with the other process tools. A similar reason was given by CWSA/ICD in Aklomam and Abodom. Lastly, all the four communities had similar action plans to stop OD.

3.1.3 Post - triggering stage of implementation

This stage concerns follow up visit to communities to monitor their progress toward achieving ODF and a clean environment. It also includes provision of technical support on latrine construction to the community. The discussions here focus on the activities that transpired during the Post triggering stage.

Among the follow up activities undertaken, 21.3% of respondents were of the view that the implementers encouraged and motivated the Water and Sanitation committee members and natural leaders to work hard. This confirms Meeks (2012) view that training, meeting, and

encouraging the WATSANs are some of the activities of follow-up visits. Again, community members mentioned that the implementers came to check whether the practice of open defecation had stopped (14.6%) and whether improved household latrine types are being constructed in the community (8.1%). The least (1.1%) follow-up activity was to check whether laws have been enacted and been enforced by the community.

Moving on to find out whether technical assistance on latrine construction were given to community members during the follow up visits, almost all the respondents (97.2%) responded in the affirmative while only 4 representing 2.8 percent said no. Some technical support given to community members by implementers include how to dig their pits in the appropriate shape (27%); which materials to use in construction (20.2%); how to line the pits (14.9%); how to construct the superstructure (11.9%); soil condition (7.9%) among others.

Based on the in-depth interviews, the following are discussed concerning the post triggering stage:

During this stage, PLAN, Pronet and DWST members were initially involved in follow-up visits to Oboyambo and Aboano. PLAN visited the communities intermittently and also collected reports from Pronet about follow-up activities in the community. For the first 6 months, staffs of Pronet and environmental health officers (EHOs) from the DWST were heavily involved in follow-up activities in the community. After six months, PLAN and Pronet handed over to DWST to continue with follow-ups. Some follow up activities were to check whether improved latrine types have been built, community have a common dumpsite, and weeds have been cleared. Technical assistance were given on how to built household latrines (HHLs) as well.

On the other hand, staff of CWSA together with ICD and DWST started follow-ups in Aklomam and Abodom. After about 7 months, CWSA and ICD handed over to the DWST of TAM to continue with follow up visits. During this stage, the implementers offered technical support to CMs, artisan and the WATSANs. They offered encouragement to the WATSANs, donated sanitation tools such as cutlass, wellington boots, wheel barrow, signboards with ODF inscription on them.

The DWST of Agona-East admitted that they together with the implementers followed up to monitor progress in the communities. Follow-up activities included: given technical advice on how pits should be dug; check whether OD has being stopped and CMs were building HHLs; check whether laws have been enacted and been enforced. The DWST gave the community building materials (such as iron rods, cements, roofing sheets etc) on credit to build their latrines. Similarly, the DWST of TAM admitted that follow-ups were done and similar follow-up activities occurred in their communities.

Lastly, WASTANs in the four communities pointed out that they were given training on latrine construction and hygiene education by the implementers during this stage. According to them, they met the implementers and were encouraged to work hard. The implementers checked whether OD had stopped and weeds cleared and artisans were also given training.

In summary, the study discovered that the main implementers (PLAN & CWSA) were not fully involved in follow-up visit but came occasionally. It was the Local NGOs and the DWSTs who took full responsibility. After a minimum of 6 months, the main implementers together with the LNGOs handed over the follow-ups to the district (DWST members) to continue. The study revealed that the district was constrained by limited funds and couldn't follow-up frequently.

3.2 Institutional arrangements of CLTS implementation

This section discusses the institutional arrangements of CLTS implementation in terms of institutional roles, benefits and challenges.

3.2.1 Institutional roles

Findings for the qualitative interviews showed that, the institutions involved were Plan Ghana, CWSA, two LNGOs (Pronet & Integrated Community Development), DWSTs and the WATSANs. The DWST is comprised of an engineer, community development officer (CDO), and environmental health officers or assistances (EHOs/EHAs). The WATSAN committee is a 7-member team made up of a chairman, secretary, treasurer, organiser, hygiene educator and two ordinary members. Women form the greater part of this team. All the institutions knew what their roles were during implementation. PLAN indicated that they were the main implementers of CLTS; they provided funding and other resources, they entered the communities with support from the LNGOs; they followed up to monitor the community with help from LNGOs and DWST; they monitored the activities of the LNGO; and they supported the EHAs in monitoring and verification of the communities during post triggering among others. CWSA on the other hand, indicated that they were the lead implementer in Twifo atti morkwa (TAM); they provided funding for the program; followed-up to communities; and monitored the activities of the LNGOs and DWST etc.

According to DWSTs their role were to ensure successful implementation of CLTS; offered technical support; led the implementers to meet with chief and people during pre-triggering; supervise the activities of its members (i.e. EHAs/EHOs and CDOs); supervise the activities of WATSANs and give them the necessary support; assist community identify WASH needs; embark on follow-up visits; monitor progress on the sanitation ladder; assist in the formulation of WATSANs and Community action plans.

The WATSANs pointed out that their roles were facilitating access to credit or loans so that CMs can build latrines; ensure community is clean through enforcement of sanitation laws; create awareness on sanitation through education; assist in mobilising CMs for triggering; facilitate the use of communal labour to clean community; ensure community is ODF etc. Conclusively, these institutional roles as identified by the implementers, DWSTs and WATSANs is consistent with the roles expected of them as stipulated in the CLTS manual (2012).

3.2.2 Institutional benefits

At the district level, the CLTS implementers developed the capacity and skills of the DWST members through training workshops and seminars. According to a community development officer (CDO) in Agona-East,

“through the workshops we attended, this program has built our knowledge and skills in water, sanitation and hygiene issues and we have been empowered now to implement any sanitation project in the district including CLTS approach”.

Also, EHO at TAM lamented that they have learnt how to interact better with the chiefs, opinion leaders and elders, and the knowledge acquired has boosted their confidence. According to him, they can by their own selves implement CLTS;

“we know a lot now, we can do transect walk, shit calculation, mapping etc by ourselves. We can implement CLTS by ourselves”.

Secondly, the CLTS implementation created a better cordial relationship among the DWST, WATSANs, implementer and LNGOs than before. The intervention created a friendly environment because of its participatory nature which actively involved institutions from the district level to the community level. In an interview with the EHOs at TAM, he said,

“we are all friends now, we share ideas, information and offer support to each other the NGOs involve us in their activities, thanks to CLTS”.

Thus, CLTS improved the interrelations among sanitation actors in the Agona-East and Twiffo Atti Morkwa districts.

Again, CLTS became an entry point for other development programs. The implementation of CLTS facilitated smooth entry into the communities for other project such as delivery of educational infatsructures and services. Before it was difficult for EHAs to enter the communities as CMs did not corporate with them but after CLTS, it became easier. An EHA asserted that;

“before it was difficult for us to enter these communities for development activities, we faced a lot of agitations but after CLTS it's easier now”.

In addition, it created an opportunity for EHOs, CDOs and WATSANs members to meet people from diverse cultures and careers. For example, a delegation from USAID and DANIDA came to the TAM district to witness the success stories of Aklomam and Abodam who had achieved ODF status. They first met the DWSTs for discussions and were later sent to the CLTS communities. The districts are the first point of call when any organisation wants to visit these CLTS communities.

Finally, some members of the DWST travel to other regions for CLTS programs sponsored by the implementing agency or NGOs. This has made them relevant and opened job opportunities for them elsewhere.

3.2.3 Institutional challenges of CLTS implementation

Institutional challenges of DWSTs at the District level

The DWSTs indicated inadequate financial motivation for the WATSAN committee members and as a result many of them had left the committee to seek greener pastures in urban centres.

In an interview with the EHO, a DWST member in TAM he laments;

“WATSANs were the problem [...] It was very difficult to meet them when we go to the communities for monitoring. This was because the WATSANs were not paid for their services, so they move to the cities to seek economic opportunities. As a result, some members have opted out. We heavily rely on them because they are the advocates of CLTS when we are not around; they assist us during follow-up visits and provide us with updates of community’s water and sanitation situation”.

Another issue was inadequate support of DWSTs by the District Assemblies (DAs). According to EHAs in the TAM district, the Assembly does not support them financially because sanitation issues are not of paramount interest to the district. This finding was reaffirmed by another EHO in Agona-East, she lamented that;

“the heads in the district such as the District Chief Executive and District Coordinating Director have not prioritised sanitation and as a result they do not see the relevance of our work”.

Consequently, staffs in other district departments are favoured more than the DWST members as they are given funds for other programs (such as education, health, agric etc.) other than sanitation.

Thirdly, the limited number of staffs and capacity of DWST office was pointed out as a constraint. According to a community development officer in Agona-East;

“we have very few EHOs / EHAs and community development officers for field work and some even lack the knowledge and skills needed for the job”.

This revelation is consistent with Roberts and Malaga (2009) views that the limited number and skills of EHAs at the District Assemblies constraints CLTS interventions.

Again, the DWSTs expressed concern about the inadequate logistical support (such as fuel) at the district for monitoring or follow-up activities to CLTS communities. Fuels for vehicle and motor bikes were not readily available due to funding problems making monitoring impossible. In addition, vehicles donated to the districts by the implementers/NGOs for CLTS and WASH activities were used for other purposes. They were used for errands and other program activities. They were also personalised by the district heads making it unavailable most times. Also, motorbikes used for CLTS monitoring by EHAs were not serviced frequently and as a result some had broken down.

Furthermore, funds channelled to the DAs account for CLTS activities created a major hurdle for the DWSTs. As noted by an EHO in TAM;

“CWSA transfers funds directly into the DAs account for CLTS activities or monitoring, and this creates problems for the DWST office. This is because we never get to know the exact amount transferred and parts of these monies are used for other purposes by the Assembly. Even when the funds have been transferred, they tell us there is no money”.

Additionally, per diems given to EHAs/EHOs for CLTS activities and workshops were not paid on time and sometimes not paid at all by the assembly.

The inadequacy of material support at the DAs for CLTS or WASH activities is disturbing. Stationeries (such as pens, pencils, papers, etc) for office use and training programs (such as workshops and seminars) at the DWST office is often inadequate. Office equipments such as computers, printers, scanners have either broken down for years or non-existent in some districts. Also, there are no digital cameras for the DWSTs to take pictures of WASH situations when they go for monitoring and for the purposes of reporting and documentations. Again, the DWST office has no protective clothing (raincoats, boots) for its officers and this inhibits performance of their duty during raining season as they mostly used motorbikes for follow-ups to the intervention communities. For example, during rainfalls, EHAs clothings are wet by the rains and many of them will not want to go for monitoring during this season.

Another, challenge is the absence of risk allowance for EHAs / EHOs and community development officers. Environmental health assistants and community development officers risk their lives through frequent travels to different communities for WASH activities yet they are not given any risk allowance. This demotivates them and kills their morale. Consequently, they will not sacrifice for their job.

Institutional challenges of WATSANs at the community level

Firstly, three out of eight WATSAN members interviewed indicated that there was weak coordination between the WATSANs and DWST in Twifo Atti Morkwa district. During and after implementation, information flow between them was poor and as a result EHAs frequently met the absence of the WATSANs when they went for monitoring. This situation was particularly witnessed in Abodam. The WATSAN chairman in Abodam argues that any time they sent a request or problem to the district, it takes a longer time for them to respond and sometimes they have to travel to the district office several times for feedback. The DWSTs in TAM also espoused similar remark:

“when we send information to the community we don't get feedback”.

Secondly, absence of logistical support was identified as a challenge by the eight WATSAN members in the four communities. The WATSANs are advocates of CLTS and create awareness through educating CMs on sanitation and hygiene within and outside their communities. Yet they lack logistic such as transport allowance, food and visual aid materials (such pictures and videos on sanitation) to enhance their educative activities.

Thirdly, seven WATSAN members expressed concern about inadequate financial motivation to boost their morale. According to them, many of their members have moved to the cities to seek better opportunities because they are not paid for their services in the community and also need to fend for their families. According to the WATSAN secretary in Aklomam;

“because we are not paid many of us have travelled to urban areas to work [...] Even sometimes we have to borrow money to go for training workshops at the district”.

Again, insults rendered to WATSAN members during the course of their duty were identified as a problem. Some WATSAN members were insulted when trying to caution some people about their insanitary behaviours. Sometimes, there were heated argument between WATSANs and community members over indiscriminate dumping and the management of dumpsite. This situation was seen in Abodam where the chief was mostly not around during implementation and had delegated his power to his elders.

Institutional challenges of Implementers

Ineffective coordination among the implementers, the LNGO and DAs was identified as a hindrance. This was particular in the Twifo Atti Markaw district where CWSA operated. In a discussion with the Extension Service Specialist she argued that communication between them was not smooth; feedback lagged behind and the DWSTs were not totally committed.

Again, the implementers (CWSA & PLAN) were constrained by insufficient numbers and capacity to solely implement CLTS. Due to this, they both contracted a local NGO to support them in the implementation. In an interview with PLAN CLTS coordinators he said;

“because of the limited number of our staff and technical capacity [...] we partnered Pronet to assist us”.

3.3 Assessing the effectiveness of CLTS implementation.

This section discusses how effective the CLTS intervention was.

Concerning the community’s sanitation situation before the CLTS intervention, a little over seventy-one percent (71.7%) of the respondents said that their sanitation situation was very bad whereas 27.6 percent indicated that it was bad. Only 1 person (0.7%) said their sanitation situation was okay before CLTS was implemented. Table 3 identifies some of the sanitation problems in the community before CLTS implementation. The respondents mentioned rampant practice of open defecation, indiscriminate dumping of rubbish by residents and several household dumpsites which were unkept. These responses had representations of 25.3, 17.4 and 12.5 percents respectively.

Table 3: Communities’ sanitation situation before CLTS implementation

Communities’ sanitation situation	Frequency	Percent
Open defecation was rampant	125	25.3
Indiscriminate dumping of rubbish	86	17.4
Few HHLs	36	7.3
High prevalence of San. diseases(malaria, diarrhea ,cholera)	40	8.1
Weedy community	15	3.0
Several household dumpsites unkept	62	12.5
Backyard weedy with faeces	34	6.9
Dirty community	30	6.1
Stench in community	48	9.6
Bad hygienic practices	10	2.0
Lots of flies in the community	5	1.0
Water points weedy and dirty	4	.8
Total	495*	100.0

Source: Field data (2014)

*Multiple responses

The next theme discusses community’s sanitation situation after CLTS implementation. Generally, community members indicated an improvement in their sanitation situation after the

intervention with more than half (53.1%) of the respondents confirming a good sanitation situation and 46.9 percent indicating a very good sanitation situation. However, none of the respondents reported that their sanitation situation was the same after the CLTS intervention. From Table 4, some of the improvement in sanitation respondents mentioned are a stop in the practice of open defecation, a clean environment and a common dumpsite for the community. These responses were represented as 21.1, 18.4 and 17.8 percents respectively. The least response (0.4%) was a reduction of flies in the community.

Table 4: Communities’ sanitation situation after CLTS implementation

Communities’ sanitation situation	Frequency	Percent
OD has stopped	96	21.1
OD has reduced	32	7.0
Common dumpsites for refuse	81	17.8
Low prevalence of San. diseases(malaria, diarrhea, cholera)	47	10.3
Clean environment	84	18.4
Good hygienic practices	16	3.5
Reduction of flies in community	2	.4
More HHLs constructed	33	7.3
Backyards void of weeds and faeces	23	5.0
Stench-free community	42	9.2
Total	456*	100.0

Source: Field data (2014).

*Multiple responses

The next issue focused on latrine coverage of community members. Out of the 145 respondents, 112 respondents representing 77.2 percent indicated that they had latrines in their homes. Only 33 (22.8 %) persons indicated they did not own household latrines. Furthermore, out of these 112 respondents who had latrines, 75.9 percent (110 respondents) of them confirmed that they constructed their household latrines as a result of the CLTS interventions while relatively few (1.4 %) did not construct latrine as a result of the intervention. Therefore, the CLTS implementation resulted in an increase in latrine coverage in the four communities. This is consistent with the study conducted by Kar (2003) that CLTS accelerates latrine coverage.

Table 5 shows whether the CLTS intervention had led to a change in sanitation and hygiene behaviour. Generally, the respondents strongly agreed that there has been a change in sanitation and hygiene behaviour. Specifically, most of the respondents strongly agreed that after the intervention they always use a latrine (80%), always washed their hands with soap or ash before eating (58.6%) and always washed their hands with soap or ash after defecating (67.6%). Therefore, it can be said that the CLTS intervention brought a change in sanitation and hygiene behaviour in the communities under study. This confirms Curtis (2007) argument that CLTS approach successfully changes sanitation behaviour.

Table 5: Sanitation and hygiene behaviour change

Indicators	SA	A	N	D	SD
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Always use a latrine	116 (80)	28 (19.3)	1 (0.7)	–	–
Backyards are always clean and weeded	80 (55.2)	48 (33.1)	16 (11.0)	1 (0.7)	–
General compound always clean	76 (52.4)	57 (39.3)	11 (7.6)	1 (0.7)	–
Always wash hand with soap or ash before eating	85 (58.6)	48 (33.1)	8 (5.5)	–	–
Always wash hand with soap or ash after defecating	98 (67.6)	44 (30.3)	1 (0.7)	–	–
Water is well stored and covered	81 (55.9)	56 (38.6)	6 (4.1)	2 (1.4)	–
Food is well stored and covered	84 (57.9)	50 (34.5)	10 (6.9)	1 (0.7)	–

Source: Field data (2014).

Table 6 displays the indicators used to measure the success or otherwise of the CLTS implementation and specific issues concerning its effectiveness. With regards to the eradication of open defecation as a result of CLTS. Generally, the respondents accepted that open defecation had been eradicated from the respective communities after the implementation of CLTS. Out of 145 respondents, more than half (55.2%) strongly agreed, and 30.3 percent agreed that open defecation had been completely eradicated from the community as a result of

the intervention. This finding thus suggests that CLTS implementation had halted the practice of open defecation and this view is in line with Godfrey et al. (2010) assertions that CLTS is the only approach that ends open defecation. Additionally, observation made by the researcher through the households and community's observational checklists indicated that feces were not found around pathways, backyards and in houses visited. Again, in all the four communities there were no feces found around previous OD sites and community dumpsite.

Table 6: Other indicators measuring effectiveness of CLTS intervention

Indicators	SA	A	N	D	SD
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Increase in the number of HHLs	76 (52.4)	60 (41.4)	6 (4.1)	3 (2.1)	–
OD has been completely eradicated	80 (55.2)	44 (30.3)	11 (7.6)	9 (6.2)	1 (0.7)
HWF has been installed near HHLs	20 (13.8)	15 (10.3)	21 (14.5)	40 (27.6)	49 (33.8)
Dumpsite, backyards and general environs are clean and without feces	57 (39.3)	74 (51.0)	11 (7.6)	3 (2.1)	–
Sanitation laws enacted and being enforced by the community	76 (52.4)	63 (43.4)	5 (3.4)	1 (0.7)	–
Reduced medical expense and infrequent visits to hospital	79 (54.5)	56 (38.6)	3 (2.1)	5 (3.4)	2 (1.4)

Source: Field data (2014).

Again, Table 6 discusses whether hand washing facilities (soap or ash and water dispensers) were installed by community members near their household latrines as a result of CLTS implementation. Those who strongly disagreed (33.8%) and disagreed (27.6%) on this formed the majority. Those who strongly agreed or agreed were represented by 13.8 percent and 10.3 percent respectively. Findings from the above, therefore, illustrate that hand washing facilities were not installed near household latrines after the intervention. Furthermore, observation

made by the researcher through the household's observational checklist supported this finding. From this checklist, majority of households (59.3%) did not have a hand washing facility installed near their HHLs. In a discussion with the WATSANs to find out why, they said:

“though CMs use soap and water to wash their hands after defecation, they didn't install HWF near their HHL because children play with it and destroy them”.

The next issue of discussion shows the level of agreements of community members on whether or not dumpsite, backyards and general environs have been cleaned and without faeces as a result of the intervention. Out of 145 respondents, most (51%) agreed that their dumpsite, backyards and general environment were now clean as result of the intervention. Again, 39.3 percent strongly agreed to this issue while a small number (2.1%) disagreed.

Again, the next issue discussed was whether sanitation laws have been enacted and being enforced by the community as a result of CLTS intervention. According to the respondents, the intervention had led to the enactment and enforcement of sanitation laws to sanction sanitation offenders and open defecators. The larger majority constituting 52.4 percent and 43.4 percent respondents strongly agreed and agreed respectively. Only 1 person (0.7%) disagreed on this issue. Therefore, it can be emphatically stated that the CLTS program caused the creation of sanitation laws being enforced by the communities. This is in line with Kar's (2003) view that CLTS creates the adoption of policing and sanctioning methodologies by CMs. Additionally, interviews with WATSANs revealed that children in Oboyambo were rewarded with toffee for identifying OD culprits who were then fined GH¢30. In Aklomam, OD culprits were fined and asked to bring a plastic chair.

Finally, Table 6 displays reduction in household medical expenses on diarrhea and sanitation related diseases and unfrequent visits to hospital. More than half (54%) of the respondents strongly agreed that they had seen a reduction in their household medical expenses on diarrhea and sanitation related diseases because they do not frequent the hospital to treat such diseases as they used to. Also, 38.6 percent of the respondents agreed to the issue. Those who strongly disagreed and disagreed were represented by 1.4 percent and 3.4 percent respectively. This is in congruence with Kar (2003) study that revealed that CLTS reduces community expenditure on medicines and visits to hospital.

This section analyses data collected through in-depth interviews with the Implementers, DWST and WATSANs concerning the outcome or benefits of CLTS implementation;

The interviewees identified several benefits. These include a stop in the practice of OD, increase in the number of household latrines, elimination or reduction in water and sanitation disease (such as diarrhea, cholera, malaria) in some communities; clean environs and without stench; self help community initiatives; built the capacity of artisans, DWST and WATSANS

through training; increased demand for sanitation hardwares and created jobs for artisans; reduction in medical expenses on sanitation related diseases; improved hygiene practices such as hand-washing at critical times and a positive change in people attitudes and behaviour towards sanitation.

One interesting outcome indicated by a WATSAN member was that the intervention has saved them from disgrace when visitors come to their community during festivities. According to him, before the intervention they did not have household latrines and directed their visitor to the bush or smelly communal latrine to defecate. This made them embarrassed. In another discussion with a WATSAN member at Aklomam;

“she asserted that the intervention had brought a stop to sanitation diseases; some years back before this intervention, there was frequent contraction of diarrhea and cholera. three people died from cholera in this community but after CLTS these diseases were gone”.

Additionally, interview discussions with the WATSAN secretary in Oboyambo indicated that CLTS built their communal self-help spirit, according to him:

“this intervention has instilled togetherness and belongingness among us and we use it to help each other during harvesting period. We the farmers form groups to harvest cocoa in batches in each other farms”.

4.0 CONCLUSION

Based on the findings of this study, the following conclusions were made. Knowledge of the CLTS intervention was well known by community members (CMs) even though they did not know its exact name. PLAN and CWSA partnership with the Local NGOs was essential in the success of the CLTS program. Thus, collaborations between government agencies, local and WASH organizations is key to the success of any CLTS intervention.

The process of CLTS (i.e. pre- triggering, triggering and post-triggering) was successfully implemented. However, there were some peculiar issues noticed in the triggering stage of implementation. That is, though seven CLTS tools exist, the implementers used only four, omitting shit calculation and medical expense calculation. Also, differences were noticed in the use of the open shit to open mouth procedure.

The implementers were successful in changing community members' insanitary behaviors to adopt improved sanitation practices through the use of the CLTS. The institution involved in the implementation had some knowledge about CLTS and clearly understood what their roles were. Similarly, CMs were aware of their roles in the intervention and that of the sanitation

committees (WATSANs). The role of the WATSANs is key to the sustainability of the CLTS intervention and therefore their needs must be addressed.

Conclusively, the CLTS is an effective approach to sanitation delivery in rural Ghana. This is because it improved the sanitation conditions of all the communities investigated by rendering them ODF and increased their sanitation coverage. It also instilled in them the attitude of keeping ones environment clean.

5.0 RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations have been made.

Community level

1. The implementers should partner the banks so that microfinance or credit schemes are made available to CMs especially the poor to enable them access loans to construct household latrines. This way more CMs will build household latrines.
2. The District Assemblies (DAs) should site Sanimarts close to the communities so that CMs can have readily available information about different latrine models, sanitation hardwares, materials for constructions etc.
3. Children should be educated by the WATSANs on the essence of the hand washing facilities fixed near HHLs so that they stop destroying them.
4. WATSANs should be given adequate financial motivation (such as monthly allowance, incentives, workshop allowances etc) by the District Assemblies so that they stay in their communities and support them. They should also be given the necessary logistical support (such transport allowance, food, stationeries etc) by the DAs to enable them embark on hygiene education within and outside their communities. Again, implementers should support the WATSANs with visual aid materials such as pictures and videos to enhance their hygiene educative activities in communities.

District level

1. The DAs should allocate a reasonable percentage of its District Assembly Common Funds for CLTS implementation and follow-up activities. These funds will enable the DWSTs to procure the necessary logistical support (such as automobiles, fuel, stationeries etc) in order to frequently follow-up to communities to monitor and also ensure continues monitoring after the implementers stop providing funds. Again, the DAs should solicit funds from development partners or international NGOs to enable them implement CLTS independently and support other CLTS activities in their district.
2. The District should establish quarterly forums for the EHAs/EHOs, CDOs, CLTS facilitators, implementers, WATSANs etc to share their experiences and lessons learnt

from CLTS projects. The DAs should also create a District CLTS team to supervise all CLTS activities.

3. The district must incorporate CLTS into its District Environmental Sanitation Strategy and Action Plan and the District Medium Term Development Plan with clear budgets.

National / Region level

1. The MLGRD & EHSD should adequately educate government officials and politicians on the national sanitation policy through workshops and seminars so that they stop promising CMs free toilets. Government should also set the pace by insisting on subsidy-free WASH interventions so that others (NGOs, Consultants etc) in the sector will follow.
2. The MLGRD & EHSD must launch a national campaign against open defecation; by intensifying education about CLTS through the radio, television, news papers and social media; and by using a number of influential persons (such as religious leaders, chiefs, musicians etc) as ambassadors to spread the concept of CLTS and good sanitation practices.
3. To solve the problems of sanitation (particularly open defecation) and scale-up CLTS, policy makers in consultation with stakeholders must formulate a national CLTS policy specifying the strategies and actions that must be adopted by DAs and all WASH intuitions.

Suggestions for further studies.

A research can be undertaken to find out the roles sanitation committees (WATSANs) play in the sustainability and scalability of CLTS particularly in the Central region.

Conflict of interest

The author declares no conflict of interest

Ethics approval and consent to participate

Ethical approvals and consent was sought by Author before commencement of research

Consent for publication

Not applicable

Availability of data and materials

Available on request from Arnold Bediako (AB)

Declarations of interests

None

Submission declaration and verification

This document is not under consideration for publication elsewhere. All authors approve explicitly its publication.

Authors' contribution

AB developed the search strategy, screened all articles, supervised the work, and drafted the first version of the manuscript. AB conceptualized the research questions and interpreted the result of the final version of the manuscript.

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