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ASSESSING FACTORS LEADING TO FAILURE TO SUSTAIN ODF ACHIEVEMENTS IN CERTIFIED AND DECLARED CHIEFDOMS, ZAMBIA

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Abstract:
Open Defecation is the process of defecating in the open without using toilets, while Open Defecation Free (ODF) is defecating using the toilet without leaving the human excreta open that contaminates the water supply, contaminates food and air, leading to eating human faeces causing diarrheal diseases. Currently, Zambia has a total of 288 chiefdoms, with 53 already certified and declared ODF representing 17% coverage. However, the major problem is that there is no single chiefdom that is still ODF or has sustained its ODF achievements, i.e. 0 (zero) out of 53 has sustained its ODF status, which is a worrisome development that has necessitated this study that is designed to investigate and identify the factors or reasons leading to ODF slippage in all the 53 chiefdoms across the country, i.e. affecting the national and sanitation universal coverage. The effects or consequences of slippage to open defecation has exposed people to consuming shit leading to outbreaks of cholera, typhoid, dysentery and other diarrheal-related diseases in the country, compromising the general public health of the people. It is for this reason that the study was able to address questions or issues of identifying factors leading to slippage of ODF achievements or attainment and further to get a detailed understanding or diagnosing the problematic sanitary facility and its parameters of adequacy, i.e. whether it is due to lack of toilet reconstruction or missing parameters such as the lid and hand washing facilities. Therefore, the rationale of the study was to identify factors for ODF slippage and find solutions or interventions ranging from policy formulation on ODF attainment and sustainability. The sample was drawn from all 53 chiefdoms with a 30% sample size in order to generalize the research findings

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or results and interventions. General findings and empirical data affirmed that there were no chiefdom ODF plans and no budgets at most of the councils to support ODF sustainability. The situation is also worsened by the fact that most of the councils have the CLTS Excel sheets in place but are outdated or not regularly updated; hence, the data is stale and cannot be used for planning and review of the interventions or programme performance. Further, the results indicated that 83.3% of respondents disagreed that local authorities are not doing enough to sustain ODF achievement, according to the Local Government Amendment Act No. 2 of 2019.

Keywords: maintaining chiefdom, ODF sustainability, achievements/results

1. Introduction

In this chapter, the study will be able to discuss the background of the study, justification of the study, statement of the problem, the purpose of the study, objectives, and research questions.

In Zambia, it has been realised that it's easy to attain ODF since the Community Led Total Sanitation (CLTS) was introduced in 2007 in Chief Macha in Choma District of Southern province, as is evidenced by 53 chiefdoms already certified and declared Open Defecation Free.

It has further been observed that the ODF chiefdoms easily lose the ODF status or slip back to open defecation (OD) due to unknown factors that the study will discover. It is, therefore, in this vein that the research problem of failure to sustain the achieved ODF achievement that is generalized in all the 53 chiefdoms stated above, wanting to identify and understand the factors leading to slippage at all levels will provide the Government of the Republic of Zambia and its stakeholders to come up with real and practical interventions that are national and localized based on the research findings for informed decision making.

Therefore, the research study will address questions or issues of establishing the ODF slippage and identifying factors leading to this development in this regard, this study is extremely important as it will guide the government and partners on policy direction on ODF sustainability and priority interventions to sustain ODF achievements as compared to current position where there is no policy guidance in regards to chiefdom ODF sustainability for priority planning after ODF attainment and celebrations.

The rationale of this study is that it will bring out an understanding of reasons for slippage and accompanying details in isolating specific sanitary facility components and utilization challenges that will be used as a basis by all stakeholders at all levels to guide on appropriate and practical interventions in capacity building the players and taking remedial measures accordingly, e.g. policy framework, capacity building and training needs including sustained finance mechanisms for both ODF attainment and sustainability.

In India, the Ministry of Drinking Water and Sanitation (MDWS) considers Open Defecation Free (ODF) to be a state where there are no faeces in the environment and everybody is using safe technology options for disposing of faeces, and solid and liquid resources are managed along with menstrual hygiene (italicised part is for ODF+).

MDWS progresses to ODF Sustainability, where the ODF status is maintained by ensuring everybody uses toilets all the time and assets created under SBM remain functional through proper upkeep, while in Zambia, Open Defecation Free (ODF) is defined as a status where all households have adequate latrine with all the parameters such as a superstructure providing privacy, smooth cleanable floors, Lid or toilet cover and a hand washing facility with water and soap within the premises (Basic sanitation on the phased approach or sanitation ladder).

Sustainability is the capacity to endure in a relatively ongoing way across various domains of life. In the 21st century, Sustainability is referred as "*meeting the needs of the present generation without compromising the ability of future generations to meet their needs*" (Brundtland, 1987), and its terms of ODF means people maintaining 100% of toilets constructed 3 months after verification in line with Zambia 2030 ODF strategy verification and certification protocols.

As stated above, the major problem in failure to sustain the ODF achievement is due to slippage that has left the Government and partners to keep speculating or making guesswork and accuse each other without having factual and accurate information which this study will provide, and this will lead to post ODF prioritization and prudent use of resources that will be directed or tailored to address specific identified challenges, and this will, in turn, translate in the general improvement of the public health of the population contributing to the attainment of the Zambia 2030 attainment of the sanitation targets.

The study, therefore, will focus on all the 53 certified and declared ODF chiefdoms Countrywide from which a sizeable sample will be drawn in order to scientifically generalize the results and trigger the Government of the Republic of Zambia and its partners to take appropriate remedial measures to stop the slippage and sustain the ODF facilities, hygienic use with sustained finance support mechanisms for the good of general public health of the people.

2. Literature Review

In this chapter, the study will be able to discuss the conceptual framework and the summary of the literature review placed in thematic areas as highlighted above. The study has provided a background for what has already been done or written on this topic and how it applies to this research.

This review has highlighted the deficits within the literature and may serve as a guide for advanced research as a way to contribute to the global conversation on sanitation, especially the Community Led Total Sanitation (CLTS) and Open Defecation Free (ODF) sustainability from the Zambian perspective.

In summary the researcher has provided a background for what has already been done or written on this topic and how they apply to this research. Several strategies were employed to retrieve literature, which included manual searching of books and journals and the use of electronic databases on the internet.

The World Health Organisation's (WHO) goal on sanitation is to eliminate and reduce Open Defecation (OD) or increase ODF attainment as per SDG 6.2.by the year 2030, and locally its equally the same goals for the Government of the Republic of Zambia is to keep reducing the open defecation practices, rates and coverage's to 0% by the end of the year 2030 which is the global and National target for Zambia.

The lack of ODF sustainability does not only affect Zambia as the open defecation rates declined globally from 24% in 1990 to 15% in 2011, which signified a drop of 244 million people to 1.04 billion in 2011.

The decline in the population practising open defecation has differed from region to region, i.e., Eastern Asia, South-eastern Asia, and the Latin America and Caribbean regions have seen a steady decline since the JMP's earliest measurements describing conditions in 1990.

A study was conducted to identify factors influencing open defecation-free status in areas practising community-led total sanitation: the case of Chiwala and Nkambo chiefdoms of Masaiti district.

About 74.2 percent of households in rural areas have no pit latrines. As a result, most of them either use the surrounding bush or cultivate areas. Furthermore, 80 percent of the diseases are associated with open defecation.

The main aim of this study was to assess Open Defecation Free (ODF) status and factors that influence the sustainability of ODF status practices in Chiwala and Nkambo Chiefdoms of Masaiti District in Zambia after declaring them ODF.

The study revealed that the sustainability of Open Defecation Free (ODF) status was at 26 percent in Chiwala Chiefdom and 82 percent in Nkambo Chiefdom, considering all the ODF indicators or criteria. These results indicated the ODF slippage by 74% and 18%, respectively.

Some of the barriers to ODF sustainability status were inadequate water supply, inadequate supervision by traditional leaders and individual factors such as laziness and negative attitude.

According to the latest JMP report (2017) using national data from 2015, 1% of people living in urban/peri-urban areas are still practising Open Defecation, in addition to an alarming 25% of the population in rural areas, with some Provinces reaching up to 56% overall Open Defecation.

In Zambia, a study was conducted sanctioned by the Ministry of Local Government to evaluate the CLTS performance in some selected Districts with support from UNICEF and revealed that sustainability is a major issue, as villages declared ODF one day does not mean they will stay that way.

Evidence suggests that there needs to be intensive monitoring, re-training and follow-ups on triggering and, in some cases, re-triggering.

In some areas there are clear indicators that sanitation use has taken root, with evidence of upgrading of latrines, progressive improvement of technologies used and obvious use and maintenance of facilities. These indicators have occurred in locations where there is strong institutional take-up of the CLTS approach, such as in Choma and Maisaiti, and there is widespread support for sanitation.

However, the ability to upgrade and improve seems to occur amongst the more affluent households, with the very poor relying on very simple pit latrines. Therefore, in Zambia, sustainability is seen as being very high, where local institutional capacity and supportive leadership enabled sanitation to be seen as a continuous and ongoing priority.

However, ODF sustainability is a challenge in many areas, e.g. one village in Kaoma district was declared ODF in mid-2010 and was also declared a model village. However, a follow-up visit demonstrated that the declaration of ODF status showed that there was a continued need for support and attention to prevent the community's motivation from stopping. collapsing of toilets.

Once the village was declared ODF, the community began to face challenges with collapsing latrines, and while some households continued to rebuild and upgrade toilets, other households stopped using toilets. There were however, calls for support to construct more permanent latrines using cement, which the communities cannot afford on their own. This demonstrates the need to continuously support behaviour change and work with the community through continued challenges, i.e. behaviour sustainability.

Environmental challenges/access to water: This was shown to occur in areas of the west where there are sandy soils and/or areas of annual flooding.

In such locations, populations are either displaced on a yearly basis where they do not construct sanitation facilities while displaced, or pits of latrines collapse on a regular basis, requiring intensive rebuilding. After the initial "disgust" phase after triggering, if triggering is successful, communities may achieve ODF status and have 100% sanitation coverage; however, when challenges are met, motivation is reduced, and, in many cases, new-found sanitation habits are abandoned.

Another study was conducted using Timor-Leste as a case study to understand the uptake and sustainability of sanitation interventions, as well as the perspectives and opinions of stakeholders working in the WASH sector.

The study findings indicated firstly that targeted material subsidies may improve the long-term sustainability of ODF communities; secondly, that collaboration is needed between NGOs and local government to develop consistent processes for monitoring and evaluation both during project implementation and after project completion; and thirdly, that long-term health promotion and community support activities are needed after project completion to facilitate sustainable behavioural changes. Whilst the Timor-Leste government has prioritized a decentralized approach to WASH projects, these study findings suggest that government oversight and involvement may be needed to ensure a unified and coordinated approach across all international and national WASH agencies working in the country.

The study conducted in India revealed that the responses provided a canvas of problems with sustaining ODF that covers technical, behavioural and physical issues.

These issues, persistent since before SBM, must be overcome before India can move onto ODF+, ODF++ and ODF-S. All the issues were related to the ODF-centric approach of SBM that focussed only on toilet coverage.

The technical problems concerned the quality of construction and types of toilets. Twin leach pit latrines were useful in most parts of India except in waterlogged areas. Here, members said, beneficiaries must be provided with different types of toilets so the pits do not fill with water or contaminate groundwater.

The 'acceptable' superstructure was suffocating; people would be willing to use toilets if they were combined with bathrooms. Behavioural issues, members enumerated, concerned the social norms around open defecation. While triggering through community-led approaches prompted a flurry of construction activity, there was a need to keep the spotlight on sanitation and hygiene after all households built toilets. This could be achieved by appointing a swacchagrahi in each village who was paid an incentive for specific outcomes. In the post-construction phase, aspirations messages should emphasise the benefits of using toilets rather than berating people for defecating in the open. Some suggested separate toilets for men and women. Physical issues concerned the lack of water and poor placement of toilets. The government should ensure ODF villages have a reliable water supply, said members.

India's sanitation story - achieved through the Swachh Bharat Mission – has made developing nations all over the world look up to India for lessons and inspiration. It's reported that over 97% of rural households today (December 2018) have access to toilets, whereas it was hardly 37% when we started this sanitation mission in 2014. It's over 60% progress made in about 50 months' time. That's remarkable, indeed.

The world looks at it as an amazing story – going by the size of the country India is. Sustainable sanitation for all is our goal. However, studies conducted (NARSS, 2017-18) on the use and maintenance reveal that, by and large, about 10% of the toilets constructed are not in use.

Therefore, action must be initiated to sustain the ODF status of villages so as to narrate our ODF Story completely and satisfactorily. There are difficult terrains and water-stressed areas, and there are people in remote rural pockets who think 'it's okay to do it in the open or that toilets are either for women or for people in the city who do not find any place for open defecation. This is a challenge – not new, though - that sanitation professionals/swachhagrahis are confronted with today.

The Ministry of Drinking Water and Sanitation (MDWS) has been drawing the attention of the State Governments time and again (through guidelines and advisories) on the need to focus on sustainable outcomes through SBM-G rather than paying excessive attention to the outputs per se. The ODF status of villages reported in the MIS of the Ministry's website should be an indisputable reflection of what is witnessed on the ground in Indian villages. In order to achieve this, post-ODF interventions that offer continuous engagement with ODF communities are pivotal. The notes, guidelines and

advisories issued by the MDWS provide a road map for ODF Sustainability. This document in your hand puts together all those notes and guidelines in order to set out the actions, actors and resources needed to ensure ODF Sustainability and the benefits of SBM interventions to sustain for long. In this handbook, except Units 2, 5, & 10, which are original contributions of the authors, the rest are all compilation of materials mainly from the MDWS, besides other sources. It is compiled and brought out as a source of reference for the trainers and field functionaries to draw ideas from.

In Liberia the government developed the CLTS approach through IWASH where 284 of 351 partner communities became open defecation-free (ODF) in Bong, Lofa and Nimba counties. Since then, Global Communities has guided an additional 29 communities to ODF status through ongoing programs, and plans The study surveyed 587 households and held focus group discussions (FGDs) in six ODF villages two years after the government's ODF verification. Overall, the slippage rate (i.e., a combination of sub-optimal use of a latrine and open defecation at respondent level) was estimated to be 14.5% (95% CI 11.6-17.3).

Results of multivariate logistic regression analyses indicated that (1) weaker social norms, as measured by respondents' perceptions around latrine ownership coverage in their community, (2) a lack of all-year round water access, and (3) wealth levels (i.e., not being in the richest quintile), were found to be significantly associated with slippage occurrence.

These findings, together with qualitative analysis, concluded that CATS programmes, including a combination of demand creation, removal of perceived constraints through community support mechanisms, and continued encouragement to pursue higher levels of services with post-ODF follow-up, could stabilize social norms and help to sustain longer-term latrine usage in study communities. Further investigation and at a larger scale, would be important to strengthen these findings.

In Mali, they developed a Post Open Defecation Free (post-ODF) strategy to anticipate sustainability problems and strengthen the results achieved by the CLTS approach. The research used a case study approach, in four ODF villages in two regions, to investigate the sustainability of rural sanitation outcomes in Mali.

Overall, 95% and 64% of households interviewed had respectively latrines and hand washing facility in the villages that benefited from the post-ODF approach. KIIs showed that the needs of vulnerable people are not sufficiently considered. The post-ODF mechanisms were not fully functional, mainly due to the lack of ownership by mayors. However, 54% of the households maintained the ODF sustainability criteria, which is a good performance. To move towards sustainable sanitation outcomes, this research recommended to focus on improving the public funding of rural sanitation and strengthening the capacity of mayors on sanitation including by transferring resources to them for the implementation of post-ODF activities.

Another study was conducted using Timor-Leste as a case study to understand the uptake and sustainability of sanitation interventions, and the perspectives and opinions of stakeholders working in the WASH sector.

The study findings indicated firstly that targeted material subsidies may improve the long-term sustainability of ODF communities; secondly, that collaboration is needed between NGOs and local government to develop consistent processes for monitoring and evaluation both during project implementation, and after project completion; and thirdly, that long-term health promotion and community support activities are needed after project completion to facilitate sustainable behavioural changes. Whilst the Timor-Leste government has prioritized a decentralized approach to WASH projects, these study findings suggest that government oversight and involvement may be needed to ensure a unified and coordinated approach across all international and national WASH agencies working in the country

The ODF sustainability study in Kenya by UNICEF in November 2015 identified the following limiting factors for sustainability of ODF as the majority (67%) of households stated that the reason for reverting back to OD was lack of access to a latrine: many relied on a shared latrine that was too far away or their own latrine had become dis-functional or collapsed completely.

The most common de-motivating factors for using a toilet were the physical aspects (fear of collapse, lack of privacy etc.) and the need to share with others. Difficulties for very young children and elderly people to use latrines were also commonly stated problems.

The study found that environmental factors (such as groundwater flooding the pit) and the cost of repair were also major de-motivators to maintaining latrines. Compared to the wealthiest households, poorer households spent disproportionally more on repairs relative to the initial cost of construction due to the poor quality of the initial latrine.

Partial Reversal (>0% up to 10% of sample HHs) Major Reversal (>10% of Sample HHs) Eastern and Southern Africa Sanitation and Hygiene Learning Series 5 From this it was concluded that the most vulnerable in the community are not able to construct and maintain a safe, functional latrine in their compound. Also a significant number of households (18.4%) defecate in the open when away from home despite using a latrine at home. This suggests that public latrines are not commonly available and the social norm is not well rooted in some areas. Facilitating factors for sustainability of ODF.

The study found that by far the most common motivating factors were health concerns for the family and/or shame and disgust. Most households believe that ODF has resulted in a reduction in diarrhoeal disease and this was confirmed by the results of the impact assessment.

Factors that appear to most influence the sustainability of ODF status are the use of latrines by children (over 3 years old) and strong social norms. A high proportion of the villages which had sustained ODF also had a high proportion of households whose children always used a latrine.

This is in contrast to the villages which had reverted to OD behaviour, in which a high number of children who had reached the age of using a latrine were defecating in

the open. Surprisingly, there was no correlation between the way infant's faeces were disposed of and the OD behaviour of the household.

Nearly all households interviewed reported disposing of young children's faeces safely. Social norms, ODF sustainability and hand washing behaviour The study measured the extent of social norms relating to latrine use behaviour in the sampled communities.

The sample villages in ODF subcounties of Nyando and Nyambale had the highest percentage of villages with deeply-rooted social norms. This suggests a clear correlation between the extent to which social norms are rooted in the communities and the sustainability of ODF practices.

While latrine use has increased as a result of CLTS, the study showed that hand washing behaviour has not increased at the same rate. Only 27.1% of the households had a hand washing facility and this proportion was even less amongst households who had reverted to OD (8%).

Soap or ash for hand washing was available in the majority of households but not always at the hand washing facility. Knowledge of hand washing behaviour is high and simple mechanisms such as leaky tins and tippy taps are popular.

The main factor influencing hand washing behaviour appears to be the availability of water and specifically the burden of providing adequate water for hand washing, which normally falls on the women in the household.

Other findings having programme implications Community Health Workers (CHWs) and natural leaders working together had the greatest influence on motivating people to change their OD behaviour and construct latrines. In 67% of the villages where post-certification follow up took place this was done by CHWs or other government health workers.

This suggests that institutional support for ODF sustainability is mostly from CHWs and leaders rather NGOs or county government.

2.1 Community-Led Total Sanitation (CLTS)

CLTS started in Zambia in October 2007 as a pilot program in Choma District. In March 2009, the first chiefdom of Chief Macha became open defecation-free (ODF) with 115 villages, having one family, one toilet

The results achieved by the approach impressed the government and as such, in 2010, the Government recognized and adopted the approach as a national program to help rural Zambia become open defecation free. To date, 52 chiefdoms out of 288 have been declared open defecation-free whilst facing various challenges in maintaining the ODF status. A backlog of 236 chiefdoms across the country still practice open defecation waiting to be delivered. On average, this will require 24 chiefdoms to be declared ODF every year between 2020 and 2030.

However, in recent years (2017 – 2020), MWDSEP and partners have seen a serious stagnation in chiefdoms becoming open defecation-free (ODF). This has been compounded by issues of sustainability for the already ODF chiefdoms to remain on the

ranks, most of whom the sanitation coverage has sharply dropped to less than 80% with a likely reversion to OD again.

It has further been observed that the ODF Chiefdoms easily lose the ODF status or slip back to open defecation (OD) due to unknown factors that the study will discover. It is, therefore, in this vein that the research problem of failure to sustain the achieved ODF achievement that is generalised in all the 53 chiefdoms stated above, wanting to identify and understand the factors leading to slippage at all levels will provide the Government of the Republic of Zambia and its stakeholders to come up with real and practical interventions that are national and localised based on the research findings for informed decision making.

Therefore, the research study will address questions or issues of establishing the ODF slippage and identifying factors leading to this development. and in this regard, this study is extremely important as it will guide the government and partners on policy direction on ODF sustainability and priority interventions to sustain ODF achievements as compared to the current position where there is no policy guidance in regards to Chiefdom ODF sustainability for priority planning after ODF attainment and celebrations.

The rationale of this study is that it will bring out an understanding of reasons for slippage and accompanying details in isolating specific sanitary facility components and utilisation challenges that will be used as a basis by all stakeholders at all levels to guide on appropriate and practical interventions in capacity building the players and taking remedial measures accordingly, e.g. policy framework, capacity building and training needs including sustained finance mechanisms for both ODF attainment and sustainability.

Nepal made remarkable progress in increasing sanitation coverage from 43% in 2010 to over 95% in 2017, with 45 of 75 districts achieving Open Defecation Free (ODF) status. Effective government leadership, the creation of an enabling environment through the development and operationalization of a sanitation and hygiene master plan, strong sector coordination at all levels, and transformation of sanitation promotion to sanitation social movement are the major success factors. In order to assess the sustainability of ODF, a study was conducted in 2016 covering 2,100 households from seven districts. The study showed that 96.5 % of households were using toilets, while the remaining 3.5% were defecating in the open. The study confirms the creation of new social norms which contributed to the uptake and use of toilets at a large scale. The study also identified major areas for improvement and proposed critical recommendations to address them.

2.2 Rationale for ODF Sustainability in Zambia

The rationale is to identify factors leading chiefdoms to fail to sustain their ODF achievements as follows:

1) Strengthen the planning, coordination and data review in order to make informed decisions with precision since we will know the programme strengths and weaknesses and, therefore, planning of intervention will be based on available

data, hence requesting resources for planning and review meetings that will also strengthen the D-WASH committee, in this regard the district ODF plans, and chiefdom ODF plans are critical. It seems these plans are not available in both districts and chiefdoms.

2) The greater involvement of the MOH staff, especially EHTs and CHAs at the community level, is key for programme ownership and continuity, especially if the Ministry places priority and emphasis on holding them accountable and strengthening the capacity with greater involvement of the Neighbourhood Health Committees (NHCs) through CLTS Orientations and the hanging SAG committees and the Community Champions are key to ODF sustainability.
3) The data management, where raw sanitation data is generated and reported by SAG committees, which is actually the nucleus of the programme, and in most of these, SAG committees are just formed and not trained, affecting both reporting rates and quality of the data given to Community Champions for onward transmission to national level.
4) Community stakeholder engagement is critical at all levels, i.e. national, provincial, district and sub-district levels, to ensure community champions, EHTs, area councillors, and traditional leaders meet, review and plan for better programme implementation and improvement; hence, planned for ward review meetings further this will improve programme coordination at the sub-district level.
5) Regular follow-ups are key for ODF attainment and sustainability hence, planned for consistent ODF follow-up visits also to ensure improvement on the sanitation ladder.

2.3 ODF and Sanitation Targets in Zambia

At least 4.5 million people need to stop the practice between 2018 and 2030.

In line with the NUWSSP, the implementation of the National Urban Sanitation Strategy aims to provide adequate, safe and cost-effective sanitation services to 90 percent of the urban population by 2030. These approaches have greatly contributed to the attainment of 53 Chiefdoms to ODF status and immensely contributed to sanitation improvement from 13% in 2005 to 44% in 2015 but not sustaining, hence a threat to the attainment of 2030 targets. The MDG target was 60% access to proper or adequate toilets but only achieved 47%. The SDG target is 100% ODF, including the Zambia 2030 ODF strategy and the Vision 2030. 3.6 million sanitation programme to have access to adequate sanitation facilities, including hand washing

2.4 ODF Coverage in Zambia

According to the latest JMP report (2017) using national data from 2015, 1% of people living in urban/peri-urban areas are still practising open defecation, in addition to an alarming 25% of the population in rural areas, with some provinces reaching up to 56% overall open defecation.

As of 2014, national urban sanitation coverage stood at 60.7% (NWASCO Urban and Peri-Urban Water Supply and Sanitation Sector Report 2014).

It was found that 12% of the urban population in Kabwe, Kasama, Mbala, Mpulungu and Nakonde Districts were found to be practising OD, with the highest OD percentages in Kabwe and Mpulungu at 17%, respectively (Lukanga Chambeshi Project 2018 Baseline Survey).

The MDG Sanitation coverage achievement of 44% against the 60% target, and 17% of chiefdoms are verified and Certified ODF (53/288) Chiefdoms are ODF.

2.5 Social-Economic Effects of Open Defecation (OD)

Poor sanitation costs Zambia approximately US$194 million annually, equivalent to US$16.4 per person or 1.3% of the national GDP.

Approximately 8,700 Zambians, including 6,600 children under 5, die each year from diarrhoea – nearly 90% of incidences are directly attributed to poor water, sanitation and hygiene (WASH) conditions, which results in an estimated US$167 million lost each year due to premature death.

In addition to that, poor sanitation is a contributing factor – through its impact on malnutrition rates – to other leading causes of child mortality, including malaria, respiratory infections and measles. (Source: http://www.wsp.org/sites/wsp.org/files/publications/WSP-ESI-Zambia.pdf)

Outbreaks of cholera and typhoid cases lead to high cases and fatalities with increased medical costs at both individual and governmental levels.

2.6 Inadequate Government Investment in Sanitation at All Levels of Implementation and Management

Over 90% of the sanitation budget is NGO-driven or supported by cooperating partners in both central and local government, failing to meet the 1% budgetary requirements and 0% budgetary support from locally generated funds from local authorities failing to consider sanitation as part of the 40% service delivery requirement.

Three dimensions of ODF sustainability are enabling conditions, physical and technical environment, social and behavioural dimensions and finally, the identifying and using 'natural leaders'

The ODF Sustainability Component of the program entails working on the following.

A. IEC for ODF Sustainability

In India it was stated that the states and districts need to continue to engage with communities on sustaining the ODF outcomes using innovative and inclusive IEC interventions. They should retain the human resources involved in IEC planning and delivery at State, District and village levels and paid as per the Guidelines of State Government SBM-G. The swachhagrahis, too need to be retained to undertake and support the above activities of the communities. Swachhagrahis can be paid for ODF-S

activities as per the SBMG guidelines. States are advised to consider the following while formulating and finalising their ODF Sustainability Plan.

B. Continuity of the Program Beyond ODF Declaration Stag

The interventions under SBM-G are designed to continue beyond attaining the ODF status by a village/GP/Block/district and State. Attainment of ODF status is an important milestone in the journey of the SBM-G program but is not the end of programming for sanitation and hygiene benefits. The villages, GPs, blocks and districts need to continue to work on sustaining the ODF status much beyond the attainment date of ODF.

C. Retaining Human Resources Deployed at State, District, Block and Village Levels for Undertaking ODF-Sustainability Activities and, If Required, Retraining Them for SLWM Activities

D. Financing for Capacity-building Activities

Key areas for capacity building during the sustainability phase could include:

Training on operation and maintenance of toilets at household and community levels, retrofitting of toilets, where needed to make them sustainable, BCC, IPC & IEC activities aimed at ODF-S, undertaking solid and liquid waste management activities, any other areas that could promote sustainability of interventions and enabling provisions:

States should develop enabling policy guidelines that support gram panchayats to own, operate and manage the programme through increased funds, functions and functionaries to work on sustainability aspects.

E. Efficiency Gains through Coordinated and Convergent Action

Exploit efficiency gains through improved integration of SBM components with other development interventions and programs happening in the State. Many States have successfully used MGNREGS, 14th Finance Commission Funds, SBM-G funds under SLWM, own source revenues, etc., for sustaining the benefits and investments under SBM-G.

F. Sanitation Marketing

Develop and test innovative social and sanitation marketing techniques to promote the use of commodities and services that have a direct bearing on access to sanitation services and sustainability, e.g. pit emptying in rural areas, etc.

G. Improved Engagement Strategy with Line Ministries

The sustainability of SBM outcomes could be made a feature in engagement strategies with relevant line ministries, multilateral organisations, and development partners to ensure that SBM sustainability indicators are embedded in their programming and reporting systems.

H. Mobilize Private Investment for Sustainability

States should innovate ways to overcome market and non-market barriers to mobilise private investment in SBM and to leverage private sector expertise in sustaining services

2.7 Sanitation Policy and Legislation Leading to Poor ODF Sustainability

Zambia has operated without a sanitation policy until now, its being developed and at draft level or stage. (Lack of sanitation policy).

Other existing sanitation statutes are not coordinated, e.g., the Public Health Act chapter 295, Zambia Environmental Management Act of 2011, Registration of Village Development Act chapter 289 of the Laws of Zambia and Statutory Instrument no.12 are poorly enforced in isolation by different enforcement agencies characterized by poor collaborations.

Other policy programmes, such as Make Zambia Clean, Green and Healthy Campaigns, are not broadly integrated into sanitation. Lack of ODF strategy that is in the development stage or draft form for implementation guidance. Lack of policy on onsite sanitation, specifically on Feacal Sludge Management (FSM). Poor and lack of enforcement capacities at all levels and various provisions of the aforesaid statutes. Lack of post ODF sustainability strategy leading to high ODF slippages back to OD status in most of the chiefdoms.

2.8 Data Management

DHIS2/M2W rolled out to all provinces and districts but did not capture data from all villages and characterized by poor or low reporting rates affecting the consistency of the ODF status of villages and chiefdoms.

Poor network affecting the performance of data management systems, e.g. only 2/13 wards in Chavuma have access to the network, and this affects ODF reporting.

2.9 ODF Attainment and Sustainability

Sustainability is the capacity to endure in a relatively ongoing way across various domains of life. In the 21st century, it refers sustainability is "*meeting the needs of the present generation without compromising the ability of future generations to meet their needs*" (Brundtland, 1987) and in terms of ODF means people maintain 100% of toilets constructed 3 months after verification in line with Zambia 2030 ODF strategy verification and certification protocols.

As stated above, the major problem in failure to sustain the ODF achievement is due to slippage that has left the Government and partners to keep speculating or making guesswork and accuse each other without having factual and accurate information, which this study will provide and this will lead to post-ODF prioritisation and prudent use of resources that will be directed or tailored to address specific identified challenges and this will, in turn, translate in the general improvement of the public health of the population contributing to the attainment of the Zambia 2030 attainment of the sanitation targets.

The study, therefore, will focus on all the 53 certified and declared ODF chiefdoms countrywide from which a sizeable sample will be drawn in order to scientifically generalise the results and trigger the Government of the Republic of Zambia and its partners to take appropriate remedial measures to stop the slippage and sustain the ODF facilities, hygienic use with sustained finance support mechanisms for the good of general public health of the people.

The strategies for maintaining ODF status at village and chiefdom levels should be planned and executed at the national, provincial, district and chiefdom/HCF catchments area levels.

2.10 Capacity Development

2.10.1 National and Provincial Level

- Dissemination of the Zambia National ODF strategy 2018-2030 at all levels.
- Plan and involve the ODF chiefs in triggering other chiefs and orientation.
- Chiefdom hierarchy orientated to plan for and sustain the ODF status (action plan to achieve and sustain ODF developed) and hold evidence-based bottom-up planning and review workshops/ meetings/ fairs, demos), with national, provincial and district stakeholders (private sector, NGOs, CBOs, artisan associations, architects, construction companies, developers, hardware suppliers, etc.) on means and ways to sustain ODF status.

2.10.2 District Level

- Plan for chiefdom hierarchy and chiefdom triggering, orientation on the CLTS program and discuss how the chiefdom leadership can be responsible for planning and implementing the CLTS program in their chiefdom and sustain the ODF status (action plan to achieve and sustain ODF developed).
- Plan and conduct chiefdom trigger/orientation led by chiefs and other traditional leaders targeting all villages in accordance with the provisions of the Registration of Village. Dev. Act Ch.289 and the Chiefs Act Chapter 287 of the laws of Zambia.
- Plan and involve the ODF Chiefs in triggering other chiefs and Orientation. The chiefdom hierarchy is orientated to plan for and sustain the ODF status (action plan to achieve and sustain ODF development).
- Hold evidence-based bottom-up planning and review workshops/ meetings/ fairs, demos), with provincial, district and sub-district stakeholders (private sector, NGOs, CBOs, artisan associations, architects, construction companies, developers, hardware suppliers, masons/APMs, etc.) on means and ways to sustain ODF status.
- Ensure that the SAGs and the headmen/women at the village level always work together with the CCs/CHWs and NHCs to ensure harmony and synergy for promotion, follow-up, including follow-ups post ODF for sustainability

2.10.3 Sub-District Level (Chiefdom and HCF Catchment Area)

- Plan for chiefdom hierarchy and chief/ chief triggering, orientation on the CLTS program and discuss how the chiefdom leadership can be responsible for planning and implementing the CLTS program in their chiefdom and sustain the ODF status (action plan to achieve and sustain ODF developed).
- Plan and conduct chiefdom trigger/orientation led by chiefs and other traditional leaders targeting all villages in accordance with the provisions of the Registration of Village. Dev. Act Ch. 289 and the Chiefs Act Chapter 287 of the laws of Zambia.
- Hold evidence-based bottom-up planning and review workshops/ meetings/ fairs, demos), with district and chiefdom/ HCFs catchment area stakeholders (private sector, NGOs, CBOs, artisan associations, architects, construction companies, developers, hardware suppliers, masons/ APMs, EHTS/CHAs, CHWs/CCs, SAGs, area SAGs, etc.) on means and ways to sustain ODF status.
- Ensure that the SAGs and the headmen/ women at the village level always work together with the CCs/CHWs and NHCs to ensure harmony and synergy for promotion follow-up, including follow-ups post-ODF for sustainability.

2.11 Excellence vs Perfection

- The district, chiefdom or ward, or HCF catchment area teams must choose the focus at the start of the program to ensure all HH make it to the entry-level CLTS program after triggering.
- Improvements to the toilets should be done to maintain the ODF status.
- Sanitation marketing for facility improvements and sustaining the ODF status.

2.12 Sanitation Supply Chains and Markets

To strengthen sanitation supply chains and markets so that they meet the demand for quality sanitation goods and services that are affordable to all – including to the lowest quintile and otherwise marginalized communities and individuals:

- Develop standardized sanitation marketing national guidelines,
- Assess market barriers: participatory analysis of market systems for sanitation for each province: conduct sanitation marketing assessment in each province,
- Analyze local supply chains for different sanitation products along the sanitation chain at the district/province level and link to community mobilization: identify local private sector sanitation entrepreneurs and conduct training in supply chain management,
- Develop/construct sanitation options/marketplace/fair at community institutions e.g. chief's palace.

2.13 Affordable Sustainable Sanitation Products

To develop and continuously market affordable gender, sensitive and inclusive sanitation products in line with the Zambian socio-economic and cultural context to

enable to move up the sanitation ladder in a phased approach with contextualized approaches for rural and peri-urban areas:

- Develop low cost contextualized affordable and gender sensitive sanitation and hygiene products.
- SANMARK learning exchange: conduct learning exchange visits for key MoLG/MWDSEP/MoH staff with other regions.

2.14 Sustainable Business Model

To support business model development to guide supply side intervention for WASH infrastructure capable of withstanding anticipated extreme events in both, rural and peri–urban areas including training of entrepreneurs:

- Include sanitation and hygiene related skills training in TVET curriculum for relevant professions/institutions,
- Identify and build the capacity of local SMEs, e.g. for sanitation hardware supply, construction, pit emptying, solid waste collection, etc.

2.15 Low-Cost Financing Options for Sanitation

To facilitate the development of low-cost financing options for producers and service providers including CUs:

- Develop micro-financing scheme for HH sanitation onsite products (peri urban/ rural).
- Explore and facilitate the use of social cash transfer and other cash grants for sanitation/hygiene in coordination with Ministry of Community Development, NGOs and micro-credit companies and link with community mobilization events and CSR.

2.16 Public-Private Partnership

To facilitate innovative partnerships for service delivery targeting low-cost sanitation product development, solid waste management and faecal sludge management; enhance and implement the development of localized DEWATS options as business model to refinance/operate WWT.

2.17 Faecal Sludge Management on Peri-urban Areas and Rural Growth Centers

To support development and O&M of localized, scalable and affordable onsite sanitation and FSM options in high public health risk areas, related business models which are aligned with the regulatory framework of the WSS sector:

1) Review onsite FSM project and identify success factors.
2) Review and develop new localized financing options for onsite sanitation in peri-urban areas and include in sector financing mechanism (under development).
3) Develop dedicated O&M strategy for onsite sanitation in peri-urban areas.
4) Implement model Onsite Sanitation and FSM option in each province under leadership of CU with supported by PWASHE.

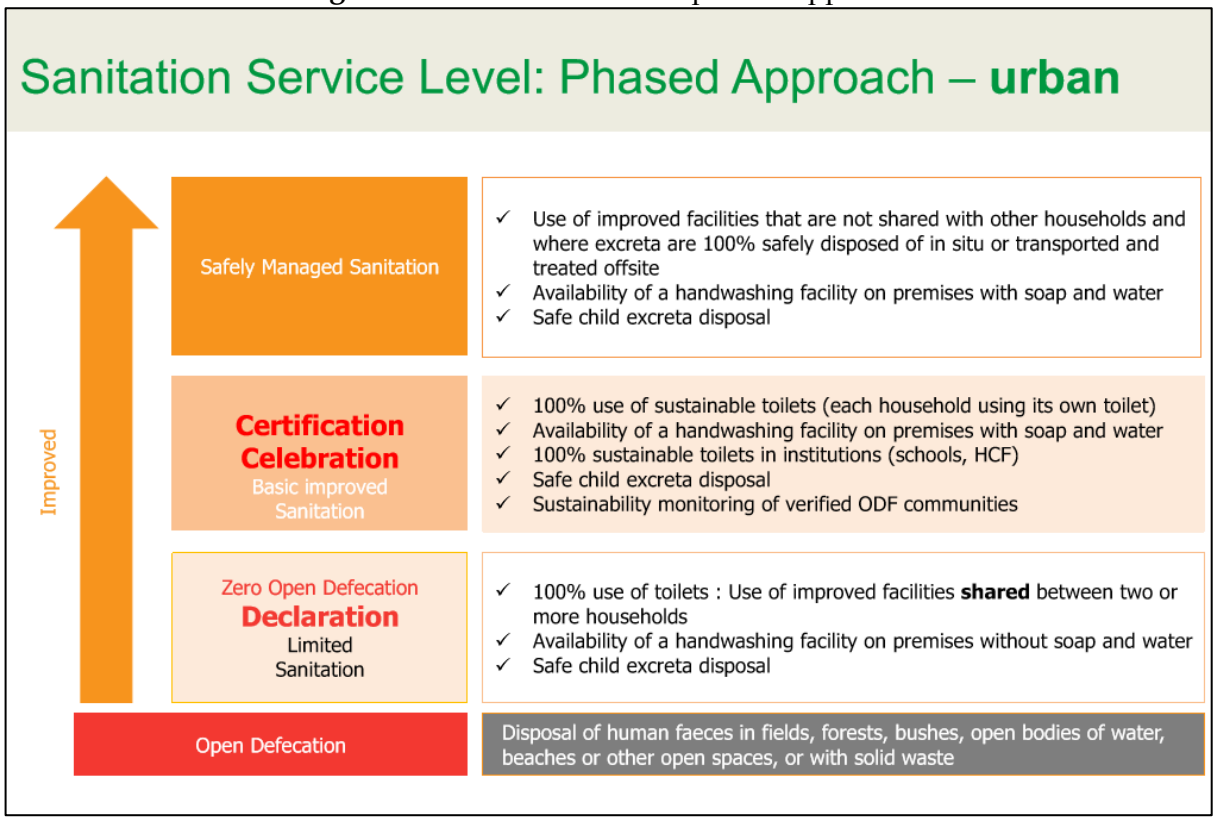
5) Develop onsite sanitation and FSM training packages for peri-urban areas and rural growth centers, incl. training of faecal sludge emptying.
6) Roll out cont. capacity development program on onsite sanitation and FSM in each province targeting LAs and CU.
7) Develop minimum standards for onsite sanitation and FSM.
8) Develop FSM business models on 'end use product'
9) Construct new FSM plants.
10) Review reuse methods applied for 'end use products' and develop guideline on reuse of faecal sludge products.
11) One off - purchase of faecal sludge equipment and tools in support of CUs.
12) Develop and implement public campaigns to promote emptying of onsite sanitation facilities.

2.18 Solid Waste Management and Low-Cost Drainage

To support the integration of SWM and low-cost drainage as the integral of an Open Defecation Free environment:

- Review training/induction approach/material for coaches/national trainers and integrate SWM in CLTS guidelines.
- Develop low-cost options for SWM at the community level in peri-urban areas and rural growth centres and facilitate take-up via Community-Based Enterprises (CBE).

Figure 1: Sanitation ladder or phased approach



Source: Zambia 2030 ODF strategy.

NB: On this ladder, ODF sustainability will be achieved if post-ODF support is provided to move from the basic sanitation level where ODF is declared and celebrated to level 4 under environmentally safely managed sanitation.

Sustainability of sanitation is seen from the progression on the ladder, especially after basic sanitation when the quality of toilet facilities changes towards environmentally safely managed.

2.19 ODF Sustainability Plans

In India, the state governments, together with the districts, would develop an ODF sustainability plan.

The primary planning unit for ODF sustainability would be Gram Panchayats which would be supported in developing their ODF Sustainability Plan. The districts would compile the ODF plans of each GP in their District and would develop the District ODF-Sustainability Plan. The State would compile the ODF Plan for all the Districts in the State and would develop the ODF-Sustainability Plan for the State.

The state would report on the essential elements of their ODF-Sustainability Plan to MDWS through the AIP and during the AIP planning and discussion exercise. The MDWS has suitably modified the AIP format so as to capture the ODF-S Plan of the States. The MDWS requests the states to submit their ODF-S Plan in the modified ODF Template.

The financing for ODF Sustainability would include a budget for:

a) Human resources at the state district, sub-district and village level,
b) IEC activities to be undertaken for ODF Sustainability,
c) Training and capacity-building activities for ODF Sustainability,
d) Coordination and convergence with line ministries, departments and development partners,
e) State-wide / district-wide post-ODF sustainability strategy and rollout plan

In Zambia, however, the government and its cooperating partners have no ODF policy and hence have no ODF sustainability plans in place to provide guidance to all the households, villages, wards and chiefdoms that have attained ODF.

2.20 World Health Organisation (WHO) and ODF Sustainability

Several strategies were employed to retrieve literature, which included manual searching of books and journals and the use of electronic databases on the internet.

The World Health Organisation's (WHO) goal on sanitation is to eliminate and reduce open defecation (OD) or increase ODF attainment by the year 2030, and locally it's equally the same goal for the Government of the Republic of Zambia is to keep reducing the open defecation practices, rates and coverages to 0% by the end of the year 2030 which is the global and National target for Zambia.

The lack of ODF sustainability does not only affect Zambia as the open defecation rates declined globally from 24% in 1990 to 15% in 2011, which signified a drop of 244 million people to 1.04 billion in 2011.

The decline in the population practising open defecation has differed from region to region, i.e. Eastern Asia, South-eastern Asia and the Latin America and Caribbean regions have seen a steady decline since the JMP's earliest measurements describing conditions in 1990.

A study was conducted to identify factors influencing open defecation-free status in areas practicing community-led total sanitation: the case of Chiwala and Nkambo chiefdoms of Masaiti district. About 74.2 percent of households in rural areas have no pit latrines. As a result, most of them either use the surrounding bush or cultivate areas. Furthermore, 80 percent of the diseases are associated with open defecation.

The main aim of this study was to assess Open Defecation Free (ODF) status and factors that influence the sustainability of ODF status practices in Chiwala and Nkambo Chiefdoms of Masaiti District in Zambia after declaring them ODF.

The study revealed that the sustainability of Open Defecation Free (ODF) status was at 26 percent in Chiwala Chiefdom and 82 percent in Nkambo Chiefdom, considering all the ODF indicators or criteria. These results indicated the ODF slippage by 74% and 18%, respectively.

Some of the barriers to ODF sustainability status were inadequate water supply, inadequate supervision by traditional leaders and individual factors such as laziness and negative attitude.

According to the latest JMP report (2017) using national data from 2015, 1% of people living in urban/peri-urban areas are still practicing Open Defecation, in addition to an alarming 25% of the population in rural areas, with some Provinces reaching up to 56% overall Open Defecation.

In Zambia, a study was conducted sanctioned by the Ministry of Local Government to evaluate the CLTS performance in some selected Districts with support from UNICEF and revealed that sustainability is a major issue, as villages declared ODF one day does not mean they will stay that way. Evidence suggests that there needs to be intensive monitoring, re-training and follow-ups on triggering and, in some cases, re-triggering. In some areas there are clear indicators that sanitation use has taken root, with evidence of upgrading of latrines, progressive improvement of technologies used and obvious use and maintenance of facilities. These indicators have occurred in locations where there is strong institutional takeup of the CLTS approach, such as in Choma and Maisaiti, and there is widespread support for sanitation. However, the ability to upgrade and improve seems to occur amongst the more affluent households, with the very poor relying on very simple pit latrines.

Therefore, in Zambia, sustainability is seen as being very high, where local institutional capacity and supportive leadership enabled sanitation to be seen as a continuous and ongoing priority. However, ODF sustainability is a challenge in many areas, e.g. one village in Kaoma district was declared ODF in mid-2010 and was also declared a model village. However, a follow-up visit demonstrated that the declaration of ODF status showed that there was a continued need for support and attention to prevent the community's motivation from stopping.

2.21 Collapsing of Toilets Contributing to Unsustainable ODF Achievements

Once the village was declared ODF, the community began to face challenges with collapsing latrines, and while some households continued to rebuild and upgrade toilets, other households stopped using toilets. There were however, calls for support to construct more permanent latrines using cement, which the communities cannot afford on their own. This demonstrates the need to continuously support behaviour change and work with the community through continued challenges, i.e. behaviour sustainability. Environmental challenges/access to water: This was shown to occur in areas of the west where there are sandy soils and/or areas of annual flooding. In such locations, populations are either displaced on a yearly basis where they do not construct sanitation facilities while displaced, or pits of latrines collapse on a regular basis, requiring intensive rebuilding. After the initial "disgust" phase after triggering, if triggering is successful, communities may achieve ODF status and have 100% sanitation coverage; however then, when challenges are met, motivation is reduced, and, in many cases, new-found sanitation habits are abandoned.

Another study was conducted using Timor-Leste as a case study to understand the uptake and sustainability of sanitation interventions, and the perspectives and opinions of stakeholders working in the WASH sector.

The study findings indicated firstly that targeted material subsidies may improve the long-term sustainability of ODF communities; secondly, that collaboration is needed between NGOs and local government to develop consistent processes for monitoring and evaluation both during project implementation and after project completion; and thirdly, that long-term health promotion and community support activities are needed after project completion to facilitate sustainable behavioural changes. Whilst the Timor-Leste government has prioritized a decentralized approach to WASH projects, these study findings suggest that government oversight and involvement may be needed to ensure a unified and coordinated approach across all international and national WASH agencies working in the country.

2.22 Adequate Clean, Safe Water Supply

The study further revealed that while their beliefs may change, they still might believe that their toilets, for instance, are not as private as the bush and hold negative attitudes towards sanitation and also that there are some cases where behaviour change has been forced, for instance, it was reported that in some Chiefdoms bylaws were introduced to construct latrines, or people would be evicted from the Chiefdom may encourage compliance and quick change in sanitation coverage, it is likely that a too quick jump from OD to 100% sanitation coverage may not be sustainable.

The study further showed that the MLGH and UNICEF supported some of the districts with vehicles for the WATSAN sector but these are often used for other purposes other than the intended one. This is mostly in cases where the Local Authorities have no other means of transport for their day-to-day work, contributing to a lack of follow-ups, monitoring and retriggering, affecting continuity or ODF sustainability.

The SAGs and CLTS committees are not regarded as carrying out important work among their own people. In an institutional sense, the SAGs appear not to be linked to established structures such as Village Development Committees (VDCs) and V-WASHE committees (ideally, they are a subcommittee of the WDC hence, this drastically reduces the momentum to sustain ODF results.

2.23 CLTS/ODF Implementation Structures

At the district level, in terms of the JMPT, there were clear challenges in the long-term functioning of the committee. This is largely due to resources not being available to allow members to attend regular meetings and the fact that members had competing priorities and found it difficult to find time to meet, in addition, there is a high turnover of staff. In the districts that had formed JMPT committees, meetings were not being held on a regular basis.

2.24 ODF Sustaining Research Studies - Community Champions (CCs)

The study indicated that the giving of a small regular cash incentive to the champions is not sustainable as it defeats the aspect of community-led. The provision of external (hardware) help for the construction of an adequate latrine is not supported by the CLTS

approach. The wave of behaviour change, which is the basis for CLTS sustainability, must be brewed and sustained from within.

2.25 Research Study – Maintaining the ODF Sustainability in Mali

The study in Mali revealed that 54% of the households maintained the ODF sustainability criteria and flipped by 46%.

The provision of post-triggering and post-ODF incentives in the form of motivational materials and equipment is acceptable and should be the same to all the organizations actively engaged in the implementation of Community Led Total Sanitation (CLTS)

Giving a small regular cash incentive to the champions is not sustainable as it defeats the community-led aspect. The provision of external (hardware) help for the construction of an adequate latrine is not supported by the CLTS approach. The wave of behaviour changes, which is the basis for CLTS sustainability, must be brewed and sustained from within. No human being is immune to relocation issues and other circumstances that can lead to effective non-performance of duty.

The ODF strategy (2016-2030) should address the exit strategy for the champions, which is effective and sustainable.

2.26 Post ODF Interventions

Post-ODF activities should include facilitating beyond community-led total sanitation (CLTS) activities while monitoring the sanitation standards.

Introduction of Community Led Total Sanitation (CLTS) champions in formal community structures (NHC/HCAC) where they should form a Sanitation Task Force (STF), which will be responsible for sanitation activities and reporting to the NHC/HCAC.

This will transform a champion into a pure community volunteer, and the Ministry of Health will take up the responsibilities of the lead ministry.

2.27 Other ODF Sustainability Issues or Concerns

The studies indicated that where there are reduced monitoring visits, communities may not continue the practice as they feel they have no one to report to whether they construct toilets or not.

The lack of resources to monitor and trigger more areas poses a threat to the sustainability and scale-up of the programme. The districts lamented that the resources are not adequate to continue promoting the programme and encourage behavioural change over time.

In Mongu district, the programme was seen as an Oxfam initiative, and if the staff from the district team does not visit them, then there is no important need for them to continue.

Even among the district team members, it was noted that there is reliance on funding and support from Oxfam to continue activities, without which most have pulled back their energy from the programme.

A lack of funding to monitor was another issue raised in ensuring the sustainability of the programme in the communities. Irregular monitoring would lead to a slackening in the implementation of the programme on the ground.

As has been noted in many areas, the sustainability of the programme in most cases in dependent on several visits from the district team and, in some cases, the fear of the chiefs. The poor access to clean water also leads to incomplete practices, as hand washing is often left out as water is difficult to find.

The depletion of natural resources as a source of raw materials for latrine construction was one issue brought up by the chief and Department of Forestry personnel. Bamboos, for instance are found more than 15 Km from the villages in the hillsides.

The water logging areas also pose a threat to the sustainability of the interventions as the people have expressed concern over having to construct latrines repeatedly. Institutionally, the team felt that the Ministry of Health was not taking a leading role in the implementation of CLTS in the district. The department has left most of the work with other stakeholders while they hold the largest stake in the programme.

In order to foster sustainability, the district team has embarked on training the local members of the community to carry on monitoring and follow-up activities in their absence. However, one major challenge was the collapsing of toilets, which caused fatigue in the people to construct toilets each time they collapsed.

Hand washing is the greatest challenge as most communities visited did not have any clean water nearby; this resulted in people not washing their hands as it is not considered a priority under the circumstances (CLTS Evaluation Report, 2013).

2.28 Other Research Findings

Globally, the prevalence of hand washing was 19 percent (WHO, 2013), while in Sub-Sahara Africa, it was between 3 percent and 29 percent (Curtis *et al.* 2009; Tyndale-Biscoe *et al.*, 2013). These findings are similar to those conducted by UNICEF (2012) in Southern, Chipata and Copperbelt provinces of Zambia, which showed that the hand washing coverage was less than 29 percent. Hand washing with soap is the cheapest and simplest way of disease prevention, and it is also known to reduce the occurrence of gastrointestinal infections, respiratory infections, trachoma, helminths and skin infections in poor settings (Curtis, 2007; Fung and Cairncross, 2008).

Hand washing with soap is an important component of good sanitation and hygiene. Thus, when a community is not practicing hand washing, it means that the community is not considered to be ODF (Mehta and Bongartz, 2009).

2.29 Factors Influencing Hand Washing Practice

According to Devine *et al.* (2010), the availability of water and soap at centrally located places was one of the drivers of hand washing. Therefore, people who had access to water and soaps practised hand washing after using toilets compared to those who had difficulties accessing the commodity. According to Devine (2010), setting hand washing as a priority was difficult because communities significantly feared HIV/AIDS and malaria compared to diarrhoeal disease because of the belief that it did not cause death (WSP, 2007).

A study conducted in Senegal on the global scaling up of hand washing project indicated that women who had good knowledge of key hand washing times understood the importance of hand washing with soap (Devine *et al.*, 2010) Another study that was conducted in Ghana revealed that nurture, social acceptance and disgust of faeces and especially their smell were some of the motivators of hand washing (Scott, 2007). Thus, maintaining hand washing and keeping toilets hygienic depended on the availability of water (Civill *et al.*, 2015).

Furthermore, another study that was conducted in Uganda on hand washing also indicated that hand washing with soap at critical times was not a common practice either in the general community or in schools. This was despite the history of promotional activities around water, sanitation and hygiene (WSP, 2007). It also revealed that the levels of hand washing with soap for children (6-13 years) after defecation at home was lower than at school, suggesting that the school environment facilitated hygiene behaviour, possibly due to constant reminders and peer influence.

Other studies by UNICEF reveal that CLTS activities have resulted in considerable increases in latrine usage and put large numbers of people on the first rung of the sanitation ladder. The number of households reverting to OD behaviour is relatively low, especially in fully ODF.

Sub-counties households revert to OD when their latrines:

- collapse;
- are too difficult to use for the elderly and/or children;
- are shared with neighbours; and
- are not close enough to be convenient.

2.30 Social Norms Have a Major Influence on OD Behaviour

The active creation of new social norms is important for the sustainability of ODF status.

Key factors in creating the social norms were formal and informal sanctions agreed upon by the communities and enforced by a strong council of elders or other local administration:

- **Follow Up and Support**

Follow-up and support are needed after ODF certification to support the most vulnerable households to build safe, functional toilets and ensure that all households have sustained, secure and easy access to latrines.

- **The Sustained and Regular Use of Latrines by Young Children**

The sustained and regular use of latrines by young children is difficult to promote, especially when children do not feel latrines are safe or convenient. More attention to accessibility for children is required during the early stages of CLTS.

- **Using Functioning, Clean and Private Toilets**

More than 50% of households are not using functioning, clean and private toilets. CLTS needs to be combined with more robust technology options to help households upgrade their latrines and ensure sustainability, especially where soil conditions do not favour latrine construction.

Similarly, the availability of affordable materials for latrine construction needs to be taken into account when initiating CLTS in villages with no local materials.

- **Use of Community Health Workers and Traditional Leaders**

Community Health Workers and traditional leaders are the main motivators for behaviour change and latrine construction and can determine the success or failure of CLTS initiatives.

- **Availability of Hand washing Facilities and Practices**

Hand washing practice is lagging behind ODF behaviour and more efforts are needed to promote hand washing alongside CLTS (see also field note on triggering hand washing with soap in Malawi) as well as reducing the distance to water. The affordability of soap is another constraint, but there are opportunities to work with the private sector to make soap more readily available.

2.31 ODF Sustainability Study in Kenya

The ODF sustainability study in Kenya by UNICEF in November 2015 identified the following limiting factors for the sustainability of ODF as the majority (67%) of households stated that the reason for reverting back to OD was lack of access to a latrine: many relied on a shared latrine that was too far away or their own latrine had become dis-functional or collapsed completely.

The most common de-motivating factors for using a toilet were the physical aspects (fear of collapse, lack of privacy, etc.) and the need to share with others. Difficulties for very young children and elderly people to use latrines were also commonly stated problems.

The study found that environmental factors (such as groundwater flooding the pit) and the cost of repair were also major de-motivators to maintaining latrines. Compared to the wealthiest households, poorer households spent disproportionally more on repairs relative to the initial cost of construction due to the poor quality of the initial latrine.

Partial Reversal (>0% up to 10% of sample HHs) Major Reversal (>10% of Sample HHs) Eastern and Southern Africa Sanitation and Hygiene Learning Series 5 From this,

it was concluded that the most vulnerable in the community are not able to construct and maintain a safe, functional latrine in their compound. Also, a significant number of households (18.4%) defecate in the open when away from home despite using a latrine at home. This suggests that public latrines are not commonly available and the social norm is not well rooted in some areas.

The study found that, by far, the most common motivating factors were health concerns for the family and/or shame and disgust. Most households believe that ODF has resulted in a reduction in diarrhoeal disease and this was confirmed by the results of the impact assessment.

Factors that appear to most influence the sustainability of ODF status are the use of latrines by children (over 3 years old) and strong social norms. A high proportion of the villages which had sustained ODF also had a high proportion of households whose children always used a latrine.

This is in contrast to the villages which had reverted to OD behaviour, in which a high number of children who had reached the age of using a latrine were defecating in the open. Surprisingly, there was no correlation between the way infant's faeces were disposed of and the OD behaviour of the household.

Nearly all households interviewed reported disposing of young children's faeces safely. Social norms, ODF sustainability and hand washing behaviour: the study measured the extent of social norms relating to latrine use behaviour in the sampled communities.

The sample villages in the ODF sub-counties of Nyando and Nyambale had the highest percentage of villages with deeply rooted social norms. This suggests a clear correlation between the extent to which social norms are rooted in the communities and the sustainability of ODF practices.

While latrine use has increased as a result of CLTS, the study showed that hand-washing behaviour has not increased at the same rate. Only 27.1% of the households had a hand washing facility and this proportion was even less amongst households who had reverted to OD (8%).

Soap or ash for hand washing was available in the majority of households but not always at the hand washing facility. Knowledge of hand washing behaviour is high, and simple mechanisms such as leaky tins and tippy taps are popular.

The main factor influencing hand washing behaviour appears to be the availability of water and, specifically, the burden of providing adequate water for hand washing, which normally falls on the women in the household.

2.31.1 Other Findings Having Programme Implications

Community Health Workers (CHWs) and natural leaders working together had the greatest influence on motivating people to change their OD behaviour and construct latrines. In 67% of the villages where post-certification follow-up took place this was done by CHWs or other government health workers. This suggests that institutional support

for ODF sustainability is mostly from CHWs and leaders rather than NGOs or county government.

2.32 Lessons Learned from UNICEF Kenya Study

1) CLTS activities have resulted in considerable increases in latrine usage and put large numbers of people on the first rung of the sanitation ladder. The number of households reverting to OD behaviour is relatively low, especially in fully ODF sub-counties.
2) Households revert to OD when their latrines: - collapse - are too difficult to use for the elderly and/or children - are shared with neighbours, and - are not close enough to be convenient.
3) Social norms have a major influence on OD behaviour: active creation of new social norms is important for the sustainability of ODF status. Key factors in creating the social norms were formal and informal sanctions agreed upon by the communities and enforced by a strong council of elders or other local administrations.
4) Follow-up and support are needed after ODF certification to support the most vulnerable households to build safe, functional toilets and ensure that all households have sustained, secure and easy access to latrines.
5) The sustained and regular use of latrines by young children is difficult to promote, especially when children do not feel latrines are safe or convenient. More attention to accessibility for children is required during the early stages of CLTS.
6) More than 50% of households are not using functioning, clean and private toilets. CLTS needs to be combined with more robust technology options to help households upgrade their latrines and ensure sustainability, especially where soil conditions do not favour latrine construction. Similarly, the availability of affordable materials for latrine construction needs to be taken into account when initiating CLTS in villages with no local materials.
7) Community health workers and traditional leaders are the main motivators for behaviour change and latrine construction and can determine success or failure of CLTS initiatives.
8) Hand washing practice is lagging behind ODF behaviour and more efforts are needed to promote hand washing alongside CLTS (see also field note on triggering hand washing with soap in Malawi) as well as reducing the distance to water.
9) The affordability of soap is another constraint but there are opportunities to work with the private sector to make soap more readily available.

3. Material and Methods

3.1 Overview

This chapter presents the components of the research methodology which was adopted for this study. It provides an outline of the study approach used to collect the relevant

data needed to answer the research questions outlined in Chapter 1. The chapter describes the research design, the study population, the data collection methods employed, the sample selection methods, and the data analysis techniques applied. It also includes a brief discussion pertaining to the limitations of the study and the ethical implications considered.

3.2 Study Design

The research design embodies the blueprint for the collection, measurement and analysis of data related to the research questions. The procedural description adopted in carrying out this research was outlined mainly based on a qualitative approach.

The research was done in two phases: firstly, to get data from the community as alluded to in the methodology on how communities were impacted by ODF creativity, with a set of questions administered to chiefdoms as well so as to provide a comparison with the relative effect of theories across.

A qualitative approach or method was also applied to review the secondary data, mainly CLTS/ODF data from the rural water supply and sanitation units of the local authorities from Excel sheets and any other post-verification data by NGOs and government through the Ministry of Water Development and Sanitation.

In conclusion the study's design was a descriptive cross-sectional study.

3.3 Study Area

Zambia has 56 ODF Chiefdoms out of the 7 chiefdoms that were targeted for data collection based in the Northern Province of the Republic of Zambia.

3.3.1 Study Population

The study population involved key informants such as SAG members, Environmental Health Technologists (EHTs), Community Champions (CCs) and traditional and civic Leaders at sub-district levels. At the district level, the following were enumerated Rural Water Supply Sanitation Coordinator (RWSSC) and principal officers, and at the national level, the following were targeted staff at Ministries of Water Development Sanitation and Environmental Protection, Ministry of Health and Ministry of Local Government and Ministry of Chiefs and Traditional Affairs including key NGO partners such as UNICEF, SUN TA, World Vision and SNV etc.

The total study population was 7 ODF chiefdoms, where a key informant at all CLTS implementation structural levels was interviewed as part of the data collection process as outlined above.

3.3.2 Sampling Methods

A non-probability sampling method was used called convenient sampling of the Community Champions that were purposively enumerated in the study.

This was done due to the fact that the topic needed people who are familiar with the subject matter to ascertain sustainability; hence, the community champions are regarded as experts in ODF and CLTS implementation were targeted.

The convenient method was applied due to limitations in mobilising sufficient research logistics, public health limiting factors to reach out to many respondents due to the COVID-19 pandemic and restricted movements and gatherings.

Further movements were hampered by rain and farming season.

3.3.3 Sample Size

The sample size was estimated using the formula:

N = (z-score)2x std Dev x(1- std Dev)/(Confidence interval)2

Where:
Confidence level of 95%
Confidence interval of +-5
Standard deviation of 5% or 0.5

Z – score of 95% = 1.96
n = ((1.96)2 x 0.5 (0.5)) / (0.05)2
n = (3.8416 x 0.25) / 0.0025
n = 0.964 / 0.0025
n = 384.16 = 385

However, a total of 150 respondents from the sample size of 385 enrolled were enumerated. The informants were selected as follows:

- 11 SAG chairpersons were interviewed in each chiefdom per chiefdom,
- 10 Community Champions were enumerated in each selected chiefdom,
- 1 D-WASH member from 5 districts.

No.	Category of respondents	No. of respondents	No. of Districts/Chiefdoms	Total no. of respondents
1	D-WASH Members	2	5	10
3	CC	20	7	140
				150

A total of 150 out of 385 were purposively and conveniently enumerated.

3.3.4 Sample Size Determination

To allow a large representation of the population of each sample frame, 7 ODF Chiefdoms were conveniently selected, with 150 respondents enumerated.

The sample size was determined by the availability of resources to reach out to corners of the Country, the sample size, and the distribution or geographical locations of the selected Chiefdoms and Districts, respectively.

Further, human resources, such as research assistants, who conducted the enumerations or administered the interviews, including allowances and travel logistics, also contributed to determining the sample size.

NB: The total numbers of study enrolment were 150 respondents using mixed sampling methods of multistage and convenient samplings

3.4 Data Collection

Fifteen (15) research assistants will be trained to collect data from the Department of Public Health and RWSSUs from the district hosting the ODF chiefdom under study countrywide and target a research assistant per chiefdom.

Data was collected through a structured questionnaire to be administered to the CCs, EHTs, D-WASH members, chiefs, and SAG members by conducting in-depth interviews. The questionnaire was written in English language, and schedules for translation of questionnaires in the local language during the interview period or sessions.

Further the secondary data was reviewed using available CLTS and ODF data sheets and reports from the local authorities and national statistics and NGO field reports and surveys.

3.5 Data Analysis

Data was analysed using Excel and SSPS packages, and the results were presented using descriptive statistics of tables and percentages.

3.6 Pilot Study

A pilot study was conducted to assess the practicability of the tools, i.e. the questionnaire at Kaputa ODF chiefdom in Kaputa district in the Northern Province of the Republic of Zambia.

3.7 Ethical and Cultural Consideration

Permission was sought to carry out the research from the Ministry of Water Development Sanitation Environmental Protection or the Ministry of Local Government.

The research assistants will be able to explain the research to the respondents and assure them that they are required to answer the questionnaire and schedules without force or pressure. Consent was obtained from each respondent without coercion at the beginning of every interview session. Confidentiality was assured to all the respondents involved in answering the questions or using the tool.

3.8 Limitation of Government support for ODF sustainability

The Government of the Republic of Zambia has adopted CLTS as a vehicle to deliver ODF 2030 targets however there is a serious limitation of funding that affects implementation for both ODF attainment and sustainability.

4. Results and Discussion

4.4 Introduction

This chapter includes empirical findings from the districts and 7 chiefdoms' questionnaires completed during the focus group discussion and interviews by the respondents using qualitative methods or approaches. Secondary data was also reviewed using quantitate data that will be seen in the research results presentation.

4.2 Qualitative Data Results

4.2.1 Data Analysis Procedures

The primary research method for data analysis of this research was guided by the tables and the process of the empirical findings of this study.

Table 1: What are the factors leading to ODF slippage?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lack of lids	40	26.6	26.6	26.6
	Hand washing facilities	48	32	32	32
	Lack of follow-ups	62	41.4	41.4	41.4
	Total	**150**	**100.0**	**100.0**	

Table 1 indicates that 41.4% of respondents ranked lack of follow-ups after ODF attainment first, followed by lack of hand washing facilities and lastly, lack of lids at 26.6%.

Table 2: What are the factors affecting the toilet reconstruction after collapsing or when it gets full?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor/Challenging soil formation	12	8.0	8.0	8.0
	Untriggered mindset	138	92.0	92.0	100.0
	Total	**150**	**100.0**	**100.0**	

Table 2 indicates that 92% of respondents strongly feel the poor or low toilet reconstruction rate is due to an untriggered mindset, while fewer respondents (8.0%) indicated that the reconstruction rate is affected or due to poor soil formation.

Table 3: Does demotivation or lack of incentives for Community Champions affect ODF sustainability?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	7.3	7;3	7.3
	Yes	139	92.7	92.7	92.7
	Total	**150**	**100.0**	**100.0**	

Table 3 indicates that a vast majority (92.7%) of the total sampled respondents interviewed confirmed that lack of incentives or demotivation of community champions contributes to slippage or failure of chiefdoms to sustain ODF achievements.

Table 3: In your words, does the lack of ODF sustainability policy affect timely reconstruction of toilets and parameters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	9.3	9.3	9.3
	Yes	136	90.7	90.7	100.0
	Total	**150**	**100.0**	**100.0**	

Table 4 indicates that 90.7% of respondents positively agree that the lack of an ODF sustainability policy affected the reconstruction of toiled parameters in 56 chiefdoms.

Table 5: Has the government developed the ODF Sustainability policy?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	45	30.0	30.0	30.0
	Yes	102	68.0	68.0	98.0
	None response	3	2.0	2.0	100.0
	Total	**150**	**100.0**	**100.0**	

Table 5 indicates that 68% of respondents positively agreed that the government has developed the ODF sustainability policy.

Table 6: Cross tabulations: Do you think it is a good idea for the government to fund sanitation programmes in Zambia?

Count				
		Do you want to NGO to Fund the all-sanitation programmes in Zambia?		**Total**
		No	Yes	
Do you think it is the good idea for the Government to fund sanitation programmes in Zambia?	No	39	6	45
	Yes	14	88	102
	No response	0	3	3
Total		**53**	**97**	**150**

According to Table 6, out of the 150 total sample population interviewed, a vast majority of 88 respondents strongly agreed to fund all sanitation programmes, although at the same time, 14 respondents did not want the government to fund the sanitation programmes. Again, the other 39 respondents did not want the NGO to fund the sanitation programmes. This situation may mean that the majority of respondents wanted all the sanitation programmes to be funded by the government.

Table 7: In your words, does the lack of ODF sustainability policy affect timely reconstruction of toilets and parameters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	9.3	9.3	9.3
	Yes	136	90.7	90.7	100.0
	Total	**150**	**100.0**	**100.0**	

Table 7 indicates that 90.7% of respondents positively agree that the lack of ODF sustainability policy affected the reconstruction of toiled parameters in 56 chiefdoms.

Table 8: In your own observation, do you think that local authorities are doing enough to sustain ODF achievement, according to the Local Government Amendment Act No 2 of 2019?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	125	83.3	83.3	83.3
	Yes	25	16.7	16.7	100.0
	Total	**150**	**100.0**	**100.0**	

Table 8 indicates that 83.3% of respondents disagree that local authorities are doing enough toward sustaining ODF achievement, according to the Local Government Amendment Act N0 2 of 2019.

Table 9: Do you have an Excel sheet for the council/local authority for CLTS data?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	5	3.3	3.3	3.3
	Yes	140	93.3	93.3	96.7
	None response	5	3.3	3.3	100.0
	Total	**150**	**100.0**	**100.0**	

Table 9 indicates that 93.3% indicated that Excel sheets were available for CLTS data. However, 3,3% of the Councils do not have Excel sheets for CLTS data. This, therefore, implies that the majority of the council has the Excel sheets post positive results.

Table 10: Is the Excel sheet updated regularly?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	82	54.7	54.7	54.7
	Yes	66	44.0	44.0	98.7
	None response	2	1.3	1.3	100.0
	Total	**150**	**100.0**	**100.0**	

Table 10 indicates that though 93 % agreed that the Excel sheets for CLTS data are available but only 44.7% of Excel sheets were updated regularly

Table 12: Does the chiefdom and district have a documented ODF plan?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	128	85.3	85.3	85.3
	Yes	20	13.3	13.3	98.7
	None response	2	1.3	1.3	100.0
	Total	**150**	**100.0**	**100.0**	

Table 12 indicates that 85.3% do not have a documented ODF plan for the smooth implementation of CLTS interventions.

Table 13: Does the council have a budget line for the CLTS/ODF sustainability support function?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	120	80.0	80.0	80.0
	Yes	28	18.7	18.7	98.7
	None response	2	1.3	1.3	100.0
	Total	**150**	**100.0**	**100.0**	

Table 13 confirmed that 80% of the council does not have a budget for ODF sustainability.

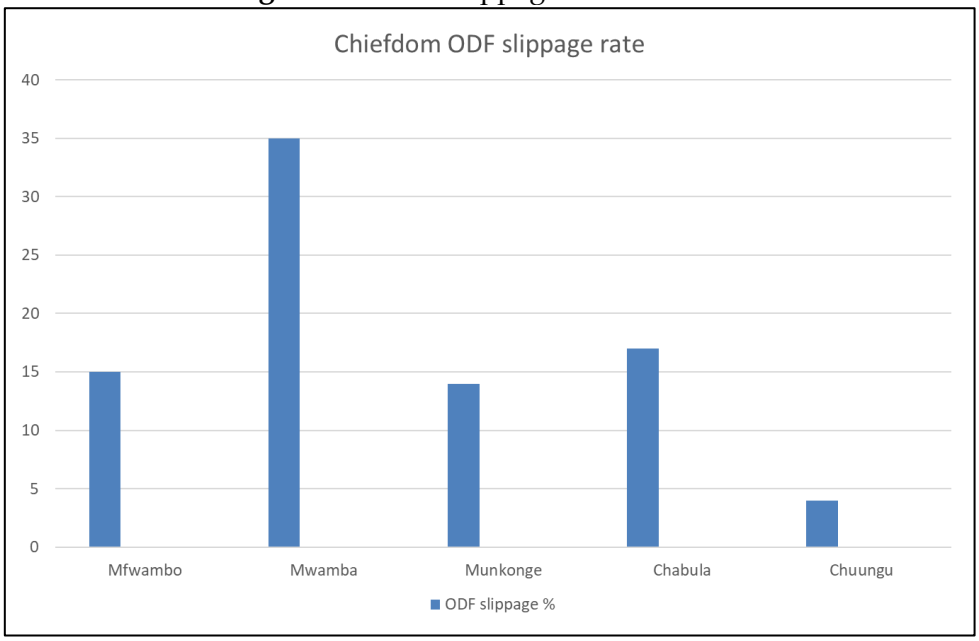
4.3 Quantitative Data Results

Table 14: District ODF Excel sheets

CHIEFDOM ODF SUSTANABILITY REPORT IN 7 CHIEFDOMS IN NORTHERN PROVINCE											
	ODF PERIOD 2007-2018							POST ODF 2019- 2023			
NO	PROVINCE	DISTRICT	CHIEFDOM	NO.OF VILLAGES CERTIFIED ODF	NO.OF HHS	NO.ADEQUATE TOILETS	%	NO.ADEQUATE TOILETS	%	ODF SLIPPAGE/DROP	
										NUMBER	%
1	NORTHERN	MBALA	MFWAMBO	37	1462	1462	100%	1242	85	220	15%
2	NORTHERN	MBALA	MWAMBA	48	1677	1677	100%	1090	65	587	35%
3	NORTHERN	KASAMA	MUNKONGE	27	893	893	100%	767	86	126	14%
4	NORTHERN	MUNGWI	CHIMBOLA	23	757	757	100%	628	83	129	17%
5	NORTHERN	LUPOSOSHI	CHUUNGU	176	4419	4419	100%	4242	96	177	4%
6	NORTHERN	LUPOSOSHI	CHABULA	36	1356	1356	100%	1111	82	244	18%
	TOTALS			**347**	**10564**	**10564**		**9080**	**83**	**1483**	**17%**

Source : Field ODF data from District Excel sheets.

Figure 4.1: ODF Slippage Per Chiefdom

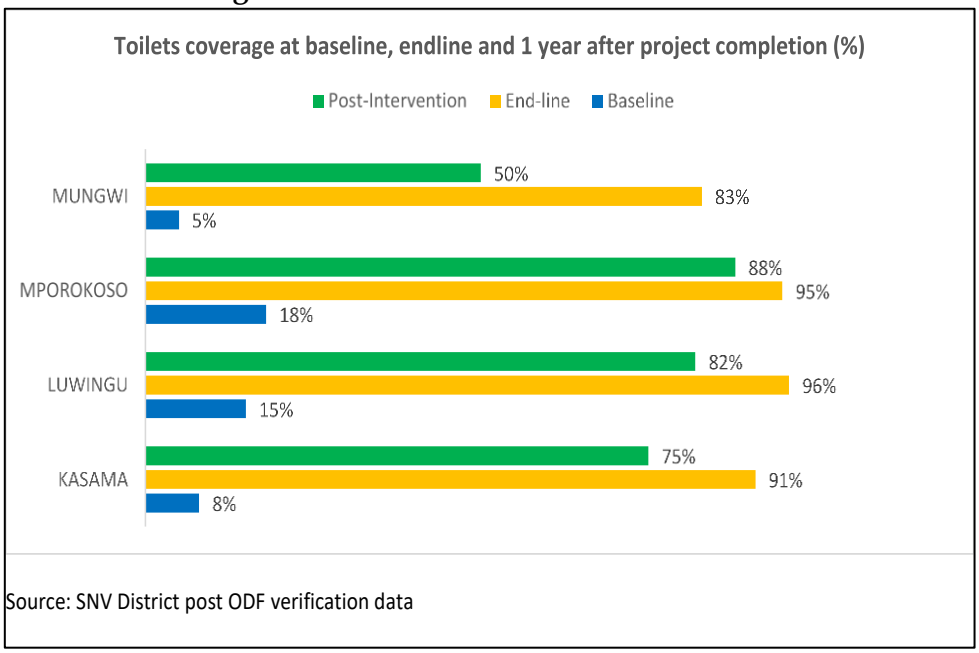


4.3.1 Analysis

The ODF slippage rate among the surveyed Chiefdoms from CLTS Excel sheets revealed that the average slippage rate was 17% and very high in Mwamba Chiefdom of Mbala District standing at 35%, followed by Chabula in Luwingu at 18%, with the lowest recorded in Chuungu chiefdom of Luwingu at 4%.

The data revealed that all the chiefdoms enumerated confirmed slippage or non-sustenance of ODF results.

Figure 4.2: SNV Post ODF Verification Data



4.3.2 Analysis

The post-project survey by Emory was conducted in the 4 districts Kasama, Mungwi, Luwingu and Mporokoso in the period November 2019 to March 2020.

The post-project basic sanitation coverage analysis based on a comparison of the sanitation coverage of the endline survey data and the Emory post-project survey data showed a decline (slippage) in the 4 districts (Figure 1).

The decline was highest in Mungwi (33%), followed by Kasama (16%). Mporokoso had the least slippage of 7%.

4.4 Discussion

4.4.1 Community Champions (CCs) Incentives

The study has revealed that the demotivation or lack of incentives for the Community Champions is a factor affecting ODF sustainability, as 92.7% of the sampled respondents indicated that the incentives for Community Champions are key for ODF sustainability.

These findings are in agreement with the study results or findings in Mali that revealed that 54% of the households maintained the ODF sustainability criteria and flipped by 46%. And attributed the slippage to a lack of Community Champion incentives.

The Mali study indicated that the giving of a small regular cash incentive to the champions is not sustainable as it defeats the aspect of community-led. Therefore, achieving real Champion incentives for motivation requires a sustained flow of incentives for Community Champions as the wave of behaviour change, which is the basis for CLTS sustainability, must be brewed and sustained from within community human resources and capacities.

4.4.2 Sustainability of ODF Achievements

This study has revealed that 83.3% of the respondents indicated that there is a failure to sustain ODF in the chiefdoms, and only 16.7% showed that ODF achievements are sustainable.

This data clearly shows that there is no ODF chiefdom that has sustained ODF among the 7 chiefdoms enumerated. The 83.3% failure to sustain ODF is also in agreement with the study results from in Chiwala and Nkambo Chiefdoms of Masaiti District in the Copperbelt of the Republic of Zambia that aimed at assessing Open Defecation Free (ODF) status and factors that influence the sustainability of ODF status practices revealed that sustainability of Open Defecation Free (ODF) status was found at 26 percent in Chiwala Chiefdom and 82 percent in Nkambo Chiefdom considering all the ODF indicators or criteria. These results indicated the ODF slippage by 74% and 18%, respectively is in strong agreement with this study.

However, the study findings of the 83.34% failure to sustain ODF differs significantly from findings of the study in Nepal that was conducted in order to assess the sustainability of ODF. A study was conducted in 2016 covering 2,100 households from

seven districts. The study showed that 96.5% of households were using toilets, while the remaining 3.5% were defecating in the open.

Among the 3.5 % of the households who abandoned the toilet, it was found that an overwhelming majority of the respondents (93%) reported that they did not feel inconvenience and discomfort returning to OD. More than a quarter of the respondents (27 %) said that the closeness of the bush made OD easier for them.

World Health Organisation's (WHO) findings indicate that globally the goal of sanitation is to eliminate and reduce Open Defecation (OD) or increase ODF attainment as per SDG 6.2.by the year 2030. Locally it is equally, the same goal for the Government of the Republic of Zambia is to keep reducing the open defecation practices, rates and coverage to 0% by the end of the year 2030 however, the lack of ODF sustainability does not only affect Zambia as globally the open defecation rates declined globally from 24% in 1990 to 15% in 2011 that signified a drop of 244 million people to 1.04 billion in 2011.

The findings from a study in Nepal suggest that ODF social movement has been very successful, especially in terms of sustaining and retaining ODF status, with an average slippage rate of only 3.5% (i.e., the proportion of households still practising open defecation) is acceptable. This study confirms the creation of new social norms around sanitation and hygiene practices. It also identified major areas of improvement, particularly to some of the so-called low caste groups (e.g., Dalits). This includes a high open defecation rate (more than 8%) and poor hygiene practices amongst Dalits, posing a threat to the sustainability of ODF if not addressed adequately on an urgent basis.

However, in Nepal, all 19 CLTS villages had been declared ODF/NOD (although, as mentioned before, this can be interpreted to mean simply that an event had been celebrated on a planned date). With the exception of one study village, toilet coverage rates ranged from 53 to 93%. The outlying community had initially achieved 100% coverage but this had fallen subsequently to 28%. In all of the communities, there was some evidence that some open defecation was still being practiced albeit on a smaller scale than previously and often in 'hidden' locations. These findings agree with the finding of this study with 83,3% failure to sustain ODF.

The study findings differ from those found in Bangladesh by the WaterAid interventions that targeted upwards of 16,000 communities over the past five years. The outcomes were generally good – all of the project communities are reported to have achieved ODF status. The interventions appear to have resulted in sustained behaviour changes and are highly cost-effective centrally to this study finding, where 83.3% indicated a failure to sustain.

In Bangladesh all of the communities visited had previously declared No Open Defecation (NOD). At the time of the study, three CLTS communities still had 82% latrine coverage or greater but, taking sharing into account, latrine use was at least 95%. In none of the five communities did the study find 100% change to fixed place defecation – everywhere, a minority of individuals remained who still practised open defecation for different reasons. In Devisthan, a low-performing hill community, the majority of the

population had reportedly returned to open defecation in 'hidden' locations, which partly supports the findings of this study, although the difference is too high.

Another study conducted in Ethiopia, Kenya, Sierra Leone and Uganda revealed that 87 percent of the 4960 households had functional toilets, with only 27 of the 116 villages having toilets while 89 villages had a slippage rate between 2 percent and 57 percent (Cavill *et al.*, 2015).

Mukherjee (2009), Mehta and Bongartz (2009) and Venkataramanan (2012), collectively agree that Community Led Total Sanitation approach performs very well in achieving toilet construction as a product of effective triggering but very poor at sustaining the ODF achievements wherever it has been practiced.

According to Mafuya (2010), people in the rural community believed that the use of toilets was of Western origin and, therefore preferred using the bush. A study conducted in Malawi revealed that some people went back to open defecation because they believed that it was taboo to mix faeces with in-laws (UNICEF, 2012). A similar study conducted in Zambia revealed that In-laws, different generations and opposite gender were some of the barriers to using the toilets (Lawrence *et al.*, 2014).

In addition, lack of funds was also the major economic factor contributing to unsafe sanitation. To either build a new or maintain the existing structures was a challenge (Mafuya, 2010; Tyndale Biscoe *et al.*, 2013). Devine (2010) also revealed that households with strong financial pressures usually place less value on sanitation and are not motivated to acquire a toilet facility.

According to Tyndale-Biscoe *et al.* (2013) and Cavill *et al.* (2015) revealed some of the motivators for maintaining ODF status as privacy, security, convenience and comfort, while de-motivators were financial constraints, lack of support, maintenance and frequent repairs. However, health was perceived as the construction and sustainability of latrines because of a reduction in the number of visits they made to the health facilities, which resulted in saving time and money (Tyndale-Biscoe *et al.*, 2013; Cavill *et al.*, 2015).

4.4.3 ODF Sustainability Policy

The study has indicated that 90.7% of respondents positively agree that the lack of an ODF sustainability policy affected the reconstruction of toilets and parameters in 6 chiefdoms enumerated.

This finding is very significant as sanitation actors, including the Government of the Republic of Zambia through the Ministry of Water and Sanitation have been financing funding CLTS activities up to basic sanitation and abandoned the support immediately after ODF celebrations and expecting the poor communities to self-financing the post-ODF interventions to achieve safely managed sanitation which is the desired state prescribed by SDG NO.6 and the Zambia 2030 ODF strategy on the phased approach or sanitation ladder.

There are 4 stages on the ladder that must all be funded including level 4, which is safely managed sanitation encompassing post-Basic or post-ODF sustainability interventions.

4.4.4 Local Authority or Councils Capacity to Achieve and Sustain ODF

The study has revealed that 83.3% of respondents disagree that local authorities are doing enough toward sustaining ODF achievement, according to the sanitation mandates provided for under the Local Government Amendment Act No. 2 of 2019.

However, these findings are not in agreement with the practice in India, where they have developed ODF sustainability plans and budgets under the capacity building for ODF Sustainability.

The capacity-building interventions in India will have to continue for the personnel and stakeholders engaged in the ODF-S component of the program. The capacity building for ODF-S should focus on:

- Implementing catalytic events like national days, local events of strategic importance, and cultural and religious occasions for sustaining community approaches in ODF locations,
- Training on maintenance of technological options used for rural sanitation at both the household and community levels,
- Training on solid and liquid waste management,
- Setting up decentralised arrangements for preventive and corrective maintenance of SBM G assets in every GP,
- Organising conjoint programming with other departments for sustainability.

4.5 Chiefdom or District ODF Plans

This has been confirmed by the fact that the respondents in this study indicated that 85.3% of the Local Authorities or Councils do not have a documented ODF plan for smooth implementation of CLTS interventions.

This is a very serious finding because without a plan, councils do not prioritise sanitation and regard it as being NGO-driven hence the lack of ownership and therefore cannot sustain anything without a plan and corresponding resources. However, the findings differ from the situation in India, where the state governments, together with the districts, would develop an ODF sustainability plan. The primary planning unit for ODF-Sustainability would be Gram Panchayats which would be supported in developing their ODF-Sustainability Plan. The districts would compile the ODF plans of each GP in their district and would develop the District ODF-Sustainability Plan. The state would compile the ODF Plan for all the Districts in the state and would develop the ODF-Sustainability Plan for the state.

The state would report on the essential elements of their ODF-Sustainability Plan to MDWS through the AIP and during the AIP planning and discussion exercise. The MDWS has suitably modified the AIP format so as to capture the ODF-S Plan of the States. The MDWS requests the States to submit their ODF-S Plan in the modified ODF template.

States are advised to consider the following while formulating and finalising their ODF-Sustainability Plan:

- **Continuity of the program beyond the ODF declaration stage**

The interventions under SBM-G are designed to continue beyond attaining the ODF status by a village/GP/Block/District and State. Attainment of ODF status is an important milestone in the journey of the SBM-G program but is not the end of programming for sanitation and hygiene benefits. The villages, GPs, Blocks and Districts need to continue to work on sustaining the ODF status much beyond the attainment date of ODF.

- **Retaining human resources deployed at the state, district, block and village level for undertaking ODF-sustainability activities and if required, retraining them for SLWM activities.**

- **Financing for capacity-building activities**

Key areas for capacity building during the sustainability phase could include:

- Training on operation and maintenance of toilets at household and community level
- Retrofitting of toilets, where needed, to make them sustainable
- BCC, IPC & IEC activities aimed at ODF-S
- Undertaking solid and liquid waste management activities
- Any other areas that could promote the sustainability of interventions

- **Enabling provisions**

States should develop enabling policy guidelines that support Gram Panchayats to own, operate and manage the programme through increased funds, functions and functionaries to work on sustainability aspects.

- **Efficiency gains through coordinated and convergent action**

Exploit efficiency gains through improved integration of SBM components with other development interventions and programs happening in the State. Many States have successfully used MGNREGS, 14th Finance Commission Funds, SBM-G funds under SLWM, own source revenues, etc. for sustaining the benefits and investments under SBM-G

- **Sanitation marketing**

Develop and test innovative social and sanitation marketing techniques to promote the use of commodities and services that have a direct bearing on access to sanitation services and sustainability e.g. pit emptying in rural areas etc.

- **Improved engagement strategy with line ministries**

Sustainability of SBM outcomes could be made a feature in engagement strategies with relevant line ministries, multilateral organisations, and development partners to ensure that SBM sustainability indicators are embedded in their programming and reporting systems

- **Mobilize private investment for sustainability**

States should innovate ways to overcome market and non-market barriers to mobilise private investment in SBM and to leverage private sector expertise in sustaining services

4.6 Council CLTS/ODF Sustainability Budgets

This study has revealed and confirmed that 80% of the councils do not have a budget for ODF sustainability.

In this regard, the CLTS activities and ODF achievements have been driven by NGOs, hence the failure of the Council to sustain the ODF achievements when the NGOs stopped supporting the communities after ODF celebrations the move described as unfortunate and regrettable for the institution mandated to provide the sanitation as right to the citizen to be 100% dependant on the NGOs.

The lack of budgets in the local authorities or councils enumerated in the Northern Province of the Republic of Zambia is contrary to or differs from the Indian Government, where District ODF sustainability plans are developed and budgeted in each District or state for financing ODF-Sustainability would include a budget for:

a) Human resources at the state district, sub-district and village level,
b) IEC activities to be undertaken for ODF Sustainability,
c) Training and capacity-building activities for ODF Sustainability,
d) Coordination and convergence with line ministries, departments and development partners,
e) State-wide / District-wide Post-ODF Sustainability Strategy and Rollout Plan.

This is contrary to the Zambian setup, where over 90% of the sanitation budget is NGO-driven or supported by cooperating partners in both central and local government, failing to meet the 1% budgetary requirements and 0% budgetary support from locally generated funds from local authorities failing to consider sanitation as part of the 40% service delivery requirement.

4.7 Sustained CLTS Data Management

This study has revealed that 93 % agreed that Excel sheets for CLTS data are available at the rural water supply and sanitation units in the local authorities or councils but 44.7% indicated that the Excel sheets were not updated regularly, indicating that there is unsustainable data collection and management or there is a break down in data collection as the outdated data cannot be used for decision making rendering the CLTS implementation to a total collapse.

44.7% of the data is not updated due to a lack of monitoring that is in agreement with other studies. According to Bramley and Breslin (2010), the challenges affecting ODF sustainability were due to a lack of effective monitoring or regular and consistent follow-ups that is in agreement with the study since data was not collected while monitoring the Excel sheets were equally not updated or even not available.

Further, the Hygiene Program (ZSHP) revealed that the cleaned WASH MIS dataset (9,017 villages) covered the period 2013-2018 and included villages from 434

wards (the smallest division of local government) out of 1,287 nationally analysed by the USAID.

The findings were that both ODF achievement and sustainability were more likely in water-stressed villages with lower access to drinking water.

This finding correlated with ODF achievement and low access to improved drinking water sources. Implementers noted that some NGOs prioritize villages with high latrine coverage for water projects. In such cases, villages with no improved water source may be more motivated to build latrines and keep them functional, translating into higher ODF achievement and higher ODF sustainability. While lower access to improved water was generally more favourable, the villages from 25% to 95% had the highest probability of ODF achievement.

ODF achievement was more likely far from cities, but ODF sustainability was higher in more accessible areas. Villages further than 34 minutes from a city experienced 38% ODF achievement (with even higher achievement further than 92 minutes), while villages closer to cities only achieved ODF in 23% of cases.

This finding is consistent with prior studies, which have reported that remote areas can be more receptive to the CLTS approach, particularly if they have received fewer WASH programs in the past.

In contrast, ODF sustainability was higher inaccessible areas characterized by a short distance to roads, short travel time to cities, and high population density. Such areas have easier access to market centres and construction materials, allowing for quicker recovery when a latrine is damaged during the rainy season. Less remote areas also tend to be wealthier, favouring the construction of durable latrines. Finally, these areas are easier for implementers to reach for follow-up.

4.8 CLTS Financing or Funding

According to Table 2, out of 150 total samples population interviewed, a vast majority of 88 respondents out of 150 strongly agreed that the government must fund all sanitation programmes as this will entail actualising the mandates of the government to provide their citizens their rights enshrined in the constitution or chapter 1 of the Laws of Zambia as duty bearers. This further will fulfil government responsibilities in leading while NGOs supplement or contribute to government efforts and not the opposite as the case is right now.

This situation may mean that the majority of respondents wanted all the sanitation programmes to be funded by the government. The findings of the study are in agreement with those conducted in Nepal, which also found or showed that donor agencies and international, national, and local NGOs are the primary designers and implementers of sanitation programs. The role that local bodies play in coordinating, implementing and monitoring activities is still very weak in many districts and the reality is that the DWSSCC is only functional in a few districts where external support and incentives (by UNICEF and WaterAid Nepal) have been put in place.

Other factors are shown below:

- **Technological Factors that Influence the ODF sustainability**

Studies conducted in Indonesia and Cambodia revealed that there was little data on latrine quality, durability and sustainability of ODF status as well as technology (UNICEF 2013). The other issue of concern was the provision of technical advice to villages and individual households on the construction of simple latrines using local materials so as to develop a sense of ownership, commitment and innovation (Kar, 2008). Hence, lack of technical advice during latrine construction often resulted in badly constructed latrines because of using non-durable materials and poor designs. Furthermore, this led to unhygienic conditions, pit collapse and latrine abandonment (Bevan, 2011). Similar concerns were raised on the regular repair and rebuilding costs faced by rural households that used non-durable sanitation facilities. This was because poor households had to repair and rebuild their sanitary facilities on a fairly regular basis (WSP, 2011; Bevan 2011), particularly those living in areas experiencing heavy rainfall and seasonal flooding or high groundwater levels. However, there was little evidence on the costs of repairing and reconstructing latrines and the unnecessary burden placed on the poor (Plan Nepal 2007; UNICEF 2011, and Robson, 2012). According to Bauby and Flachenberg (2014), Community Led Total Sanitation and Participatory Hygiene and Sanitation Transformation (PHAST) approaches, when used together, proved to be very effective in raising awareness of the importance of accessing improved sanitation and increasing the willingness to build latrines without any incentives.

According to Plan Nepal (2007), UNICEF (2011) revealed significant enablers and barriers to sustainability ODF status as availability of land, materials, labour, local soil and ground conditions, technical advice and knowledge.

- **Social, Cultural and Economic Factors Influencing ODF Status**

The social, cultural and economic factors affect the ODF and hand washing practices. These include cultural norms, taboos, values and human attitudes. A study conducted on open defecation in rural communities on cultural values that reinforced its practice revealed that open defecation was surrounded by cultural taboos and beliefs that were particularly related to ethno-linguistic groups who lived within the same area (Water Aid, 2008).

The study conducted by Routray *et al.* (2015) in rural coastal Odisha revealed that the construction of latrines by male heads was for their female members, especially newlywed daughters-in-law whom they believed they spent a lot of time at home. Providing a latrine also meant protecting and preserving the dignity, privacy and security of their new daughter-in-law/bride. The beliefs that faeces are impure also caused some people to consider using the toilet within the house a 'sin' because idols and pictures of gods that are revered are kept and worshipped in every house, and having toilets within and near the house made the entire house impure (Laungani, 2007).

- **Environment and Ecological Factors that Influence ODF Status**

According to Hanchett *et al.* (2011) as cited by Civill *et al.* (2015) in Sustainability and CLTS: 'taking the stock' revealed that frequent harsh conditions (cyclones, floods, tidal surges, monsoon rains, landslides or tornados) led to pits collapsing and this discouraged people from constructing new toilets and either reverted to OD or constructed toilets of poor standards. Similarly, Morris-Iveson and Siantumbu (2011) revealed similar results, in a study conducted for example in Siywa village in Kaoma district of Zambia, the village was declared ODF in late 2010, however, due to heavy floods, 24 out of 33 toilets constructed under CLTS collapsed. Thus, as a result of this some households decided against re-constructing of latrines as they felt it was too much trouble.

People who stay near the body of water, such as seas, lakes, rivers and streams, undermine the adoption and continued use of toilets because these bodies of water are convenient for OD and cleansing. Furthermore, the lack of space to replace or dig new toilets in densely populated areas also diminished ODF status sustainability (UNICEF, 2013). The study further revealed that 57 percent of households did not use latrines in areas previously declared ODF, while 28 percent either practiced digging and burry or shared latrines (UNICEF, 2013).

5. Recommendations

During this study as stated in previous sections, answers have been provided in examining variables. From this study it can be concluded that there are no chiefdom ODF plans and no budgets at most of the councils to support ODF sustainability.

The situation is also worsened by the fact that most of the councils have the CLTS Excel sheets in place but outdated or not regularly updated; hence the data is stale and cannot be used for planning and review of the interventions or programme performance.

Further, the results indicated that 83.3% of respondents disagreed that local authorities are not doing enough to sustain ODF achievement, according to the Local Government Amendment Act No. 2 of 2019.

5.1 Summary of Recommendation

The following are recommendations needed to enhance ODF sustainability:

1) The local authorities to prioritise the allocation of sufficient money for ODF sustainability and CLTS implementation in the council budgets under the public health and environmental protection programme.
2) The local authorities, through the national rural water supply and sanitation unit, regularly collect data for CLTS and update the Excel sheets regularly.
3) The Ministry of Water Supply and Sanitation is working together with the local authorities to intensify community sensitisation to raise awareness on disseminating the contents of the Zambia 2030 ODF strategy documents on the phased approach to supporting ODF sustainability or post-ODF sustainability

interventions as the community climb the sanitation ladder towards safely managed sanitation.

4) The government to develop the ODF sustainability policy to guide the CLTS and ODF sustainability interventions.
5) Government and NGOs to fund all the CLTS implementation, including post-ODF activities, as the vast majority of 88% agreed to continued funding.
6) The Community Champions are to be well structured or institutionalised, preferably in the Ministry of Health structures and provided with incentives for continuity during the post-ODF period.

5.3 Contribution to Knowledge

This study has contributed immensely to the existing knowledge in the following ways:

1) It will be cited and referenced by interested stakeholders, including the government, to address the highlighted recommendations and provide some solutions to Open Defecation Free (ODF) sustainability.
2) It has revealed that the Sanitation programme planning and implementation in Zambia is NGO driven rather than government hence, the government has mandates only without ODF plans, budgets and ODF sustainability policy.
3) The study has also revealed that key staff the Community Champions, are not certified, not motivated and abandoned their work hence the impact resulted in triggering and lack of data collection and updates,
4) Finally, the study has provided knowledge that ODF sustainability and achievement of safely managed sanitation can only be achieved if the funders can provide funds beyond basic sanitation or ODF celebrations, as it is practically not possible for community self-financing to continue climbing the sanitation ladder.

6. Conclusion

In conclusion, the study has confirmed that there was no chiefdom that sustained the ODF achievement obtained and celebrated for that is in agreement with the main objective of the study, which wanted to assess the sustainability of ODF status post-ODF certification and identify the facilitating and limiting factors affecting sustainability that are adequately highlighted below.

From this study it can be concluded that there are no chiefdom ODF plans and no budgets at most of the councils to support ODF sustainability.

The data collection and updates are not sustained as over 90% of the Excel sheets are not updated regularly. Hence, the data is stale and cannot be used for planning and review of the interventions or programme performance and fully addressed the objective that wanted to review the existing or current data to confirm the ODF attainment and slippages in the ODF-certified and declared Chiefdoms as data available is outdated although ODF status is established through the respondents.

The government is not fully in control, as indicated above the Ministry of Water Supply and Sanitation has not put in place a post-ODF sustainability policy to give guidance to all stakeholders to ensure financial and other logistical support for post-ODF sustainability interventions in order to achieve the safely managed sanitation coupled with lack of ODF plans and budgets by local authorities conclude lack of sanitation priority and ownership hence Zambia has the NGO driven sanitation instead of government and the lack of policy has been attributed to affect toilet reconstruction as per specific objective that wanted to identify specific factors leading to the poor or low reconstruction of collapsing or filled toilets resulting is slippage together with the objective to assess the effects of non-availability of National policy on Post ODF sustainability policy framework and interventions contributing to ODF slippage or unsustainable ODF results has been achieved.

Further, the Community Champions (CCs), who are the key field staff conducting the triggering, are neglected with no incentives to continue actions on the ground after ODF celebrations and are not sustainably structured for continuity that addressed the objective to review and understand the extent the human resource capacity of Community Champions (CCs) contributing to ODF slippage.

In this regard, ODF sustainability will remain a challenge as long as the above stated findings remain unattended to or un addressed.

Lastly in conclusion I would like to state that all 4 research questions have been answered as follows:

a) Why has Government not developed the ODF sustainability policy and how is its absence contributing to lack of ODF sustainability.
b) Explain how the dependence on Community Champions as volunteers characterised by high drops out rates lead to ODF slippage in Zambia?
c) How does lack of financial support for post ODF activities contribute to high ODF slippage in ODF Chiefdoms in Zambia?
d) There is high toilet collapsing rate in Zambia, how does delayed toilet reconstruction contribute to ODF slippage in Zambia.

6.1 Future Research

The results of the research have provided a platform and opened an opportunity for future research in the following identified areas:

1) Low hand washing practices against high hand washing facilities.
2) The extent to which the identified sustainability categories such as financial, behaviour, structural, policy and facility are affecting the sustainability of ODF status.
3) Ascertaining the extent of poor triggering or poor triggering is affecting ODF sustainability.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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