EXPLORING COMMUNITY-LED TOTAL SANITATION AS A MECHANISM TO ELIMINATE OPEN-DEFECATION: A CASE STUDY OF HAVANA INFORMAL SETTLEMENT IN WINDHOEK, NAMIBIA

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HELMUT PULENI KAFITA

201205467

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MAIN SUPERVISOR: PROF. IAN LIEBENBERG (UNIVERSITY OF NAMIBIA)

CO-SUPERVISOR: PROF. CHARLES KEYTER (UNIVERSITY OF NAMIBIA)

ABSTRACT

The study seeks to explore whether the newly adopted Community-Led Total Sanitation can improve access to and use of latrines in the Havana informal settlement as opposed to the current model of subsidised ablution facilities. Namibia has made tremendous strides in improving sanitation, particularly in formal urban areas. However, access to better sanitation and hygiene in informal urban areas remains limited. The rapid expansion of the urban population due to rural-to-urban migration has not been matched by an increase in urban infrastructure which includes housing, water supply, sanitation, electricity as well as solid waste removal. Open-defecation is frequent in these places, and hygiene education is lacking. Like most countries in the third world, Namibia is faced with a sanitation crisis. The country has in the past adopted various methodologies to address the crisis, of which the most popular is the traditional subsidisation of ablution facilities. It has since dawned on the government that the business-as-usual approach is not yielding the much-needed results to help the country attain the sanitation component of Target 6 of the SGD. It is against this background that the Namibian Government in 2016 piloted the Community-led total sanitation approach to address the sanitation crisis and the elimination of open-defecation for improved quality of life and for a healthy Namibia. The study employed a mixed-methods research approach that included both quantitative and qualitative methodologies. The study's population was made up of the inhabitants of Windhoek's Havana Informal Settlement who were identified using systematic and judgmental sampling approaches. Data was collected from inhabitants of Windhoek's Havana Informal Settlement, workers of the City of Windhoek, the Municipal Council and the Shack Dwellers Federation through interviews and questionnaires. One hundred and thirty people made up the sample. The study revealed that attempts to eliminate open-defecation require a diverse strategy. Sanitation must be prioritised at a central government level with enough budgetary resources to enable a change in hygiene behaviour at a household level. The traditional subsidisation approach proves to be inadequate in the attainment of open-defecation-free communities due to a lack of financial resources and "merely" having a toilet does not guarantee its utilisation and maintenance without the proper adjustment in hygienic behaviour. To achieve a collective shift in hygiene behaviour, there is a need to strengthen community health education inside communities through information dissemination and communication.

KEYWORDS

Sanitation, Hygiene, Open-defecation, Open-defecation-free, Informal settlements, Participatory, Community, Interventions

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LIST OF ABBREVIATIONS AND ACRONYMS

CoW	City of Windhoek
CLTS	Community-Led Total Sanitation
DW	Development Workshop
GDP	Gross Domestic Product
GRN	Government of Namibia
HEV	Hepatitis-E
IEC	Information, Communication and Education
JMP	Joint Monitoring Programme
MAWLR	Ministry of Agriculture Water and Land Reform
MDG	Millennium Development Goal
MoHSS	Ministry of Health and Social Services
MoH	Ministry of Health
MoEAC	Ministry of Education Arts and Culture
MOPHS	Ministry of Public Health and Sanitation Strategic Plan
MURD	Ministry of Urban and Rural Development
NDP5	Namibia's Fifth National Development Plan – 2017/18-2021/22
NGO	Non-governmental Organisation
NRCS	Namibian Red Cross Society
NIDS	Namibia Inter-censual Demographic Survey
NPC	National Planning Commission
NSA	Namibia Statistics Agency
NWF	National WASH Forum
OD	Open-defecation
ODF	Open-defecation Free

PHAST	Participatory Hygiene and Sanitation Transformation
SAG	Sanitation Action Group
SDG	Sustainable Development Goal
SLTS	School Led Total Sanitation
WASH	Water Sanitation and Hygiene
WHO	World Health Organisation
WSP	Water and Sanitation Programme
U-CLTS	Urban Community-Led Total Sanitation
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund

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DEDICATION

This study is dedicated to my parents, Daniel and Wilhelmina Kafita, and my family and friends for all the support and motivation they have shown me throughout my life.

DECLARATIONS

I, Helmut Puleni Kafita, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.

April 2024

Signature Date

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

Namibia has made great economic strides following its independence in 1990. The Namibia Intercensal Demographic survey report (Namibia Statistics Agency, 2017) posits that the country is classified as an upper-middle-income country with a Gross Domestic Product (GDP) per capita of US$ 5,854 in 2017, down from US$ 6,120 in 2015. The socio-economic situation is, however, characterised by huge inequalities, with a significant proportion of the population (28%) being poor and thus unable to afford essential services such as basic sanitation and hygiene (NSA, 2017). Access to water and sanitation is inherently associated with poverty, with the poor less likely to enjoy access to such.

Namibia ratified the core human rights conventions, protecting the right to water and sanitation. Albuquerque **(**2012, para. 5) states that "It is however unfortunate that the rights to water and sanitation are not explicitly stated in the provisions of the Namibian Constitution". Article 95 states that "the State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at […] consistent planning to raise and maintain an acceptable level of nutrition and standard of living of the Namibian people and to improve public health". Albuquerque (2012) states that under Article 95, "Namibia was the first country in the world to include an environmental protection provision to promote sustainable development" (para. 6).

The human right to water and sanitation means that everyone is entitled to affordable, safe, and acceptable water and sanitation. As a result, the state must take steps in ensuring that each citizen is guaranteed these rights in a non-discriminatory manner and that water is utilised optimally and prudentially. On 25 September 2015, member states of the United Nations adopted the 2030 agenda for Sustainable Development.

The 2030 Agenda comprises 17 Sustainable Development Goals (SDG) and 169 targets addressing social, economic, and environmental aspects of development with Governments setting their national targets guided by the global level of ambition, considering national circumstances, thereby seeking to end poverty, protect the planet, and ensure prosperity for all (Albuquerque, 2012). The Agenda 2030 and the Sustainable Development Goals report, (United Nations, 2018, p. 7) contains "that Agenda 2030 places equality and dignity at the front and centre and calls for change in development patterns while respecting the environment through strengthened global partnerships considering the means of implementation to achieve change, prevention of natural disasters and climate change mitigation and adaption".

SDG 6 calls for the availability of sustainable management of water and sanitation for all and includes targets addressing all aspects of the freshwater cycle. Targets 6.1 and 6.2 as agreed upon by all member states focus on improving the standards of water supply, sanitation, and hygiene to address health deficiencies in an effort to achieve a stronger, more positive impact on public health services. Equally important, target 6.2 of The Sustainable Development Goals (SDG) calls for Namibia to end open-defecation by 2030 as well as foster hygiene for all environments, paying special attention to the needs of women and girls in vulnerable situations (UNICEF, 2017). Altogether, the SDG and Namibia's Fifth National Development Plan (NDP-5: 2017/18-2021-22) targets a reduction of open deification in urban households from 26% to 12% by the year 2022 (UNICEF, 2017).

1.2 BACKGROUND

Globally, 2.5 billion people lack access to an improved sanitation facility and sanitation coverage is the lowest in sub-Saharan Africa and South Asia where two-thirds of the population lack access to improved sanitation (Mehta & Bongartz, 2009).

A study by Mulondo (2020) puts forward that the danger of open-defecation lies in the transmission of faecal bacteria that leads to diarrheal diseases through the contamination of soil and water bodies, a problem mainly affecting rural and urban informal settlements in developing countries due to human and socio-development factors that affect all aspects of life, especially in these areas. The study further indicates that without question, issues of water, sanitation, and hygiene, as well as global health, will occur in cities because of mass migration and the growth of informal settlements.

Informal settlements in Namibia have rapidly grown, contributing to an urban growth from 300 000 to 900 000 during the period between 1991 and 2011, with households increasing from 50 000 in 2009 to over 100 000 in 2017 and the rate of urbanisation having been recorded to increase from 38% in 2007 to 49% in 2017 (Mulondo, 2020). Mulondo (2020) shares the sentiments that the expansion of human settlements due to population expansion, rural-urban migration, and the city poses a threat to all aspects of human life.

The lack of serviced and demarcated land fosters overcrowding and uncontrollable emergence of urban informal settlements such as the Havana informal settlement, Goreangab informal settlement and One Nation to mention a few. Migration trends are mostly determined by socio-economic factors such as better education, health care, and job prospects resulting in an increased demand for basic services such as water and toilet facilities, which are mostly found wanting in urban informal settlements, forcing residents to opt for open-defecation.

It is the duty and responsibility of the state to avail these services to its people. Windhoek is the capital city of Namibia and as such, the City of Windhoek (COW) is

mandated and tasked with rendering these services (Schack Dwellers Federation, 2009). However, the COW has faced numerous challenges both internally and externally in the provision of basic services such as water and sanitation. Lewis, Staddon and Sirunda (2019, p. 8) state that "the COW has come under tremendous pressure to supply sufficient water and sanitation services due to a high urban population influx over a short period". Lewis *et al.* (2019, p. 8) states that "the COW's limited financial resources, combined with the size of the urban population, constrains the development of adequate urban infrastructure, particularly water supply and sanitation".

Achieving total sanitation coverage in communities has proven to be a major challenge for the sanitation stakeholders in Namibia and other parts of the world (Shayamal, 2019). Efforts to address the sanitation challenge saw government and non-governmental development agencies pilot several strategies which have failed to produce tangible results (Shayamal, 2019). A common practice to address the sanitation challenge is the traditional subsidy for ablution facilities. This approach saw the Ministry of Agriculture, Water and Land Reform (MAWLR) construct 735 toilets during the 2013/2014 financial year at the cost of N$ 24,476 million translating into a unit cost of approximately N$ 3330.00 (Water Supply and Sanitation Sector Joint Annual Review Report, 2013/2014). The approach assumes that people cannot afford to build their own toilets (MAWLR, 2018).

Despite the significant investment in technical support, capacity building and toilet provision, there is no significant improvement in sanitation coverage. According to (Progress on Sanitation & Drinking Water, 2019) a publication by UNICEF and WHO Joint Monitoring Programme for Water Supply (JMP), progress towards eliminating open-defecation by 2030 projections; between the year 2000 - 2019 Namibia only

made progress of 0.4% annually against the desired 2.5% benchmark indicated in NDP 5. This proves that the provision of toilets and related hygiene did not lead to the desired behaviour change, such as the elimination of Open-defecation (OD).

To ensure sustainable and efficient water, sanitation, and hygiene (WASH) interventions, there is a need to move from a supply-driven approach to community-led and demand-driven approaches which are more likely to lead to collective community behavioural change. To achieve the elimination of open-defecation, communities need to be empowered to conduct their sanitation appraisal and analysis, come to their conclusions, and act, thereby addressing the issue through public participation.

The Namibian government through the National Water Policy White Paper of 2000 played an important part in the administration and control of Namibia's water resources. It established a comprehensive framework for guiding the country's sustainable development, allocation, and management of water resources. The Water Supply and Sanitation Policy of 2008 was critical in tackling Namibia's water supply and sanitation concerns. Its principal goal was to provide all Namibians with clean drinking water and adequate sanitary facilities. The necessity of enhanced sanitary facilities and services was underlined in the policy. It attempted to enhance public health and hygiene habits by increasing access to appropriate sanitation facilities, such as proper toilets and wastewater management systems.

Namibia’s core policy on sanitation, the National Sanitation Strategy 2010/11 – 2014/15 (GRN 2009, p.9) emphasises the “need for portable water and basic sanitation services as one of the major basic essential needs”. The document highlights significant shortcomings in sanitation coverage in rural and urban areas since

independence, raising health officials' concerns. The National Sanitation Policy identified Community-led Total Sanitation (CLTS) as a core strategy to eliminate open-defecation and address water and sanitation problems in the City of Windhoek and the Kunene Region which led to the cholera outbreak of 2014 (MAWLR, 2018).

During the period 2014-2016, limited attention was afforded to CLTS as a modality. Instead, the government continued with traditional sanitation projects to deliver fully subsided toilets to households with little attention given to collective hygiene behaviour change of community members. On 14 December 2017, The Ministry of Health and Social Services declared a Hepatitis-E Virus outbreak in Windhoek, Khomas region (Ministry of Health and Social Services, 2022). The outbreak continued in Windhoek and by April 2018 had spread to other regions. Cases were reported to emanate mainly from the Havana Informal Settlement in Windhoek and then onto similar settings in other parts of the City and Country where access to safe water, sanitation and hygiene is limited. On the other hand, most cases from less affected regions had a travel history to the informal settlements (Ministry of Health and Social Services, 2022).

Since its emergence in early 2000, CLTS has spread in different countries and has now also moved to Africa and the Middle East. Its spread has been through both NGO and government processes and its champions have been dynamic grassroots activists, state bureaucrats and members of the NGO and donor community (MAWLR, 2018). At the heart of CLTS lies the recognition that merely providing toilets does not guarantee their use, nor complete elimination of OD but practising communities can expect positive behavioural and health changes.

Earlier approaches to sanitation prescribed high initial standards and offered subsidies as an incentive. However, this often led to uneven adoption, problems with long-term sustainability, and only partial use. It also created a culture of dependence on subsidies. Today there is tremendous diversity in CLTS approaches and practices around the world and it is prominent in countries such as Bangladesh, India, Indonesia, Kenya, Tanzania, Malawi, and Zambia to mention a few. It must be noted though that CLTS has not really been used in urban areas, except for a few scattered cases such as Kolyani in India (Mehta & Bongartz, 2009), Mathare 10 in Kenya and Choma in Zambia (Bongartz, 2014).

Against this background, this study explores whether the adoption of CLTS can serve as a guide to addressing the urban sanitation crisis that has been ravaging the informal settlement of Havana in the Khomas region.

1.3 STATEMENT OF THE PROBLEM

At a 34% sanitation coverage rate, Namibia ranks highest just behind Somalia and South Sudan with 26% of the urban population practising open-defecation, a situation that has not improved since 2006, making the country one of the worst performers in the Eastern and Southern African region (Shuuya, 2017). While since independence, investments have been made to service some urban poor in Namibia, the investments have not kept pace with the rapid growth of informal settlements. The ensuing lack of hygiene has considerable negative impacts on the safety and health of people in informal settlements. The danger of open-defecation lies in the transmission of faecal bacteria that leads to diarrheal diseases such as cholera, typhoid, hepatitis, polio, diarrhoea and malnutrition. This is mostly propagated through the contamination of soil and water bodies (UNICEF, 2017).

A study by Amutenya (2020) posits that migration from rural to urban living due to economic depression and drought has been on the rise in recent years. Namibia's population growth in informal settlements has caused a strain on the government's ability to render adequate services with approximately 40% of urban households located in informal settlements such as Havana informal settlement. These settlements have minimal infrastructure, little to no clean water, or functional toilets and poor hygiene. The study indicates that due to the rate of migration to Windhoek, the COW has not been able to provide basic services at the pace of population growth due to a lack of human and financial capacity to keep track as well as physical conditions in which provision of facilities is extremely complicated and/or expensive (Amutenya, 2020).

Lack of adequate sanitation, high levels of open-defecation, and poor hygiene habits constitute the biggest public health risk and contradict the achievements gained in meeting the Millennium Development Goal targets for clean drinking water. Havana informal settlement was identified as the epicentre of the December 2017 Hepatitis-E outbreak. The UNICEF's Humanitarian Situational Report (2018) postulates that the outbreak in the informal settlement was due to limited or no access to safe water, sanitation, and hygiene. The Humanitarian Situational Report (2018) further states that in an assessment carried out by the Ministry of Health and Social Services across 2500 households in the informal settlement, it was found that 68% of the households defecate in the open, with 92% indicating that they collect water from communal taps, and 2% collecting water from open/unsafe water sources. The virus spread to other regions by April 2018 with all cases reported to have a travel history to Havana informal settlement (Ministry of Health and Social Services, 2019).

A newspaper article by the Namibian newspaper ("Havana Sanitation Woes", 2020) attributes perennially clogged pipes, broken toilet pots and stolen doors as some of the major reasons for open defection in the Havana informal settlement. According to the article, the entire community of Havana shares less than 10 toilets. These 10 functional toilets are remnants of about 30 toilets constructed in the area. The toilets were constructed for the communities that were using unhygienic bucket toilets and pit latrines. However, due to the limited number of functional toilets in the area, community members are forced to wait in long lines to answer nature's calls, a situation which triggers them to seek alternative places to relieve themselves.

The formative research report on open-defecation status in Namibia (MAWLR, 2015, p. 18) adds that due to "a lack of ownership, poor maintenance, unhygienic toilets, locked public toilets and constant vandalism, many people in Havana Informal Settlement return to the inhuman bucket system or make use of the bush to answer nature's call". The newspaper article further indicates that most of the toilets in the settlement have not been working since 2006 and have over time been breaking down with little to no maintenance done on them (Havana Sanitation Woes, 2020) a situation that is yet to improve. The article concludes that the breakdown of these toilets over the years has been due to users making use of alternative materials such as card board boxes and sticks to wipe themselves as they cannot afford to buy toilet paper. This leads to the clogging and breaking of pipes.

Contrary to the above-mentioned, a study by Gold and Namupolo (2013, p. 8) identifies "a lack of coordination between key stakeholders in the sanitation sector as the main reason behind the country's sanitation woes". The study further indicates that open-defecation is high in the Havana informal settlement as beneficiaries of these toilet facilities are not involved in the choice of sanitation afforded to them. Hence

there is a lack of awareness on the range of options and levels of availability or sustainability of sanitation at the disposal of the community. This results in the poor utilisation and maintenance of these facilities at a community level. In agreement with the abovementioned, the National Sanitation and Hygiene Strategy update report (MAWLR, 2018, p. 11) indicates that "user involvement in the choice of sanitation systems and their construction, operation and maintenance is limited, leading to sanitation facilities not being used, operated and maintained properly by the beneficiaries".

Individuals are left to take responsibility of their own sanitation in the context of urban areas, a process that excludes those in informal settlements, such as Havana informal settlement, where the owner of the informal structure does not have land rights, leaving a void in who is to provide these facilities (Gold & Namupolo, 2013). This is a result of the government's adoption of an urban strategy that calls on local governments in urban areas to create a five-year plan that prioritises sanitation depending on the local environment (Gold & Namupolo, 2013). In actuality, this means that the government assumes primary responsibility for sanitation and that the private sector participates in construction contracts by way of a tendering procedure (Gold & Namupolo, 2013). Although several private enterprises advertise alternative sanitation strategies, according to Gold and Namupolo (2013) this has not yet spread to a commercial level.

The Ministry of Agriculture, Water and Land Reform (MAWLR, 2020) claims that to address the sanitation challenges in Havana informal settlement, the Government of Namibia and civil society organisations commenced with the provision of fully subsidised shared toilet facilities. However, this approach did not effectively address sanitation challenges (MAWLR, 2020). Therefore, to address the sanitation crisis in Havana, there is a need for behavioural change in hygiene and sanitation at the

community level with emphasis on the individual to attain open-defecation-free status (MAWLR, 2020).

In order to address the sanitation challenges, a number of approaches have been used by the Government of the Republic of Namibia and civil society which included the traditional Subsidy-based solution, Participatory Hygiene, and Sanitation Transformation (PHAST) and recently, the CLTS. CLTS approaches were only implemented in the rural setting (MAWLR, 2020). In May 2017, the Namibia CLTS Protocol was approved by the WATSAN Forum. As a result, rural Namibia recorded its first open-defecation-free village in July 2017 (MAWLR, 2020). This is an indication that the strategy can indeed be effective in the rural context.

Namibia suffers from a lack of data and knowledge on sanitation, which may be attributed to limited research and monitoring initiatives, insufficient data collection methods, and a lack of prioritizing in resource allocation for data gathering and analysis (MAWLR, 2018). "Unfortunately, data and knowledge on sanitation at central, regional, and local levels is scattered and is not always shared and sometimes it is also inadequate, in both technical/hardware aspects and people/education and capacity building aspects" (MAWLR, 2018, p. 11). A gap remained between the rural and urban settings such as the Havana Informal Settlement. With the Water and Sanitation Sector and CLTS approach still in its infancy in Namibia, this research seeks to fill the knowledge gap on the concept and its applicability to the urban context. The study seeks to explore whether the newly adopted Community-Led Total Sanitation can improve access to and use of latrines in the Havana informal settlement as opposed to the current model of subsidised ablution facilities.

1.4 OBJECTIVES OF THE STUDY

The main objective of this study is to explore community-led total sanitation as an alternative approach to sanitation provision as opposed to the traditional subsidy method in the Havana Informal Settlement of Namibia

The specific objectives of the study are:

1.4.1. To investigate the effect of community-led total sanitation on hygiene and sanitation practices, including open-defecation, use of private latrines and practice of handwashing with soap

1.4.2. To compare the effectiveness of community-led total sanitation as opposed to historical approaches adopted by the City of Windhoek in addressing the sanitation crises in Havana Informal Settlement

1.4.3. To make recommendations based on findings to ensure an open-defecation-free Havana Informal Settlement

1.4.4. To identify further areas for research to alleviate challenges around open-defecation and sanitation in informal settlements.

1.5 SIGNIFICANCE OF THE STUDY

To achieve the SDG on sanitation, several strategies and programmes are required for lasting success. The Namibian Government in 2014-2015 through the National Sanitation Strategy piloted the CLTS programme in the Ohangwena Region to address the sanitation crisis in rural Namibia, thereby leaving a gap in its applicability in the urban setting, such as the Havana Informal Settlement. Therefore, this study is important in many respects:

Firstly, the findings of this study are significant to policymakers, specifically in the water and sanitation fraternity as they should provide an insight into CLTS and its applicability in the urban setting, thus providing baseline data for future planning. Secondly, this study should contribute to the body of knowledge that taps and guides academic and/or practice disciplines, thereby providing a better understanding of how CLTS can increase sanitation coverage in the Havana Informal Settlement. This could be through behavioural change as opposed to the traditional modality of infrastructure provision. It should also provide a learning experience to surrounding communities facing similar challenges.

Finally, the recommendations emanating from this study, if implemented should significantly contribute to cleanliness and promote public health throughout the Havana Informal Settlement and other informal settlements in Windhoek in particular, and Namibian urban areas in general, by providing an innovative approach that involves the dissemination of relevant WASH information through community health education, thereby encouraging a positive behavioural change and willingness to sustain WASH interventions within the settlement and throughout the country.

1.6 LIMITATION OF THE STUDY

Globally, CLTS has been adopted to address sanitation challenges in rural areas. CLTS has been piloted in an urban context by Kenya, Malawi, Zambia, Mauritania, Nepal and Madagascar. These countries have acknowledged the complexity of implementing CLTS in urban areas as there is a greater movement of people, less social cohesion and the term “community” is harder to define as opposed to the rural context (Pasteur, 2016). However, a comprehensive body of evidence is yet to be published, thereby limiting the literature on its applicability in the urban context.

Another constraint is respondents' unwillingness to give personal information about the sort of ablution facilities they use. Establishing trust was the determining factor in respondents' willingness to give personal information. Accessing national and regional government reports and meeting minutes was difficult, owing to bureaucratic delays. To mitigate some of these restrictions, the researcher followed ethical guidelines and notified key informants of the scheduled interviews and the information needed.

1.7 DELIMITATION OF THE STUDY

This study was limited to the Havana Informal Settlement in the COW, Khomas Region. This is largely because of the Hepatitis-E Virus outbreak in 2017 – 2022 where it was found that limited access to safe water for sanitation, and hygiene was the root cause of the outbreak (Ministry of Health and Social Services, 2019). According to the Namibia Institute of Democracy (2016), due to rapid migration and the growth of informal settlements, open-defecation has increased in urban areas. This is largely due to illegal encroachment on land, competing responsibilities for service delivery and municipalities' limited financial resources. This study focuses solely on the chances of eradicating open-defecation and enhancing sanitation coverage in the Havana Informal Settlement through behavioural change.

1.7 OUTLINE OF THE STUDY

The Research paper is divided into five main chapters

Chapter 1 lays the foundation for the study and provides a brief introduction and background to the study. The problem statement highlights the gap identified by the researcher in exploring the community-led total sanitation approach as a mechanism to eliminate open-defecation in Namibia and the Havana Informal Settlement of the Khomas Region. The research objectives are contained in this chapter as well as the

significance of the study which provides the rationale for conducting this study. Lastly, the limitations and delimitations of the study are outlined at the end of this chapter.

Chapter 2 reviews existing literature and knowledge on global sanitation challenges and modalities adopted by resource-constrained countries such as Namibia, Kenya, Malawi, Zambia, and Tanzania to scale up sanitation and eliminate open-defecation. The chapter further highlights the benefits of a people-centred approach in implementing interventions that allow for communities to conduct their appraisal, thereby fostering a behavioural change. Lastly, the chapter deals with the national policy analysis relevant to sanitation in Namibia and informs the reader of international best practices relevant to sanitation.

Chapter 3 sets the scene on the methodology used in conducting the study. It covers the following elements of methodology: research design, population, sampling techniques, research instruments, procedure, and the proposed method of data analysis. The ethical considerations are also discussed in this chapter.

Chapter 4 presents the data collection and analysis. The data collected through questionnaires is organised in a logical order using Microsoft Excel to generate tables and charts, while the data collected through interview schedules is analysed and grouped into thematic headings presented in a text format to establish a coherent flow of information.

Chapter 5 comprises a summary of the findings and deductions made thereof. It also suggests recommendations for interventions to help eliminate open-defecation, not only in the Havana Informal Settlement but throughout Namibia, interpreted within the original problem statement and research objectives.

1.9 SUMMARY

The chapter presented the orientation of the study with a focus on sanitation in the Havana Informal Settlement. It seeks to explore the effectiveness of current interventions adopted by the COW as opposed to the recently adopted CLTS approach which seeks to eliminate open-defecation through behavioural change. The intended research serves as a benchmark for future research and interventions on eliminating open-defecation in an urban setting, as the researcher could not find previous study of this magnitude in the area of study. The following aspects were also discussed in this chapter: The Statement of the Problem, Research Questions, Significance of the Study, Limitations of the Study, Delimitation of the Study, and the organisation of the study. The following chapter (Two) presents the literature review.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The essence of a literature review serves to set a clear background for the reader on the chosen topic and enlighten the reader as the research unfolds. This chapter reviews the available literature and documentation related to CLTS and to an extent how it can be successfully adopted to address sanitation issues. A review of scholarly and related literature is crucial, starting with the applicable general material related to the topic.

This chapter examines the state of sanitation globally and briefly in Sub-Saharan Africa, the origins of community-led total sanitation, its approach and spread in Sub-Saharan Africa, a situational analysis of Namibia's sanitation sector and enabling legislation, and finally the benefits of community-led total sanitation in Namibia as the research topic suggests.

While this is not meant to be a comparative study, as the study seeks to explore a specific demarcated case; reviewing some comparative literature forms part of the background reading. The comparative insights (or as known in qualitative studies, *broader casing)* will inform the setting (on the value of comparative insights and broader casing, consult) (Liebenberg, 2013). Finally, this review of literature reading will hone it down to this context-specific case study.

2.2 STATE OF GLOBAL SANITATION IN SUB-SAHARAN AFRICA

The State of the World's Sanitation Report (WHO 2022, p. 11) states "that the world is alarmingly off track to delivering sanitation for all by the year 2030 with over 4.2 billion people globally using sanitation services that leave waste untreated which is a threat to human and environmental health". Statistics reflecting the state of global

sanitation are often quoted and remain shocking (Galvin 2014). Although there has been significant improvement in sanitation, an “estimated 673 million people have no toilets at all and practice open-defecation, while nearly 698 million school-age children lack basic services at their schools” (WHO 2022, p. 11). Poor sanitation has devastating consequences on public health, social and economic development. To some extent, faecal contamination of the environment from poor sanitation coupled with poor handwashing are responsible for “approximately 570 000 death per annum globally” (WHO 2022, p. 11). “There is growing evidence that through environmental enteropathy, open-defecation contributes to more malnutrition than initially thought and is responsible for approximately half of child stunting” (WHO 2022, p. 11).

According to the Sustainable Development Goals Report (United Nations, 2022, p. 38), "from 2015 to 2020, the worldwide population using securely managed sanitation services increased from 47% to 54%, with the globe forecast to reach 67% coverage by 2030 if present trends continue." According to (United Nations, 2022, p. 38), the world is on pace to abolish open-defecation by 2030, with “the number of open-defecation instances globally decreasing to 494 million”. Universal access to drinking water, sanitation, and hygiene are critical to global health, and by achieving these targets, “829 000 lives will be saved annually”, as this is the number of people who annually die from diseases directly attributed to unsafe water, inadequate sanitation, and poor hygiene practices (United Nations, 2022, p. 38).

The State of the World’s Sanitation report (WHO 2022, p. 15) highlights that “globally, sanitation suffers from chronic under-prioritisation, lack of leadership, under-investment and lack of capacity”. “There is a trend of prioritising water over sanitation with total investments in sanitation from governments and donors being

insufficient to render sustainable, resilient, safely managed services that will bring about substantial benefits to health, the economy and the environment" (WHO 2022, p. 16). The COVID-19 pandemic has exacerbated many sanitation challenges. "This forced people with no/unsafe sanitation facilities to revert to methods such as making use of poorly managed public latrines or defecating in the open" (WHO 2022, p. 16). The COVID-19 pandemic brought to light what was clear: poor sanitation puts everyone at risk.

2.2.1 State of Sanitation in Sub-Sahara Africa

Sub-Saharan Africa, which lies south of the Sahara Desert, is made up of 52 nations, states, and islands, omitting those that are located north of the Sahara. One billion people live in Sub-Saharan Africa, with roughly "63% of them in rural areas" (Sengupta *et al.,* 2018, p. 8). "Only 60%" of Africans have access to better sanitation and hygiene services, with Sub-Saharan Africa having some of the worst sanitation access in the world (Sengupta *et al.,* 2018, p. 8). Although open-defecation is a problem everywhere, it is more common in Sub-Saharan Africa (Eja, *et al.* 2020). According to (Mehta and Bongartz, 2009), Sub-Saharan Africa has the lowest sanitation coverage in all of Africa, a situation which according to (Eja, *et al.* 2020, p. 61) is yet to improve due to factors such as "the absence of sanitation facilities, socio-economic factors, cultural, detachment from urban centres, inadequate education, and behavioural patterns, etc".

Sub-Saharan Africa could not achieve the Millennium Development Goal (MDG) Target C, which sought to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015. (Sengupta *et al.,* 2018). According to the (JMP, 2017) data, approximately 62.7% of residents in the region

lack access to basic sanitary facilities and 31.9% practice open-defecation. According to the study, the region shows minimal evidence of safe sanitation management, and progress in sanitation and hygiene coverage in rural regions is worse than that of urban areas, despite considerable attempts and foreign aid in these sectors (JMP, 2017).

According to the report (Sengupta *et al.,* 2018, p. 8), “Ethiopia was the best country in the area for reducing open-defecation over the course of 15 years, from 2000 to 2015”. “Djibouti was named the worst nation and has had a concerning worsening of the open-defecation situation during the reporting period” (Sengupta *et al.,* 2018, p. 8). A decrease in open-defecation does not, however, result in a hygienic or clean environment. "Open-defecation rates have decreased in numerous nations as a result of communities employing outdated sanitation techniques, such as the traditional open pit, bucket, and hanging toilets" (Sengupta *et al.,* 2018, p. 8). "These operations barely control their effluent, resulting in groundwater pollution from chemical and biological sources, which has a major detrimental impact on human health" (Sengupta *et al.,* 2018, p. 9). "The sanitation and hygiene issues in Sub-Saharan Africa are the result of poor governance" (Sengupta *et al.,* 2018, p. 9).

A study by the Water and Sanitation Programme (WSP, 2012) found that inadequate sanitation costs African nations about 0.9% of their annual GDP. The study, which examined 18 countries comprising 50% of the continent's population, found that open-defecation is more prevalent in the most underprivileged sectors of society (WSP, 2012). Most of these nations invest less than 0.1% of GDP in sanitation, compared to the 0.5% that African leaders agreed upon as part of the Ngor Declaration, which was adopted at the fourth African Conference on Sanitation and Hygiene in 2015 and aims to achieve universal access to adequate and sustainable sanitation and hygiene services

as well as the abolition of open-defecation by 2030. (Sengupta *et al.,* 2018). As a result, the poor are responsible for bearing the financial burden of sanitation since they must pay for both inadequate sanitation and the related ill health effects (Sengupta *et al.,* 2018).

As a consequence of the above-mentioned, according to (JMP, 2017), Sub-Saharan Africa accounts for approximately one-fourth of the 892 million people defecating in the open. It can thus be concluded that sanitation in Sub-Saharan Africa is a cause for concern not only regionally, but also forms part of a larger picture of the global crisis. In their efforts to eliminate open-defecation, international organisations and national governments have provided and funded toilet construction over the past decades, a strategy that has fallen far short of expectations (Galvin, 2014). Because there is little to no community involvement, the subsidy-based approach has been widely criticised. Chronic underfunding and disinterest on the part of most governments have necessitated the development of new approaches to achieving sanitation targets (Galvin, 2014).

2.3 EMERGANCE OF COMMUNITY-LED TOTAL SANITATION IN SUB-SAHARA AFRICA

2.3.1 Origin and Spread of Community-Led Total Sanitation

Statistics demonstrating the state of sanitation in developing nations are often quoted yet not enough has been done to deal with challenges around the issue. Inadequate sanitation causes approximately 2 213 000 deaths per year due to unsafe water and hygiene (Galvin, 2014). As a result, the UN adopted (Resolution 64/292) in July 2010. The resolution acknowledges the human right to sanitation as a component of a better

quality of life and a safer environment. Achieving this milestone appears improbable, according to (Galvin, 2014), who noted that between 1990 and 2015, there were an estimated 2.5 billion individuals who lacked access to even the most basic improved toilet, and 1 billion people engaged in open-defecation. According to Galvin, national governments', and international organisations' initiatives to end OD through the funding of restroom facilities and elaborate health hygiene education programmes have fallen short of expectations (Galvin, 2014).

Achieving total sanitation coverage in communities has proved to be a major challenge for sanitation stakeholders in Namibia and other parts of the world. Both trepidation about but also enthusiasm for new approaches that can deliver on the sanitation targets marked the contextual challenge for example Sustainable Development Goal 6. Reaching open-defecation-free status requires whole communities to commit to stop defecating in the open and hygienically dispose of children's faeces (UNICEF, 2009). Sanitation programming has evolved dramatically, and increasingly, sanitation programming is focused on engaging communities on the ground, creating a demand for sanitation, and supporting the development of sustainable systems and appropriate technologies (UNICEF, 2009). For such programmes to have a meaningful impact, there is a need to shift sanitation programming from donor-determined and supply-driven approaches to community-led and demand-driven approaches**.**

In response to the global sanitation crisis, a new approach known as Community-Led Total Sanitation (CLTS) has swept the globe. CLTS was founded in 2000 in Mosmoil, a village in Bangladesh's Rajshahi district, by Kamal Kar (an Indian development consultant) and VERC (Village Education Resource Centre), a WaterAid Bangladesh partner while evaluating a traditionally subsidized sanitation programme (Galvin,

2014). Kar, who had years of experience in participatory approaches in a variety of development projects, was successful in convincing the local NGO to halt top-down toilet construction via subsidy (Galvin, 2014). He advocated for a shift in institutional mindset as well as intense local mobilization and facilitation to enable villagers to assess their sanitation and waste situation and make collective decisions to end open-defecation (Galvin, 2014).

CLTS spread quickly throughout Bangladesh, according to (CLTS Knowledge Hub, 2020), with a strong NGO presence. The CLTS approach was adopted by international non-governmental organisations at this time. Significantly, the World Bank's Water and Sanitation Programme was critical in enabling it to spread to neighbouring India and, later, Indonesia and parts of Africa (CLTS Knowledge Hub, 2020). Because of the role of international NGOs who have become CLTS disseminators and champions, the approach has been successfully implemented across various communities in Africa and Asia, improving sanitation coverage and overall health status (CLTS Knowledge Hub, 2020). While it’s true, that the CLTS approach was mainly designed to address sanitation challenges in rural areas, the programme has since been cascaded in various settings like Urban, Peri-urban, schools, and post-emergency and fragile state contexts (CLTS Knowledge Hub, 2020).

2.3.2 The Community-Led Total Sanitation approach

According to the handbook on Community-Led Total Sanitation by (Kar & Pasteur 2005), CLTS is a zero-subsidy innovative methodology for mobilizing communities in partnership with the government, Nongovernmental organisations, and other stakeholders to eliminate open-defecation (OD). Communities are facilitated to conduct their appraisal and analysis of OD and take action to become ODF (open-

defecation free) (Kar & Pasteur 2005). Unlike other approaches which are top-down and command communities, CLTS provides communities with an opportunity to make their own decisions thereby empowering them to stop OD at their own will by building and making use of latrines without external support/subsidy (Kar & Pasteur 2005).

CLTS acknowledges that simply constructing toilets does not ensure their use or result in better sanitation and hygiene. Subsidies were offered as incentives to encourage communities to improve their sanitation standards. This method, however, did not produce the anticipated effects since it frequently resulted in unequal acceptance and short-term sustainability owing to a lack of ownership and partial usage. As a result, open defection and the faecal-oral contamination cycle spread throughout communities. In most cases, communities acquired a sense of reliance on these handouts (CLTS Knowledge Hub, 2020).

Contrarily, CLTS focuses on the behavioural changes necessary to ensure real and long-lasting improvements, investing in community mobilization rather than hardware and shifting the emphasis from toilet construction for individual households to the creation of open-defecation-free villages, raising awareness that even if a minority of people continue to defecate in the open, everyone is still at risk of disease (CLTS Knowledge Hub, 2020). Community mapping and transect walks are two participatory approaches and procedures that CLTS use to help communities analyse their faecal-oral routes and sanitation practices. Communities learn they are eating each other's waste during this process, known as "triggering," and as a response, they take steps to eliminate open-defecation (ODF) (CLTS Knowledge Hub, 2020). CLTS ignites the desire for collaborative change in the community, propelling individuals into action

and encouraging creativity, mutual support, and suitable local solutions, resulting in increased ownership and sustainability (CLTS Knowledge Hub, 2020).

Kar & Chambers (2008) suggest that for CLTS to be successful, the process has to comprise three phases:

Firstly, planning and pre-triggering involve selecting communities, training facilitators, collecting baseline information, and coordinating community entry. Secondly, triggering involves organizing a mass meeting in communities where facilitators conduct participatory exercises intended to trigger shame and disgust. Attendees are expected to analyse their sanitation situation and be moved to change it on their own. Lastly, post-triggering involves routine monitoring and follow-up visits by facilitators, technical support on latrine construction, and verifying and certifying ODF status in communities.

No doubt CLTS utilises emotions, participatory approaches, and visual tools to enable communities to analyse their sanitation conditions, thereby internalising the reasons to initiate behaviour change, changing social norms, and increasing the chances that the behaviour change will be sustained (Kar & Chambers, 2008). Communities are facilitated to do their appraisal and analysis, come to their conclusions, and act collectively.

2.3.3 The spread of community-led total sanitation in Sub-Sahara Africa: a comparative perspective

Mehta and Bongartz (2009) report that although numerous African countries tried to implement CLTS, for example Nigeria, Uganda, and Zambia, it was only in 2006/7 that interest in the CLTS modality arouse in other African countries. According to

(Mehta and Bongartz, 2009) the rise of CLTS in Africa can be attributed to the hands-on training for Plan Regional East and Southern Africa (RESA) staff in Ethiopia and Tanzania in 2007 that marked the beginning of Plan RESA's piloting of CLTS across east and southern Africa (Mehta and Bongartz, 2009). Participants showed much interest in the approach and action plans to implement CLTS in respective programmes were developed.

Since its inception in 2007, there have been many attempts by governments such as Kenya, Malawi, Zambia, and large international institutions such as UNICEF to scale up CLTS with many governments acknowledging the potential of the approach (Mehta and Bongartz, 2009). It was at the 2008 AfriSan conference in Durban that a consensus was reached that the modus operandi at the time would not help approximately 300 Sub-Saharan Africans who lack access to improved sanitation while acknowledging that many countries cannot sustain the traditional subsidy approaches (Mehta and Bongartz, 2009).

CLTS has since been adopted by many international non-governmental organisations (INGOs) and is now adept in over 50 countries and has been incorporated into the national policies of more than 16 governments (Bongartz, 2014). With the emergence of CLTS as a continent-wide movement, rural sanitation has entered a new phase. However, there are still a lot of problems and unanswered questions, such as what should happen after the trigger, monitoring and evaluation, sustainability, equity, and the interface and interaction between CLTS and other strategies like sanitation marketing (Bongartz, 2014). How to scale with quality remains one of CLTS's most crucial big-picture issues (Bongartz, 2014).

CLTS demonstrated potential in addressing Sub-Saharan Africa's sanitation challenges. Socio-cultural factors, local environment, infrastructure, capacity building, and continuous support are all variables and predictors of success and failure (Mehta & Bongartz, 2009). Strong community participation, cultural appropriateness, local leadership, and sufficient technical help are characteristics of successful CLTS programmes (Mehta and Bongartz, 2009). Inadequate finance, minimal community engagement, and poor follow-up and monitoring can all lead to failure. Understanding these characteristics and causes is critical for conducting effective CLTS interventions in Sub-Saharan Africa that result in persistent behaviour change and better sanitation practices (Mehta and Bongartz, 2009).

This study looks at the sanitation crisis and the adoption of CLTS in three countries mainly due to its resounding success in improving sanitation in urban and peri-urban areas in namely Kenya, Malawi, and Zambia as the main approach to scale-up sanitation and eliminates OD. The following sub sections provide a comparative analysis of the CLTS approach was adopted and the variables and determinants that led to the success of the programme as well as lessons learnt from experiences.

2.3.3.1 Sanitation and the raise of community-led total sanitation in Kenya

It is estimated that by 2008, about half of Kenya's population at the time (20 million did not have access to proper sanitation facilities. Research by (Bokea, 2020) estimates that 5.6 million people in Kenya either defecate in the open or in a juala (plastic bag). According to (Bokea, 2020), over 17 100 children under the age of five die each year as a result of open-defecation. In rural Kenya, where roughly 55% of the population lacked access to sanitary facilities and was compelled to use OD, the situation was fairly grave (Dolye, 2008). Numerous hygiene-related ailments caused by poor

sanitation and hygiene led to the hospitalization or death of thousands of Kenyans, with 90% of those hospitalized or killed with 80% of hospitalization cases having been caused by treatable illnesses such as typhoid, amoeba, and diarrhoea (Dolye, 2008). These fatalities are linked to inadequate water, sanitation, and hygiene (okea, 2020).

The Kenyan government implemented a number of sanitation interventions in response to the rising number of hospitalisations and fatalities linked to poor hygiene, most of which concentrated on the creation of replicable, affordable latrine models (Dolye, 2008). They neglected to take scale into account, which prevented them from getting the desired outcome. This was mostly caused by communities not having enough money to construct latrines and the misconception that accessible latrines may lessen the load (Dolye, 2008). Since PHAST was adopted with such consistency, some stakeholders began to question if it could be emulated to help achieve sanitation related MDGs. The approach's need for subsidies for some of its components, which makes it expensive and challenging to scale up sustainably, was acknowledged. The Kenyan government was looking for alternatives to the PHAST technique when CLTS was first introduced to the world (Bwire, 2010).

Kenya is one of the first nations in this region to announce a national policy for the abolition of open-defecation and to create a road map for accomplishing this objective using the CLTS approach (Bwire, 2010). Plan Kenya launched CLTS in Kenya in May 2007 (Bwire, 2010). The initiatives sparked interest among NGOs and the then-Ministry of Public Health and Sanitation (MOPHS), who subsequently took part in numerous practical CLTS trainings (CLTS Knowledge Hub, 2015). In 2010, MOPHS began a pilot in six districts in Nyanza and Western Kenya in collaboration with

UNICEF and SNV. After receiving training, a group of national trainers instructed the district teams (CLTS Knowledge Hub, 2015).

Drawing from the lessons learned from this initiative, the Ministry of Public Health and Sanitation was compiled to adopt CLTS as its key strategy to address and scale-up sanitation in Kenya. Resultantly, a roadmap was developed to address rural sanitation in Kenya through government structures to reach all communities and ensure they are ODF (CLTS Knowledge Hub, 2015).

According to a report by MOH-UNICEF (2014), by March 2014, 2567 of the initially 59 915 villages in Kenya had been declared ODF, with at least 9126 triggers (CLTS Knowledge Hub, 2015). Additionally, the ODF campaigns have maintained their quality growth as a result of a number of contributing elements, including effective coordination, consistent interaction, and stakeholder communication via the Knowledge Management Hub (CLTS Knowledge Hub, 2015). The Hub brings together all WASH sector participants to discuss and come up with ideas for moving sanitation and hygiene concerns ahead (CLTS Knowledge Hub, 2015).

The WASH Hub at the Ministry of Health has played a central role in coordinating, documenting, and reporting on the CLTS campaign. On capacity building and backstopping support, the hub has been instrumental in spearheading county reflection workshops that have become vital mechanisms for enhancing the quality of CLTS (CLTS Knowledge Hub, 2015). The Hub has also adopted an online monitoring and reporting system that captures updates on CLTS on a real-time basis. So far about 8 counties are reporting through the system (CLTS Knowledge Hub, 2015). The Hub keeps stakeholders informed through the quarterly Shared Sanitation and Hygiene

Information and Tales (SSHIT) newsletter which is usually circulated during the various ICCs and through the website (CLTS Knowledge Hub, 2015).

Kenya's well-structured national and regional coordination mechanism for CLTS and sanitation stakeholders, at the community level in close collaboration with the Ministry of Health, has been working in harmony countrywide to implement commonly recognized and understood elements of CLTS and recognition of the path beyond ODF for sustained behaviour change in hygiene practices once communities have eliminated open-defecation (CLTS Knowledge Hub, 2015).

Urban community-led total sanitation in Kenya was piloted in Mathare 10, an informal settlement in Nairobi. During the piloting phase, it was acknowledged that communities in urban areas are more heterogeneous, dwellers are more transient, and space and tenancy arrangements are limited (Bongartz, 2014). Because of these factors, CLTS in the urban area has not been approached in the traditional manner, nor have people dug pits or erected unimproved structures that are not permitted by city bylaws (Bongartz, 2014). Instead, it focused on mobilizing citizens to become aware of their sanitation situation and their rights in this regard in order to challenge the institutions that have so far failed to fulfil their obligation to ensure citizens' right to live in a clean environment (Bongartz, 2014).

2.3.3.2 Sanitation and the rise of community-led total sanitation in Malawi

According to the UNICEF/WHO Joint Monitoring Programme (JMP, 2006), 62% of Malawians lacked access to adequate sanitation, whereas 18% shared improved facilities, 7% used unimproved facilities, and 13% engaged in OD. This meant that at least 88% of the population had access to a sanitation system. Improved sanitation was

reported to be at a significantly lower level of 20% in the National Statistics Office Report (Multi-Indicator Cluster Survey 2006) ("CLTS in Malawi - a Brief Update," 2015).

In Malawi, there are about 3,000 fatalities of children under five each year due to unsanitary conditions and practices (The Borgen Project, 2020). Poor sanitation frequently results in diarrhoea, which accounts for 11.4% of baby and toddler deaths (The Borgen Project, 2020). Diarrhoea is the third leading cause of death for children under the age of five in Malawi, where the water supply is at 74% (CLTS in Malawi - a Brief Update, 2015). Only 42% of rural households in Malawi had access to basic sanitation facilities as of 2015. (The Borgen Project, 2020). As a result, 9.9 million people in Malawi did not use adequate sanitation in 2018. (The Borgen Project, 2020).

Though less than 35% of people in the country wash their hands with soap at crucial times, these statistics suggest that open-defecation is really more common than the number of people without latrines (CLTS KnowledgeHub,2015). Subsidy-based approaches have faced many challenges such as affordability, sustainability, and scalability. Upon the realisation that subsidised sanitation was unsustainable, In April 2008 Malawi's Ministry of Irrigation and Water Development and the Ministry of Health with support from UNICEF hosted a brainstorming discussion that included sanitation stakeholders with the aim of learning and increasing understanding of CLTS (CLTS Knowledge Hub, 2015).

Through this workshop, Malawi developed a country action Plan which mandated the Ministry of Irrigation as well as the Ministry of Health to pave way for the implementation of CLTS ("CLTS in Malawi - a Brief Update," 2015). Subsequently, in June of 2008, a training for trainers on CLTS was conducted and the core team. The

training, facilitated by Dr Kumal Kar the author of CLTS was held in Salima District as a pilot, and through this practical training, capacity was built to enable expansion as well as starting of CLTS in the country ("CLTS in Malawi - a Brief Update," 2015).

CLTS in Malawi has been implemented by district assemblies with technical and financial support from UNICEF. Since its inception, CLTS has been introduced in 10 of the 12 WASH districts and 296 villages have been triggered (CLTS Knowledge Hub, 2015). As of date, 30 villages have been reported to have attained ODF status. In the triggered villages a total of 1,126 new latrines have been constructed by the families themselves (CLTS Knowledge Hub, 2015). This gives a total of 5,630 new users of sanitation facilities have been recorded. Importantly, the pace at which CLTS is achieving ODF status is positive with 30 villages declaring ODF within three months of the triggering time "CLTS in Malawi - a Brief Update" (2015).Despite significant progress, 6% of rural villages in Malawi still allow open-defecation (The Borgen Project, 2020). In Malawi, OD, which is caused by poor health infrastructure like toilets, is a major health hazard (The Borgen Project, 2020).

The road to an ODF Malawi has not been a smooth one of all the challenges identified hampering the process, the Government of Malawi has indicated that there has been slow adoption of some hygiene and sanitation amenities such as handwashing facilities and dry hole covers by some households, collapsing latrines due to heavy rains and the slow process of certifying ODF villages at the district level (CLTS Knowledge Hub, 2015). In efforts to speed up the process, the government in collaboration with key stakeholders in the water and sanitation sector in March 2011 adopted a CLTS scale-up strategy to accelerate its adoption and progress (CLTS Knowledge Hub, 2015).

Finally, the implementation of the CLTS scale-up plan in Malawi in 2011 experienced a number of hurdles while also achieving remarkable success. Throughout the implementation phase, problems included limited awareness and buy-in, capacity building and resource limits, as well as sustainability and follow-up assistance (The Borgen Project, 2020). However, the Malawi government's dedication and leadership, together with active community mobilization and ownership, played critical roles in overcoming these challenges (CLTS Knowledge Hub, 2015). Furthermore, multi-sectoral collaboration and an emphasis on continuous learning and adaptation contributed to the scale-up strategy's success (The Borgen Project, 2020). The Malawi experience gives useful insights into the processes of scaling up.

2.3.3.3 Sanitation and the rise of community-led total sanitation in Zambia

In the report, ("Revolutionising Sanitation in Zambia: Scaling up Sanitation," 2010)it is indicated that sanitation coverage in rural Zambia by 2005 was estimated at 13% while the Joint Monitoring Programme report of 2017 placed coverage at 52% with an estimated 32% of the rural population practicing open-defecation at the time. Against this background, the Zambian government saw the need to improve access to sanitation throughout the country. Post-Independence, the Zambian government adopted a supply-led sanitation promotion strategy that saw the government, donors, and NGOs subsidising all and everything sanitation.

Despite increasing sanitation coverage in specific areas, the supply-led approach saw general usage of these subsidised facilities. Zulu et al (2010. p. 131) put that “during the UNICEF-supported PHAST programme in 26 out of the 72 districts in Zambia between the years 1997 – 2007 it took two years to reach 20% coverage in each village”. The main problem with this approach was that to reach 20% coverage, there

was a heavy reliance on subsidisation. Meanwhile, in 2007, the National Rural Water and Sanitation Programme were drafted, and, in that document, the government sought to formalise subsidisation as a means of sanitation provision, a motion that didn't sit well with donor agencies (Zulu et al ,2010). While drastically failing to meet its targets, the Zambian government saw the need for a paradigm shift in the manner it dealt with sanitation if they were to reach the MDG of 2015 (CLTS Knowledge Hub, 2015).

It is against this background that in 2007, UNICEF initiated CLTS as an approach to address the sanitation crisis (Zulu., *et al.* 2010). Together with the Government, UNICEF piloted the CLTS approach in the Choma district in Zambia's southern province where sanitation coverage was estimated at 40%. The strategy, according to (Ahearn, 2019), focused on educating Community Champions to lead "triggerings," which were two- to three-hour procedures that included a "walk of shame" across the village to locate areas where OD occurred. The villagers were urged to see open-defecation as a problem that had major health repercussions for everyone in the neighbourhood rather than as a personal choice (Ahearn, 2019).

Twelve communities were activated throughout this exercise by facilitators trained in CLTS (Zulu., *et al.* 2010). As a result, in just two months, the pilot area's MDG target for sanitation was exceeded by 75% of the villages, increasing sanitation coverage from 23% of the population to 88% within a population of 4 536 people (Zulu., *et al.* 2010). A national CLTS programme was established in 2012 under the direction of the National Rural Water Supply and Sanitation Programme of the Ministry of Local Government and Housing as a result of the tremendous success of CLTS in the Choma district (CLTS Knowledge Hub, 2015). Ahearn (2019) puts that the success of CLTS in Zambia is due to effective monitoring. In a local community-based organisation,

Akros in 2014 created a Mobile-to-Web application that permitted real-time tracking of each community's progress, accelerating feedback loops between community members and public servants (Ahearn, 2019).

The programme is now active in 73 out of 93 districts in Zambia and by 2014 had reached 2.5 million people from the targeted 3 million (CLTS Knowledge Hub, 2015). CLTS has been a resounding success in rural contexts due to community involvement and the identification of CLTS champions who make visits to the communities to ensure ODF is maintained (CLTS Knowledge Hub, 2015). Zambia has made significant progress in sanitation coverage, according to the JMP report (2015), 44% of the population had access to improved sanitation (CLTS Knowledge Hub, 2015).

Due to the success of Chomas, the government sought to implement CLTS in Urban and peri-urban areas of the district. According to (Bongartz, 2014), urban community-led total sanitation in Zambia was initiated as a response to cholera outbreak in the country's administrative capital, Lusaka. (Zulu *et al.* 2010. p. 139) reports that "initial attempts to implement urban community-led total sanitation saw limited success due to the predominance of tenant households, high population density and weaker community structures".

In Zambia's urban approach, some components of triggering were used, but the focus was on the legal enforcement of regulations and bylaws to address sanitation, food safety, and general hygiene in an urban environment (Bongartz, 2014). "This meant that the Zambian Public Health Act had to be followed on hygiene in institutions, public spaces, and rental homes" (see Zulu *et al.* 2010. p. 139).

"Despite being different from the conventional CLTS approach, the Urban-CLTS approach ensures alignment between stakeholders and fosters community self-awareness, demonstrating that communities can conduct their own assessment and ensuring a healthy environment without outside assistance" (Zulu *et al.* 2010. p. 139).

2.4 SANITATION IN NAMIBIA: A SITUATIONAL ANALYSIS

2.4.1 Namibian policies and legislation on sanitation

The Namibian government envisions a Namibia where sanitation services are available to all Namibians and should be acceptable and accessible at a cost that is affordable for all. This equitable improvement of sanitation services can only be attained through combined collaborated efforts of the government and beneficiaries from a grass root level. The following are policies and legislations that govern and guide the water and sanitation sector:

2.4.1.1 The Namibian Constitution

The Namibian Constitution is the supreme law of the country and provides guidelines for which water and sanitation are governed. Article 95 (j), (1), and 100 calls for the maintenance of the ecosystems, essential ecological processes, biological diversities of Namibia, and the utilisation of living natural resources on a sustainable basis for the benefit of all Namibians both present and future (Namibian. Const. Art. 95 of 1990).

2.4.1.2 The Public Health and Environmental Act No. 1 of 2015

The Public Health and Environmental (Act No. 1 of 2015) provides respect to matters of public health in Namibia. It states that a local authority must (a) prevent the spread of waterborne diseases by constructing public sanitation facilities in its local authority area and by hygiene promotion, and (b) ensure efficient and affordable public sanitation facilities in its local authority area (Act No. 1 of 2015).

The relevant Act states that construction of sewerage pools and septic tanks can only take place after the inspection and approval from local authorities or environmental health practitioners as designated by the Minister; and recommends proper siting, construction, use, and hygienic conditions of toilets; as well as proper storage, removal, transport, and disposal of night soil, and refuse (Act No. 1 of 2015).

2.4.1.3 The Sustainable Development Goals

In September 2015, the United Nations launched a new set of global goals, the Sustainable Development Goals (SDGs) to guide development worldwide for the next 15 years. Namibia has committed itself to the SDGs (United Nations, 2022). The 2030 Agenda for Sustainable Development comprises 17 SDGs covering many more areas and sectors than the MDGs. Resulting of a comprehensive consultation process, a set of 169 targets was agreed upon to measure the progress of the highly interlinked and complex framework (United Nations, 2022).

Achieving adequate and equitable WASH for all is the 6th SDG goal and a central component of the development agenda. As the SDGs are closely linked with each other, progress in other areas also depends on significant improvements in WASH,

especially related to education, health, nutrition, gender equality, and inequality (United Nations, 2022).

2.4.1.4 Namibia Vision 2030

Vision 2030 provides a policy framework for long-term national development. The elements that are the essence of Vision 2030 are prosperity, harmony, peace, and political stability. The sanitation sector has aligned itself with these and is committed to the overall goal of Vision 2030. In Vision 2030, the Namibian government seeks to secure 100% sanitation coverage for all Namibians by the year 2030 (NPC, 2004).

2.4.1.5 National Development Plan 5

The right to basic services is safeguarded in NDP 5_2017/2018 – 2020/2021. NDP 5 focuses on the achievement of rapid industrialisation while adhering to the four integral pillars of sustainable development, namely, economic progression, social transformation, environmental sustainability, and good governance. Under NDP 5 the Namibian government hopes to improve sanitation from 28% in 2016 to 40% in rural areas and from 77 to 87% in urban areas by the year 2022. A detailed report on the progress of NDP 5 is yet to be made public (NPC, 2017).

2.4.1.6 Harambee Prosperity Plan II 2021-2025 & Harambee Prosperity Plan I 2016/2017-2019/20

The Harambee Prosperity Plan II 2021-2025 seeks to launch CLTS and Water, Sanitation and Hygiene (WASH) awareness to increase hygiene through the construction of community latrines at household levels in urban and peri-urban areas. Additionally, the blueprint also seeks to secure investment for the development of bulk

water and sewer infrastructure to eliminate the reaming 483 buck toilets by 2022 (Namibian Government, 2021).

The Harambee Prosperity Plan I 2016/2017-2019/20, sought to construct 50 000 rural toilets by 2020 and subsequent elimination of the bucket toilet system by 2017. There are no official data for 2017, but officials indicate that construction has even slowed down more due to difficulties in the bidding process where costs calculated, are much lower than the costs contractors want to be paid (Namibian Government, 2016).

2.4.1.7 The Namibia Sanitation Strategy 2019 - 2024

Drawing from the National Sanitation Strategy of 2010/2015, the Namibian Sanitation Strategy for 2019/2014 seeks to increase assess to acceptable and affordable sanitation services for all through a coordinated collaboration between all stakeholders in the sanitation sector. The strategy envisions a healthy and safe environment for all thereby improving quality of life in urban and rural areas with minimal impact on the environment through acceptable, affordable, and sustainable solutions (MAWLR, 2019). The Namibian Sanitation Strategy seeks to reach 67% of the Namibian population by 2024 by halving the proportion of people with no to limited access to sustainable access to basic sanitation and increasing the percentage of safe hygiene practices like hand washing. The strategy aims to reach 57% coverage in rural and 80% coverage in urban areas (MAWLR, 2019).

2.4.1.8 Community-Led Total Sanitation (CLTS) protocol (2017)

When the provision of sanitation services at the household level is being considered, a move away from the dependency culture of communities is needed to expand coverage. In response and collaboration with UNICEF, a CLTS protocol was introduced in 2017 (MAWLR, 2018).

The CLTS approach has been tested in some rural communities in the northern regions, to test self-build options for households that are willing to improve their sanitation facilities. Television (TV) spots to raise awareness and promote an ODF environment in Namibia were produced in 2015 with European Union financial support. Governmental budget limitations make that these activities are not being implemented up to their full potential (MAWLR, 2018).

2.4.2 Water, Sanitation, and Hygiene sectoral collaboration

The Ministry of Agriculture Water and Land Reform in 2009 set up a National WATSAN Forum to coordinate activities at each level, consistently comply with policies, strategies, and guidelines and try to avoid duplication of effort and waste of resources. The main aim of the National WATSAN Forum is to contribute to the efficient and effective implementation of WATSAN policies, strategies, and programmes, to improve access to water and sanitation services and facilities for the whole Namibian population (MAWLR, 2019).

Composed of various ministries, government institutions, development agencies, academic institutions, and non-governmental agencies (see Figure 2.1), the WATSAN forum meets quarterly and is chaired by the MAWLR with support from the Directorate of Water Supply and Sanitation Coordination. MAWLR is responsible for overall water resource inventory, monitoring, control, and management issues (MAWLR, 2018). The Directorate of Water Supply and Sanitation Coordination is responsible for the planning, development, and operation of irrigation schemes as well irrigation extension services (coordination of water supply and sanitation provision to the irrigation schemes.

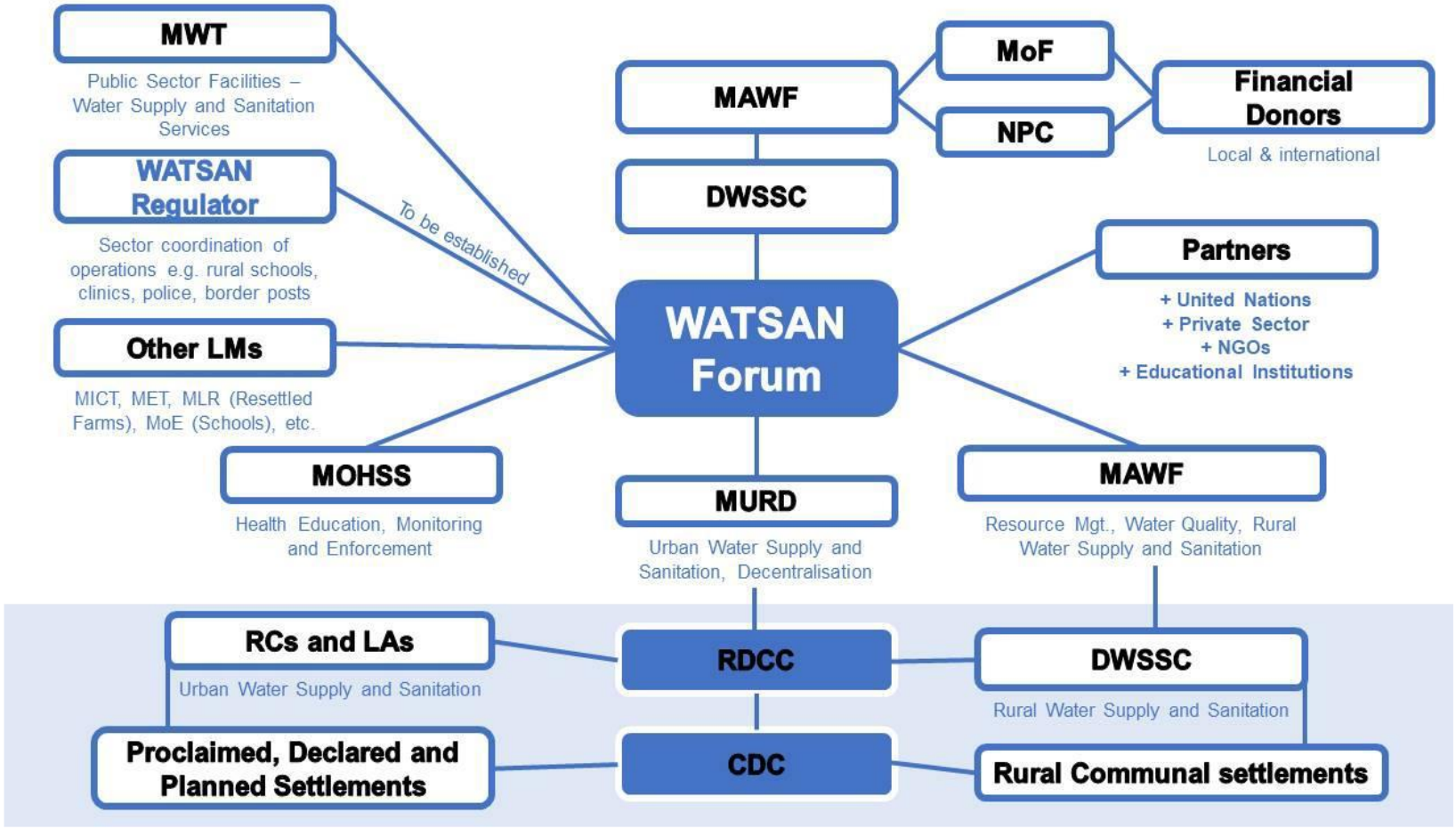


Figure 2.1: Sector Partners (Source: MAWLR, 2018. P. 29)

The forum is tasked with firstly, overseeing sector policy, strategy formulation review, and making recommendations to inter-ministerial and finance committees. Secondly, they collect and exchange ideas, information, and data to ensure a coherent and reliable database. Third, they promote coordinated and sustainable sector development. Lastly, the forum ensures preparedness and response to water and sanitation sector emergency issues. Due to the long list of ministries and agencies involved in sanitation (see Figure 2.1), leadership and representation from various ministries is not always present a factor that saw the government in the national sanitation strategy for 2010 – 2015 set up forums at national and regional levels (MAWLR, 2018).

These regional WATSAN forums were established with the following objectives at the grass root level. Firstly, make recommendations through the normal lines of communication to the Central Government on regional priorities, water supply, sanitation operational issues, and community requests. Second, Collect and exchange ideas and information as a conduit for example for the National WATSAN Forum including capturing the views of elected community members representing the community voice. Third, promote coordinated sustainable WASH sector development and collective decision-making in operational priorities. Last, inform the national WATSAN forum about key regional issues (MAWLR, 2018).

Despite this, the regional forums have many difficulties, with the primary one being retaining the commitment and interest of important stakeholders to attend these quarterly meetings (MAWLR, 2018). Another issue found is that the accountable government personnel may not assume their leadership positions or may not understand the significance of sanitation and hygiene themselves (MAWLR, 2018).

2.4.3 Financing of sanitation in Namibia

The annual state budgeting process is overseen by two organisations with key roles and responsibilities: The Ministry of Finance (MoF) and the National Planning Commission (NPC). The expenditure is controlled within the internal systems of each Ministry once the annual state budget has been approved and distributed to each Ministry and the individual cost centres. Basic services budgets are all subject to internal procurement procedures and submission to procurement boards, and they are also administered by the national procurement board, depending on the expected value of the overall price ceiling(MAWLR, 2018). The total bid prices for all procurements are published in the national press in this case (MAWLR, 2018).

Sanitation and hygiene budgets are included in the same budget line as water supply. This makes tracking funds allocated to sanitation and hygiene difficult, but it also creates competition among the resources for the three components: water, sanitation, and hygiene. Because of the country's scarcity of water, water frequently "wins the political battle" when competing with sanitation and hygiene. According to the Ngor Declaration, sanitation should be allocated 0.5% of GDP. Because there is no separate budget line, it is impossible to determine whether the commitment is being met (MAWLR, 2018).

So far, the government's sanitation efforts have not been in accordance with the NGOR declaration (MAWLR, 2018). Between 2005 and 2017, the European Union provided budget support to the WATSAN sector in addition to Red Cross, Finnish and Spanish bilateral cooperation, and USAID programmes. After all of this, international donors no longer provide significant sector support. UNICEF supports the implementation of the Sustainable Development Goals on behalf of the United Nations. This assistance

focuses on technical assistance to government partners as well as assistance with sector innovation studies and initiatives (MAWLR, 2018).

As a result, sector investments are made by both individuals and the government. Globally, households are estimated to provide 66% of WASH financing (MAWLR, 2018). The government does not actively promote individual household sanitation financing because there is a widespread belief that the government should provide sanitation as a basic human right (MAWLR, 2018).

2.4.4 Sanitation Selection Criteria

Decent, affordable, and sustainable sanitation is vital for residents' good health and well-being. Sanitation provision in Namibia is based on four scale criteria, namely, i) environmental conditions, ii) affordability, iii) culture and social aspects, and iv) technical appropriateness (De Boer. 2011).

2.4.4.1Environmental Conditions

Sanitation is developed in a way to protect the environment against detrimental effects from these systems. Both emissions to different recipients (water, soil, and air) and resource use by different sanitation systems must be considered during the construction and operation phases (Kvarnstrom *et al.* 2004). It also includes the extent to which recycling, and reuse are practised and their effects (e.g., reusing wastewater; returning nutrients and organic material to agriculture), as well as the protection of other non-renewable resources, such as through the production of renewable energies for example biogas(Panesar & Schertenleib, 2008). Expanding on the former, (De Boer, 2011) identified six conditions to consider when selecting sanitation systems that is decent and environmentally sustainable: Topography of the area, flood

resistance, groundwater level soil conditions: soft soil/ hard rock, available space (density) and the number of persons using the facility (De Boer. 2011).

2.4.4.2Affordability

The ability of users to pay for sanitation is an important criterion for sustainability. However, in the end, it may be their willingness to pay that determines the range within which costs, both construction and operation and management costs, can vary and services can be financially sustained by the population (Kvarnstrom *et al.* 2004). De Boer (2011) expressed similar sentiments, stating that the cost of construction, as well as operational and management costs, determine whether the chosen system is economical or not.

2.4.4.3 Cultural and Social Aspects

Even when sanitation systems are properly designed, they may be ineffective if social and cultural factors affecting sanitation and hygienic practices of community members are not considered (Navarro, 1994). Kvarnstrom *et al.* (2004) argues that sustainable sanitation cannot be based on these factors alone. In this category, there is a need to distinguish at least three different types of important criteria: cultural acceptance, institutional requirements, and sanitation perceptions (Kvarnstrom *et al.* 2004). Gender issues and their impact on human dignity are also to be considered under this criterion (Panesar & Schertenleib, 2008). Alluding to the dynamics of society De Boer (2011) identified three factors to consider when setting up sanitation systems, i) acceptance of urine diversion system, ii) reuse of human waste and iii) men/women using the same toilet.

2.4.4.4 Technical Appropriateness

Combines functionality and ease of construction, operation, and monitoring of the entire system, including collection, transport, treatment, reuse, and/or final disposal, by the local community and/or the technical teams of the local utilities (Panesar & Schertenleib, 2008).The technical function of the sanitation system is critical to its long-term viability. One of the most important is probably robustness, both internally (the ability to receive varying loads) and externally (the ability to withstand varying extreme environmental conditions as well as user abuse of the system) (Kvarnstrom *et al.* 2004). Supplementing to the above, (De Boer, 2011) indicates that the availability of spare parts, local skills, constant running water and a constant supply of power is critical for sustainable sanitation systems in a long term. The system's technical operation is regarded as the most adaptable set of criteria. Technologies can be relatively easily adapted to needs and requirements - it is easier to adapt technology to broader needs than vice versa (Kvarnstrom *et al.* 2004).

Although most sanitation systems were created with these considerations in mind, a lot of the time they fall short because some of the requirements are not met. In practice, it is unlikely that any system is 100 per cent sustainable (Panesar & Schertenleib, 2008). The idea of sustainability is more of a course to take than a destination. However, it is essential that sanitation systems be carefully assessed in light of all aspects of sustainability. This system evaluation will depend on the local framework and must consider the current environmental, technical, sociocultural, and economic factors because there is no universal sanitation solution that satisfies the sustainability criteria in various situations to the same level (Panesar & Schertenleib, 2008).

The Namibian government has over the years adopted two types of sanitation systems, namely the "wet systems" and "dry systems (De Boer, 2011). Figure 2.2 below provides the guidelines on how these systems have been chosen in Namibia.

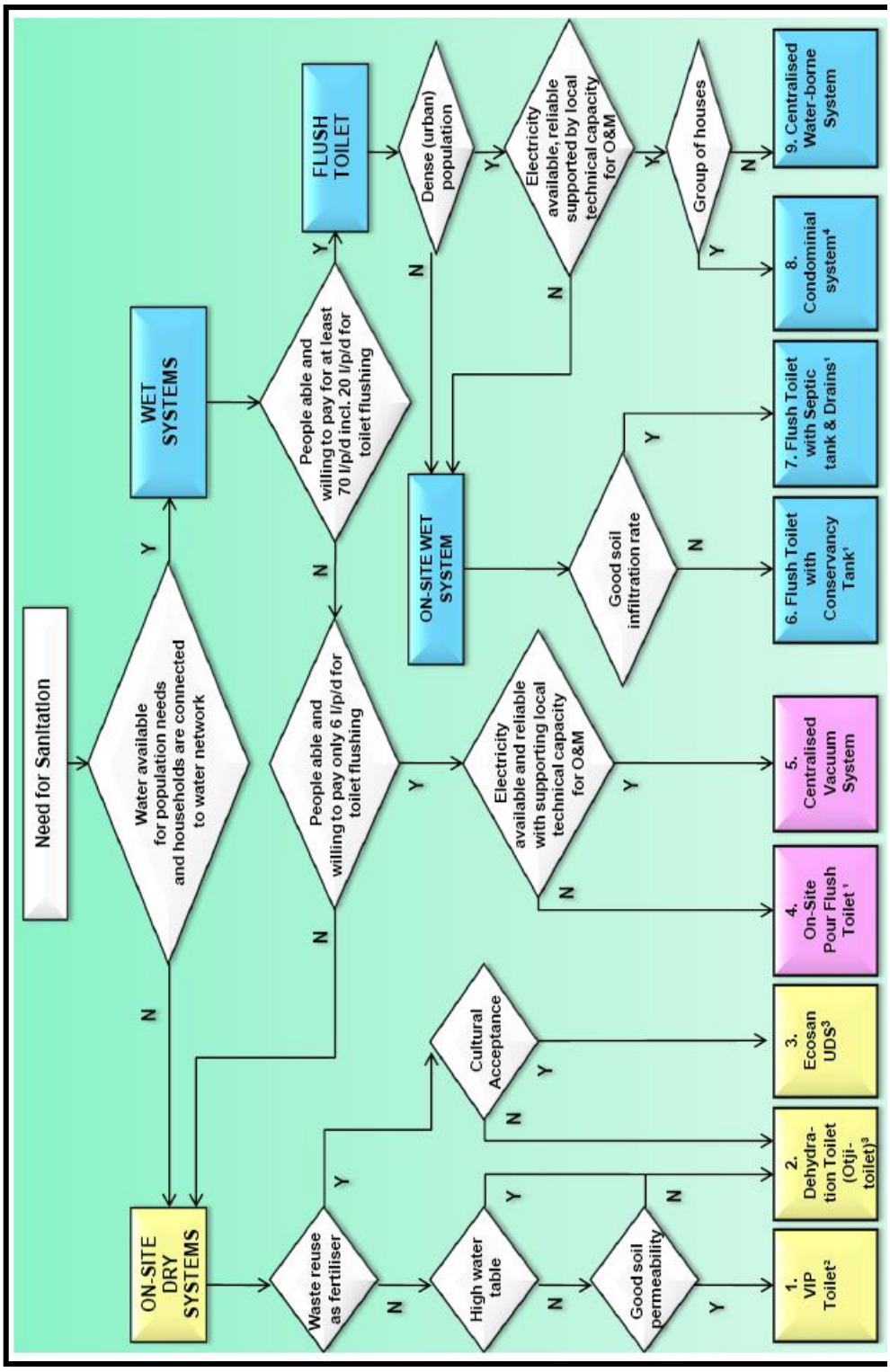


Figure 2.2 : Guideline to Selection Sanitation Options (Source: De Boer, 2011. Slide 14)

Lack of water resources, limited access to flowing water in rural regions, and a significant portion of the population living in unsafe circumstances in informal settlements are all aspects of the country's current water and sanitation predicament (De Boer, 2011). In order to enable access to sanitation for everyone and significantly reduce open-defecation, research and development on dry sanitation systems and affordable alternatives for low-income groups must be intensified (De Boer, 2011).

2.4.5 Situational review of sanitation in Namibia

Although having achieved the MDGs target in drinking water, Namibia has one of the lowest sanitation coverages in Eastern and Southern Africa and is severely struggling with sanitation problems (MAWLR, 2014). According to the Namibia Inter-censual Demographic Survey (NIDS 2016) report, 46% of its population (26% in urban and 70% in rural areas) practice OD. In addition, only 54% of the population practice handwashing with soap at critical times (MAWLR, 2014). Rural community dwellers, those living in informal settlements, and the poor bear the brunt of poor access to WASH services. Poor access to services puts the lives of children at risk by exposing them to faecal matter and endangers the privacy, safety, and dignity of girls and women.

The situation is equally challenging in school-based hygiene and sanitation The Ministry of Educations report (Education Management Information System, 2017) reports that 13% (240) of schools in Namibia do not have access to safe drinking water, whilst 15% (246 schools) do not have access to sanitation facilities. Existing facilities are often poorly maintained, unhygienic, and have no handwashing facilities. Above all, insufficient access to safe water, private toilets, and handwashing facilities

compromises the health of learners and results in girls missing school during their menstruation, which disrupts their education (MoE, 2017).

The lack of adequate sanitation and high open-defecation coupled with poor hygiene practices pose the greatest public health risk and reverse the gains made in the provision of safe drinking water. This was demonstrated by the Hepatitis-E outbreak, with cases having been reported as of September 2017, by 30 January 2022 a cumulative total of 8 092 cases were reported, of which 2 124 (26.2%) were laboratory-confirmed, 4 738 (58.6%) cases were epidemiologically linked, and 1 230 (15.2%) cases were suspected cases (Ministry of Health and Social Services, 2022). A total of 66 HEV deaths have been reported nationally (Case Fatality Rate (CFR) of 0.8%). Among the 66 deaths, 27 are maternal deaths, representing 41% of the total HEV deaths and 6.2% of all the reported maternal HEV cases (Ministry of Health and Social Services, 2022).

The Hepatitis-E outbreak is attributed to poor access to water, sanitation, and poor hygiene practices in the informal settlement and rural communities. Further, poor hygiene and sanitation are an underlying cause of malnutrition, and 24% of children under five are stunted (DHS, 2013 and NDP-5). In addition, around half of under-five child deaths are due to preventable and curable diseases, and poor hygiene and sanitation is a vital cause of disease in the country. Diarrhoea is the third most common cause of hospital attendance and the second highest cause of paediatric admissions (NSA, 2016).

While target 6.2 of the SDG calls for Namibia to end open-defecation by 2030 and the NDP seeks to reduce open-defecation in rural areas from 72% to 60% of households and from 22% to 12% for urban households by the year 2022 (thereby setting a target

of 2.5% per year), the (UNICEF/WHO JMP, 2017) report indicates that Namibia during the reporting period recorded the progress of 0.4% per year,

Efforts by the Namibian Government to fast track and achieve the above-mentioned targets, (Saha, 2019) reports that during the period 2012-2016 constructed 3855 toilets and an additional 1500 between 2017-2019. (Saha, 2019) further goes on to indicate this approach of providing toilets to communities is inadequate to achieve ODF targets for two reasons: a) Government is required to construct a huge number of toilets which poses a financial burden of it. b) household toilets don't necessarily ensure the ODF environment without hygiene behaviour change among community members which is not guaranteed by the toilet-giving approach.

Therefore, creating an ODF Namibia requires a multi-sectoral approach that embraces collective behaviour change among communities which plays a critical role in improving sanitation and adopting hygiene habits. The government has heeded the call and through its developmental plans cooperated with a self-build approach that encourages community participation in determining tailored solutions to the OD pandemic.

2.4.6 The situation around sanitation in Namibian informal settlements

The Namibia Inter-Censual Demographic Survey (NIDS) (NSA, 2016) report indicates that 39.7 % of urban households with an impoverished population of 2.4 million live in informal settlements. Amongst the regions with the highest number of informal settlements is Khomas Region (42.3%), which is home to the country's capital city, Windhoek.

These informal settlers in Windhoek have yet to own the land they occupy, and most have extremely limited access to the services of City Council. Although the government of Namibia has started to formalise a few areas of informal settlement, the rate of informal settlement expansion is much faster than converting those into formal residences (Gold and Namupolo. 2013). As a result of demographic changes in the form of rural-to-urban migration, informal communities on the outskirts of Windhoek have quickly grown. The COW is under intense pressure to provide adequate water and sanitation facilities because of COW's limited financial resources and the expansion of the urban population (Lewis, E *et al.*, 2019).

More than 90% population in these informal settlements have no access to improved sanitation facilities thus practising OD (NPC, 2011). Congestion of houseless is very high and the city has no service for garbage management in the informal settlements. Due to very poor sanitation situations, these informal settlements have become epicentres of Hepatitis–E outbreaks and other sanitation-related diseases.

According to the recent Population and Housing Census (NSA, 2011), 73.9 per cent of the households in the Khomas region had access to a private/shared/connected flush toilet, while 19.9 per cent of households had no toilet facilities at all. While the remaining percentage of the population used pit latrines whether covered/ uncovered or ventilated and unventilated (NSA, 2011). In addition, solid waste is a major environmental health problem in those areas. And where communities have been connected to sewage systems, authorities have problems keeping it operable (pumps break down, urbanization moves close to oxidation ponds etc.) and remain capacity for the expanding population (NSA, 2011).

In the above-described context, the government of Namibia chose to apply the CLTS approach to improve the sanitation situation in the informal urban settlement. After extensive consultancies, a U-CLTS programme was developed for Informal Settlements as a control measure for the Hepatitis-E outbreak. As a result, after four (4) years since the outbreak, on 02 March 2022, the Namibian Government declared an end to the Hepatitis E virus outbreak which affected 13 out of the 14 political regions mainly in informal settlements and areas with poor hygiene and sanitation (Nakashole, 2022).

2.4.7 Socio-demographic overview of Havana Informal Settlement

According to the recent Population and Housing Census (NSA, 2011) report released by the Namibian Statistic Agency, the overall population of the Moses //Garoeb stood at 45 564, this translated into Females 20896 and males 24668. Private households were counted as 13804. These homes were then dived to establish the head of households, female 34% and male 66%.

The National Planning Commission in (NPC, 2016) reported that Havana Informal Settlement in the Moses //Garoeb constituency has the second highest incidence of poverty in the Khomas region which stands at 8 per cent. This is largely so because of the rapid population growth due to an inflow of migrants, compared to other constituencies which reported a population growth of 3% per annum over the 2001-2011 period, Moses //Garoeb had a population growth of more than 5% per annum. It's noteworthy to mention that most of these migrants lack the necessary skills and education and this contributes to the high rates of unemployment in the constituency.

“Moses //Garoeb constituency is reported to have the highest percentage (48.6%) of households with no access to toilet facilities in the Khomas region” (NSA, 2011. p. 48). It is estimated that from the 13 804 households in the Moses //Garoeb constituency, the per cent distribution of households by type of main toilet facility and area are as follows, 15.1 per cent make use of private flush connected sewer, 29.6 per cent shared flush connected to sewer, 0.4 per cent private flush connected to septic/cesspool, 2.4 per cent shared flush connected septic/cesspool, 1.5 per cent pit latrine with ventilation pipe, 1.0 per cent covered pit latrine without ventilation pipe 0.2 per cent uncovered pit latrine without ventilation pipe, 1.1 per cent made use of bucket toilets and 48.6 per cent have no access to toilet facilities (NSA, 2011).

The rate of rural-urban migration to Moses //Garoeb presents a challenge to the COW in delivering 100 per cent access to basic services (NPC, 2020). High open-defecation rates in Moses //Garoeb are attributed to the illegal occupancy of land which falls outside of the COW’s scope of service delivery (NPC, 2020). Inadequate sanitation contributes significantly to the spread of infectious diseases such as cholera and Hepatitis E. Poor sanitation is also believed to contribute to stunting and impaired cognitive function, as well as impacting well-being through school attendance, anxiety, and safety, with lifelong consequences, particularly for women and children. Improving household sanitation is thus critical for socioeconomic development (NPC, 2020).

2.5 COMMUNITY-LED TOTAL SANITATION AND ITS BENEFITS IN NAMIBIA

2.5.1 Background of community-led total sanitation in Namibia

The Government of Namibia has given priority to water and sanitation as a strategy to eradicate poverty and accelerate economic growth which is in line with goal 6 of the Sustainable Development Goals which seeks to "ensure availability and sustainable management of water and sanitation for all". The water and sanitation sectors have been prioritised and enshrined as key strategic areas in the development plans and actions plans such as the poverty reduction strategy, Fifth National Development Plan (2017 – 2021), and Harambee Prosperity Plan I (2016 – 2020) and II (2020 – 2024), and Vision 2030. In addition, the Water Supply Policy dictates that CLTS approach should be the guiding principle in addressing sanitation. To give effect to this, the National Sanitation Strategy (2010-2015) called for the piloting of CLTS as an approach to promote and eliminate the practice of open-defecation in communities.

Despite the significant investment in technical support, capacity building, and toilet provision, there is no significant improvement yet in sanitation coverage. According to the JMP Progress toward eliminating open-defecation by 2030 projections, Namibia between the years 2000 and- 2017 only made 0.4% annual progress (JMP, 2019). Research by (Gold and Namupolo, 2013) indicates that the current WASH conditions in Windhoek's informal urban settlements are very poor owing to factors that are related to 'land tenure, limited resources, and finances. The toilet facilities in these informal urban settlements are limited or absent and they utilize a dry sanitation system, forcing most residents to opt for open-defecation practices.

It has been common practice for the government to provide fully subsidised toilets based on assumption that people cannot afford to build their toilets. However, these approaches do not take full life-cycle costs of sanitation (including repair and replacement) and hygiene promotion (including refresher and follow-up promotion) into account when planning such interventions. Most technologies being adopted do not maximize local involvement, are not locally replicable and replaceable and are expensive"- Communication strategy for Eliminating Open-defecation in Namibia (2015-2018).

The Society for Family Health (2016) reported that to address the sanitation challenges, several approaches have been used by the Government of the Republic of Namibia and civil society. These include traditional subsidiary-based solutions; the Participatory Hygiene and Sanitation Transformation (PHAST), School Led Total Sanitation (SLTS) and CLTS (SFH, 2016). Unlike CLTS, to summarise the approach, PHAST develops specific participatory activities for community groups to discover for themselves the faecal-oral contamination routes of disease (SFH, 2016). They then analyse their hygiene behaviours in light of this information and plan how to block the contamination routes (SFH, 2016).

Following a comprehensive National CLTS workshop from 15 – 20 September 2014, a consultative workshop with sanitation stakeholders through the assistance of UNICEF, the Namibian Government adopted rolling out CLTS as an approach to eradicate open-defecation in Namibia albeit on a trial basis (MAWLR, 2018). Four regions (Ohangwena, Kavango East & West, and the Zambezi) were selected based on key CSD indicators, in partnership with UNICEF and key line ministries. A number of 180 villages were targeted to be ODF towards the end of December 2017.

Furthermore, regional staff members from the sanitation sector stakeholders were subjected to a one-week training of trainer's exercise encompassing significant altitudes of the CLTS approach (MAWLR 2018).

In recognition of the challenges faced by the sanitation and hygiene sub-sector and in pursuit of the SDG and national developmental aspirations at the urban level, UNICEF has piloted a UCLTS programme in the informal settlements of the Khomas Region as well. This group is also amongst the lowest-income sector of the Namibian population as the COW is financially constrained and delivery of services takes place in an orderly planned manner, UCLTS is the modality chosen to address sanitation challenges in informal settlements (MAWLR 2018).

2.5.2 Benefits of community-led total sanitation in Namibia

According to the Water and Sanitation Programme (WSP) Report (WSP, 2012), the costs of poor sanitation are inequitably distributed with the highest economic burden falling disproportionately on the poorest. The average cost associated with poor sanitation constitutes a much greater proportion of a poor person's income than that of a wealthier person. Access to sanitation alone demonstrates inequities; the poorest 20% of the population are 270 times more likely to practice OD than the wealthiest 20% of the population (WSP, 2012). For the poorest, therefore, poverty is a double-edged sword, not only are they more likely to have poor sanitation but they must pay proportionately more for the negative effects it has. The following are the well-demonstrated benefits of ODF communities because of the CLTS approach (WSP, 2012).

2.5.2.1 The elimination of open-defecation practices

OD refers to the practice whereby people go out in fields, bushes, forests, open bodies of water, or other open spaces rather than using the toilet to defecate. According to International Decade for Action Water for Life (2005-2015), OD perpetuates a vicious cycle of disease and poverty making sanitation and hygiene among the most important drivers of health, social and economic environments (MAWLR, 2018). The Communication Strategy for Eliminating Open-defecation in Namibia (2015-2018) aimed to end to reduce OD from 46% to 25% by 2018 (MAWLR, 2018). Experiences from elsewhere and in Namibia show that the supply-led approach to building latrines has failed to significantly reduce the harmful practice of OD (MAWLR, 2018). However, CLTS experience in Asia and Africa shows that communities can eliminate the practice of open-defecation which is a serious health risk to the poor through the spreading of disease, affecting economic productivity and claiming lives unnecessarily (MAWLR, 2018).

2.5.2.2 General health improvements

Communities that have embraced CLTS notice significant improvements in their health status. Most frequently noted was a reduction in diarrhoea and vomiting, eye, and skin infections, particularly amongst children (MAWLR, 2018). These improvements can directly be attributed to the use of latrines and the practices of hand washing adopted because of CLTS implementation (MAWLR, 2018). The improved hygiene leads to a reduction in demand for medical services (less strain on medical services), increase involvement in economic and other productive activities as well as an increase in school attendance (MAWLR, 2018).

2.5.2.3 Hygiene improvements and clean and tidy environments

Improvements notable in the communities after the introduction of CLTS, an increase in personal hygiene, and clean and tidy environments (MAWLR, 2018). Due to increased awareness, people tend to shower more regularly and wash their clothes more frequently as well as improve their food handling and preparation practices (MAWLR, 2018). Community members are observed to clean their compounds and public areas regularly. Communities also work together to construct toilets at public meeting places. In addition, there is a noted significant reduction in the number of flies in the surrounding (MAWLR, 2018).

2.5.2.4 Improved dignity

Improved dignity is found to be particularly significant among girls. Pre-CLTS women and girls had to go to the bush to defecate and sometimes report waking up very early in the morning to do so(MAWLR, 2018). The construction of toilets through CLTS provides a safe environment to defecate and clean themselves in the privacy of their household latrines which provides the required dignity and safety for family members (MAWLR, 2018).

2.5.2.5 Communities feel empowered/ employment creation

CLTS has been observed to strengthen community solidarity, and the sense of joint achievement from a successful CLTS process has proven to be an entry point for other initiatives. Experiences show that some communities come together to build embankments to prevent flooding and crop loss, following CLTS triggering and action (MAWLR, 2018). They have also tackled the annual hunger season in other ways, to achieve hunger-free communities. Youth groups emerge to assist not only in the

construction of toilets but also to venture into other productive sectors of the economy due to the collective success of CLTS implementation (MAWLR, 2018).

2.5.2.6 Economic impacts of ODF

According to the WSP (2017) Report on the Economic Impacts of Poor Sanitation in Africa, which was conducted in 18 countries, annual economic losses due to poor sanitation range between 1% and 2.5% of GDP. The true cost could be much higher: these analyses only consider losses due to premature deaths, healthcare costs, productivity losses, and time lost due to open-defecation. Other long-term effects of poor sanitation on early childhood development are likely to be significant, but difficult and expensive to estimate. These include the costs of epidemic outbreaks, losses in trade and tourism revenue, the impact of unsafe excreta disposal on water resources, and the long-term effects of poor sanitation on early childhood development (WSP, 2017). Poor sanitation practices have a negative impact on the economy and national development because they increase the cost of medical services at the expense of developmental interventions, and they reduce workers' productivity, longevity, and ability to invest and save (WSP, 2017).

2.6 SUMMARY

Sanitation is of vital importance to human health and socio-economic development. The recognition of sanitation as a right by the United Nations General Assembly in 2015 and the commitment to achieving Agenda 2030 as well as the Target 6.2 of the SDG shows commitment from the global community to uphold this right. Despite the progress made globally and in Namibia over the decades, the number of people who make use of sanitation services that leave human waste untreated is alarming and a

threat to human and environmental health. With only eight years to go to vision 2030, progress made thus far brings to the fore the unattainability of Agenda 2030. To address the sanitation crisis globally, the "Business as usual" modality requires a paradigm shift to ensure there is community involvement and uptake to improve global health. The rise of CLTS has changed the sanitation game by placing emphasis on the individual to conduct self-analysis to end open defection. While not a panacea for addressing all sanitation challenges, CLTS has over the decades proved to be an effective method to address rural sanitation challenges. This is evident in its resounding success in rural Namibia where numerous villages have been declared open-defecation-free. While it is true that CLTS was developed to address sanitation challenges in the rural context, the approach has been cascaded to urban areas to help address sanitation challenges in informal settlements. This section has presented the literature review of the topic under discussion which could serve as best practices. The following chapter (three) presents the research methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter renders insight into the research methodology applied during the data collection process. It provides an explanation and discussion on the research design, methods and techniques, population, sample size and sampling procedures, data collection, analysis process and ethical considerations adopted throughout the study.

3.2 RESEARCH DESIGN

The study adopted a mixed methodology consisting of qualitative and quantitative methods. The study was primarily qualitative and undertaken to understand the sanitation sector in Namibia. The qualitative approach sought to answer questions on whether CLTS can be used as a mechanism to eliminate open-defecation in Havana Informal Settlement through in-depth information from the key stakeholders. According to Creswell (2003, p. 21), qualitative research is used to obtain insight into people's attitudes, behaviours, value systems, worries, motives, goals, culture, or lifestyles. This approach assisted the researcher to access real-life experiences of the affected people on the ground and provides a social context of experiences and possible suggestions for solutions by members of the local community.

In addition, the quantitative methodology executed through a survey attempted to provide a statistical overview of open-defecation cases throughout the settlement. To answer the research questions, the researcher made use of Microsoft Excel to generate tables and charts in the interpretation of the data gathered.

3.3 POPULATION

In the 2011 population census by the Namibian Statistics Agency, Havana informal settlement was home to 45526 individuals. According to the Department of Human Capital and Corporate Services of the COW (2022) the COW employs 1086 staff in the Department of Infrastructure, Water and Technical Services at all levels on permanent and temporary fixed-term contracts. The COW has a total of fifteen council members (COW, 2022) and the Shack Dwellers Federation of Namibia has 10 employees (SDFN, 2022). These 46 637 residents and employees served as the population.

3.4 SAMPLE

The sample for this study comprised a total of 130 respondents who were selected from the population to best meet the needs of the research. The sample was chosen to ensure the reliability and validity of the study findings (Neuman, 2000). A sample size of 130 respondents was determined by realistic limitations such as time, money, and logistical factors in order to collect accurate and useful results. The participants of the study were selected using the following probability and non-probability sampling techniques:

3.4.1 Systematic sampling

Because of its potential to offer a representative and unbiased sample from a wider population (Neuman, 2000), the sampling process was deemed adequate for the quantitative portion of the study. While systematic sampling provides advantages, it is critical to recognize the method's limits and inherent biases. For example, if the population has a periodic pattern or sequence, it may induce unwanted biases. Researchers can reduce these possible biases and improve the reliability and validity

of their findings by carefully establishing the beginning point and taking suitable safeguards (Neuman, 2000).

Systematic Sampling is a simple random sampling technique with a shortcut selection procedure. Everything is the same except that instead of using a list of random numbers, the researcher first calculates a sampling interval to create a quasi-random selection method (Neuman, 2000). This method chooses from the population list in a specified order or process. The selection of these homes is based on an interval based on the formula (1 in k, where k is some number).

In the selection of the quantitative sample of the study, the common variable was housing with no or limited access to adequate ablution facilities. In executing the methodology, the first household that was identified was the fiftieth (50) house in the settlement, this formed the basis for the next identification of the following sample. Havana informal settlement is home to 45, 526 individuals, and of that 100 were identified and handed the questionnaires.

3.4.2 Judgmental sampling

Judgmental sampling methodology, also known as purposive sampling, enables researchers to capture maximum variance, get access to unique examples or contexts, maximize resources, and investigate theory development or confirmation. Judgmental sampling improves the depth and complexity of qualitative research findings by consciously selecting participants or instances. Neuman (2000).

The judgmental sampling approach is based on a researcher's assessment of the qualities of a representative sample. The aim is to choose units that are thought to be representative of the population under consideration (Neuman, 2000). To get the necessary insight on the possibility of CLTS as a mechanism for creating an open-

defecation-free Havana, the researcher adopted the judgmental sampling method to identify key informants, well equipped to provide information vital to the research questions of the study.

The key informants included the twenty (20) employees from the COW's Department of Infrastructure, Water and Technical Services which is responsible for the supply, distribution, and quality of potable water as well as the collection, reticulation, and treatment of sewerage water, six (6) council members from the COW and four (4) employees from the Shack Dwellers Federation. A total of thirty (30) interview schedules were administered to the key informants, this constituted the qualitative sample of the study.

3.5 RESEARCH INSTRUMENTS

The researcher gathered data through questionnaires (a survey as a quantitative element), interview schedules (designed for interviews in the field, qualitative in nature) as well as a desktop review of information and data accessible via documents provided by MAWLR, UNICEF, line Ministries, and other stakeholders. In addition, academic literature was consistently consulted and formed a crucial part of the steps in the research process.

During fieldwork, the researcher made use of in-depth interview schedules to gain information from employees of the COW's Department of Infrastructure, Water and Technical Services, the COW's Council, and the Shack Dwellers Federation. The process gathered insight into experiences and perceptions of sanitation provision as well as possible alternatives to addressing OD amongst these key stakeholders.

The researcher gathered data using an online platform called Microsoft Forms to administer questionnaires which comprised a series of questions from which

respondents (research participants) could provide answers by selecting the most suitable or appropriate option from a list of options. The questionnaires were prepared on a survey template designed by the researcher and administered to heads of households of the Havana informal settlement. The questionnaire also had a provision ensuring that the respondents' identities would remain anonymous and that the data they gave would be rigorously kept secret and used only for the purposes for which it was intended.

The researcher complemented the data collection process with systematic observation on the availability and accessibility to physical sanitation facilities like access to safe drinking water, toilets and garbage collection in the Havana informal settlement by taking photographic evidence of the situation on the ground.

3.6 RESEARCH PROCEDURE

Information on sanitation in Namibia was found in a variety of books, research reports, policy documents, newspapers, and other materials or documents from which data was gathered. The researcher carefully examined the materials and organised similar pieces of information into topics and categories. The researcher then visited the Havana Informal settlement where questionnaires were administered to a total of 100 heads of households.

Prior appointments were made with the key informants to conduct in-depth interviews with stakeholders involved in the delivery of sanitation services. Twenty individual interviews were conducted with employees from the COW's Department of Infrastructure, Water and Technical Services. The employees shed light on the situation in Havana Informal Settlement and the challenges the city faces in rendering adequate sanitation services to the settlement. Six in-depth interviews were conducted

with the COW's council members. The Councillors provided information from a management perspective. Four employees from the Shack Dwellers Federation were also interviewed. The Shack Dwellers Federation shared their perception of the sanitation challenges faced by the community of Havana Informal Settlement and provided recommendations on how to attain an open-defecation-free Havana. The researcher asked for permission to administer the questionnaires by presenting the letter of consent from the University of Namibia to the targeted respondents. After that, the researcher provided an overview of the research aims and objectives. With the informants' permission, the majority of the interviews were captured on a digital voice recorder and handwritten notes were also gathered to support the recordings and keep the researcher interested.

3.7 DATA ANALYSIS

The study made use of qualitative and quantitative methods to analyse the field data. Having obtained the information from different respondents as well as key informants, the researcher organised the quantitative data gained from residents in a logical order using Microsoft Excel and generated tables and charts. The quantitative data was analysed using regression analysis to investigate connections between variables in order to predict or explain a result. The researcher was able to measure the degree and direction of connections between variables while controlling for any confounding factors. Data gathered through the qualitative interview schedules and focus group discussions from key informants was grouped into thematic headings to establish a coherent flow of information. The qualitative data was analysed using the thematic analysis approach which helped identified, analysed, and reported themes or patterns within qualitative data. The data was coded, with related concepts grouped together to

generate categories and themes that captured the core of the material obtained. This provided insight into whether current urban sanitation strategies were effective, or whether a robust paradigm shift needed to take place to address the chronic issue at hand. Classifying the information in thematic areas, allowed the researcher to discuss the findings from the data collection process in a manner more responsive to the research objectives. Data collection and analysis were carried out with ethical consideration where views, comments and suggestions from the respondents were respected without prejudice.

3.8 RESEARCH ETHICS

Throughout this study, the researcher abided by the norms and values of the "social-scientific community in terms of honesty, neutrality, critical investigation (organised scepticism) and sharing the research with integrity" (Neuman, 2000. p 9 – 10). The study observed the highest possible levels of ethical and professional codes of conduct and applied the following ethical principles throughout the course of the study:

3.8.1 Relationships with organisations and obtaining access to research participants by means of gatekeepers

The research study was approved by the University of Namibia's Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines (Ethical Clearance Reference Number: DEC FOC/ 22/11). Permission and approval were obtained from the COW and the Shack Dwellers Federation to conduct research within the organisation. At the end of the research, the researcher will reach out to these organisations to pass on the results and conclusions gathered. If

implemented, findings from this study should help organisations make informed decisions about what needs to change for the improvement of people's lives.

3.8.2 Informed consent and voluntary participation

Permission and consent to conduct interviews was obtained through the signing of a consent form. The informed consent form ensured that participants in the study were aware of what it meant to participate in the study, thereby affording them the opportunity to decide consciously whether they want to participate voluntarily. Prior to getting consent, a significant amount of time was spent orally outlining the purpose of the study, the consent process, and the potential advantages and hazards of participation. The participants have the right to request that the information gathered from them be treated with confidentiality as explained to them in a detailed informed consent form. Where the interviewee voiced opposition to recording, the interview was not voice-recorded.

3.8.3 Privacy, anonymity, and confidentiality

The researcher respected the right to privacy and anonymity of the respondents as they were not required to indicate their names on the questionnaires. The researcher took extra precautions to avoid using names or other forms of identifying that would result in humiliation or demeaning the informants because debates on cleanliness sometimes touch on personal privacy and other contentious topics. Respect, secrecy, and anonymity were stressed to those taking the poll and participating in the interviews. The confidentiality nature of the study was disclosed to the participants, guaranteeing their anonymity. The ideals of fairness, respect for individuals, voluntary involvement, and avoidance of intimidation/coercion guided the selection of participants.

3.8.4 Discontinuance

In cases when participants felt they did not want to continue participating in the study, the researcher told them at the start of the study that they were free to withdraw from participating in the study at any moment without reason and that their decision would be honoured. The researcher told individuals that ceasing involvement would have no effect on them or lead to bias against them in the near future.

3.8.6 Publication and storage of research data

In order to maintain academic integrity, the researcher avoided data fabrication and dishonesty by remaining objective throughout the investigation. The researcher acknowledged the literature data, and all authors were recognised. In ensuring data and participants' protection, the researcher will securely store all the data collected in a locked cabinet with shredding and cross shredding thereof five years post-publication. The data collected from the research participants will solely be used for academic purposes and the researcher adhered to the research and ethics protocols of the University of Namibia.

3.8.7 Credibility

Maintaining credibility was critical to ensuring the integrity and reliability of study findings. The researcher followed ethical norms, such as providing informed consent, maintaining confidentiality, and avoiding conflicts of interest. Transparency in data collecting and analysis was also important in building credibility. To prevent misrepresenting the reality under research, bias in data collecting and interpretation have to be addressed.

3.8.8 Authenticity

It is critical to ensure authenticity in social scientific research in order to preserve confidence, advance knowledge, and promote evidence-based decision-making in society. To assure authenticity and address the issues of providing true and genuine depiction of research findings, the researcher followed ethical norms and notified study participants that the findings would be utilized purely for academic reasons.

3.8.9 Transferability

The extent to which research findings may be used or adapted to multiple situations or groups is referred to as transferability. It is critical to recognize the limitations of generalizability and avoid making overly broad statements. The researcher carefully analysed the sample's characteristics and the environment of Havana Informal Settlement and offered a detailed description of these elements to allow respondents to judge the application of findings to their own situations.

3.8.10 Dependability

The researcher worked hard to make sure that the methodologies and data gathering processes were reliable and that they could be repeated or validated by others. The researcher used open and rigorous research methods, kept thorough records, used systematic collecting approaches, and participated in peer review and validation processes.

3.8.11 Confirmability

The Researcher ensured that interpretations and findings were consistent with the data obtained and the participants' voices. By giving a full narrative of data collecting techniques and analytic procedures, the researcher avoided imposing personal biases or preconceived conceptions during data interpretation and remained transparent throughout the study process. Because respondents were able to evaluate their replies, the study's conformability improved.

3.9 SUMMARY

This Chapter presented the roadmap of the methodologies adopted in the collection and analysis of data. Aspects dealt with here were as follows: Research design, population, sample, research instruments, procedure, data analysis, and research ethics considerations and mitigations. The following chapter (four) critically analyses and presents the results from the analysis of the data collected.

CHAPTER 4: PRESENTATION OF RESULTS

4.1 INTRODUCTION

By outlining the technique and its applicability to the investigation, chapter three established the groundwork for how the study was conducted. The study's findings are presented in this chapter. To compile statistics on open-defecation instances throughout the Havana Informal Settlement, data was gathered from household heads. Sanitation professionals from the COW provided information on the settlement's sanitation issues to obtain insight into the potential of CLTS as a means of creating a Havana free of open-defecation. Due to their advocacy work for bettering the living circumstances of low-income individuals living in shacks and their involvement in commercial housing and financial processes utilising a community-led strategy, the Shack Dwellers Federation was also contacted as a supplementary source. The analysis of the quantitative data is provided first, followed by the examination of the qualitative data. To gather data, inform the conclusions, and provide guidance for further research, the replies of the various respondent groups are provided separately.

4.2 QUANTITATIVE DATA PRESENTATION

This section presents and analyses data related to questionnaires administered to 100 households from the Havana Informal Settlement who were chosen using the systematic sampling approach.

4.2.2 Section A: Background Information

Table 4.1: Age Category

	Age Range	Frequency
	18 – 24	19
	25 – 34	26
	35 – 44	31
	45 – 54	22
	55+	2

According to the data in table 4.1, the majority of the heads of households to whom questionnaires were administered, 31 out of 101 (31 per cent), are aged between 35 and 44 years, followed by 26 (26 per cent) respondents aged between 25 and 34, a total of 23 (23 per cent) respondents aged between 45 and 54, and 19 (19 per cent) respondents aged between 18 and 24.

The researcher distributed two (2 per cent) of the questionnaires to households led by people aged 55 and up. According to the population and housing census report, Namibia has a relatively young population, with persons less than 15 years old and older than 60 years concentrated predominantly in rural regions (NSA, 2011). These characteristics are the result of working-age individuals migrating to cities.

Table 4.2: Gender of respondents

	Category	Frequency
	Male	54
	Female	46

About the head of households by gender, Table 4.2 shows that of the 100 participants, the majority of the households were male (54 per cent), compared to female-headed households (46 per cent).

Table 4.3: Marital Status

	Status	Frequency
	Single	88
	Married	8
	Widowed	2
	Divorced	2
	Cohabitating	0

Table 4.3 illustrates that 88 per cent of the respondents are from single-headed households, with 8per cent of the respondents married and 2 widowed**.**

Table 4.4: Employment Status

Description	Category	Frequency
Are you Employed?	Yes	49
	No	51
If "yes", in which sector	Formal	14
	Informal	35

Table 4.4 shows that most of the respondents are unemployed (51) and indicated they rely on social protection mechanisms such as those set-in place by the government as a source of income. While the remaining 49 indicated that they are employed with 14 (28 per cent) of the respondents formally employed. Of the respondents, 35 (72 per cent) are employed in the informal economy as either traders, hawkers, or vendors.

Table 4.5: Household composition

Description	Category	Frequency
Do you have any dependents?	Yes	74
	No	26
How many people do you live with?	Non	6
	2 -3	53
	4 – 6	39
	7 – 9	2
	10+	-

Table 4.5 shows that whereas 26 out of 100 respondents had no dependents, 74 out of 100 respondents said they had a family member who required financial support. From the 100 respondents questioned, it can be inferred that six of them are the sole initiators of the residence, compared to a higher number who had nine or fewer initiators including friends, family members, dependents, and co-workers who all lived in the same place.

Table 4.6: Migration Status

Description	Category	Frequency
How long have you been living in Havana Informal Settlement?	0 – 5 years	17
	6 – 9 years	38
	10+ years	45
Did you grow up here?	Yes	31
	No	69

Table 4.6 shows the decomposition of the migration status of the respondents. Most of the respondents 45 per cent indicated that they have lived in Havana Informal Settlement for ten or more years. While 38 per cent indicated that they moved to the area between 6 – 9 years ago, the remaining 17 per cent are relatively new to the area with a stay of fewer than 5 years. From the households surveyed, 31 per cent of the respondents indicated that they grew up in the area and have since moved on to erect their structures. The majority of the respondents 69 per cent indicated that they grew up elsewhere but moved to Havana's informal settlement. When asked why they migrated to the settlement, 75 per cent of the 69 respondents indicated that they are looking for a living while tapping into various job creation techniques to make ends meet, while the remaining 25 per cent indicated they are employed.

4.2.3 Section B: Sanitation in Havana Informal Settlement

Table 4.7: Access to improved sanitation

	Category	Frequency
	Yes	11
	No	89

According to the World Bank (1993), improved sanitation facilities are those that safely separate human excreta from human contact. At the household level, table 7 shows that 89 per cent of the respondents are without improved sanitation and only a mere 11 per cent of households have access to improved sanitation. Table 8 below provides a comparative analysis between respondents that have access to improved sanitation as opposed to those without.

Table 4.8: A comparative analysis of sanitation facilities

Responses from those with improved sanitation facilities.			Responses from those with unimproved sanitation facilities.		
Description	**Category**	**Frequency**	**Description**	**Category**	**Frequency**
What type of sanitation facilities do you have access to?	Flush or pour-flush	10	What type of sanitation facilities do you have access to?	Flush or pour-flush elsewhere	6
	Piped sewer system	1		Pit latrine without slab/open pit	8
	Septic tank			Bucket	
	Pit latrine			Hanging toilet	
	Ventilated improved pit latrine			Hanging latrine	
	Pit latrine with slab			No facilities/bush (open-defecation)	75
	Composite toilet				
What is the condition of these facilities?	Good	4	What is the condition of these facilities?	Good	3
	Fair	5		Fair	10
	Poor	2		Poor	76
How many people make use of these facilities?	1 - 3	3	Why do you resort to making use of these facilities	No other means	90 per cent
	4 – 6	1		Hygienic/brings dignity	10 per cent
	6 – 9	2			
	10+	5			
Who is in charge of the maintenance of these facilities?	Municipality	4			
	Community members	3			
	WASH Committees				
	Shack Dwellers Federation				
	I don't know				
	Other				
	My household	4			

4.2.3.1 Type of sanitation facilities available

Table 4.8 illustrates sanitation facilities used by the respondents. About 10 (91 per cent) out of 11 of the households with improved sanitation make use of the flush or pour-flush system while the other household 1 (9 per cent) has access to the Piped sewer system. This is largely due to their proximity to serviced land upon entry into the settlement. However, the situation and access to improved sanitation worsen further into the settlement with a staggering 75 (84 per cent) out of 89 respondents with unimproved sanitation facilities indicating that they have no access to any sanitation facilities and make use of the bush (OD) when answering natures call. About 6 (7 per cent) of the respondents with unimproved sanitation indicated that they make use of the Flush or pour-flush elsewhere while the remaining 8 (9 per cent) make use of a Pit latrine without slab/open pit.

At a household level, 80 (90 per cent) of respondents with no access to improved sanitation facilities indicated that they made use of these facilities because they have no other option. The remaining 9 (10 per cent) respondents indicated that they only made use of the facilities as they are more dignifying and are of better hygienic practice than the others.

4.2.3.2 Condition and maintenance of sanitation facilities

The respondents were asked to rate the condition of the sanitary facilities. Table 8 reveals that among those having access to improved sanitation, four out of eleven (36.35 per cent) families said the facilities they used were in good condition, while five out of eleven (45.45 per cent) said they were fair. This is primarily owing to a good maintenance system in place, where on average a block of families of six households utilizes one facility, with maintenance responsibilities split between COW and community members. The remaining two families (18.20 per cent) report that the

facilities they use are in poor shape owing to damaged or vandalised equipment or inadequate upkeep by the COW and other users.

Table 4.8 demonstrates that just three families (3.40 per cent) have access to good unimproved sanitation facilities among respondents from homes with unimproved sanitation facilities. This is basically admitting that they built these facilities on their own as a means of recovering their dignity. From the respondents, 10 households (11.20 per cent) indicated that the facilities they make use of are in fair condition. The 76 respondents (85.40 per cent) who are dissatisfied with the type of sanitation facilities available said that they would prefer to defecate in the open owing to the distance between their homes and the community toilets in the settlement, the long lines, and the unsanitary conditions.

4.2.4 Selection of sanitation options

Table 4.9: Respondents' perception of communal toilets

Description	Category	Frequency
The COW has made provision for communal toilets; do you make use of these facilities?	Yes	14
	No	86
If "Yes" in what condition are they?	Good	-
	Fair	10
	Poor	4

As shown in table 4.9, the majority of respondents 86 per cent answered that they do not use the COW's community toilets. This is mostly owing to the fact that many of them are far, locked, blocked, damaged, vandalised, unhygienic, or poorly maintained.

The remaining 14 per cent houses who shared the same feelings stated that the toilets are in the state they are in due to the aforementioned.

The respondents said that maintaining these facilities is a shared duty throughout the community, with the COW responsible for solid waste disposal at least once a month. Respondents further within the community claim that they do not know if these toilets are maintained.

Table 4.10: Preference of toilet type

	Category	Frequency
	Private	100
	Communal	0

Respondents were asked if they prefer private or communal facilities. All the respondents (100 per cent) indicated that they would rather have private facilities as they are safer, provide better access, can be kept more hygienic, and maintain dignity compared to the communal ones. Respondents stated that they are afraid for their lives when visiting communal toilets at night because robbers take advantage of the darkness to perpetrate heinous acts.

It has been widely reported that community members are not involved in the choice of sanitation offered to them which results in a lack of ownership at the community level. All respondents (100 per cent) said they would choose their own sanitation facility if given the chance. Figure 4.1 provides an illustration of the main factors listed by the respondents as limiting them from choosing their own sanitation:

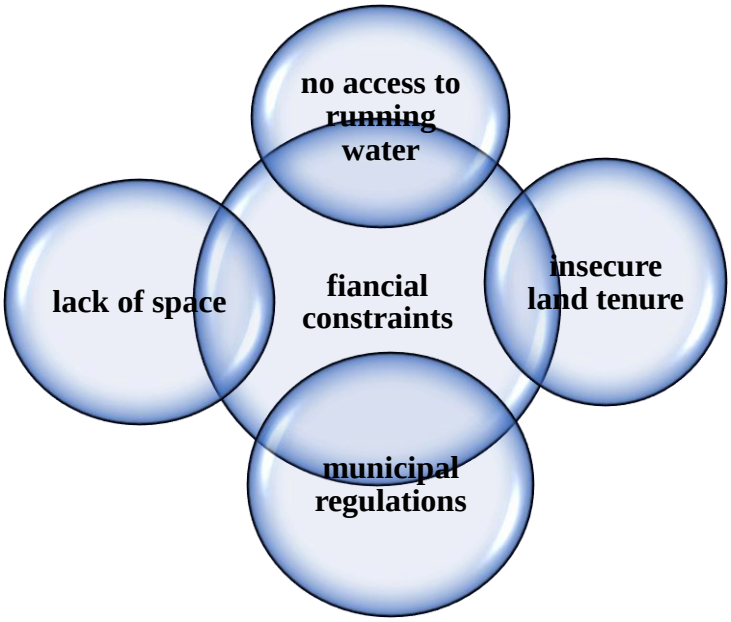


Figure 4.1: Factors limiting respondents from selecting their own sanitation facility

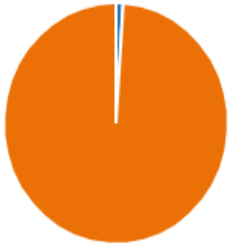
Figure 4.1 shows that respondents cited financial restrictions as the most significant limiting factor. Respondents indicate that they require the government to service land and that via donations, they can be in a better position to choose the sort of sanitation facility that is most suited for them. It was highlighted that the respondents believed that the main problem caused by limited or no access to sanitation services was felt financially, in addition to its knock-on consequences on safety, health, and dignity.

4.2.5 Section C: Community-led total sanitation in Havana Informal Settlement

Efforts to assess the reach and level of community awareness of the community-led total sanitation programme launched by the COW. Participants to the study were asked if they are aware of any such programme. The degree of knowledge among respondents is seen in Table 4.11.

Table 4.11: Community-led total sanitation programme in Havana Informal Settlement

	Category	Frequency
	Yes	1
	No	99



According to table 4.11, only one (1 per cent) of the respondents was aware of the CLTS programme by the COW. This is because the programme was launched just a few meters from their house, and they commended the COW's efforts by emphasizing that they had been appropriately sensitised on basic hygiene habits as a result of the project. Table 4.11 demonstrates that 99 out of 100 respondents (99 per cent) are uninformed of the COW's CLTS initiative since they have never heard of it. When asked who is in charge of health education in the settlement, respondents selected the following entities as responsible:

Figure 4.2: List of Institutions responsible for health education in Havana Informal Settlement

Figure 4.2 shows that the Namibia Red Cross and the WHO provide health education to the majority (75.60 per cent) of respondents. After the first incidence of Hepatitis E was documented in the settlement, the two organisations launched a health campaign that is still ongoing to this day. Some respondents noted that by sensitizing the children at school on sanitary behaviours, the children in turn educate their parents on fundamental hygienic activities such as handwashing with soap after using the toilet.

Respondents were asked to list the type of health education they receive from the institutions that are responsible for health education in the community. Figure 4.3 depicts the type of health education provided by community health workers throughout the community. Emphasis has been placed on personal and community hygiene.

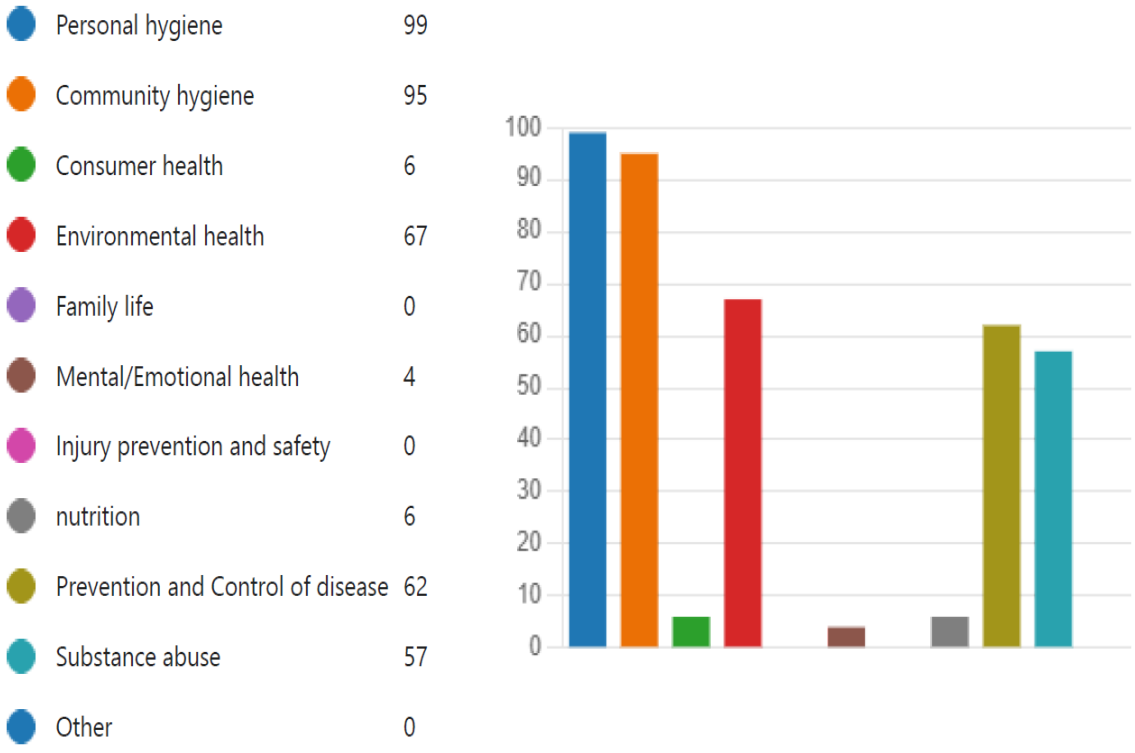


Figure 4.3: Type of health education provided in Havana Informal Settlement

4.2.5.1 Eliminating Open-defecation in Havana Informal Settlement

Table 4.12: Perception of respondents on the level of political will to resolve Havana Informal Settlement's sanitation challenges.

	Category	Frequency
	Yes	28
	No	72

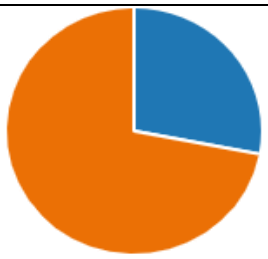


Table 4.12 shows the respondents' perception on the level of political will to improve sanitation in the settlement. According to table 4.12, a total of 28 out of 100 (28 per cent) responded that there is political will from the politicians to help improve the situation throughout the settlement. The respondents mentioned that although limited, sanitation facilities such as toilets, and running water have been set up and solid there is regular solid waste removal in the community.

A sentiment which is not shared by 72 out of 100 (72 per cent) respondents who indicated there is no political will to improve sanitation throughout the settlement. According to the respondents, if there was a genuine political commitment, political leaders would have visited the settlement on a regular basis rather than waiting for the election season which is said to be used as theme for empty promises.

Respondents indicate that, in order to achieve an open-defecation-free Havana Informal Settlement, the government first install additional toilets throughout the settlement on a quota system in which a set of three (3) homes be assigned these facilities. Second, respondents said that if the property they inhabited had been serviced, they may look for alternate, less expensive ways to provide appropriate improved sanitary facilities for their homes.

Interpretation of quantitative data findings

The information gathered suggests that the households in Havana Informal Settlement face economic challenges and rely on various means of support. The settlement attracts people from different regions in search of work, and the population is relatively young. Upon observation, the researcher noted that most of the respondents are employed in the informal economy and cannot spend large sums of money at a time to construct toilets. This, coupled with a lack of functional communal toilets is the major reason for OD.

To achieve an open defecation-free Havana Informal Settlement, respondents suggested installing additional toilets throughout the settlement and assigning them to a set of three homes, as well as finding less expensive ways to provide improved sanitary facilities for their homes. Smaller groups seem to manage toilets more successfully than larger groups. Despite a marked preference for private household flush toilets, some respondents remarked that they would be both willing to pay for and manage/maintain public toilets.

There is a need for more visibility and support for the CLTS programme. The respondents are of the view that more information on the project needs to be availed with key messaging communicated throughout the community on a regular basis. However, as a spin of the CLTS project, households have been sensitized on the importance of handwashing as households have, making use of local materials constructed tippy taps at their residence.

Lastly, the researcher also noticed that the provision of toilet facilities without the right health education messaging, challenges of vandalism and poor maintenance will persist and hamper the good efforts of COW to eliminate OD within its jurisdiction.

Therefore, more resources should be mobilized to amplify the health programmes delivered throughout the community.

4.3 QUALITATIVE DATA PRESENTATION

The data collected in this section are presented, analysed, and grouped into the following themes:

- Firstly, Sanitation in Havana Informal Settlement
- Secondly, Sanitation and community participation in Havana Informal Settlement
- Lastly, Community-Led Total Sanitation versus Traditional subsidisation modality: the future of sanitation planning in Havana Informal Settlement.

Interview schedules were given out to thirty (30) key informants comprised of twenty (20) employees from the COW's Department of Infrastructure, Water and Technical Services which is responsible for the supply, distribution, and quality of potable water as well as the collection, reticulation, and treatment of sewerage water, six (6) council members from the COW and four (4) employees from the Shack Dwellers Federation.

4.3 THEME 1: SANITATION IN HAVANA INFORMAL SETTLEMENT

4.3.1 Responses from the City of Windhoek employees

4.3.1.1 What are the major challenges hampering service delivery of adequate sanitation facilities in the Havana Informal Settlement?

Respondent 1, "there is a lack of cross-sectoral coordination among those in charge of sanitation. Sanitation planning is disconnected, resulting in a gap in infrastructure development".

Respondent 5 claimed that “the COW is currently facing serious issues in maintaining service delivery standards as migration into Windhoek places significant financial pressure on the City to deliver at the same rate as it is growing.

Respondents 7, 12, 19, and 20 reported a lack of capacity and technical expertise to address sanitary concerns.

Respondent 15 highlights “a lack of community buy-in since people are accustomed to defecating in public. In addition, there is a lack of political will to finance sanitation programmes. The COW has a health programme in place, but there aren't enough finances to compensate volunteer community health workers as well as to fund health campaigns in the community”.

Respondents 2, 3, 4, 6, 8, 9, 10, 11, 13, 14, 16, 17 and 18 listed budgetary restrictions as the primary impediment to providing proper sanitation in Havana's informal population.

4.3.1.2 What strategies are in place to address the sanitation woe of Havana Informal Settlement?

Respondent 1 indicated that the COW through its Master Plan, will implement numerous initiatives such as provision of bulk infrastructural services to the settlement. “The COW is undertaking an environmental impact assessment to determine the possible environmental implications of dry sanitation. This will allow for the construction of communal and private restrooms, as well as houses, in Havana's informal settlement”.

Respondents 3, 7, 8, 9, 12, 13, 15, 18, 19, and 20 stated that there are ongoing cleaning and health campaigns that regularly takes place in the community.

Respondents 2, 4, 5, 6, 10, 11, 14, 16, 17 exclaimed that through "The Master Plan, according to all responders, includes initiatives to solve Havana's sanitary challenges. According to the proposal, the area will receive bulk infrastructural services".

4.3.1.3 What factors do you think contribute to the high open-defecation statistics in Havana Informal Settlement?

Respondent 1 remarked that "some people have insecure tenancy feelings as a result of unlawful occupancy and would prefer not to build toilet facilities since they may be removed from such locations at any moment. This unlawful land occupancy impedes the supply of proper sanitary services, making it difficult for the city to provide short-term remedies". **Respondent 2** believes that "there is a negative attitude regarding the utilisation of current facilities".

Respondents 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 highlighted broken and insufficient facilities, unlawful land occupation, and poverty as major contributors to Havana's high rates of open-defecation.

4.3.1.4 According to the City of Windhoek's annual report for 2019, a total of two hundred and sixty-seven communal toilets were to be constructed by March 2020 in Windhoek's Informal Settlements. How many have been constructed in Havana Informal Settlement?

Respondent 1 indicated that A total of ten (10) toilets were constructed in Havana by March 2020. "Although the number seems meagre compared to the size of the informal settlement, it has to be noted that during the period in question, the City was battling Hepatitis-E not only in Havana but in all of the informal settlements therefore funds need to be spread to accommodate each constituent. The COVID-19 outbreak didn't improve the issue".

Respondents 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 stated that by March 2020, a total of ten (10) toilets were constructed in Havana.

4.3.2 Responses from the City of Windhoek Council members

4.3.2.1 What are the major challenges hampering service delivery of adequate sanitation facilities in the Havana Informal Settlement?

Respondent 1 highlights "a lack of financial resources to expand on existing projects and programmes".

Respondent 3 remarked that "there is a lack of financial means to expand health campaigns throughout the community, as well as increased rural-urban migration, are further impediments to service delivery for Havana's informal population".

Respondents 2, 4, 5, and 6 blamed Havana's sanitary problems on a lack of resources, including financial, human, and capital resources.

4.3.2.2 What strategies are in place to address the sanitation woe of Havana Informal Settlement?

Respondents 1 indicated that under the council has an informal settlement upgrading pilot project, which is a joint initiative of the Ministry of Urban and Rural Development, the COW, the National Housing Enterprise, and the Khomas Regional Council, and aims to build affordable houses for residents in informal settlements such as Havana. "The project makes land ownership much easier as it encourages community members to mobilize resources to affordable construct houses at their own pace".

Respondent 3 responded that "there would be advocacy initiatives in Havana Informal Settlement to end open-defecation and improve sanitation and hygiene. These

programmes will continue to promote sanitation and hygiene in order to shift societal norms and solve challenges related to access, maintenance, and cleanliness of facilities, as well as addressing culture and beliefs that prevent people from using toilets and breaking old habits".

Respondents 2, 4, 5, and 6 noted that "the council has an informal settlement upgrading pilot project, which is a joint initiative of the Ministry of Urban and Rural Development, the COW, the National Housing Enterprise, and the Khomas Regional Council, and aims to build affordable houses for residents in informal settlements such as Havana".

4.3.2.3 What factors do you think contribute to the high open-defecation statistics in Havana Informal Settlement?

Respondents 1, 2, 3, 4, and 6 reported that sanitary facilities in Havana are dysfunctional, and that community members are unable to satisfy their sanitation demands owing to poverty.

Respondent 5 states that "owing to a lack of health education, community people are not aware of the negative consequences of open-defecation. It is also thought that in some cultures, open-defecation is a normal in villages and that when a family member migrates to an urban area, this behaviour is transferred with them".

4.3.2.4 According to the City of Windhoek's annual report for 2019, a total of two hundred and sixty-seven communal toilets were to be constructed by March 2020 in Windhoek's Informal Settlements. How many have been constructed in Havana Informal Settlement?

Respondent 1 states a total of ten (10) toilets were constructed by March 2020. “The figures when consolidated fall short of the target. Since 2021, the number has been rising as sanitation has been prioritised, and the informal settlement improvement pilot project hopes to increase the statistics”.

Respondents 2, 3, 4, 5, and 6 mentioned that a total of ten (10) toilets were constructed in Havana by March 2020 remarked all the respondents.

4.3.3 Responses from the Shack Dwellers Federation

4.3.3.1 What are the major challenges hampering service delivery of adequate sanitation facilities in the Havana Informal Settlement?

Respondent 1 Listed a lack of financial resources as the major challenge hampering service delivery of adequate sanitation services. “Sanitation programmes in Havana are not successfully executed due to a lack of collaboration among sanitation stakeholders”.

Respondent 2 Identified a lack of financial resources as the leading factor. “Individuals involved in sanitation planning and execution lack training and capability. If services are to be enhanced, capacity-building programmes must begin”.

Respondents 3 and 4 agreed that financial resources are insufficient to remedy the sanitary issue in Havana's informal settlement.

4.3.3.2 What strategies are in place to address the sanitation woe of Havana Informal Settlement?

Respondent 1 there are capacity-building activities for sanitation stakeholders through the federation. “Sanitation selection criteria are also a concern and that at the home level, information on inexpensive sanitation solutions will be made available, as well

as training for community members on the design, building, operation, and maintenance of these facilities".

Respondent 3 stated that the federation provides capacity building activities for sanitation stakeholders ."initiatives for community engagement, such as community-led complete sanitation, will be scaled up to ensure community members' genuine participation".

Respondents 2 and 4 noted that "there are capacity-building activities for sanitation stakeholders through the federation".

4.3.3.3 What factors do you think contribute to the high open-defecation statistics in Havana Informal Settlement?

Respondents 1 blamed Havana's high rates of OD on poverty and a lack of sanitary services.

Respondent 2 stated that "due to inadequate sanitation facilities, community members are forced to use alternate methods. In Havana, facilities have been vandalized, including leaky pipes and outlets".

Respondent 3 Indicated that OD cases are high due to a lack of functional sanitary services.

Respondent 4 notes that **"**facilities are unclean, smelly, badly kept, and in some circumstances dangerous to visit at night, particularly for women and children. As a result, many prefer open-defecation because community members believe that using these communal facilities may expose them to illness".

4.4 THEME 2: SANITATION AND COMMUNITY PARTICIPATION IN HAVANA INFORMAL SETTLEMENT

4.4.1 Responses from the City of Windhoek employees

4.4.1.1 Are community members of Havana Informal Settlement involved in decision-making when it comes to the type of sanitation facilities and programmes they receive?

Respondent 1 indicated that community members are involved in decision making be it directly or indirectly. “Before any development initiatives are undertaken, the COW Municipality holds frequent consultations with the informal settlements. The COW conducts two public meetings each year where individuals may voice their questions and concerns about service delivery”.

Respondent 18 stated that “while community people are not always involved in decision-making, they do have a say through their constituency office”.

Respondents 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, and 20 stated that people of the community are active in decision-making.

4.4.1.2 Are there adequate technological options for the construction of cheap latrines that suit the economic conditions of the poor, landless residents in the Havana informal settlement and are in line with municipal regulations?

Respondent 1 mentioned that there are other sanitation methods that may be investigated that are reasonable and practical and adhere to municipal standards, such as the pit latrines. “The COW has initiated environmental mitigation measures to assist with the provision of dry sanitation in areas with no sewer services in Havana Informal Settlement”.

Respondent 14 exclaims that "pit latrines should be considered as a feasible option to open-defecation as they are better than the drawbacks of open-defecation. Pit latrines, when constructed and maintained properly, can reduce the quantity of human waste that is released into the environment as a result of open-defecation. Second, pit latrines are actually affordable for the poor since they are more often owner-built than any other sanitation system".

Respondents 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, and 20 indicated that the city is investigating alternative options that conform to municipal standards.

4.4.1.3 Efforts to fast-track the end of the Hepatitis-E outbreak saw the establishment of a community-led total sanitation Taskforce in 2019 in Havana informal settlement. What specific role did the Task Force play in the elimination of Hepatitis E in Havanan by March 2022?

Respondent 1 indicated that "the success of community-led total sanitation may be ascribed to joint planning and coordination at the constituency level by all stakeholders and actors. Households in Havana were easy to target due to their proximity. This congestion allowed the task team to recruit and mobilize individuals without having to deal with distance issues. Consequently, communities with their own resources were able to construct their own tippy taps, conduct clean-up campaigns, started managing solid waste and practice safe hand washing which promoted good sanitation practices for all".

Respondents 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, and 20 indicated that they cannot comment on the specific role played by the task force in the elimination of Hepatitis-E as respondent one (1) has more information.

4.4.2 Responses from the City of Windhoek Council members

4.4.2.1 Are community members of Havana Informal Settlement involved in decision-making when it comes to the type of sanitation facilities and programmes they receive?

Respondent 3 Indicated that community members are involved in the process. "Members of the community have elected community leaders who are entrusted with bringing community issues before constituency councillors for debate and consideration. Constituency councillors are responsible for bringing these issues to the management committee for consideration. The management committee then reviews these proposals and, if funds are available, executes the most important one".

Respondents 1, 2, 4, 5, and 6 stated that community members are involved in the decision-making process regarding the sort of sanitation facilities and programmes required in the community.

4.4.2.2 Are there adequate technological options for the construction of cheap latrines that suit the economic conditions of the poor, landless residents in the Havana informal settlement and are in line with municipal regulations?

Respondent 2 notes that "the City had already built a number of alternative toilets, but these facilities are used by considerably more people than their carrying capacity permits. One toilet can be assigned to four families, with an average of 16 people per toilet. This resulted in inadequate day-to-day management, posing a public health risk; as a result, dry sanitation has become the COW's entry point into sanitation for all members of the community".

Respondents 1, 3, 4, 5, and 6 indicated pit latrines as alternate sanitation methods that fulfil municipal regulations.

4.4.2.3 Efforts to fast-track the end of the Hepatitis-E outbreak saw the establishment of a community-led total sanitation Taskforce in 2019 in Havana informal settlement. What specific role did the Task Force play in the elimination of Hepatitis E in Havanan by March 2022?

Respondents 1, 2, 3, 5, and 6 attributed the power of mobilization was cited by respondents as a task team success element.

Respondent 4 mentioned that "the Hepatitis-E pandemic brought together all stakeholders involved in sanitation and public health, allowing all stakeholders to communicate with a single message. The communities reported an overall decrease in diarrhoea cases, reduction and, in some cases, total elimination of open-defecation, increased handwashing with soap, cleaner surroundings, and reduction of critical vectors, such as flies, as the most obvious improvements throughout the task team's term".

4.4.3 Responses from Shack Dwellers Federation

4.4.3.1 Are community members of Havana Informal Settlement involved in decision-making when it comes to the type of sanitation facilities and programmes they receive?

All the respondents indicated that community members have an indirect say in the type of sanitation and programmes afforded to them at a community level.

4.4.3.2 Are there adequate technological options for the construction of cheap latrines that suit the economic conditions of the poor, landless residents in the Havana informal settlement and are in line with municipal regulations?

Respondent 1 indicated that alternative options, such as pit latrines, may be investigated.

Respondent 2 stated that “there is a need to explore affordable alternative sanitation choices since municipality toilets are more likely to be destroyed. Through SDF engagements, it has been discovered that community people are prepared to pay for and administer public toilets and would establish committees to maintain these facilities”.

Respondent 3 states that “low costs alternatives such as pit latrines, conservancy tanks, septic tanks, and Otji toilets can be investigated”.

Respondent 4 mentions that “the SDF uses horizontal exchange programmes in which community-to-community visits allow the underprivileged to learn from one another's experiences. These visits promote a learning imitative that provides participants with information on how to improve their living situations”

4.4.3.3 Efforts to fast-track the end of the Hepatitis-E outbreak saw the establishment of a community-led total sanitation Taskforce in 2019 in Havana informal settlement. What specific role did the Task Force play in the elimination of Hepatitis E in Havanan by March 2022?

Respondent 2 claims that “while the community-led total sanitation taskforce is a COW project with limited SDF engagement, the programme's success may be linked to the social mobilization strategies utilized to influence community members' attitudes and practices. Residents were empowered with accurate and locally translated information on how to improve sanitation and the consequences of poor sanitation

practices, resulting in the essential community transformation and subsequent elimination of Hepatitis-E".

Respondents 1, 3, 4, 5, and 6 indicated that they have are not sure on the role of the task force in the elimination of Hepatitis-E.

4.5 THEME 3: COMMUNITY-LED TOTAL SANITATION VERSUS TRADITIONAL SUBSIDISATION MODALITY: THE FUTURE OF SANITATION PLANNING IN HAVANA INFORMAL SETTLEMENT

4.5.1 Responses from the City of Windhoek employees

4.5.1.1 Does the traditional subsidisation modality yield better results than the community-led total sanitation approach adopted by the city to deal with the Hepatitis-E outbreak?

Respondent 1, "CLTS in the battle against Hepatitis-E has improved health and well-being in several sections of the community. To assist attain an open-defecation-free Havana Informal Settlement, a combination of the two approaches can be tested".

Respondents 2, Indicated yes, but there is still work to be done. "The traditional technique offers both advantages and downsides, according to all other respondents. Communal toilets are vandalised by community members, and their high maintenance expenses place a significant financial strain on the City, which is already underfunded. At the same time, individuals who cannot build their own facilities will have access to adequate sanitation".

Respondents 4, 5, and 9 stated that there is potential if further explored.

Respondents 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 , 18, 19, and 20 stated that they don't know.

4.5.1.2 What would you recommend be done to declare Havana Informal Settlement an Open-defecation-*free community?*

Respondent 1 says that "there must be a coordinated planning process in place, as well as proper planning based on the situation and requirements of the community.

Employees of the COW also addressed the issue of adequate budgetary allocation for the continuous upkeep of current infrastructure and health efforts for a sustainable open-defecation-free Havana Informal Settlement. There is a need to create ownership amongst community members to prevent vandalism and ensure better maintenance".

Respondents 4, 8, and 17 believe that community engagement is essential for creating a sense of ownership among users of these facilities. Vandalism and breakage arise when community members do not have a feeling of ownership.

Respondents 5, 9, 14, and 20 believe that sanitation provision must be accompanied by proper education and Sensitisation to produce the desired result.

Respondents 2, 3, 4, 6, 7, 9, 10 ,11 ,12, 13, 15, 16, 18, and 19 agree that the best way to achieve an open-defecation-free Havana Informal Settlement is to formalize and service the settlement. They also stated that new sanitation facilities are needed across Havana to relieve the strain on the current ones.

4.5.2 Responses from the City of Windhoek Council members

4.5.2.1 Does the traditional subsidisation ***modality yield better results than the community-led total sanitation approach adopted by the city to deal with the Hepatitis-E outbreak?***

Respondent 1 emphasized "the difficulty of comparing the two techniques. The government has spent a lot of money to subsidize toilets built at a high cost around the country. Around 300 million Namibian dollars were spent to build 80 000 homes around the country. This is unsustainable since, for Namibia to meet Target 6 on sanitation on schedule, at least 1200 toilets must be installed each week. These subsidized amenities have become indispensable to communities. This has prevented households with the means to build their own toilets from doing so**.** As a result, there is a need to shift away from the subsidisation model and toward alternate sanitation methods. Councillors fully support community-led complete sanitation in Havana Informal Settlement because it generates long-term behaviour change".

Respondent 3 noted that through the Harambee Prosperity Plan 2, the government is exploring community-led total sanitation as means to deal with urban sanitation issues.

Respondents 2, 4, 5, and 6 said that an alternative strategy should be explored since the subsidisation modality has a high maintenance cost and toilets are frequently vandalized by community members.

4.5.2.2 What would you recommend be done to declare Havana Informal Settlement an Open-defecation-free community?

Respondent 1 "emphasized the need of maintaining sewer lines, toilet facilities, and adequate solid waste management, as well as extensive health education, to assist build

an open-defecation-free Havana Informal Settlement. As a result, the role of the COW's field employees should be expanded during community interactions to bring to light the community's concerns".

Respondent 2 Noted that the settlement ought to be formalized and serviced.

Respondent 3 believes that "the cost of existing sanitation choices must be examined, and he calls for the creation of creative and demand-based designs that are appropriate for the household environment. Sanitation is a human right in Namibia and should be protected; reducing open-defecation in Havana is the duty of the Namibian government and the people".

Respondents 4 mentioned that after formalisation occurs, regulations must be changed to allow individuals to build their own dry toilets.

Respondent 5 states that only through formalisation and servicing can Havana be declared ODF.

Respondent 6 mentions that there is a need to formalise and build more communal toilers. Through formalisation, people will be able to build their own toilet facilities.

4.5.3 Responses from Shack Dwellers Federation

4.5.3.1 Does the traditional subsidisation modality yield better results than the community-led total sanitation approach adopted by the city to deal with the Hepatitis-E outbreak?

Respondent 1 notes that "despite not actively participating in the CLTS initiative, the government's typical subsidisation model has not produced the desired results".

Respondent 2, "CLTS empowers communities to be at the forefront of their sanitation situation because it focuses on a holistic behavioural change approach that leads to the sustainability and maintenance of good sanitation practices through existing community structures".

Respondent 3 observed that "the subsidised toilets in Havana Informal Settlement are inadequately supervised and are occasionally destroyed by locals. This, combined with the significant maintenance expenses, indicates the need for alternate alternatives".

Respondent 4 said that "meeting Target 6 of the SGDs on time will be difficult because even larger communities, such as Windhoek, have the issue of handling solid waste. As a result, massive investment from the government and private sector will be necessary to meet the target on time".

4.5.3.2 What would you recommend be done to declare Havana Informal Settlement an Open-defecation-free community?

Respondent 1 claims that "the government should develop programmes to build appropriate sanitation to help eliminate open-defecation".

Respondent 2 suggested that "the government generate a demand for better hygiene practices through community engagement, social media, and focused messaging. Through innovative technology and reduction in costs, the community would be capable to self-finance sanitation, resulting in an increase in hygiene facilities".

Respondent 3 believes that "the government should work with the informal economy to create capacity for alternative sanitation options that fulfil the need for sanitation services at a low cost while maintaining basic standards".

Respondent 4 emphasised that “without political will and backing, effectively executing sanitation programmes and efforts planned and geared toward an open-defecation-free Havana Informal Settlement will be difficult”.

Interpretation of qualitative data findings financial resources versus monitoring and evaluation

According to the findings, the sanitation condition in Havana's informal settlement may be attributed to a lack of financial resources to ensure effective monitoring and evaluation of the COW's sanitation facilities and health programmes. Adequate financial resources are required for the upkeep and monitoring of sanitary infrastructure, as well as the implementation and evaluation of health initiatives. According to the findings of the study, a lack of financial resources might impede regular monitoring and maintenance of sanitary infrastructure. Issues like as obstructions, leaks, or malfunctioning systems may go overlooked and unsolved if effective monitoring is not in place. Health initiatives are also impacted by a lack of financial resources. These programmes frequently require regular monitoring and assessment to ensure they are accomplishing their intended goals. The COW struggles to analyse the effect of health programmes, identify areas for improvement, and make required modifications to maximise outcomes if enough resources are not available. As a result, it is critical for the COW to prioritise adequate financing to enable frequent monitoring, maintenance, and assessment of these critical services, thus protecting public health and well-being.

Open-defecation versus migration

OD is clearly on the rise as a result of fast rural-urban migration, illegal land occupation, broken and inadequate amenities, and high poverty rates. As more people

move to cities in quest of greater opportunities, the demand for housing and basic utilities rises, placing strain on existing infrastructure and services. The sudden rush of people frequently surpasses the capacity of existing systems, resulting in insufficient sanitation services. As a result, open defecation has become a widespread problem, offering considerable health hazards as well as environmental problems. The problem is for the city to keep up with the expanding population while also providing enough sanitary services. Inadequate funding and planning may impede the development and upkeep of suitable toilets and sewage systems.

While the COW's Master Plan addresses some of these issues, it is clear that there is a need for passive investment in the sector as well as a need to mobilize political support behind the cause and bring together all sanitation stakeholders for a coordinated approach.

Cost effectiveness

A dynamic strategy will be required to achieve an ODF Havana informal settlement. The old subsidization model has proven to be expensive, as has been widely reported. The presence of a toilet does not ensure that it will be used. This is due to a variety of factors such as broken toilets or vandalism.

Traditional sanitation systems may no longer be adequate in tackling the issues provided by urbanization, population increase, and limited resources. Adopting creative tactics and a dynamic mentality can lead to successful and long-term solutions. CLTS and other community-based sanitation solutions can provide inexpensive and accessible sanitation choices in places with insufficient infrastructure. They encourage local ownership, minimize water usage, and help with resource recovery. COW can improve efficiency, minimize environmental problems, and

increase sanitation coverage by investigating technology innovations in sanitation. As a result, there is a need to abandon traditional subsidization methods in favor of community-led alternatives.

Sanitation, a human right

In Namibia, sanitation is a human right; nonetheless, the Government must balance conflicting developmental goals. Funding resources are insufficient to maintain sewage lines, toilet facilities, effective solid waste management, widespread health education, settlement formalisation, and servicing. Adequate funding and strategic resource allocation are required to guarantee the provision of appropriate sanitation facilities and the promotion of hygienic behaviours, thereby fulfilling the right to sanitation for all Windhoek citizens. As a result, other sanitation methods must be investigated. Developing a sense of ownership

There is an urgent need to foster ownership among Havana sanitary facility users. The findings show that, while community members are involved in decision-making about the sort of sanitation services and programmes they get, there is a need to amplify these efforts through frequent community meetings in order to best understand the requirements of the individual. Because it focuses on individual behavioural change, the CLTS approach fosters a sense of responsibility among community members. Since its inspection, the CLTS task force has managed to improve the health and well-being of individuals that have been sensitised.

Stakeholder collaboration

The CLTS task team's success may be attributed to good joint planning and coordination. Observations of locally constructed tippy taps by community members show that when given the right information about how to improve sanitation and the

consequences of poor sanitation practices, communities tend to act collectively to effect the necessary change, which includes investing in sanitation.

4.6 NOTES ON THE RESEARCH PROCESS, ETHICS, VALIDITY, RELIABILITY AND CREDIBILITY OF DATA

In the case of this case study, a mixed method approach combined quantitative and qualitative research in gathering and corroborating data. A wide-ranging literature study including official documents in the public sphere was used to strengthen the data gathering as well as reflecting on the process and "forward-looking" in terms of the outcome of the study (Liebenberg, 2008)

As set out in the chapter on research methodology care was taken to abide by the rules and norms of the social scientific community. In a broader understanding of ethics, the researcher took great care in gathering data and double-checking data during the data gathering process and the analysis of data. Continuous and regular consultations and working on feedback from the supervisors played an important role throughout.

In terms of the qualitative approach, the interaction with respondents (research participants) did not only include interviews as per a pre-designed schedule (the latter piloted before going to the field) but also follow-up with the participants, if and where matters had to be clarified. The researcher took care to reflect what the research participants say and reported on their views, not interpreting them. In so doing the *internal validity* of the qualitative element of the research was maintained (the word *internal validity* is frequently used when doing an audit of the research trial and in reflecting regularly on the approach – Liebenberg, 2008).

In terms of the quantitative approach, a continuous effort was maintained to check and re-check data and corroborate where necessary qualitative and quantitative data

underpinned using literature as the study evolved. In doing so reliability and validity was ensured as far as humanely possible. While the findings can be viewed as creditable it should be mentioned that the study is not generalizable as this is a specific case study within a specific context. The study may well be replicable in other cases and contexts (namely using the same approach) in another environment if other researchers treat the methodology used here carefully and critically.

4.7 SUMMARY

This chapter presented an analysis of the data gathered from the participants. The quantitative data was collected from one hundred households in the Havana Informal Settlement utilising the systematic sampling approach as the foundation of the selection process. The established criterion was families with no to minimal toilet facilities. The data was analysed, and tables and charts were created in Microsoft Excel to demonstrate the findings. Qualitative data was obtained from workers of the COW's Department of Infrastructure, Water, and Technical Services; the COW Council members, and Shack Dwellers Federation personnel using the judgemental sampling approach. The data was analysed and grouped into thematic areas. The discussions and recommendations are the subjects of the next chapter.

CHAPTER 5: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The preceding chapter described the data-gathering procedure and the study's findings. This chapter is broken down into four sections namely: summarises the study findings, provides the conclusions, offers potential recommendations to establish an open-defecation-free Havana Informal Settlement, and recommends additional topics for research to reduce issues associated with open-defecation and sanitation in the stated area. The research objective was to explore community-led total sanitation as an alternative approach to sanitation provision as opposed to the traditional subsidy method in the Havana Informal Settlement of Namibia.

5.2 DISCUSSIONS

The following research objectives were analysed in the study:

5.2.1 To investigate the effect of community-led total sanitation on hygiene and sanitation practices, including open-defecation, use of private latrines and practice of handwashing with soap.

5.2.2 To compare the effectiveness of community-led total sanitation as opposed to historical approaches adopted by the COW in addressing the sanitation crises in Havana Informal Settlement.

5.2.3 To make recommendations based on findings to ensure an open-defecation-free Havana Informal Settlement.

5.2.4 To identify further areas for research to alleviate challenges around open-defecation and sanitation in the said area.

Based on the data analysis, the following findings were obtained:

5.2.1 To investigate the effect of community-led total sanitation on hygiene and sanitation practices, including open-defecation, use of private latrines and practice of handwashing with soap

Respondents were asked if they are aware of the community-led total sanitation programme by the COW and 99 per cent of them indicated that they are unaware of the project. This contributes to the high open-defecation statistics in the community as the standardized subsidisation of facilities is done without paying attention to changing community behaviour and attitudes. This is consistent with comments by Saha (2019) who argues that the traditional subsidization approach is inadequate to achieve ODF targets due to a lack of collective behavioural change. There is therefore a need to intensify current health programmes to facilitate this behavioural change (Nakashole, 2022).

According to the research, one of the reasons for open-defecation is a lack of toilets, and if toilets are provided, they are badly maintained. According to the data gathered, there is a lack of information, education and communication materials in the community concerning alternative sanitation options, hygiene, and the operation and maintenance of constructed toilets. As a result, facilities have been misused, neglected, and some have been abandoned. As a result, individuals openly defecate not because of a shortage of toilets, but because they perceive no need to change their hygiene behaviour because knowledge and comprehension of associated health hazards are limited or disregarded. Despite the significant investment in technical support, capacity building, and toilet provision, there is no significant improvement in sanitation coverage (MAWLR, 2018). Saha (2019) argues that the mainstream sanitation approach in Namibia is giving subsidized toilets to communities. In terms of improving sanitation and collective hygiene behaviour, giving subsidized toilets not

only mean inefficient utilization of scarce resource but also mean application of contradictory and counterproductive approach to CLTS (Saha, 2019).

According to the COW, there is a need to step up advocacy initiatives to end open-defecation and promote sanitation and hygiene. The COW has chosen CLTS as a strategy that, when implemented at scale, should ensure genuine community engagement. The formation of a community-led complete sanitation task force was a step in the right direction, since it obtained much-needed political backing, as outlined in the Harambee Prosperity Plan II. Kar & Pasteur (2005) put forward that for CLTS to be effective, there is a need to invest in community mobilization rather than hardware and shifting the emphasis from toilet construction for individual households to the creation of open-defecation free communities through awareness raising.

According to findings from the COW, CLTS has also contributed to better community health and well-being. Community members reported an overall decrease in diarrhoea cases, a reduction or elimination of open-defecation in certain cases, increased handwashing with soap, a cleaner environment, and a reduction of critical vectors such as flies as the most visible improvements following the CLTS implementation. According to MAWLR (2018), since the adoption of CLTS there has been general health improvements in communities where CLTS has been piloted. These improvements can directly be attributed to the use of latrines and the practices of hand washing adopted because of CLTS implementation (MAWLR, 2018).

The community-led total sanitation task force used a coordinated strategy that brought all stakeholders together and communicated in a consistent tone. According to data gathered from the Shack Dwellers Federation, through the task team, community members of the Havana Informal Settlement were provided with accurate and locally

translated information on how to improve sanitation and the consequences of poor sanitation practices, resulting in critical community transformation and behavioural change. Saha (2019) states that the success of the task force can be attributed to the development and adoption of appropriate tools for facilitating multi stakeholders' participatory planning. Kar & Psteur (2005) argue that without a functional system of coordinated and integrated planning in place just only formation of sanitation forum or task force become non-substantial for coordination and achieving intervention-synergy to reach the goal.

Observations show that residents from the Havana Informal Settlement are keen to improve hygiene practices. As part of the community-led total sanitation task force, tippy taps have been constructed to promote hand washing with soap throughout the community. Households have been sensitised on the importance of hand washing with soap after using the toilet or before preparing meals and eating. Capacity has been transferred as each household, with locally available materials managed to set up these inexpensive devices, and it can be seen deeper into the community where running water is scarce.

5.2.2 To compare the effectiveness of community-led total sanitation as opposed to historical approaches adopted by the City of Windhoek in addressing the sanitation crises in Havana Informal Settlement

According to the findings, the COW, like all other local authorities, faces financial constraints as a result of conflicting service delivery goals. Although the present subsidisation method is effective, enough budgetary allocation for routine maintenance on these infrastructures remains an issue. Vandalism of communal toilets is normally reported because of the number of households assigned to each toilet,

which results in poor day-to-day management and maintenance, resulting in blocked and leaking sewer pipes, community members indicated that they would rather defecate in the open because the toilets are dirty, smelly, unsafe, and pose a health hazard to users. Employees of the COW believe that the subsidisation system has to be revamped to involve community engagement in order to foster a sense of ownership. According to Saha (2019), vandalism and poor upkeep of sanitation facilities are as a result of the centralized planning approach which is not contributory to promote active participation of local stakeholders, local ownership, and sustainability.

According to the findings, community people are hardly involved in the decision-making process on the sort of sanitation facilities that may best be tailored to their circumstances. It has been observed that simply having access to a toilet facility does not ensure its use. Alternative sanitation solutions that can be deployed are not well-known in communities. Failure to appropriately engage and involve people, along with a lack of understanding of sanitation, has been shown to contribute to the problem of inadequate sanitation technology being adopted and failing in communities. Kar & Pasteur (2005) lament that at the heart of CLTS is a human cantered approach that provides opportunities to make their own decision regarding the type of sanitation facilities they prefer thereby empowering them to stop OD willingly. Galvin (2014) argues that the traditional approach offers the end user no voice in the type of sanitation afforded to them, an exercise which is unsustainable and does not develop a sense of ownership amongst users. The central concept of making communities Open Defecation Free (ODF) is the collective hygiene behaviour change thus communities play a critical role in improving sanitation and adopting hygiene habits and therefore need to be actively involved in sanitation decision making (Saha, 2019).

According to data from the Shack Dwellers Federation, CLTS can be more successful in tackling sanitation concerns in the Havana informal Settlement if properly executed. Since there are only a limited number of functioning toilet facilities, there is a need to develop a demand for sanitation among community members through messaging and the identification of alternative sanitation options. Experiences from elsewhere and in Namibia show that the supply-led approach to building latrines has failed to significantly reduce the harmful practice of OD (MAWLR, 2018).

The COW recognises that the financial burden of maintaining these ageing infrastructures has become overwhelming, and as such, community-led approaches that induce behavioural change should be tested to ensure the long-term sustainability of existing and future sanitation facilities. This is consistent with Saha (2019), who stats that local authorities will not eliminate OD due to numerous development priorities and that the, for them to eliminate OD they will be required to build huge number of toilets which economically not viable and households having toilets does not necessarily ensure an ODF environment without hygiene behavioural change among all members of the community.

It is clear that addressing the sanitary concerns in Havana Informal Settlement would need a collaborative effort. CLTS might cause a community-wide behavioural change due to the close proximity of households in the Havana Informal Settlement. However, there is a need to enhance the programme in order to promote awareness, which may be accomplished by extra financing aimed towards carrying out more sanitation messaging. The findings are supported by the views of Saha (2019) who admits that creating an ODF Namibia requires a multi-sectoral approach that embraces collective behaviour change among communities which plays a critical role in improving sanitation and adopting hygiene habits. Kar & Pasteur (2005), note that achieving

effective stakeholders' coordination and coordinated resource investment is tough if area based integrated plan (both programme and financial) is not in place.

5.3 CONCLUSIONS

Based on the findings of this study, it is possible to conclude that community-led total sanitation as a strategy can, to some extent, eliminate open-defecation in the Havana Informal Settlement. The COW is currently experiencing considerable issues in maintaining service delivery standards since migration into Windhoek places a significant financial burden on the City to deliver at the same rate as it grows. Saha (2019) puts forward that making a community ODF requires improved hygiene practices among all members. Strong social bondage and cooperation is vital for achieving this collective hygiene behaviour change. Informal urban settlements are established by the migrated population; they are heterogeneous in nature thus social bondage and cooperation among community members is very weak (Saha, 2019).

The COW's subsidisation model has undoubtedly aided access to improved sanitary facilities across Havana Informal Settlement. However, without meaningful community engagement and buy-in, these facilities are not owned, resulting in inadequate day-to-day administration and upkeep, as seen by the recorded number of vandalised toilets.

Community-led advocacy campaigns to end open-defecation and improve sanitation and hygiene are required. CLTS empowers the community to be at the forefront of their sanitation situation. It focuses on a holistic behavioural change approach that leads to sustainability and maintenance of good sanitation practices through existing community structures. It's efficient when the entire community is sensitised to bring about change and get rid of all sanitation risk behaviour. Unlike rural villages of

Namibia where distance between one houses to another is far, in a target block of Informal urban settlements 100 to 300 households are settles in a small territory. This congested settings of households provides CLTS facilitators to mobiles an gather people without facing difficulties of travel (Saha, 2019).

Achieving target 6 of the SDGs on sanitation will require massive investment from both government and the private sector, the right sanitation technology options and a multistakeholder approach. Sustainable sanitation progress can only be achieved through a strong community-led initiative and approach.

5.4 RECOMMENDATIONS

Based on the findings, this study makes the following recommendations:

First recommendation

Hygiene promotion must be stepped up in order to put an end to open-defecation, promote sanitation and hygiene, and encourage community engagement in all aspects of sanitation and hygiene promotion. This is possible through active community learning, for which songs and theatre performances may be extremely effective communication instruments.

Second recommendation

Make use of children as change agents. Children are crucial in the ODF process and in improving adults' hygienic habits. Children's sensitisation through group meetings, slogans, drama performances, and IEC materials are all critical elements for ensuring an ODF community.

Third recommendation

Sensitisation of local politicians/leaders to instil a feeling of ownership in the programme and promote ODF within their communities. This is supplemented by exchange visits and joint information-sharing sessions, as well as the sharing of success stories that might help to promote ODF in communities.

Fourth recommendation

ODF Celebrations and publications to further spread the message faster. Havana Informal Settlement is home to a soccer field, this central venue can be used for raising mass awareness through inter-block ODF information sessions.

Fifth recommendation

The COW can create a document outlining the minimal specifications for the basic structure of standard toilets within its jurisdiction. Many households cannot afford to spend large sums of money. At the same time, it is necessary to communicate to community members that a superstructure can be built while they save up to complete the building according to COW requirements.

Sixth recommendation

Information, Education, and Communication materials on safe hygiene practices need to be developed and distributed amongst communities. These materials can be translated into local languages for improved comprehension.

5.5 POSSIBLE FURTHER AREAS FOR RESEARCH

A future study might look at the role of the community-led total sanitation task team in eradicating Hepatitis E in Havana's informal settlement. The current challenge is the continued vandalism of community toilets; nevertheless, no incidences of toilet vandalism were recorded by the task team while doing its tasks.

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APPENDICES

APPENDIX 1: ETHICAL CLEARANCE

UNAM
UNIVERSITY OF NAMIBIA

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: DEC FOC/ 22/11 Date: 15/06/2022

This Ethical Clearance Certificate is issued by the University of Namibia Ethics Committee (REC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the ethics committee.

Title of Project: ELIMINATING OPEN DEFECATION THROUGH COMMUNITY LED TOTAL SANITATION: A CASE STUDY OF THE HAVANA INFORMAL SETTLEMENT.

Student: Helmut Kafita

Student Number: 201205467

Supervisor(s): Prof. Ian Liebenberg

Centre for Research Services

Take note of the following:

1. Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the ethics committee. An application to make amendments may be necessary.
2. Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the ethics committee
3. The Principal Researcher must report issues of ethical compliance to the ethics committee (through the Chairperson) at the end of the Project or as may be requested by the ethics committee
4. The ethics committee retains the right to:

i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,

ii) Request for an ethical compliance report at any point during the course of the research.

The ethics committee wishes you the best in your research.

Precious Mushendami (Chairperson Ethics Committee)

Prof. Davis Mumbengegwi (Head, Multidisciplinary Research)

APPENDIX 2: RESEARCH PERMISSION LETTER: UNIVERSITY OF NAMIBIA

CENTRE FOR RESEARCH SERVICES
Office of the Pro-Vice Chancellor: Research, Innovation & Development
University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufayo Avenue, Pioneers Park, Office F223 - Fblock, Second Floor
☎ +264 61 206 4673; E-mail:kmbulu@unam.na; URL.: http//www.unam.edu.na

UNAM
UNIVERSITY OF NAMIBIA

RESEARCH PERMISSION LETTER

Date: 30/06/2022

Student Name: Helmut P. Kafita

Student Number: 201205467

Programme: Master of Public Administration

Approved Research Title: Eliminating open defecation through community-led total sanitation: A case study of Havana informal settlement.

TO WHOM IT MAY CONCERN

I hereby confirm that the above-mentioned student is registered at the University of Namibia for the programme indicated. The proposed study met all the requirements as stipulated in the University guidelines and has been approved by the relevant committees.

The proposal adheres to ethical principles as per attached Ethical Clearance Certificate. Permission is hereby granted to carry out the research as described in the approved proposal.

Best Regards

Dr. AEE Shikongo
Head: Postgraduate Support Services
Tel: +264 61 206 3129
E-mail: aeshikongo@unam.na

CENTRE FOR RESEARCH SERVICES
Office of the Director
2022 -06- 30
University of Namibia
UNAM

APPENDIX 3: LETTER OF INTRODUCTION: UNIVERSITY OF NAMIBIA

UNAM
UNIVERSITY OF NAMIBIA

24 September 2021

TO WHOM IT MAY CONCERN

Mr. Helmut P Kafita (Student Number: 201205467), is currently enrolled for a Master's Degree in Administrative and Management studies at the University of Namibia.

The title of his research project is: **Eliminating Open Defecation through Community Led Total Sanitation: A case study of Havana informal settlement.**

As part of his studies Mr Kafita is supposed to conduct a research project on a topic of interest to him and a research area that will benefit society at large. He has chosen your institution/city/local government as his case study. In this regard Mr. Kafita will have to receive via your good offices the opportunity to interact with various stakeholders within local government institutions, the city council and other experienced persons (expert practitioners).

As supervisors I, Ian Liebenberg (Professor in Political Studies) and Professor Charles Keyter (an expert in Public Administration and Management) submit in good faith this letter as a means of introduction to you/your relevant offices and actors in the field.

It is expected that the student later on during the research process, once his proposal was formally approved by UNAM, may wish to interview individual senior persons and middle-management levels in your environment or kindly be put in contact with others working in the field (thus starting personal introductions and extending a basic list of persons to be interviewed) to achieve his research objectives, which we trust will come up with pointers and recommendations on how the challenges we experience can be addressed.

We believe his case study will add much value in this area, in practice and to the affected community.

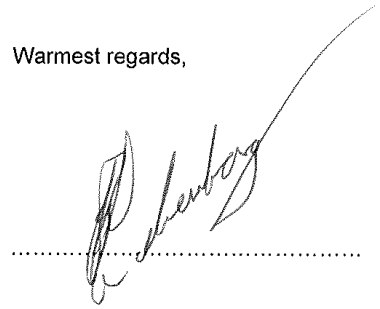
It is expected from the student to behave in a professional manner at all times and to make appointments well in advance in order to meet the relevant stakeholders via your good offices.

We, as Supervisors kindly request that this letter be treated by you as a letter of introduction to you and relevant colleagues and officials working in the field.

If you have any questions please feel free to contact us as supervisors at the undermentioned numbers.

Your kindest and friendly support and professional assistance will be deeply appreciated. Thank you.

Warmest regards,



.....

Professor Ian Liebenberg on behalf of the supervisors
Department of Political and Administrative Studies (DPAS)
University of Namibia
Tel. (061) 2063780 (Office)
Email: jankalahari@gmail.com

Prof Charles Keyter
Department of Public Management and Political Studies
University of Namibia
Tel: 264812744622
Email: cakeyter@unam.na

APPENDIX 4: INFORMED CONSENT

INFORMED CONSENT FORM

TITLE OF THE RESEARCH PROJECT: EXPLORING COMMUNITY-LED TOTAL SANITATION AS A MECHANISM TO ELIMINATE OPEN-DEFECATION: A CASE STUDY OF THE HAVANA INFORMAL SETTLEMENT

NAME OF RESEARCHER: Helmut Puleni Kafita

STUDENT NUMBER: 201205467

Dear: _____

You are hereby kindly requested to take part in the abovementioned study. Your participation in this important study will be deeply appreciated. Before you decide to participate, it is critical that you understand the purpose of the study and what it entails. Please read the following information carefully and, if desired, discuss it with others. If there is anything that you are unsure about, I would be happy to answer any questions you may have.

PURPOSE OF THE STUDY

This study is based on exploring community-led total sanitation as a mechanism to eliminate open-defecation in the Havana Informal Settlement. Since there is no study done to assess whether CLTS can serve as a mechanism of increasing sanitation coverage as opposed to the traditional modality of infrastructure provision, this study is aimed at informing policy makers, specifically in the water and sanitation fertility

on CLTS and its applicability in the urban setting, thus providing baseline data for future planning.

DESCRIPTION OF STUDY AND YOUR INVOLVEMENT

You are being asked to participate in this research study because you have been systematically selected as an individual residing in the Havana Informal settlement with no to limited ablution facilities at the household level. You will be asked to complete a questionnaire which is estimated to last for 25 minutes.

CONFIDENTIALITY

Your responses to the questions in this interview schedule will be anonymous and strictly confidential. Every effort will be made by the researcher to preserve confidentiality including the following:

- Storing all audios on iCloud embedded password and deleting them from the phone's hardware.

- Assigning code names/numbers for participants that will be used on all research notes and documents

- Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher. Until the completion of the study where after such documents will be destroyed.

Participant data will be kept strictly confidential under all circumstances.

VOLUNTARY PARTICIPATION

Your participation in the study is entirely voluntary, and you are free to refuse participation. You may discontinue your participation at any time without prejudice or without jeopardising the future care either of yourself or your family members. If you

discontinue participation in the project, you may request we not use the information already given to us. You are encouraged to ask questions concerning the study at any time as they occur to you during the programme. Any significant new findings developed during the study that may relate to your willingness to continue participation will be provided to you.

CONTACT INFORMATION

You can contact the Centre for postgraduate support services at research@unam.na if you have any further queries or encounter any problems. You can also contact the Research Ethics Committee **at +264 061 2063061 (**btjikotoke@unam.na) if you have any concerns or complaints that have not been adequately addressed by the researcher. Should you wish to contact the supervisors of this study, Prof. Ian Liebenberg (jliebenberg@unam.na or jankalahari@gmail.com) or Prof. Charles Keyter (cakeyter@unam.na) you are most welcome.

CONSENT

I declare that:

a) I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.

b) I have had a chance to ask questions and all my questions have been adequately answered.

c) I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.

d) I may choose to leave the study at any time and will not be penalized or prejudiced in any way.

By signing below, you are indicating that you have read and understood the consent form and that you agree to participate in the research study.

_____ _____

Participants Signature Date

_____ _____

Researchers Signature Date

APPENDIX 5: QUESTIONNAIRE FOR COMMUNITY MEMBERS

UNIVERSITY OF NAMIBIA

FACULTY OF COMMERCE, MANAGEMENT AND LAW

DEPARTMENT OF PUBLIC MANAGEMENT AND POLITICAL STUDIES

TOPIC: EXPLORING COMMUNITY-LED TOTAL SANITATION AS A MECHANISM TO ELIMINATE OPEN-DEFECATION: A CASE STUDY OF THE HAVANA INFORMAL SETTLEMENT

Instructions to respondents

- Tick in the space provided for the closed questionnaire
- Fill in the spaces provided for open-ended questions

Please note, that you are not required to write your name.

Section A: Background Information

1. How old are you?

☐ 18 – 24

☐ 25 – 34

☐ 35 – 44

☐ 45 – 54

☐ 55 +

2. Sex of respondent?

☐ Male

☐ Female

☐ Other

3. Marital Status

☐ Single

☐ Married

☐ Widowed

☐ Divorced

☐ Cohabitating

4. Are you currently employed?

☐ Yes

☐ No

5. If “Yes” to 5, in which sector do you work

☐ Formal

☐ Informal

☐ Other

If Other, Please Specify

……

……

6. Do you have any dependents?

☐ Yes

☐ No

7. How many people do you live with?

☐ Male

☐ Female

8. How long have you been living in Havana informal settlement?

☐ 0 – 5 years

☐ 6 – 9 years

☐ 10+ years

9. Did you grow up here?

☐ Yes

☐ No

If No, Please Specify

……

……

Section B: Sanitation

1. Do you have access to improved sanitation facilities?

☐ Yes

☐ No

If "No" skip to Q2. If "Yes", what type of sanitation facilities do you have access to? Choose any

☐ Flush or pour-flush

☐ Piped sewer system

☐ Septic Tank

☐ Pit latrine

☐ Ventilated improved pit latrine

☐ Pit latrine with slab

☐ Composite toilet

1.2 What is the condition of these facilitates?

☐ Good

☐ Fair

☐ Poor

1.3 How many people make use of these facilities?

☐ 1 – 3

☐ 4 – 6

☐ 6 – 9

☐ 10+

1.4 Who is in charge of the maintenance of these facilities?

☐ Municipality

☐ Community Members

☐ WASH committees

☐ Shack Dwellers Federation

☐ I don't know

☐ Other

If "Other" please specify

……

……

2. What type of sanitation facilities do you have access to?

☐ Flush or por flush elsewhere

☐ Pit latrine without slab/open pit

☐ Bucket

☐ Hanging toilet

☐ Hanging latrine

☐ No facilities/Bush (open-defecation)

2.1 what is the condition of these facilities?

☐ Good

☐ Fair

☐ Poor

2.2 Why do you resort to making use of these facilities?

……

……

3. The City of Windhoek has made provision for communal toilets; do you make use of these facilities?

- ☐ Yes
- ☐ No (If "No" skip to 3.4)

3.1 If "Yes", in what condition are they

- ☐ Good
- ☐ Fair
- ☐ Poor

3.2 Who is in charge of the maintenance of these toilets?

- ☐ Municipality
- ☐ Community Members
- ☐ WASH committees
- ☐ I don't know
- ☐ Shack Dwellers Federation
- ☐ Other

If "Other" Please specify

……

……

3.3 How often are these toilets maintained?

- ☐ Bi-weekly
- ☐ Weekly
- ☐ Every other week
- ☐ Once a month
- ☐ I don't know

3.4 If "No" why?

- [ ] Reserved for specific people
- [ ] Unhygienic
- [ ] Long waiting queues
- [ ] They are locked
- [ ] They are far
- [ ] I don't want to

3.5 What would it take to encourage you to make use of these toilets?

- [ ] Hygiene
- [ ] Build more toilets
- [ ] Fewer waiting queues
- [ ] Better maintenance
- [ ] I would not
- [ ] Other

If "Other", please specify

……

……

4. Which do you prefer, Private or Communal facilities?

- [ ] Private
- [ ] Communal

4.1 Why?

- [ ] Safer
- [ ] Better access
- [ ] More hygienic
- [ ] Maintains dignity
- [ ] Other

If “Other”, please specify

……

……

5. If you had the option to select your own sanitation facility, would you?

- ☐ Yes
- ☐ No

6. What is stopping you from doing so?

- ☐ Municipal regulations
- ☐ No access to water
- ☐ Insecure land tenure
- ☐ Financial constraints
- ☐ Lack of space
- ☐ Landlord
- ☐ Other

If “Other”, please specify

……

……

7. How would you go about creating these sanitation facilities as per your liking?

- ☐ Donations
- ☐ Loan
- ☐ Make use of local materials
- ☐ I would not
- ☐ Other

If “Other”, please specify

……

……

8. In your view, what are the major issues associated with limited or no access to sanitation facilities?

- ☐ Health
- ☐ Safety
- ☐ Dignity
- ☐ Economic
- ☐ I don't know
- ☐ Other

If "Other", please specify

……

……

Section C: Community-Led Total Sanitation

1. Are you aware of the community-led total sanitation programme?

- ☐ Yes
- ☐ No

2. If "No" proceed to Q6, if "Yes", who made you aware of the project?

- ☐ Media
- ☐ City of Windhoek
- ☐ UNICEF/Development Workshop
- ☐ Namibia Red Cross
- ☐ Political Leader
- ☐ Local WASH committee
- ☐ Ministry of Health and Social Services

☐ Community-Led Total Sanitation Task Force

☐ Shack Dwellers Federation

☐ Other

If “Other” please specify

……

……

3. What do you think of the community-led total sanitation programme?

☐ Good

☐ Fair

☐ Poor

☐ Could improve

☐ I don’t know

4. Do you believe the community-led total sanitation programme has the potential to eliminate open-defecation in Havana Informal Settlement?

☐ Yes

☐ No

☐ I don’t know

Why?

……

……

5. What kind of health education topics do you receive in Havana Informal Settlement?

☐ Personal hygiene

☐ Community hygiene

☐ Consumer Health

☐ Environmental Health

- [ ] Family life
- [ ] Mental/emotional health
- [ ] Injury prevention and safety
- [ ] Nutrition
- [ ] Prevention and Control of Disease
- [ ] Substance Abuse
- [ ] Other

If “Other”, please specify

……

……

6. Who is tasked with providing you with this health information?

- [ ] No one
- [ ] Namibia Red Cross Society
- [ ] Development Workshop
- [ ] World Health Organisation
- [ ] Catholic Aids Action
- [ ] UNICEF
- [ ] Community Leaders
- [ ] WASH Committees
- [ ] Schools
- [ ] I don’t know
- [ ] Other { }

If “ Other”, please specify

……

……

7. Do you believe there is a political will to improve sanitation in the settlement?

☐ Yes

☐ No

Please explain

……

……

8. What would you recommend be done to improve sanitation in the settlement and resultantly eliminate OD in Havana Informal Settlement?

……

……

****Thank you for your Participation****

APPENDIX 6: INTERVIEW SCHEDULE

UNIVERSITY OF NAMIBIA

FACULTY OF COMMERCE, MANAGEMENT AND LAW

DEPARTMENT OF PUBLIC MANAGEMENT AND POLITICAL STUDIES

TOPIC: EXPLORING COMMUNITY-LED TOTAL SANITATION AS A MECHANISM TO ELIMINATE OPEN-DEFECATION: A CASE STUDY OF HAVANA INFORMAL SETTLEMENT

Instructions to respondents

- Fill in the spaces provided when answering the questions

Please note, that you are not required to write your name.

1. What are the major problems hampering service delivery of adequate sanitation facilities in the Havana informal settlement?

……

……

2. What strategies are in place to address the sanitation woes of Havana's informal settlement?

……

……

3. What factors do you think contribute to the high open-defecation statistics in the Havana informal settlement?

……

……

4. According to the City of Windhoek's annual report for 2019, a total of two hundred and sixty-seven communal toilets were to be constructed by March 2020 in

Windhoek's informal settlements. How many have been constructed in Havana Informal Settlement to date?

……

……

5. Are community members of Havana Informal Settlement involved in decision-making when it comes to the type of sanitation facilities and programmes they receive?

……

……

6. Community members are seldom not involved in the choice of sanitation offered to them which results in a lack of ownership at a community level. Are there adequate technological options for the construction of cheap latrines that suit the economic conditions of the poor, landless residents in the Havana informal settlement and are in line with municipal regulations?

……

……

7. Efforts to fast-track the end of the Hepatitis-E outbreak saw the establishment of a community-led total sanitation Taskforce in 2019 in Havana informal settlement. What specific role did the Task Force play in the elimination of Hepatitis E in Havanan by March 2022?

……

……

8. Namibia is yet to meet target 6 of the SDGs on sanitation, from your analysis, does the traditional subsidisation modality yield better results than the community-led total sanitation approach adopted by the city to deal with the Hepatitis-E outbreak?

……

……

9. What would you recommend be done to declare Havana Informal Settlement an Open-defecation-free community?

……

……

****Thank you for your Participation****

APPENDIX 7: PERMISSION LETTER: CITY OF WINDHOEK

Department of Human Capital & Corporate Services

✉ 59
80 Independence Avenue
WINDHOEK, NAMIBIA

Tel: (+264) 61 290 2911 **www.cityofwindhoekcc.org.na**

ENQ: Mr AM Nikanor **PHONE:** 061 -290 2630

DATE: 20 October 2022

RE: ELIMINATING OPEN DEFECATION THROUGH COMMUNITY-LED TOTAL SANITATION: A CASE STUDY OF HAVANA INFORMAL SETTLEMENT – MR. HELMUT P. KAFITA (STUDENT NO: 201205467)

This letter serves as confirmation that Mr. H.P. Kafita a student pursuing Masters' Degree in Public Management at the University of Namibia, Windhoek has been granted permission to conduct his research on the above subject within the City of Windhoek.

Respondents to the study are therefore requested to render Mr. H.P. Kafita their cooperation and assistance.

Should there be any queries, please feel free to contact the Human Resources Development Division on the above contact details

Yours Sincerely

PP

Mr. AM Nikanor
Manager: Organizational & Human Resources Development

CITY OF WINDHOEK
20 OCT 2022
Signature
Organisational & Human Resources Development Division
Department of Human Capital & Corporate Services

All official correspondence must be addressed to the Strategic Executive

APPENDIX 8: LANGUAGE EDITING CERTIFICATE

Dr.GM

The Rev. Dr. Greenfield Mwakipesile
ThD, MBA, HBS | mwakipg@outlook.com

CONTACT

PO Box 99539,
UNAM,
Namibia

LANGUAGE & COPY-EDITING CERTIFICATE

20th February 2023

RE: LANGUAGE, COPYEDITING AND PROOFREADING OF HELMUT PULENI KAFITA's THESIS FOR THE MASTER OF PUBLIC MANAGEMENT DEGREE OF THE UNIVERSITY OF NAMIBIA

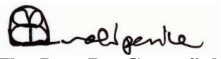
This certificate serves to confirm that I copyedited and proofread **HELMUT PULENI KAFITA's** Thesis for the **THE MASTER OF PUBLIC MANAGEMENT DEGREE** entitled: **EXPLORING COMMUNITY-LED TOTAL SANITATION AS A MECHANISM TO ELIMINATE OPEN-DEFECATION: A CASE STUDY OF THE HAVANA INFORMAL SETTLEMENT**

I declare that I professionally copyedited and proofread the thesis and removed mistakes and errors in spelling, grammar, and punctuation. In some cases, I improved sentence construction without changing the content provided by the student. I also removed some typographical errors from the thesis and formatted the thesis so that it complies with the University of Namibia's guidelines.

I am a trained language and copy editor and have edited many Postgraduate Diploma, Masters' Thesis, Dissertations and Doctoral Dissertations for students studying with universities in Namibia, Zimbabwe, Eswatini, South Africa and abroad. I have also copy-edited company documents for companies in the region and abroad.

Please feel free to contact me should the need arise.

Yours Sincerely,



The Rev. Dr. Greenfield Mwakipesile

greenfield.mwakipesile | @mwakipg | +264813901701 | Dr. Greenfield Mwakipesile

APPENDIX 9: PLAGIARISM CERTIFICATE

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