FACTORS INFLUENCING SUSTAINABILITY OF OPEN DEFEACATION FREE ENVIRONMENT IN NYANDO SUB-COUNTY, KISUMU COUNTY, KENYA

BY

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DECLARATION

This research project report is my original work and has not been presented for a degree in any other university.

Signature _____ Date _____

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This research project report has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this report to my wife Catherine, our two sons Cyril and Cyprian; and our two daughters, Stephany and Cynthia; all for their support during my studies.

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ABBREVIATIONS AND ACRONYMS

BCC	Behaviour Change Communication
CATS	Community Approaches to Total Sanitation
CHWs	Community Health Workers
CLTS	Community-Led Total Sanitation
DALYs	Disability Adjusted Life Years
IEBC	Independent Electoral and Boundary Commission
JMP	Joint Monitoring Programme
KAP	Knowledge, Attitude and Practice
KNBS	Kenya National Bureau of Statistics
MDGs	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MoH	Ministry of Health
OD	Open Defeacation
ODF	Open Defeacation Free
PHAST	Participatory Hygiene and Sanitation Transformation
PHO	Public Health Officer
RANAS	Risk, Attitudes, Norms, Ability and Self-regulation
SaniFOAM	Sanitation Framework
SES	Socio-Economic Status
SPSS	Statistical Package for Social Sciences
UNICEF	United Nations Children Emergency Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

ABSTRACT

The research examined factors which influence sustainability of Open Defeacation Free (ODF) condition in Nyando Sub-County in Kisumu County. The study concentrated on four research objectives namely: to assess social factors affecting sustainability of latrine use among the ODF guaranteed networks in Nyando Sub County; to survey how management practices impact toilet use among the ODF affirmed networks in Nyando Sub County; to assess how management practices influence toilet use among the ODF certified communities in Nyando Sub County; to evaluate the effect of behaviour change communication campaigns on sustainability of toilet use among the ODF certified communities in Nyando Sub County; and to determine how the training of sanitation promoters influences the sustainability of toilet use among the ODF certified communities in Nyando Sub County. The target population of the study was 145,000 individuals. The study utilized a descriptive research design. The target population for this study was families situated in 133 villages. The study utilized a multi-stage sampling design. First, the number of villages which were considered for the household overviews were randomly chosen from every one of the administrative ward in extent to their geographic size. Secondly, the number of families which were examined from every village was chosen through randomization. At last, at the family unit level, the leader of the family was chosen for the study. The Public Health Officers and Community Health Workers were sampled from each ward keeping in mind the end goal to fill in as a key informants. The study gathered information from 290 family units' heads and 10 key informants. The questionnaires were utilized to gather primary data and an organized discussion guide was utilized to gather information from key informants. The information was analysed by utilizing Statistical Package for Social Sciences package and the results were presented in Tables. The results demonstrated that almost all the inspected family units (97.9%) exhibited attention to the way that the village was announced by the government to be Open Defeacation Free. This demonstrates that the latrine usage norms had been profoundly established in communities that would previous accept open defecation as an ordinary practice. Key empowering agents to development and upkeep of sanitation facilities were found to include: Local accessibility of materials; affordable labour from self and family members; availability of land; construction aid from other community members, maintenance or repair; and external aid / subsidies on building and maintenance of sanitation facilities. Community based discussions were the most favored channels or handing-off information to communities in Nyando on the need to manage legitimate sanitation and cleanliness in their different communities. Conduct change campaign coordinators perceived brochures and flyers as the most effective methods for relaying messages on enhanced sanitation and cleanliness practices. Dedicated village leadership and community cohesiveness was advanced by key informants as a basic fixing in family ODF status. The village leadership was recommended to consist of family units, communities and even little scale independent providers with the goal that they can take part more adequately in the arrangement of sanitation facilities. It is suggested that utilization of sanitation promotion will urge the families to put resources into commercial materials promptly because of Community Led Total Sanitation (CLTS) triggering or later. The findings of the study will be helpful to the Ministry of Health staff, the County Governments in Kenya, the water and sanitation specialist cooperatives and non-administrative associations.

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

The Millennium Development Goals (MDGs) were global advancement objectives that were built up by the United Nations in year 2000 with particular focus on accomplishments to be made by year 2015. Every one of the 189 UN part states at the time out of the current 193; and with promise to accomplishing the Millennium Development Goals by 2015 originating from no less than 23 associations with global presence (Bartram, 2013). The first MDG was equipped towards eradication of extraordinary hunger and abject poverty. The second MDG was equipped towards accomplishing widespread primary education. The third MDG was equipped towards advancing gender equality and empowering women. The fourth MDG was adapted towards diminishing child mortality. The fifth MDG was equipped towards enhancing maternal wellbeing. The 6th MDG was equipped towards combatting HIV/AIDS, malaria, among other illnesses. The seventh MDG was equipped towards guaranteeing environmental manageability. The eighth MDG was outfitted towards building up a worldwide development partnership. Under the seventh objective on guaranteeing environmental sustainability, the accompanying targets was made: Target 7-A: Integrating the standards of practical improvement into nation's arrangements and projects; turning around the loss of natural assets; Target 7-B: Reducing biodiversity misfortune by year 2010, a critical diminishment in the rate of misfortune; and Target 7-C to halve, by 2015, the proportion of the population without sustainable safe drinking water and fundamental sanitation (United Nations, 2013).

Sub objectives under target 7-C included: expanding the extent of both urban and provincial population with sustainable access to enhanced sources of water; and expanding the proportion of urban population with access to enhanced sanitation facilities (WHO and UNICEF, 2012). This study centers around factors that add to supportability of a portion of the outcomes acknowledged under Goal-7, Target 7-C. World over, the advancement objectives related sanitation planned to decrease the extent of people without access to enhanced sanitation access from 51% out of 1990 to 25% by 2015. Between the years 1990 and 2012, the scope of enhanced sanitation was accounted

for to have expanded from 49% to 64% over that period. That is, inside this period, just about 2 billion individuals accessed an enhanced sanitation office, with open defeacation dropping from 24% to 14% (WHO and UNICEF, 2014).

Sanitation might be viewed as all exercises outfitted towards change and supporting of cleanliness keeping in mind the end goal to raise the personal satisfaction and the soundness of the person (WHO and UNICEF, 2004). This may include: fitting strategies for human excreta transfer, individual cleanliness, nourishment cleanliness, suitable taking care of, capacity, and utilization of drinking water, appropriate solid, liquid and animal waste disposal. The essential needs, for example, safe drinking water, enhanced sanitation and cleanliness must be satisfied for a stately life for all (Devkota, 2011). Be that as it may, numerous parts of the world are yet to understand the sterilized condition and clean living conditions. Around 2.5billion individuals world over need access to enhanced sanitation (WHO and UNICEF, 2004). Unchanged sanitation conditions prompt water-borne diseases, for example, diarrhoea, dysentery, cholera, hepatitis, worms, and *schistosomiasis,* which terribly influence the work and expectations for everyday comforts of individuals in both developing and developed nations (Sah, 2013). There are numerous pointers of sanitation however toilet or the latrine is considered as a standout amongst the most imperative ones (Khet, Bikash, and Jyoti, 2014).

Access to sanitation in Kenya has been a noteworthy test for quite a long time. The 2009 census report revealed the general access levels at 65% with rural scope at 56% and urban scope at 79%. The Joint Monitoring Program (JMP) by UNICEF and WHO, which considers those utilizing shared facilities as lacking access, puts the general national scope at 31 % with rural scope at 32% and urban at 27% (WHO and UNICEF, 2014). These figures show that more than 6 million Kenyans still defeacate in the open which result in pervasiveness of illnesses, for example, diarrhoea, amoeba, typhoid and cholera. In economic view, Kenya loses KES 27 billion every year because of poor sanitation (Water and Sanitation Program, 2012). The JMP distinguishes Kenya as one of the nations in Africa which are off track in accomplishing the Millennium Development Goals (MDGs) focuses on sanitation (WHO and UNICEF, 2014).

Various sanitation and cleanliness intercessions have been done previously and some regular highlights in these mediations included mindfulness raising; preparing on cleanliness and outside sponsorship of sanitation equipment materials. These intercessions did not have noteworthy effect as the act of open Defeacation stayed wild. As of not long ago, there has been a developing comprehension and acknowledgment that outer help to rural family units for sanitation facility construction (and recommendable toilet designs) are counter-productive and may debilitate neighborhood responsibility for concepts (Kamal and Chambers, 2008). The Community-Led Total Sanitation (CLTS) approach was first tried out in Bangladesh in 1999. It advocates for communities to change their outlooks through acknowledgment of perils and loss of dignity that emerge because of the act of open defeacation they will do everything possible to end the practice. It likewise enacts collective action through the disgust feeling. The approach has a zero resistance to outer equipment appropriations to family units and spotlights on touching off an adjustment in sanitation conduct instead of developing toilets (Kamal and Chambers, 2008).

Community Led Total Sanitation (CLTS) advocates for networks to perform self-examination of existing defecation examples and dangers, and from that point have the individuals' start nearby answers for decrease and at last dispense with the act of open defecation. CLTS interventions don't demand latrine development accordingly, or absence of outside help for equipment materials. Rather, community mobilizations activities lay accentuation on helping communities and people comprehend the health dangers of open defecation and utilize disgrace to trigger activity, which thusly initiates construction of latrines utilizing locally accessible materials. The primary objective of CLTS is for communities to accomplish and support an open defecation free condition. The center contrast amongst CLTS and different methodologies is the non-endowment approach for equipment materials and utilization of the disgrace and nauseate to trigger conduct change (Kamal and Chambers, 2008).

1.2. Statement of the Problem

The Government of Kenya, working in conjunction the Ministry of Health (MoH) propelled the Open Defecation Free (ODF) Rural Kenya Campaign in May 2011; embracing Community drove Total Sanitation (CLTS) as the center system to accomplish the targets of ODF Rural Kenya. From that point forward 857 villages have been certified by an independent party, contracted by

UNICEF, to have accomplished ODF status including two sub regions - Nambale and Nyando, which are accounted for to have achieved ODF status. To date 39 areas out-of the aggregate 47 counties in the nation are utilizing the CLTS methodology to enhance access to sanitation in their nations; and more than 1,486 CLTS facilitators have been prepared (Republic of Kenya, 2014). Concentrates on the idea of manageability of provincial sanitation and conduct change rehearses are not methodically looked into or archived in Kenya. In her study, Wamera (2011) explored the methodologies utilized by Community Led Total Sanitation program in the eradication of open Defecation in Kochogo area in Nyando District. Family unit information was gathered utilizing questionnaires and discussion guides for the key Informants were done. The study demonstrated that that investment and supported enthusiasm of the community individuals to sanitation are major contributing variables to the achievement of CLTS through mindfulness making of people.

This study tried to decide the accompanying viewpoints in the cmmunities that were confirmed open defecation free in 2011 and 2012 in Nyando sub-province: the extent of family units that is as yet utilizing a toilet; the components that roused individuals to keep utilizing a toilet after ODF accreditation; the extent of families that have returned to open defecation after ODF confirmation; the regular normal for families returning to open defecation; the variables that reason individuals to return to open defecation; the extent of families that built another latrine after ODF check; the elements that inspired family unit to build another toilet after ODF check; the moves family units make when toilet pits filled; and proof of post-ODF affirmation exercises that helped family units keep up or enhance their toilet utilization practices in Nyando.

1.3. Purpose of the Study

The purpose of this study was to investigate factors that influence sustainability of open defecation free condition in Nyando Sub County of Kisumu County.

1.4. Objectives of the Study

The following objectives guided the study:

i. To establish how social factors influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County.
ii. To assess how management practices of sanitation facilities influence toilet use among the open defeacation free certified communities in Nyando Sub County.

iii. To evaluate how behaviour change communication campaigns influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County.
iv. To determine how the training of sanitation promoters influences sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County.

1.5. Research Questions

The research questions for the study were:

i. In what ways do social factors influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County?
ii. To what extent do management practices of sanitation facilities influence toilet use among the open defeacation free certified communities in Nyando Sub County?
iii. To what extent do behaviour change communication campaigns influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County?
iv. In what ways does the training of sanitation promoters influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County?

1.6. Significance of the Study

The findings of the research might be helpful to the Ministry of Health staff, the County Governments' staff, the water and sanitation specialist co-operatives, and non-administrative associations that have been supporting the Government of Kenya through the Ministry of Health in scaling up network sanitation by receiving Community led Total Sanitation as the center system towards accomplishing the general access to sanitation for all. The findings of the study may give rules towards reinforcing limit of Government and in addition supporting the execution of community led sanitation strategies in villages to accomplish open defeacation free status. The study findings may likewise be helpful to future scientists and academicians in the field of sanitation and cleanliness programming for local communities in Kenya and internationally.

1.7. Delimitation of the Study

The research was directed in Nyando Sub County of Kisumu County. The study focused on a delegate test of family unit heads from a sum of 135 towns that were confirmed to be open Defeacation free by the Ministry of Health in 2011 and 2012 through the help of UNICEF Kenya

(UNICEF and Ministry of Health, 2014). Amid ODF check; the verifiers would lead house to house visits incorporating transcent walks in the villages to affirm that no hints of defecation are seen within compounds, bushes, fields or walk ways; and every one of the families have an access to a latrine facility. Broadly, it is just Nyando and Nambale sub-districts which have been affirmed ODF since year 2013. Considering that these are communities that used to have high predominance open Defeacation and instances of cholera/ diarrhea previously CLTS interventions, this study would try to set up the factors that roused them to build toilets and what has made them to support the continued utilization of latrines. The fundamental properties which were evaluated in this study included: social components; monetary or occupation related variables; impact of the neighborhood soil and nearby natural elements; and part of recognitions and individual convictions.

1.8. Limitations of the Study

Community Total Sanitation (CLTS) is a no-subsidy program that focus on the poor in the rural areas lacking access to sanitation facilities. Accordingly, the vast majority of the targeted villages are in remote rural areas and subsequently access might pose a challenge. To increase the number of households accessed by the researcher, research assistants and local guides were involved. High illiteracy levels was another challenging leading to language barrier. This called for an interpreter for interpretation from English to Dholuo language or Swahili.

1.9. Assumptions of the Study

The study depended on various presumptions. First, that the sample was sufficient and representative of the targeted population. Also, the information gathering instruments had legitimacy and measuring of the intended variables would be all accomplished. In conclusion, it was accepted that the respondents would answer questions effectively and honestly; and responses given would be free from outer inclinations.

1.10. Definition of Significant Terms

Certification This alludes to official affirmation and acknowledgment of the Community's ODF status.

Latrine and Toilet A latrine is commonly described as a direct pit and a toilet is described as a Structure with a water seal. In this study, latrine is sometimes used to refer to both. A toilet is used to imply that in that area a water seal is more likely to be common than a direct pit.

Open Defeacation This alludes to defeacation in the open and leaving the stuff uncovered.

ODF Verification Refers to an investigation exercise to evaluate whether a community is ODF.

Sanitation Promoters These are unconstrained pioneers who are activists and devotees who develop and take driving part in the CLTS forms. Men, ladies, adolescents and youngsters would all be able to wind up sanitation promoters. Some sanitation promoters progress toward becoming network advisors, and trigger and give consolation and support to networks other than their own.

Special needs This was characterized to portray the elderly people, those with wellbeing related issues, and those with physical inabilities that influence versatility, washing and dressing.

Sustainability This alludes to the capacity to look after, bolster, or persevere through another status which has been accomplished through a few means.

Total sanitation This is a coordinated community-led way to deal with accomplishing and supporting open defecation free (ODF) condition. The community has to investigate the practice of defecation, the profile of sanitation, outcomes, prompting aggregate activity of the end up ODP guaranteed to become ODF certified.

Social factors These represents a mix of demographic and economic attributes of the members of households that were subjected to the study

Behaviour change This refers to the progressive acquisition and adherence to new habits and norms pertaining use of sanitation and hygiene technologies

1.11. Organization of the Study

The study is organized into different five chapters. Chapter one incorporates introduction. It gives foundation data on community led sanitation strategies, research problem, research objectives, purpose of the study, significance of the study, limitations and delimitations of the study. Chapter two contains literature review. This section covers the different schools of thought on what impacts sustainability of sanitation conduct. It also contains the conceptual framework and relevant theoretical review. Chapter three contains research methodology. The chapter explains the research plan and philosophy which will be utilized to do the study. It additionally depicts in points of targeted population, sample size and sampling techniques, information gathering strategies, validity and reliability of the instruments, statistical analysis, moral issues and operationalization of factors. Chapter four contains data analysis, presentation, and interpretation of results. Chapter five gives a summary of findings, discussion, conclusions and suggestions. The chapter contains conclusions for the study. The chapter ends with recommendations and proposals for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

The chapter concentrates on literature review on supportability of open defecation free condition and practices. It features the writing identified with factors impacting manageability of ODF practices, for example, social elements, management practices, conduct change correspondence campaigns and capacity building of sanitation promoters as community sanitation leaders. The chapter additionally captures literature related to other factors affecting conduct change concerning sanitation and cleanliness. The conceptual framework puts across the associations between the exogenous, endogenous, intervening and interceding factors. The chapter finally outlines of the research gaps recognized from the literature. The study drew materials from a few sources which are firmly related to the subject and the goals of the study.

2.2. The Concept of Sustainability of Open Defecation Free Environment

The push and draw between interest for singular rights and activities and quest for the benefit of everyone in general wellbeing practice and in wellbeing related research dates numerous years back. Sanitation, which basically implies the dealing with and management of human excreta, involves a strongly private issue, yet is in the meantime an open issue of thought passing by the advantages that are acknowledged well past the family physical condition. Open communication of people in general advantages of household sanitation roused public interest on sanitation in nineteenth and twentieth century in Europe; and it is as yet used to legitimize public interest in nations with bunches of unserved residents. A noteworthy focal point of most sanitation 'ventures' has for a long time been the utilization of open finances on completely or somewhat financed private toilets for singular family units (Bartram, Charles, Evans, O'Hanlon, and Pedley, 2012).

It is unfortunate that absence of access to enhanced sanitation administrations keeps on being the lead pre-arranging component to a significant extent of the worldwide weight of illness, contributing more than 2 million passings and 82 Million DALYs (incapacity balanced life years) every year with perilous water and cleanliness (Pruss, Kay, Fewtrell, and Bartram, 2002). The ongoing worldwide arrangement drive, spread out in the Sustainable Development Goals (SDGs),

embarks to a large portion of the quantity of people all around without access to basic sanitation somewhere in the range of 2015 and 2030 (WHO/UNICEF, 2012).

Advance made in quickening access to enhanced sanitation has been moderate, and the probability of dismissal failure on a globally scaled improvement target have supported a look for creative recommendations for activities, e.g. social inspiration approaches, which have been so far used by a few noteworthy advancement organizations. Significantly, CLTS recognizes that by halting open defeacation over the entire community is the primary purpose of need notwithstanding when the individual toilets constructed are not really completely hygienic. It likewise puts communities at the focal point of the procedure and conduct change.

Unmistakably with enhancements in sanitation access and practices, the common benefit of community members is effortlessly feasible and in this manner the delight in human crucial rights is likewise figured out. In any case, the outstanding and acknowledgeable duty inside social sharpening ways to deal with enable communities to pick and utilize a blend of conventional standards to authorize singular adjustment to community wide choices might be a reason for concern. The purpose of concern is regardless of whether it is adequate to partiality the human privileges of community individuals in the quest for what is alluded to as "basic useful for all". The zones of concern would be comprehensively ordered into three zones. In the first place, there is an exceptional number of researchers in the CLTS writing who support the utilization of 'disgrace/appall' or 'social shame' as an instrument for fortifying conduct change. The children are termed as the most effective ‘social monitorsor spies’ of private behaviour

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The *‘Handbook of Community-Led Total Sanitation’* involves a scope of practices to be specific: killing open defeacation in sum; guaranteeing that all people access and utilize a cleanly molded sanitation office; washing hands with cleanser and water before planning sustenance and eating, in the wake of utilizing the latrine, and after contact with children's dung, or flying creatures; dealing with nourishment and water in a sterile way; and safe transfer of creature and residential waste to make a spotless and safe condition. CLTS centers around eradicating open defeacation (OD) as a first huge advance and section point to conduct change. It commences by empowering individuals to do their own sanitation profile through examinations, perceptions and investigations

of their practices of OD and the impacts these have on their prosperity. This triggers the sentiments of disgrace/sicken, and frequently a longing to stop OD and tidy up their neighborhoods of fecal issue (Kamal and Chambers, 2008).

2.3. Social Factors and Sustainability of Open Defeacation Free Environment

Open defeacation has been of worry to all since the late 1500's. Be that as it may, little concern was for human wellbeing, yet generally the emphasis was on enhancing comfort and enjoyableness. Authors on manners in the sixteenth and seventeenth hundreds of years endorsed standards on the most proficient method to deal with encounters or experiences with community individuals discovered assuaging themselves in broad daylight places, hedges or open fields, with accentuation on not to welcome a man while they are defeacating, or wherever unearthed them, one should imagine that it hadn't happened (Schladweiler, 2011). An unclean enevironment gives a neighborly home and materials for improvement, other than being a sole supplier of life-sustaining necessities, for example, food, minerals, fuel, energy and even the air that we inhale and along these lines it should shape a main consideration in every day works on, including financial advancement. The untold reality, in any case, is that the health of the earth is seldom viewed as an essential supporter of human social and monetary prosperity (Balzer, 2012).

In 2010, WaterAid Ghana dispatched a substantial long distance nation study covering Nigeria, Mali, Ghana, Burkina Faso that looked to recognize key procedures and activities that can prompt eradicate open Defeacation. This required among others, understanding the social elements of the urban population, recognizing determinants for social change among different ethno-phonetic gatherings, exploring the different methodologies of activating collective actions in eradicating open defeacation, cleanliness and distinguishing activities required for the advancement of networks in the country and peri-urban territories (WaterAid Ghana, 2010). The authors discovered that absence of discipline was distinguished as the principal socioeconomical determinant of open defeacation followed closely by poverty. The greater part of the examined respondents couldn't bear to build enhanced sanitation facilities as a result of neediness. Promote on, state organizations that were entrusted with giving the sanitation facilities needed ability to do as such, combined with the way that laws charging landowners to give sanitation facilities were not being upheld at the time. At the point when essential waste collection management were not

accessible, the basic spark was to investigate different choices and when control is either missing or resistant, the hidden inspiration was to dump squander in open spaces, for example, avenues, shrubs and other open spots (WaterAid Ghana, 2010).

As indicated by WaterAid Ghana (2010), a definitive choice to stop open defeacation lies with the individual clients. Notwithstanding the decent varieties that exist among different ethnic gatherings, there is a typical driving and basic factor-essentially identified with society's mentality and conduct towards open defeacation as a training. Lion's share of respondents despised open defeacation and requested it to be ceased. The study prescribed that any system to enhance sanitation ought to be surveyed and considered in view of its potential capacity to change community's sanitation based states of mind and practices. The CLTS's approach that spotlights on setting off a whole network sanitation conduct change instead of building toilets, was found to fill in as a ground-breaking approach to end open defeacation.

Maintainability of sanitation keeps on being a state of worry among researchers. Till as of late, family sanitation activities offering sponsored bolster were frequently portrayed by request related issues that came about into surrendered or unutilized facilities or latrines. Community Approaches to Total Sanitation (CATS), in which communities construct their own sanitation facilities as a feature of community wide campaigns to take out open defeacation, are effectively defeating these difficulties. Maintainability challenges keep on being experienced even in effective CATS programs, for instance in the 'profundity' of conduct change, the life span of self-assembled toilets and the limit of nearby markets to take care of demand for new or updated facilities (UNICEF, 2014).

Open defeacation might be viewed as a customary angle, obtained propensity, and part of one's every day schedule, and social standards are held emphatically by people practicing open defeacation. For instance, in a study led Tanzania by O'Connell, 2014, 40% of all overview respondents concurred or emphatically concurred that "it is typical for individuals to defeacate in the open in their locality." In one of the studied zones, up to 80% of the respondents concurred or unequivocally concurred with this announcement. For a conduct to be revered, an individual should first pick up inspiration to take part in it. Inspiration alludes to a person's craving to play

out an advanced conduct. Passionate, physical, and social drivers and contending needs cooperate to impact the conduct of intrigue. Drivers here allude to solid inward contemplations and emotions that spur conduct (Catania, Kegeles, and Coates, 1990; Cole, Holtgrave, and Rios, 1993). They can be certain or negative, and can emerge from neglected physical, passionate, or mental requirements. These drivers have been recognized in experimental examinations as helpers to take part in the take-up of positive sanitation practices. These traits include: feeling of solace, feeling of security, feeling of disgrace and humiliation, perceived societal position, perceived distinction, and perceived respect (Akter and Ali, 2014; Hoque, Juncker, Sack, Ali, and Aziz, 1996; Sara and Graham, 2014; Tumwine et al., 2003).

Owning a toilet maintains a strategic distance from presentation to the components of ailment transmission. Person's capacity to utilize a toilet would be depicted as "agreeable," in light of the fact that it shields people from getting scratched, being pricked by thistles, or ruining their garments. Security is additionally of significance to individuals, particularly ladies, to abstain from being seen uncovering their bareness. As indicated by Tumwine et al. (2003) and O'Connell (2014), upgraded protection was observed to be a key inspiration for toilet development from among 45% of inspected lavatory proprietors in Bihar, Kenya, and Cambodia; 56% in Rajasthan; and up to 90% in Meghalaya. Occasions of feeling humiliated, disgraced, and embarrassed were refered to as having spurred toilet proprietors and open defecators to climb the sanitation step. In spite of the fact that it stays as generally rehearsed, open defeacation remains a lead wellspring of humiliation, especially for the individuals who may have utilized sanitation offices or possessed toilets that are not any more useful. A portion of the terms used to depict open defeacation incorporate "bashful," "despicable," "awkward," and "humiliating." (Akter and Ali, 2014). In provincial settings, lavatory possession and utilize can impact in a positive way one's economic wellbeing, as the individuals who claim lavatories are depicted viewed as "lofty", "all around regarded", and "viewed positively" by others (Balzer, 2012).

Financial status, age, and sexual orientation are a portion of the essential social components to be considered in sanitation appropriation at the individual level. Age and sexual orientation fill in as critical elements since they regularly figure out who in the family unit can utilize and communicate with the innovation. This thus prompts affecting managed reception. These two elements were

discovered helpful in deciding use in a study on restroom arrangement in the Gambia. As to propensities obtaining, past practices and practices may have some effect on take-up of new practices. In one Bolivian study, appropriation of SODIS was related with toilet proprietorship and utilize (Christen et al., 2011), and by and large earlier presentation to WASH practices of any kind was additionally connected with supported selection of WASH practices and practices.

There is a positive connection between a family unit's financial status and its situation on the sanitation stepping stool. Proprietors of enhanced restroom are wealthier than proprietors of unchanged lavatories or open defecators, they are more instructed, and have higher education levels (World Health Organization and UNICEF, 2004). In 2013, Plan International Australia dispatched an exploration on ODF supportability in Plan International's projects in Ethiopia, Kenya, Sierra Leone and Uganda (Tyndale-Biscoe, Bond, and Kidd, 2013). The study utilized national meanings of ODF and re-checked the ODF status of 116 networks which (with a couple of special cases in Uganda) had been announced ODF at least two years sooner. Town measure extended from 6 to 138 family units with a normal of 43. Techniques included re-check of each of the 4960 family units, and family unit participatory sanitation timetables. Feature discoveries were: the re-check information found that 87% of the 4960 families still had a working latrine. Of the 116 towns, 27 still had full can scope, and the rest of the 89 had slippage rates extending from 2% to 57%; the CLTS program had been exceptionally powerful to build basic pit restrooms yet none of the family units had climbed the sanitation step, which is especially vital if such toilets are not working or unhygienic; the most regularly refered to purposes behind the 13% slippage were requirements in accounts, absence of coherence of help from inside the network, bother and inconvenience, remaking and exhausting of topped off pits, and sharing of sanitation offices.

With regards to SaniFOAM, "moderateness" is respected one's capacity to pay for a sanitation item or benefit or to take part in a sanitation conduct (Foreit and Foreit, 2000). Capacity to bear the cost of might be impacted by a few variables, for example, family unit wage level, accessibility of money, time or period of the year, capacity to get to credit, and accessibility of pocket-accommodating estimated sanitation choices in the zone of intercession. The capacity to bear the cost of an item or administration can be genuine or seen. In saw cases, learning of the genuine expenses of a sanitation office setup might be a related factor. Riches appraisals have been made

in a few exact investigations with the discoveries demonstrating that those networks lacking lavatories have a tendency to be moderately poorer than those higher on the sanitation step. In any case, the individuals who defeacate in open fields and those with claim lavatories both reliably say "cost of development" as a boundary to building and overhauling of sanitation offices. The individuals who defeacate in open fields basically quality absence of accounts, insufficient assets, "excessively costly," or "don't have cash" as key hindrances to building toilets or making enhancements or repairs. Different difficulties identify with access to credit or advance offices to empower families to pay for lavatories' development (O'Connell, 2014). The study by O'Connell, (2014) additionally refered to surprising expense of materials and work, together with absence of investment funds and access to acknowledge offices, as elements that keep enhancements or repairs from being made by proprietors of unchanged lavatories. Considering that pit toilets have short life expectancies, there emerges a requirement for cyclic interests in money related terms just to keep up or revamp the restrooms which the greater part of the country family units are not prepared to manage the cost of or back (O'Connell, 2014). In outline, obstructions to moderateness of sanitation offices are related with levels and vacillation of wage, absence of reserve funds, absence of financing and constrained credit choices for home change, and real versus saw expenses of building a restroom.

Family units and people alike are typically looked with many contending requests with regards to individual or family planning. The lower the pay, the all the more contending consumption requests may impact conduct. Monetary requests can be for everyday necessities, infrequent or occasional costs, or dire or optional uses. Family units having solid money related requests will regularly put a lower need on sanitation and be less spurred to procure a sanitation office (Jenkins and Scott, 2007). For a few families, restrooms or toilets are seen as a family change, yet one that has bring down need regarding family consumptions. School charges needs, nourishment needs, transport needs, and human services needs are generally a need for those with constrained investment funds. Building, repairing, or enhancing a lavatory are just considered if and when extra assets are accessible, and still, at the end of the day, other contending requests have need (Jenkins and Scott, 2007).

A study by Sabogal, Medlin, Aquino, and Gelting (2014) tried to evaluate the determinants of supportability of WASH mediations in Central America area. As per the study, outer help and follow-up of the territory of WASH offices by outside performing artists added to maintainability. An absence of follow-up cleanliness advancement clarified the reduction in proper hand washing conduct and diminished utilization of sterile restrooms from 2002 to 2006. In any case, the arrangement of follow-up from 2006 to 2009 clarified the provincial change close by washing conduct and absence of progress being used of sterile sanitation facilities over that time. Different study zones (Las Pozas, El Salvador; Las Lomas and Marcovia, Honduras; and Nueva Segovia, Nicaragua) had gotten cleanliness advancement intercessions from changed associations after 2002. Amid both the network based and family unit based studies, interviewees underscored the centrality of post mediation development, help and training. Water board individuals who were met revealed a requirement for proceeded with help and specialized improvement of individuals on administration of water frameworks to serve the network as far as angles, for example, repairs of water frameworks after tempest or geo-specialized related harms. A large number of the respondents at the family unit level additionally detailed a requirement for progressing specialized help and materials on the best way to repair/keep up and keep utilizing their particular kind of lavatory (for instance, treating the soil restroom writes) or how to manufacture new ones after their lavatories fall or achieve the finish of their plan life.

Financial status (SES) or a related characteristic for evaluating family unit riches is usually utilized as a measuring stick to check the financial status of the family. Higher estimations of SES are normally related to more readily access to water, sanitation, and cleanliness. In a study surveying hand washing in addition to sanitation in Kereala, steady cleanliness and sanitation practice was found to related with financial status of the family (Cairncross and Shordt, 2004), as was utilization of toilets by men (Cairncross, Shordt, Zacharia, and Govindan, 2005). Cost of development and repairs, strength of materials utilized, achievability of access and utilize, and degree of support required; were altogether refered to as critical variables to maintained lavatory utilize. In low-and center pay nations, the cost of the underlying setup or access innovation and any related parts or substitutions was refered to be of incredible criticalness to clients. That is, if advancements are too exorbitant, no amount of psycho-social inspiration or activating will be sufficient for reception and supported use. Physical design of the structure (for instance, extra

highlights to help with menstrual management or youngster benevolent toilet skillet) additionally was found to impact proceeded with use, as it empowers the person to attainably utilize the lavatory on a normal or persistent premise. Network wide refinement and possession can help in settling in long haul changes. Fruitful activities, for example, it the Community-drove Total Sanitation (CLTS) depends on a network having the capacity to start the presentation of WASH innovations.

2.4. Management Practices of Sanitation Facilities and Sustainability of Open Defeacation Free Environment

WASH mediations are normally overseen or actualized as one bundle. The bundles typically give or advance the development or buy of a sanitation or cleanliness innovation (at times alluded to as "equipment, for example, a hand washing station with cleanser, a water channel, or a restroom. Such advances are crucial on the grounds that they improve the act of the conduct, and along these lines empowering a member to complete the conduct different times each day as a propensity performed all through their day by day lives. The accessibility and utilization of the WASH innovation, the information and mentalities of the clients, and the social-natural setting in which the practices are rehearsed are on the whole factors affecting practices and related administration approaches (Barnard et al., 2013).

Another basic quality of a WASH intercession bundle is social advertising/advancement or training (alluded to, by a few, as "programming"). The limited time segment might be executed from numerous points of view which may incorporate broad communications notices to imply one-on-one dialogs between a Community Health Worker (CHW) and a mother of youthful youngsters. A definitive objective of special exercises is to acquaint a client with another conduct as well as innovation and by and large to talk about why, when, and how to do the conduct. The parts of intercessions, and also the sorts of correspondence channels connected, the span of the program, and the level of force of cooperations are a portion of the determinants of how far and wide the impart conduct change message is communicated and the degree of reach to the majority (Barnard et al., 2013).

Cost of development and repairs, solidness of materials utilized, attainability of access and utilize, and degree of support required; were altogether refered to as critical elements to maintained

restroom utilize. In low-and center salary nations, the cost of the underlying setup or access innovation and any related parts or substitutions was refered to be of awesome noteworthiness to clients. That is, if advancements are too expensive, no amount of psycho-social inspiration or activating will be sufficient for appropriation and maintained utilization. Propriety of the outline of the physical structure (for instance, extra highlights to help with menstrual administration or tyke cordial toilet skillet) likewise was found to impact proceeded with use, as it empowers the person to possibly utilize the lavatory on a standard or nonstop premise. Network wide sharpening and possession can help in settling in long haul changes. Effective activities, for example, it the Community-drove Total Sanitation (CLTS) depends on a network having the capacity to start the presentation of WASH advances (Diallo et al., 2007).

As per Ross et al., (2011), accomplishing of supported usage of sanitation benefit requires contributions from different edges, for example, suitable foundation, an empowering logical condition, and sparks to conduct change should all meet up to accomplish an enduring effect. The discoveries by Ross et al., (2011) demonstrated that entrance and utilization of a sanitation office is to a degree connected to their apparent status, condition of tidiness, and comfort of access, yet that the consistent upkeep and wellbeing of restrooms may represent a test to maintained utilize. Indeed, even in a few spots where programs experienced achievement, open defeacation remains a change to the influenced networks.

The ODF achievement rate, generally characterized as the extent of activated networks that have accomplished ODF affirmation status, is utilized as a noteworthy marker to evaluate the viability of usage of CLTS exercises. The ODF achievement rate has little to do or say in regards to the quality or manageability of a scope of sanitation mediations or results. In any case, it fills in as a vital marker on CLTS viability particularly on featuring downsides to progress as CLTS programs spread and scale-up. The ODF achievement rate is contrarily corresponding to the rate of program scale up, to a great extent because of the testing physical conditions and social experiences, and the difficulties of maintaining the nature of CLTS help and procedures on a bigger scale. In down to earth terms, the vast majority of CLTS studies in the past have discovered considerable varieties in ODF achievement rate crosswise over both huge and little projects, and even under similar conditions inside a similar program (Mukherjee et al., 2012; Robinson, 2012).

Communities that have been affirmed as ODF have a high probability of returning to open Defeacation (OD) if legitimate management rehearses are not set up (Karl and Chambers, 2008). Recent investigations (Mukherjee et al., 2012; Robinson, 2012) have given explanations behind the changing OD inversion rates, while proposing that starling CLTS execution is connected to: I) the nature of the procedure; ii) regardless of whether the procedure is legitimately actualized; and iii) whether the operational condition was steady for country sanitation change. In an ongoing survey, CLTS results were additionally accomplished where the procedure was far reaching and very much composed; the facilitators were all around prepared, conferred and bolstered (frequently by accomplices, for example, NGOs); and government or advancement accomplices' arrangements, projects and practices were all around lined up with the CLTS approaches. Despite what might be expected, where the CLTS approach was another idea; where neighborhood government was executing with just constrained preparing, background or bolster; and where division strategies and practices were less strong of the CLTS approach, OD inversion rates were significantly higher (Mukherjee et al., 2012; Robinson, 2012).

2.5. Behaviour Change Communication Campaigns and Sustainability of Open Defeacation Free Environment

In endeavors to battle diarrhoea infections in asset poor settings, improvement accomplices have supported for arrangement and advancement of minimal effort water, sanitation, and cleanliness (WASH) innovations at the individual, family unit, or community level joined with cleanliness advancement (USAID/World Bank, 2004). Commonplace cases of these family unit level advances incorporate hand washing stations to support hand washing with cleanser (Watt, 1988); family based water treatment with channels or synthetic added substances; chlorine distributors for purpose of-accumulation treatment of water from wells or standpipes (Arnold and Colford, 2007); and enhanced restrooms (Clasen et al., 2010). All together for these interventions to bring about significant enhancements in population health, practices and innovations must be embraced and kept up after some time at scale, yet proof of maintained reception of new practices is blended. While a few investigations have detailed critical increments in social results, others have shown a constriction of at first enhanced practices and wellbeing sway. These confinements to managed appropriation may reflect, to some extent, in comprehension of the elements that impact WASH

conduct change and reception of enhanced practices (Chiller et al., 2006; Rotondo et al., 2009; Luby et al., 2008).

Conduct change has more to do with people groups comprehension of their selves, their reasoning and convictions at a more profound social and societal level – and not as an individual atomized customers. BCC campaigns in WASH programs, regard individuals as purchasers who can purchase/change practices utilizing smooth advertising procedures. Self-adequacy is a person's conviction that he or she can play out an advanced conduct viably or effectively (Bandura, 1977; Becker, 1990). A few family units may construct their toilet themselves as opposed to enlist an artisan to do it. For these self-manufacturers, the learning expected to approach this is alluded to as abilities. Knowing a provider who stocks an assortment of sanitation equipment and an artisan to help with lavatory development are key to updating and enhancing restrooms. Regularly these variables fill in as a boundary to climbing the sanitation step, given that materials for enhanced toilets are seen as inaccessible and expensive.

In a study by O'Connell (2014), it was accounted for that in Bihar, 66% of family units that possessed toilets detailed that great quality development materials are not accessible. Knowing a bricklayer to help with lavatory development is vital in settings where work is depended upon to construct lavatories, scene is testing, further pits are required, or enhanced toilets/overhauls are alluring. In a few nations/districts, up to 90 percent of family units report utilizing bricklayers to develop toilets. The significance of knowing where to discover a provider might be a determinant of toilet possession and redesigns. Notwithstanding, saw accessibility of artisans fluctuates by areas.

In different occasions, in poor communities, toilets are seen as costly to build, particularly when related with bond or more profound pits. Restrooms are additionally seen to be more costly to work in specific seasons, for example, amid the stormy seasons when development is seen as all the more difficult, because of flooding. The impression of the cost of a lavatory changes since open defecators have, now and again, never claimed, manufactured, or even utilized a restroom, and proprietors of unchanged lavatories have little involvement with redesigning their offices, in spite of the fact that they may have taken a gander at alternatives for toilet updates. Strikingly, open

defecators see restrooms as considerably more costly as do families that claim toilets, yet may possess family unit things that cost as much as a lavatory. For instance, an ongoing study in Kenya found that 90 percent of family units possess a radio, which costs roughly the same as building a lavatory (Water and Sanitation Program, International Finance Corporation, and Ministry of Health-Kenya, 2013). For the most part, individuals are ignorant of a scope of reasonable lavatory alternatives. Guaranteeing that family units have exact view of expenses related with restroom buys and redesigns may address the apparent reasonableness obstruction (O'Connell, 2014).

Jenkins and Curtis (2005) directed a subjective customer study utilizing as a part of profundity interviews with 40 family heads to investigate the choice to introduce a pit toilet in provincial Benin. The intentions in introducing a lavatory were accounted for and varieties over the meetings were analyzed. The paper attests that at the drives included are glory, prosperity, and situational objectives. Wellbeing contemplations assumed just a minor part, and had pretty much nothing on the off chance that anything to do with anticipating fecal– oral illness transmission. Drives differed with sex, occupation, life arrange, travel understanding, training, and riches, and reflected impression of the physical and social geology of the town, connected to accessibility of open Defeacation destinations, social structure, street get to, and urban closeness. As per the study, The primary inspirations for restroom selection, among adopters and intenders, conversely with rejecters, contained two eminence drives: to associate with the urban world class, and to express new encounters and way of life, and two prosperity drives: family wellbeing and security, and accommodation and solace. Drives catch a definitive reasons for customers' expectation to gain sanitation and are produced by the holes amongst perfect and real states. Those states are shaped by the impacts of individual ways of life and conditions.

Stimulated drives of adequate power should prompt customer wants to secure a toilet, and thusly, to expanded request as long as boundaries don't smother the statement of these wants in the commercial center. Thirteen hindrances to appropriation were distinguished in the meetings and affirmed in a before study (Jenkins, 1999). The principle ones included high real or trusted cost; absence of credit; inaccessible or complex specialized information sources; poor lavatory task and execution (particularly wellbeing and smell); inadmissible soil; and more distant family communication issues. The resulting research demonstrates that if any of these hindrances is seen

as adequately lasting, customers will pick a contrasting option to restrooms (counting doing nothing), in spite of excited drives for toilets. An extensive variety of psychosocial factors work at various levels to impact supportability of water, sanitation and cleanliness intercessions. Be that as it may, the authors found that after some time the apparent medical advantages announced by interviewees diminished by 24%, and they recommend this abatement might be credited to lost energy for the offices and diminished inspiration to keep the toilets all around kept up. Changes in cleanliness hones, both positive and negative, seemed identified with the nearness or nonappearance of progressing cleanliness advancement from different associations.

At the individual level, sanitation battles frequently use factors, for example, desires, social standards, and result desires to advance restroom utilize. In a research evaluating the post usage restroom use in country Niger, members talked about apparent points of interest, for example, security, nearness and ecological cleanliness and in addition drawbacks like smell (Diallo et al., 2007). Be that as it may, acknowledgment of the advantages of sanitation does not really impact managed utilize. Changing regularizing conduct was a key factor detailed by Hanchett et al. in empowering restroom use for both rich and poor (Hanchett, Krieger, Kahn, Kullmann, and Ahmed, 2011). In any case, existing propensities like proceeded with inclination for open Defeacation may repress take-up of sanitation offices (Barnard et al., 2013).

In a study led in Pakistan, learning and conduct identified with management of the toilets, local water, and sanitation was investigated in low wage moms utilizing as a part of profundity interviews, center gatherings, and direct observation of members (Halvorson, 2004). In this study, potential linkages between family practices and ailment transmission, for example, insufficient management of newborn child excreta and wastewater recommended absence of mindfulness about exercises identified with pathways of oral-fecal transmission.

Various examinations researching information, state of mind and practices (KAP) have been led to investigate obstructions, facilitators, social convictions and community needs identified with water and sanitation (Levinson, Elliott, Karanja, Schuster-Wallace, and Harrington, 2011). In a study directed in India, open-finished meetings and center gatherings talks were utilized to recognize KAPs identified with water taking care of and utilization, and Defeacation practices.

The study uncovered that honing open Defeacation was favored over utilizing sanitation facilities and that diarrhea was related to nourishment and different components not the same as contaminated water (Banda et al., 2007). Besides, in a subjective research directed in Kenya, a KAP approach was utilized to investigate communitys' observations about water-infection connections, and boundaries hindering access and utilization of water and sanitation facilities (Levinson et al., 2011). A few community difficulties and inclination for sullied wellsprings of water were recognized in this study, repudiating the announcement that giving learning on the reasons for illness would bring about better appropriation of cleanliness practices and utilization of enhanced water framework.

2.6. Training of Sanitation Promoters and Sustainability of Open Defeacation Free Environment

One system for enhancing sanitation get to is community led total sanitation (CLTS), in which members are guided into self-acknowledgment of the significance of sanitation through exercises called "activating." (Kamal and Chambers, 2008). CLTS starts at the village level where regarded people in the community, recognized as "community champions," are prepared to encourage a procedure known as "activating." Triggering is a 2– 3 hour process utilizing hands on practices intended to influence networks to understand that inhabitants "eat their own defecation" on account of poor cleanliness and sanitation. The transect walk (frequently called the "stroll of disgrace") includes driving members around their village and encompassing region to find defecation coming about because of open Defeacation (Kamal and Chambers, 2008). The excrement are then taken back to the focal area in the town and utilized as a part of an activity where sustenance is set close to the dung, and flies are watched moving amongst defecation and food. After the activating, commumities will more often than not choose to make a formalized sanitation panel and to endeavor to end up ODF, prompting toilet building and waste management upgrades. Imperatively, these choices rise up out of inside the community itself, as opposed to being forced by the CLTS implementer. There is a standard convention for CLTS activating and usage, and champions work with communities to make minor adjustments to guarantee proper execution in light of community setting (Kamal and Chambers, 2008; Lawrence et al., 2016).

Where CLTS has been completed in different nations, for example, Bangladesh, after the underlying trigger by an outside facilitator, community individuals who are more vocal and dynamic in the process go up against an influential position and bolster their communities to end up, and stay, open Defeacation free (ODF). These drawing in and enthusiastic CLTS advocates (frequently poor and uneducated individuals from their networks) additionally converse with neighboring communities about the results of defeacating in the open and move them to stop. These 'Sanitation promoters' or 'community advisors' are basic in the achievement and maintainability of CLTS. They can be recognized amid the activating procedure by their energy and inspiration to end open Defeacation in the community. Sanitation promoters can be male or female yet are constantly solid characters, ready to impact others in the community and depend on their help (WaterAid Nigeria, 2015).

Sanitation promoters are regularly solid characters, ready to impact others in the community. Commitment of Sanitation promoters in CLTS includes five stages. Right off the bat, the Sanitation promoters' names are recorded on an indistinguishable day from activating, at the activating occasion or setting. Besides, in meeting with network individuals and initiative, the sanitation promoters are promptly doled out a few obligations. These could incorporate following-up and archiving the advance of lavatory development in the community. Thirdly, resulting follow-up visits by facilitators to the activated community can be utilized to give the Sanitation promoters a review of the CLTS procedure and the significance of each stage. They ought to get two long stretches of extra preparing and activity arranging and the key devices with explanations behind their utilization. Fourthly, the Sanitation promoters should work with the Volunteer Hygiene Promoters (VHPs) in the community and get a similar cleanliness advancement preparing. Together they should hold month to month cleanliness advancement workshops in the town focusing on particular gatherings. At long last, it is emphatically prescribed that the Sanitation promoters, if not as of now part of it, ought to be incorporated into the WASH Committee (WASHCOM) of the community or town, with particular obligation regarding CLTS (Kamal and Chambers, 2008; Lawrence et al., 2016; WaterAid Nigeria, 2015).

Cleanliness and sanitation instruction is tied in with helping individuals to see, initially, what causes a portion of their medical issues and, also, what preventive measures may be conceivable.

It should be drawn nearer in a delicate way, with a lot of regard being appeared to nearby convictions, traditions and practices. Notwithstanding utilizing different BCC campaign instruments and working with accomplices, the most critical part of execution is preparing. There are three key zones of preparing that the asset facilities are in charge of: preparing facilitators who thusly will prepare and work with cutting edge staff working inside areas (e.g. wellbeing specialists, town wellbeing advisory groups, ten-cell pioneers and so forth) about how to impart the key messages for hand washing with cleanser and enhanced sanitation; preparing facilitators to do the trigger procedure for CLTS in towns; and preparing bricklayers, craftsmans and developers in lavatory innovation alternatives, close by washing station choices and in promoting and deals (Tumwine et al., 2013; O'Connell, 2014).

2.7 Theoretical framework

Behavior change is an objective set by the working staff in conjunction with organization, communities, government and constituents. People who are in charge of behavior change works hard to ensure that all activities run in line with the goals and interventions in the implementations of the programs. It aims at achieving the desirable and the most favorable behavior change in the society. This depends on three speculations of conduct change to be specific: the social subjective hypothesis (Bandura, 1986; Perry, Barnowski, and Parcel, 1990); the hypothesis of arranged conduct (Ajzen, 1991; Armitage and Conner, 2001; and Grizzell, 2007); and the trans-hypothetical (Stages of Change) Model (Prochaska, Johnson and Lee, 1998). Before investigating conduct change models inside and out, one needs to comprehend the factors that are basic to the approach or model. The following is a chosen rundown of the factors normal to numerous conduct change model variation (Witte, 1997) also approaches to boost on these factors when endeavoring to bring out a conduct change. These are condensed in Table 2.1.

Table 2.1: The Key Elements of Behaviour Change

Key Element	Definition	Strategies for Behaviour Change
Threat	An unsafe occasion of which individuals might possibly be aware of it or not.	Raise mindfulness that the danger exists, concentrating on seriousness and helplessness
Fear	Emotional excitement caused by seeing a critical and by and by applicable threat	Can effectively impact conduct and, in the event that it is directed in the fitting way, can propel individuals to look for data, however it can likewise make individuals deny they are in danger.
Reaction Efficacy	Perception that shows a prescribed reaction will keep the risk from taking place	Provide proof of cases that the suggested reaction will deflect the danger.
Self-Efficacy	A person's view, perception or trust in their capacity to play out a prescribed reaction.	Raise people's certainty that they able to undertake reaction and assist guarantee to turn away the danger.
Barriers	Something or a situation that would hinder a person from carrying out a recommended reaction.	Be mindful of cultural, physical or social boundaries that may be avaialable, endeavor to eliminate hindrances.
Benefits	Positive outcomes of doing prescribed or recommendable response.	Make sure people are conversant with the advantages of playing out the suggested reaction.
Subjective Norms	What a person thinks other individuals figure they supposed to do.	Know what people are probably going to agree.
Attitudes	A person's assessment or convictions on a prescribed response	Measure existing states of mind prior to endeavoring to transform the people.
Intentions	A person's intends to do the recommended response.	Confirm if aims are certifiable or intermediaries for real conduct.
Cues to Action	External or inner components which assistance people settle on choices about a reaction	Give correspondence that may trigger people to decide
Reactance	When an individual responds against a suggested response.	Ensure people don't feel they have been controlled or can't turn away the danger.

Source: Adopted from Witte (1997)

2.7.1. The Social Cognitive Theory

According to Bandura's (1986), suggests how individuals are moved not by internal powers, but through outside elements. This theory proposes that human working can be given clarification by a triadic collaboration of conduct, individual as well as ecological variables (Figure 1).

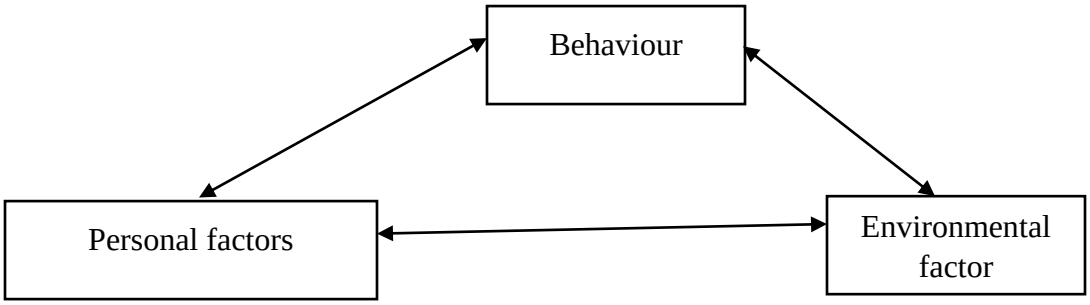

Figure 1: *The Social Cognitive Theory Model*

Source: Bandura (1986)

This is frequently known as proportional determinism. Ecological elements speak to situational impacts and condition in which conduct is preformed while individual components incorporate impulses, drives, characteristics, and other individual motivational powers. The factors can likewise mediate during the time spent conduct change (Perry et al., 1990). The factors are: self-adequacy – a judgment of individual capacity to play out the conduct; result desires – a judging presumable outcomes a conduct can create. The significance of the desires such as anticipations may likewise lead conduct; poise – the capacity of a person to control his or her practices; fortifications – something leads to the improvement or abatements the probability a conduct will proceed; enthusiastic adapting – the capacity of a person to adapt to passionate jolts; and, observational learning – the obtaining of practices by watching activities and results of others' conduct.

In sanitation and cleanliness program plans, exact writing states that inspiration for individuals to develop their own restrooms and stop the propensity for open Defeacation is driven by the feeling of disgrace or nauseate either at the possibility of ingesting excreta or being watched defeacating; and on the other hand, a feeling of pride in approaching or having the capacity to utilize a lavatory and thus not ingesting excreta or being watched defeacating (UNICEF, 2015). This begins at the town activating stage where the individuals from the network are sharpened on the CLTS approach which urges individuals to develop restrooms from their own assets and with help from each other. Others journalists have recommended that to raise self-viability conduct change ought to be drawn nearer as a progression of little advances (Perry et al., 1990). Bandura (1986) composes that notwithstanding when people have a solid feeling of adequacy they may not play out the conduct

in the event that they have no motivation. This appears propose that if need to institute conduct change it might be vital to give motivators and prizes to the practices. CLTS blossoms with non-monetary impetuses. These are: medical advantages to family unit individuals; no sentiment of disgrace and sicken; openness of lavatories for all family individuals; protection and security for all; and accommodation (UNICEF, 2015). At long last, Bandura contends that molding nature may empower conduct change. This may incorporate giving chances to conduct change, helping with those progressions, and offering social help. It is additionally critical to perceive ecological limitations that may prevent conduct change. A portion of the ecological elements that impact conduct change identified with sanitation and cleanliness (and which likewise impact supportability) include: accessibility of materials; accessibility of work; accessibility of land; and reasonableness/cost.

2.7.2 The Theory of Planned Behaviour

The theory of planned behaviour (Figure 2) articulates that conduct is reliant on a person's expectation to play out the behavior. Aim or the objective is dictated by the mind of the individual. Conduct likewise is dictated by a person's social control, characterized by person's view of his or her capacity or sentiments of self-adequacy to perform certain behavior (Ajzen, 1991; Armitage and Conner, 2001; and Grizzell, 2007). This relationship is normally subject to the kind of relationship and the idea of the circumstance.

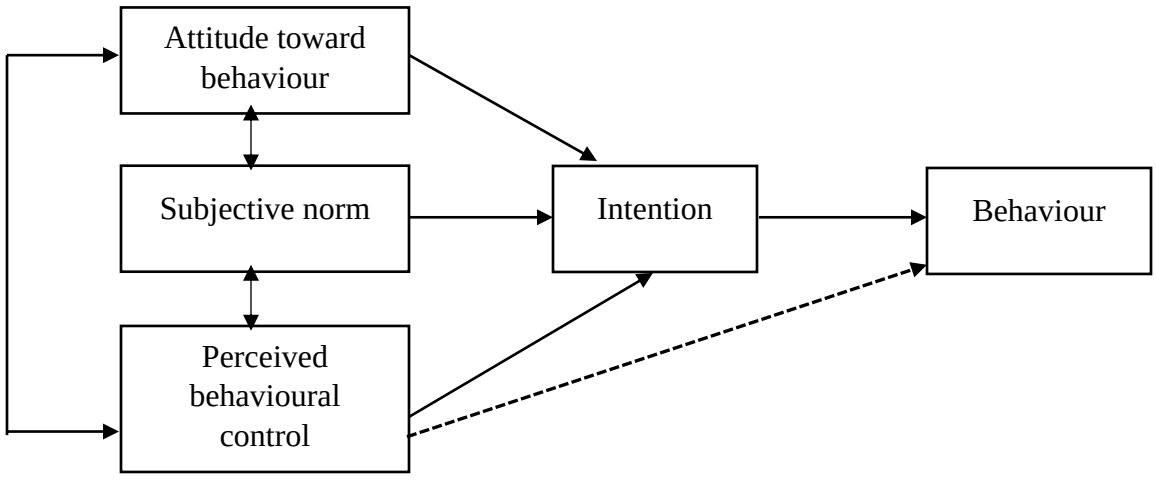

Figure 2: *Model of Theory of Planned Behaviour*

Source: Ajzen (1991)

In CLTS mediations, a goal appear to be more crucial variable in anticipating behavioral change, proposing practices that are frequently connected with individual close to home inspiration (Kamal and Chambers, 2008). The proposal might be imperative to exhibit data to assist in moulding shape uplifting demeanors in the direction of the stress and conducts subjective toilets development and utilize standards or suppositions that help the ODF conduct. As per Grizzell (2007), for saw conduct control to impact conduct change, much like with self-viability, a man must see that they can play out the conduct. Accordingly, as Grizzel proposes, saw control over circumstances, assets, and aptitudes required is an essential piece of the change procedure.

2.7.3. The Trans-Theoretical Model

The trans-theoretical model, otherwise called the Stages of Change Model, of Figure three proposes variation as a procedure of phases or stages. Pre-examination refers to the phase in which individuals do not aiming to roll out an improvement in the following a half year. Thought is where individuals plan to change inside the following a half year. Individuals in this stage know about the aces of changing yet in addition can distinguish the cons. Planning speaks to the phase where individuals have an arrangement of move and expect to make activity in the quick future, likely inside multi month. Activity is the phase in which individuals roll out the conduct improvement and support speaks to the phase where individuals work to anticipate backslide. At long last, end speaks to that phase where people have 100 percent adequacy and will keep up their conduct. This stage is the most hard to keep up, such a large number of individuals remain a lifetime in upkeep (Prochaska, Johnson, and Lee, 1998). The adventure for a network to accomplish ODF accreditation takes after a procedure run of the mill to these six phases. The focal point of the study is to explore factors that make it simple or trying for 100 percent ODF confirmed networks to keep up this status.

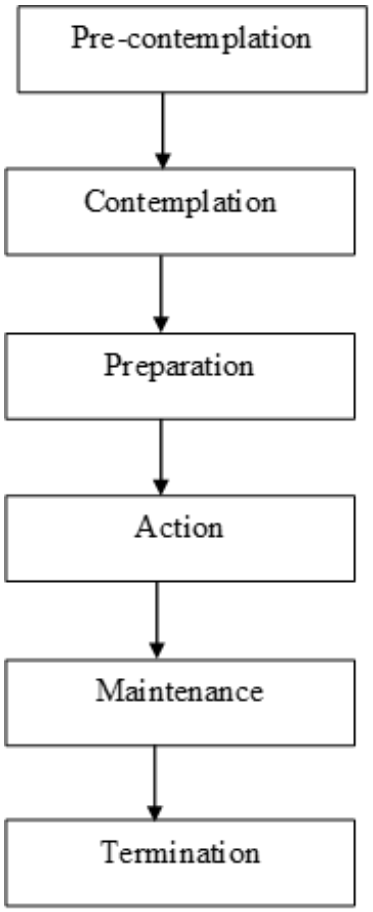

Figure 3: Trans-Theoretical model

As per Prochaska, et al (1998), it is fundamental to coordinate conduct change intercessions to individuals' stages. For instance, if network needs sanitation and cleanliness offices (it is in the pre-examination arrange) it is essential to raise their mindfulness about a conduct that can cure the circumstance with the end goal for them to mull over rolling out a conduct improvement. Without an arranged mediation, individuals will stay stuck in the beginning periods because of an absence of inspiration to travel through the stages. Prochaska, et al., (1988) recommend a progression of exercises that have gotten observational help, which enable people to advance through the stages. These exercises are: cognizance raising which expands attention to the causes by giving instructive materials, showdown, media battles, input, and so forth.; sensational help which creates an enthusiastic affair which is trailed by a decreased effect if some move can be made through individual declarations, media crusades or dramatization; self-re-assessment which welcomes people to make subjective and passionate appraisals of their mental self view by clearing up esteems, giving solid models and utilizing symbolism); and, ecological reexamination which involves evaluating ways in which the nearness and nonappearance of a conduct may affect a person's social condition through documented information, individual stories, and family mediations (Prochaska, et al., 1998).

2.8. Conceptual Framework

Henderson (1994) contended that that the significant points of research ought to be either to relate information to a hypothesis or to produce a hypothesis from information. With a specific end goal to hold existing and new information, hypothesis ought to give a theoretical system, so learning can be translated for exact application in a far reaching way. The reasonable Framework of the study is appeared in Figure 4.

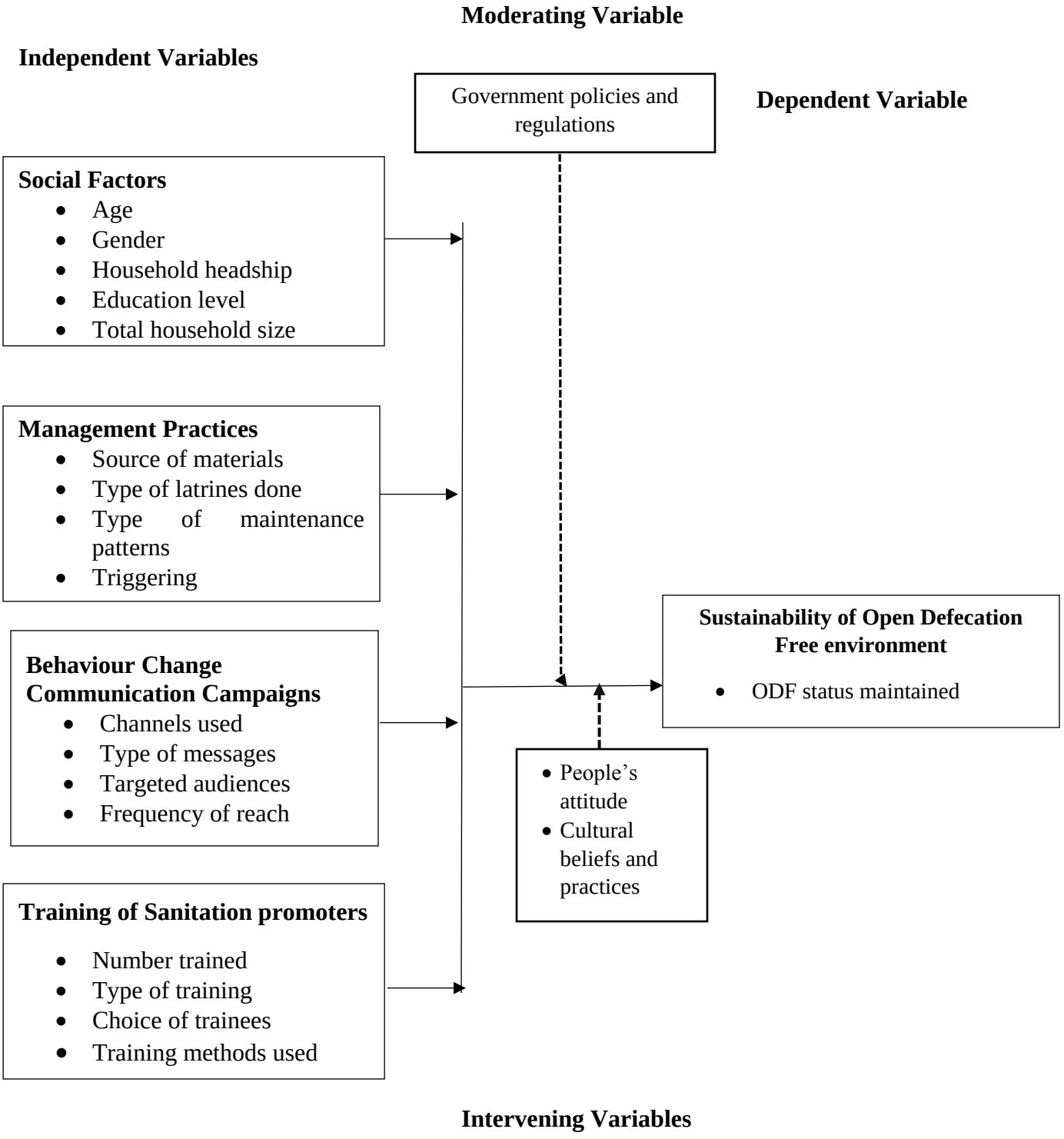

Figure 4: Conceptual Framework

2.9. Summary of the Literature Review

The literature review has demonstrated that associations around the globe have gained huge ground in giving access to enhanced water and sanitation around the world. Be that as it may, restricted confirmation is accessible on maintainability of country water and sanitation interventions. The focal point of this study is to survey maintainability of ODF condition over the medium to long haul period. The study looks to reaffirm that reasonable water, sanitation and cleanliness (WASH) interventions should address a few components, including: specialized suitability; proceeding with usefulness through plan life; social agreeableness to the community; financial reasonability; and security of the earth and characteristic assets. The past investigations checked on demonstrated that researchers and specialists have looked into on different parts of supportability of latrine utilize and hand washing from different areas over the worldwide. The review demonstrates blended outcomes with simultaneousness on specific perspectives while there is absence of simultaneousness on others. Be that as it may, in spite of the way that open defeacation in rustic networks is one of the real test confronting the national government and general wellbeing experts, no experimental study has been attempted in the nation with a specific end goal to set up factors which add to supportability of open defeacation free condition and practices among networks that are confirmed as open-defeacation free in Nyando and Nambale Sub-regions of Western Kenya announced and affirmed to be ODF in 2013. As indicated by UNICEF and Ministry of Health (2014), just 3,886 towns (7%) out of 57,431 towns in Kenya have accomplished Open Defeacation Free Status.

2.10. Knowledge Gap

Sustainability of sanitation initiatives requires contributions at numerous levels: appropriate framework, a positive relevant condition, and empowering agents of the conduct should all meet up to accomplish enduring change. There are a few difficulties confronting the maintainability of the open poop free condition in Nyando Subcounty. Evaluated writing demonstrated that there is constrained data on factors affecting maintainability of ODF condition in the Subcounty. A study along these lines should be done so as to acquire data on factors which affect sustainability of ODF condition in Nyando Subcounty.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The chapter outlines the research methodology which was utilized in the study. The chapter incorporates: research design, target population, sampling size and sampling procedure, data collection tools, validity and reliability of research instruments, data analysis, and moral issues in research.

3.2. Research Design

As indicated by Mutai (2001), a research design alludes to the methods utilized to accomplish the targets of the research. This examination connected an expressive study outline for it isn't just confined to actuality discoveries, yet frequently result in detailing of vital standards of learning and answer for critical issues. This outline includes estimation, characterization, investigation, examination and interpretation of data (Orodho, 2003). This technique depicts the actualities as they may be (Mugenda and Mugenda, 2003). Descriptive research design was embraced on the grounds that the investigation included inspiring conclusions of the family heads and the other family individuals as respects to their perspectives on the variables behind their continued use of toilets after their villages were verified to be ODF, other than the causal components to inversion for the individuals who may have returned to open Defeacation.

3.3. Target Population

The focus population for this survey was 133 villages (106 villages which were checked and confirmed as ODF in 2011, while 27 were checked and ensured ODF in 2012). The listing of the villages is added in the Annexes. UNICEF Kenya in association with the Ministry of Health (Kenya), connected outsider verifiers in 2013 to direct aggregate confirmation in all the 133 villages and they were in the long run ensured to be ODF. This implied every one of the families in the 133 villages approached a latrine facilities, all the mutual open defeacation areas were never again existent, and there were no hints of dung along the trails. As indicated by the Independent Electoral and Boundaries Commission of Kenya (IEBC), Nyando Sub-County is involved five administrative wards to be specific East Kano/Wawidhi; Awasi/Onjiko; Ahero; Kabonyo/Kanyag

wal; and Kobura. The aggregate evaluated populace of the sub-province is 145,000 people (2009 national registration). Table 3.1 demonstrates the statistic profile of each administrative ward.

Table 3.1: Population and Village Distribution by Wards

Ward Name	Population (2009 National Census)	Area (Sq. Km)	Number of Villages
East Kano/ Wawidhi	17,334	101.90	33
Awasi/ Onjiko	30,937	106.60	37
Ahero	31,440	39.80	14
Kabonyo/ Kanyag wal	25,065	87.00	28
Kobura	36,261	77.90	21
Total	141,037	413.2	133

Source: Extracts from IEBC and KNBS Fact Sheets (2012, 2013)

3.4. Sampling Procedure and Sample Size

3.4.1. Sample Size

Table 3.2 gives a breakdown of the sample size. The Table demonstrates that the study gathered information from 290 families' heads and 10 key informants.

Table 3.2: Sampling Matrix

Ward	Proportion to size (A) in percentages	Number of villages (B)	Number of sample villages (AxB)	Capped Number of households per village (C)	Sample size of total households C x (AxB)	Number of key informants per ward*
Wawidhi	24.7	33	8	10	80	2
Onjiko	25.8	37	10	10	100	2
Ahero	9.6	14	1	10	10	2
Kabonyo	21.1	28	6	10	60	2
Kobura	18.9	21	4	10	40	2
Total		**133**	**29**		**290**	**10**

***** 1 PHO and 1 CHW per Ward

KEY: A = proportion of village to size; B = Total number of villages in a ward; C = Number of capped households to be covered per village

3.4.2. Sampling Procedure

The study utilized a multi-stage sampling approach; utilizing different probabilistic or non-probabilistic strategies at each level because of the different levels of the populations as shown in Table 3.1. In the primary stage, the number of villages considered for the family studies were randomly chosen from every one of the administrative ward in extent to their geographic size (square kilometers). In the second stage, the number of family units to be examined from every village was chosen through simple random sampling, with the aggregate number of families to be picked from every village topped at a pre-decided esteem using probability proportional to size approach as recommended by Kothari (2004). At long last, at the family level, the fundamental respondent was the leader of the family unit, or a senior grown-up individual from the family unit wherever the family head was not accessible. Additionally, the Public Health Officers (PHOs) and Community Health Workers (CHWs) were sampled from each ward to fill in as key informants.

3.5. Data Collection Instruments

Primary data was the main focus during the field survey. This is verifiable information gathered out of the blue to address the current issue. The questionnaire was the important device in gathering primary data. As per Kombo and Tromp (2006), a questionnaire is a research instrument that assembles information over a substantial sample. It can achieve countless who can read and compose freely. A questionnaire improves secrecy of respondents and consistency of inquiries, in this way, permitting equivalence. This is decided for this study since it is very productive.

The questionnaire consisted of open ended and closed ended questions. The open ended questions provided a room for the respondents space to give more data and appropriately convey what needs be, while the close ended questions created the sort of answers anticipated that would empower the researcher frame a supposition and a conclusion. The poll was organized into five segments. The principal section captured information on general data of the respondent; the second segment captured information on socio-social factors; the third segment captured information on financial elements; the fourth area captured information on neighborhood geographic conditions; lastly the fifth segment captured information on network convictions and recognitions. The questionnaire was made an interpretation of from English to Swahili, for use to family unit respondents who were not familiar with the English dialect.

3.5.1. Pilot Study

A pilot study is a smaller than normal variant of a full-scale study or a preliminary run done in readiness of the entire investigation (Orodho, 2004). The purpose of the pilot study was to test whether the outline of inquiries was consistent and if questions were clear and effectively reasonable to the respondents. The pilot run likewise looked into showin if the expressed reactions were thorough and to what extent it would take the respondents to finish the questionnaire. The pre-test additionally enabled the researcher to keep an eye on whether the gathered factors would be prepared and examined effectively. Pre-testing was purposed to check the questionnaire structure and the grouping, including the vagueness of questions. This was directed at utilizing chosen family heads from Kisumu West Sub-County which have comparable attributes as those of Nyando Sub-County since they were inside same land area.

3.5.2. Validity of Research Instruments

According to Kimberlin and Winterstein (2008), validity is referred to as the extent at which instruments measures what is expected to measure. Validity pertains how precisely the information acquired in the examination speaks to the factors of the investigation. A research instrument is said to be of valid standard in the event that it quantifies what it should gauge. A validity test was utilized to gauge instrument validity. Content validity as per Kothari (2004) is the degree to which an estimating instrument gives sufficient scope of the subject under examination. Content validity guarantees that the instruments will cover the topic of the investigation as proposed by the researcher. Preceding utilizing the research instrument, the validity of the instruments was controlled by the researcher by talking about the things in the instrument with a chosen lead expert and two other chosen research specialists. The draft surveys were given to two chose people educated in research in order to determine the things reasonableness in acquiring data as per research destinations of the examination.

3.6. Reliability of Research Instruments

According to Mugenda and Mugenda (2003), Reliability of the measurements deals with extend at which a specific procedure used in the measurement gives the same results after several trials. The split-half strategy was utilized to evaluate dependability. The methods are commonly used for the comparison from the half of the other test and confirm whether the measurements are what

were being analyzed. After the pilot test, the survey was separated into two sections utilizing the even and odd numbers. Berthoud (2000) states that a dependability record of over 0.7 is agreeable for research instruments.

3.7. Data Analysis Technique

The questionnaire was first checked for culmination before investigation and from that point the data was coded and gone into a spreadsheet and dissected utilizing Statistical Package for Social Sciences. Descriptive analysis was performed first keeping in mind the end goal to guarantee that the yield is free from exceptions and the impacts of missing reactions. Open-ended questions were coded according to the characterized coding outlines. The fiindings were introduced utilizing tables. Subjective information was gotten from the open ended questions in the surveys and the discussion guides. The responses were composed in accordance with the research goals and distinct stories were composed to mirror the circumstance in the field. This was utilized to answer the research questions since this data conveyed the subjects in the research targets. Quantitative information was investigated utilizing enlightening measurements to be specific means, percentages, and proportions. These were registered utilizing Statistical Package for Social Sciences.

3.8. Ethical Considerations

Moral contemplations like guaranteeing privacy of responses was respected exceedingly before information accumulation started. This was fundamental since it urged the respondents frankly. No respondent was compelled to participate in this investigation. The names of the sampled family unit heads and the key witnesses were not specified in the information frames. Rather, coded names or identifiers were utilized to recognize the respondents. The expert to visit the sampled villages was looked for from the Sub-County Public Health Officer at the sub-region local office. The researcher additionally acquired a letter conceding expert to visit the examined families from the National Council for Science, Technology and Innovation (NACOSTI).

3.9. Operationalization of Variables

Operationalizing a variable means finding a quantifiable, and legitimate list for the autonomous and ward variable of the investigation and to figure out how to control the variable keeping in mind the end goal of at least two levels. The estimation of different factors in the investigation was finished utilizing the structure as shown in Table 3.3. For every goal, the Table shows the factors, pointers, estimation scale, devices of investigation, and the kind of information examination system which were utilized. The Table demonstrates that the investigation factors were either in proportion, ostensible, or ordinal scale. Rates, means and recurrence checks were the real instruments of investigation which were utilized.

Table 3.3: Operationalization of Variables

Objective	Variables	Indicators	Measurement scale	Tools of analysis	Type of data analysis
	Independent				
To establish how social factors influence sustainability of toilet use among the open defeacation free certified communities in Nyando Sub County	Social factors	Age Gender Household headship Education level Total household size	Ratio Nominal Nominal Ordinal Ordinal	Percentage, mean and frequency	Descriptive
To assess how management practices of sanitation facilities influence toilet use among the ODF certified communities in Nyando Sub –county	Management practices	Source of materials Type of latrines done Maintenance patterns Triggering Follow up visits	Ratio	Percentage, mean and frequency	Descriptive
To evaluate the effect of behaviour change communication campaigns on sustainability of toilet use among the ODF certified communities in Nyando Sub county	Behaviour change communication campaigns	Channels used Type of messages Targeted audiences Frequency of reach	Ratio	Percentage, mean and frequency	Descriptive
To determine how the training of sanitation promoters influences sustainability of toilet use among the ODF certified communities in Nyando Subcounty	Training of sanitation promoters	Number trained Type of trainer Choice of trainees Training methods used	Ratio	Percentage, mean and frequency	Descriptive

	Dependent				
	Sustainability of ODF environment	Percentage of households in the study area that have maintained ODF status after ODF verification and certification	Ratio	Percentage, mean and frequency	Descriptive

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1. Introduction

This chapter covers data analysis, presentation and interpretation of findings on the data gathered from the household heads, Public Health Officers and Community Health Workers in Nyando sub-county, in Kisumu County, based on factors influencing sustainability of open defeacation free environment in the region.

4.2. Questionnaires Return Rate

Out of the 290 questionnaires issued to the targeted household heads in the study area, 290 questionnaires were returned giving a 100% response rate which was considered acceptable for the study. All the targeted 10 key informants were also interviewed as required.

4.3. Social Factors of Respondents

In determining the social factors' impact, the researcher obtained demographic information of the respondents such as gender, household head age in years, main occupation of the household head, total household size, level of education and number of household members aged below 5 years.

4.3.1 Gender of respondents

The researcher asked the respondents to indicate their gender and the results are presented in Table 4.1. At the household level, the main targeted respondent was the head of the household, or a senior adult member of the household when ever the household head was not available.

Table 4.1: Gender Distribution of the Respondents

Gender	Frequency	Percentage
Female	157	54.1
Male	133	45.9
Total	**290**	**100.0**

Table 4.1 indicates that the sample was mostly (54.1%) female dominated, while the male respondents were 45.9%. This was attributed to the fact that majority of the households were visited at daytime and on weekdays hence most of male members were away in the farms or occupational duties. Women and girls suffer most when the household lacks a decent toilet facility for use by the members.

4.3.2. Gender of the Household Heads

Table 4.2 shows the distribution of responses on the headship of the sampled households.

Table 4.2: Gender Distribution of the Respondents

Gender	Frequency	Percentage
Female	119	41.0
Male	171	59.0
Total	**290**	**100.0**

Table 4.2 indicates that majority (59%) of the sampled households were male-headed with the remainder of 41% being female-headed. The high presence of female-headed households in the study areas (32.1%) is attributable to continued prevalence of polygamous unions as well as high number of widowed couples due to high prevalence rates of HIV/AIDS.

4.3.3. Household Composition and Size

Table 4.3 shows the descriptive statistics on the composition of the sampled households.

Table 4.3: Average Size of the Sampled Households

	N	*Minimum*	*Maximum*	*Mean*		*Standard Deviation*
	Statistic	**Statistic**	**Statistic**	**Statistic**	**Std. Error**	**Statistic**
Total number of household members	290	1	18	5.93	0.055	2.609

Table 4.3 shows that the average size of the sampled households was 5.93 persons (Standard Deviation = 2.609); which is well in line with the KDHS estimates of 6 persons per household for rural Kenya. The number of members of a household determines to a large extent the demand for goods and services the household purchases. The larger the household, the more strain is put on the resources available. Economic resources are often more limited in large households than in small households, especially in rural areas. Moreover, where the size of the household is large, crowding can also lead to health problems; including ease in spread of diseases during an outbreak.

4.3.4. Household with Persons with Special Needs

Table 4.4 shows the descriptive statistics on the composition of the sampled households whose members had special needs that in one way or another hampered their ability to conveniently and comfortably access a toilet facility.

Table 4.4: Percentage of Households with Persons with Special Needs

Persons with Special Needs in the household	Frequency	Percentage
Yes	40	13.8
None	250	86.2
Total	**290**	**100.0**

NB: Special needs were defined as being elderly, health-related, and those with physical disabilities that affect mobility, bathing and dressing.

Table 4.4 indicate that majority (86.2%) of the sampled households did not have persons with special needs that would affect their access to a toilet facility. About 13.8% of the sample had persons with special needs related to some form of health problem, being elderly, or some form of physical disability. The disabilities assessed included: difficulty seeing; difficulty walking or climbing steps; and difficulty with self-care such as washing or dressing. Sustaining of an ODF environment at the household level would also be dependent on the nature of care accorded to persons with special needs wherever they need to access a toilet facility.

4.3.5. Level of Education of the Household Head

Table 4.5 shows the distribution of the responses on level of education of the heads of the sampled households.

Table 4.5: Level of Education of the Household Head

Level of Education	Frequency	Percentage
No formal education	39	13.4
Primary school level	181	62.4
Secondary school level	59	20.3
Tertiary college level	8	2.8
University degree level	3	1.1
Total	**290**	**100.0**

Table 4.5 shows that majority (62.4%) of the respondents had attained primary level as the highest education level. In addition, 20.3% had attained secondary education. The proportion of those who had no formal education stood at 13.4% of the sample. The remainder (4%) of the respondents had attained post-secondary education. Education is a key determinant of the lifestyle and status an individual enjoys in a society. Studies have consistently shown that educational attainment has a strong effect on health behaviours and attitudes towards sanitation adoption and use.

4.3.6. Age Category of the Household Head

Table 4.6 shows the distribution of the responses on age categories of the heads of the sampled households.

Table 4.6: Age Category of the Household Head

Age Category	Frequency	Percentage
Below 25 years	9	3.1
26 – 35 years	112	38.6
36 – 45 years	89	30.7
46 years and above	80	27.6
Total	**290**	**100.0**

Table 4.6 shows that the percentage of sampled households was fairly split across various age categories with a significant number (38.6%) being in the age category of 26 – 35 years; followed by the age category of 36 – 45 years which constituted 30.7% of the sample. This shows that majority of the sampled households were headed by youthful-aged heads.

4.3.7. Main Occupation of the Household Head

Table 4.7 shows the distribution of the responses on the main occupations held by the heads of the sampled households.

Table 4.7: Main Occupation of the Household Head

Occupation Type	Frequency	Percentage
Housewife	5	1.7
Peasant Farmer	184	63.4
Business / self-employed	59	20.3
Civil servant	16	5.5
Unemployed	18	6.2
Other types / Unspecified	8	2.9
Total	**290**	**100.0**

Table 4.7 shows that majority (63.4%) of the respondents were either engaged in peasant farming or were in business / trade activities / self-employed (20.3%).

4.3.8. Awareness on the Village Open Defecation Free Certification Status

Table 4.8 shows the distribution of the responses on the extent to which the respondents were aware that their villages had been declared and certified as open defecation free by the county department of public health / the ministry of health.

Table 4.8: Level of Awareness of Village's ODF Certification

Response on Awareness	Frequency	Percentage
Yes	5	2.1
No	284	97.9
Total	**290**	**100.0**

Table 4.8 shows that nearly every sampled household (97.9%) demonstrated awareness to the fact that the village was declared by the government to be Open Defeacation Free. Only 5 households (2.1%) reported that they were not aware. This shows that the latrine usage norms had been deeply entrenched in communities that would previous accept open defecation as a normal practice.

4.4 Influence of Management Practices

Management practice is critical in sustainability of the practice of hygiene and sanitation at the community level as it determines its success or failure. The study sought to find out the extent to which management practices influence toilet use among the open defeacation free certified communities in Nyando Sub County. In order to establish influence of management practices to toilet use, the study obtained the respondents' responses on: status of the toilet facility that members of your household normally use; information on single usage or sharing of latrines; cleanliness and hygiene status of the latrine floor; gender issues on latrine usage and maintenance; and behavioural practices around maintenance or lack of it.

4.4.1. Access to a Sanitation Facility

Table 4.9 shows the distribution of the responses on the access of respondents to a sanitation facility at the household level.

Table 4.9: Access to a Sanitation Facility

Response on Access	Frequency	Percentage
Toilet available (in-house, in-yard, at neighbour's, or public place)	281	96.9
No toilet, practices open defecation	9	3.1
Total	**290**	**100.0**

Table 4.9 shows that nearly every sampled household (96.9%) had access to a toilet place either at home, at the neighbour's place, or a public utility. Only 9 households (3.1%) reported that they had reverted to open defecation (had no toilet facility). This shows that the latrine access and usage was high. A reverted household was profiled by: presence of an OD site in the yard; presence of faeces in the compound; and lack of access to a toilet facility.

4.4.2. Status of Sanitation Facilities

Table 4.10 shows the distribution of the responses on the status of sanitation facilities in the sampled households.

Table 4.10: Status of Sanitation Facilities

Response on Status	Frequency	Percentage
Latrine was there for 5 years or more	106	37.7
Latrine was recently re-constructed	131	46.6
Latrine was recently upgraded	44	15.7
Total	**281**	**100.0**

Table 4.10 shows that 37.7% of the sampled households had maintained the state of their toilet facilities for a period of 5 years or more; 46.6% had re-constructed their toilet facilities; and 15.7% had upgraded their toilet facilities. The findings show there was high level of commitment from the households to keep their latrine facilities in usable status in order avoid reversal to open defecation practice.

4.4.3. Types of Sanitation Facilities Available

Table 4.11 shows the distribution of the responses on the types of sanitation facilities available in the sampled households.

Table 4.11: Types of Sanitation Facilities Available

Response on Toilet Type	Frequency	Percentage
Flush/pour flush toilet	26	9.3
Ventilated improved pit latrine (VIP)	67	23.8
Pit latrine with slab	144	51.2
Pit latrine without slab	44	15.7
Urine diversion toilet	0	0.0
Bucket	0	0.0
Total	**281**	**100.0**

The World Health Organization and UNICEF classifies a sanitation facility as being of "improved type" if the facility is designed to hygienically separate excreta from human contact. The facility is classified as "unimproved" if the design does not hygienically separate excreta from human contact. Improved facilities include: flush/pour flush to piped sewer system, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs. The findings of Table 4.11 show that nearly 85% of the sampled households were using hygienically designed (improved) latrine types (flush/pour flush toilets, 9.3%; ventilated improved pit latrines (VIP), 23.8% and pit latrines with slab, 51.2%).

4.4.4. Cleanliness of Sanitation Facilities

Table 4.12 shows the distribution of the responses on the cleanliness of sanitation facilities available in the sampled households.

Table 4.12: Cleanliness of Sanitation Facilities

Observed Status of Latrine Floor	Frequency	Percentage
Good	201	71.6
Fair	67	23.8
Poor	13	4.6
Total	**281**	**100.0**

Table 4.12 shows that 71.6% of the sampled households had maintained a high cleanliness standard of the latrine slabs /floors; with 23.8% of the latrines being found to be in a fair status. Only a partly 4.6% of the observed latrines were found to have floors in poor cleanliness state. The findings show there was high level of commitment from the households to keep their latrine facilities in clean and hygienic status in order avoid spread of diseases associated with poor sanitation and hygiene.

4.4.5. Role Play in Cleaning of Sanitation Facilities

Table 4.13 shows the distribution of the responses on the role play at household level in regard to cleaning of sanitation facilities.

Table 4.13: Role Play in Cleaning of Sanitation Facilities

Response on who cleans the toilets	Frequency	Percentage
Adult men	11	3.9
Adult women	93	33.1
Young boys	16	5.7
Young girls	16	5.7
No designated role play	145	51.6
Total	**281**	**100.0**

Table 4.13 shows that in nearly half of the sampled households (51.6%), the sanitation facilities were reported to be under no designated role in regard to cleanliness. In 33.1%, it was reported that adult women take up the lead role. There was little involvement reported touching on adult men, young boys and young girls. The findings show that in most households, the responsibility of maintaining sanitation and hygiene is not gender-designated; even though anecdotal evidence showed that women usually take up the lead roles.

4.4.6. Availability of Child-friendly and Disability-friendly Sanitation Facilities

Table 4.14 shows the distribution of the observed attributes on availability of child-friendly and disability-friendly sanitation facilities in the sampled households.

Table 4.14: Availability of Child-friendly and Disability-friendly Sanitation Facilities

Observed status on friendly access	Frequency	Percentage (n=281)
Latrine is child-friendly	121	43.1
Latrine is disability-friendly	37	13.2

Table 4.14 shows that in 43.1% of the sampled households, the sanitation facilities were found to be child-friendly and in 13.2% they were found to be disability-friendly or are easily accessed by the disabled, who include the elderly and pregnant women. The findings show that the community had been able to put in place latrine design that can be accessed by the disadvantaged members of the society hence minimizing instances of open defecation.

4.4.7. Maintenance of an Open Defecation Free Home Environment

Table 4.15 shows the distribution of the observed attributes on the extent to which the sampled households had maintained an open defecation free home environment.

Table 4.15: Availability of Child-friendly and Disability-friendly Sanitation Facilities

Observed status on feacal presence	Presence of Evidence (n=281)			
	Yes	*%*	*No*	*%*
Open defeacation near the toilets	4	1.4	287	98.6
Faeces in the yard / compound / garden	9	3.2	281	96.8
Everyone uses latrine when at home	281	96.8	9	3.2

Table 4.15 shows that in 98.6% of the sampled households, there was no presence of faeces noted near the toilet facilities (as evidence that some members of the households are unable to use the latrines or latrines are unfriendly). In the households that lacked toilet facilities (3.2%), there was clear evidence of faeces in the yards, compounds, gardens or along the paths / walkways. In the households that members had access to a toilet facility (96.8%), there was evidence of all household members being able to properly use the toilets especially when at home.

4.4.8. Motivators to Construction of Sanitation Facilities

Table 4.16 shows a multiple response analysis of the distribution of the responses on what led to the decision by the sampled households to build their first latrines in the post open-defecation free certification era (or continued maintenance for those who already had latrines before ODF certification of their villages).

Table 4.16: Motivators to Construction of the Current Sanitation Facility

Reason cited for building the current facility	Frequency	Percentage (n=281)
Health concerns for the family	215	76.5
Shame and Disgust	211	75.1
Accessibility for All Household Members	195	69.4
Convenience, Comfort	186	66.2
Privacy and Security	180	64.0
Sanitation and Hygiene Campaigns	158	56.2
Improving standards for the family	136	48.4
Cultural, Religious and Moral Beliefs	102	36.3
Force (by-laws, fines, and threats)	74	26.2
To be like others	52	18.4
Follow-up visits/ External Support	37	13.2

The respondents at household level were requested to cite the factors which motivated them to decide to build their current latrine, of which it was the first latrine for a significant number of the respondents. Table 4.16 shows the factors were not read out to the respondent by the researcher but scored from the open discussion on the issues posed. Table 4.16 shows the distribution of responses, arranged in a descending order regarding the most-mentioned reason for building the first latrine (or continued maintenance of the existing latrine). The results indicate that five different factors topped the list with health concerns dominating the score at 76.5% of the responses; and shame, accessibility, convenience and privacy following second at 75.1% and access by family members following third at 69.4%. Less than 20% of the responses attributed their desire to build a latrine to wanting to be like others or due to some external advice. Prior to

ODF certification, cholera prevalence rates in Nyando sub-county used to be high. However, after ODF certification, instances of cholera in the ODF certified communities went to near zero or none at all. The findings of Table 4.16 therefore show that the health concerns top the priority list as the factors that encourage sustained usage and maintenance of sanitation facilities in Nyando sub-county.

4.4.9. Enablers to Construction of Sanitation Facilities

Table 4.17 shows a multiple response analysis of the distribution of the responses on what made it easy for the sampled households to build their first latrines before or after the post open-defecation free certification era.

Table 4.17: Enablers to Construction of the First Sanitation Facility

Enablers to building the first latrine	Frequency	Percentage (n=281)
Availability of materials	119	42.3
Low cost of skilled labour	102	36.4
Availability of land	91	32.4
Local soil and ground conditions (easy to dig)	51	18.1
Availability of water	46	16.4
Support from others in the community with construction, maintenance or repair	17	6.0

As shown in Table 4.17, the respondents at household level were request to cite the factors that enabled (or made it easy) for them to build their first latrine. The factors were not read out to the respondent by the enumerator but scored from the open discussion on the issues posed. Table 4.17 shows the distribution of responses, arranged in a descending order regarding the most mentioned enabler for building the first latrine to the least mentioned factor. The results indicate that availability of materials locally (42.3%) and cheap labour (from self and family, 36.4%) topped the list of most mentioned enablers to building the first latrine. Availability of land featured in 32.4% of the sample. This is because in rural areas, the pit latrines which are the dominant types do not require much space to set up or site. Affordability is attributed to local sourcing materials from the farms, yard and improvising wherever possible. The results show there was very little

effect from support from others in the community with construction, maintenance or repair; or from subsidies on building and maintenance of sanitation facilities across the sampled communities.

4.5. Influence of Behaviour Change Communication Campaigns

Behaviour change communication (BCC) is an approach to sanitation and hygiene promotion that uses an in-depth understanding of people's behaviour to design persuasive communication. The study sought to find out the extent to which behaviour change communication campaigns influence toilet use among the open defeacation free certified communities in Nyando Sub County. In order to establish influence of behaviour change communication campaigns to toilet use, the study obtained the respondents' responses on: promotion campaigns on good hand washing practice; sources of sanitation and hygiene campaigns; nature of messages passed in promotion campaigns; and extent of effectiveness of promotion campaigns in influencing behaviour change / action taking.

4.5.1. Exposure to a Sanitation and Hygiene Promotion Campaign

Table 4.18 shows the distribution of the responses on the number of respondents who had heard of a sanitation and hygiene promotion campaign in a period of 12 months preceding the study. For those who had heard of the promotional campaigns, they were asked to state the place they were at the time of the promotion.

Table 4.18: Exposure to a Sanitation and Hygiene Promotion Campaign

Response on whether heard of, and where	Frequency	Percentage
No	32	11.0
Yes, in a large gathering/ community meeting	138	47.6
Yes, at home	102	35.2
Yes, on the radio	16	5.5
Yes, on TV/video	2	0.7
Yes, in a religious institution	0	0.0
Yes, in schools	0	0.0
Yes, in a workshop	0	0.0
Totals	**290**	**100.0**

Table 4.18 shows that only 11% of the sampled respondents had not heard of a sanitation and hygiene promotion campaign in a period of 12 months preceding the study. This implies that 89% of sampled respondents had heard of a promotional campaign, with over half of them (47.6%) having heard the same from a community gathering and 35.2% having heard while at home. The mass media coverage was at 6.2% (5.5% heard from a radio and 0.7% heard from a television station). The findings indicate that community based forums were the most preferred channels or relaying information to communities in Nyando on the need to sustain sanitation and hygiene initiative at the household level in order to sustain the ODF status thereby achieved in their respective communities. According to the interviewed key informants, officials from the public health department at the County level usually utilize the community gatherings to disseminate the messages of the need for maintaining proper sanitation and hygiene; including sanctions to be imposed on households that would revert to open defecation practice. On the targeted audience, all the respondents (100%) were unanimous that the messages were targeted to all members of the communities (the young children, the teenagers, adult men, and adult women).

4.5.2. Facilitators of Sanitation and Hygiene Promotion Campaigns

Table 4.19 shows the distribution of the responses on the personalities responsible for messages heard during the sanitation and hygiene promotion campaigns reported in Table 4.18 above.

Table 4.19: Facilitators of Sanitation and Hygiene Promotion Campaigns

Response on who the had ran promotion	Frequency	Percentage
Hygiene promoter (from NGOs)	54	18.6
Community health worker	172	59.3
County government personnel	60	20.7
Do not know / remember	4	1.4
Totals	**290**	**100.0**

Table 4.19 shows that only 59.3% of the sampled respondents reported that they had heard a sanitation and hygiene promotion campaign from a community health worker. These are community based public health practitioners usually operating from the primary level care health facilities (mainly health centres, dispensaries and community health units). In addition, 20.7% of

the respondents reported they heard from county government personnel (mainly public health officers) while 18.6% reported that the heard from hygiene promoters (mainly field officers of locally-based NGOs and community based organizations involved in good-cause work in the sub-county of Nyando). The findings indicate that community based sanitation and hygiene promoters played a lead role in dissemination of messages related to sustaining of good sanitation and hygiene practices.

4.5.3. Promotional Merchandise on Good Sanitation and Hygiene Practices

Table 4.20 shows the distribution of the responses on the number of respondents who had received information, communication and education (IEC) materials or merchandise containing messages of good sanitation and hygiene practices in a period of 12 months preceding the study. For those who had received the IEC materials, they were asked to state the exact nature of materials that they had received.

Table 4.20: Promotional Merchandise on Good Sanitation and Hygiene Practices

Response on whether received, and what type	Frequency	Percentage
No	18	6.2
Yes, brochure / leaflet	192	66.2
Yes, posters	54	18.6
Yes, calendars / billboards / flipcharts	26	9.0
Yes, short message on mobile phone (SMS)	0	0.0
Yes, video footage	0	0.0
Totals	**290**	**100.0**

Table 4.20 shows that about two-thirds of the sampled respondents (66.2%) reported that they had received brochures and leaflets from the sanitation and hygiene campaigns' facilitators. A section of the sampled households (18.6%) reported that they had received wall posters with 9% reporting that they had received calendars and flip charts. Six percent of the respondents reported that they had not received any form of IEC material. The findings indicate that the BC campaign organizers preferred brochures and leaflets as the most preferred means of communicating messages on

improved sanitation and hygiene practices. According to the key informants, such brochures and leaflets are usually translated into *Swahili* and local *Dholuo* languages. The leaflets targeted for children are usually decoded as image-based vignettes.

4.5.4. Nature of Messaged Passed Through in Sanitation and Hygiene Campaigns

Table 4.21 shows a multiple-response analysis of the distribution of self-reported responses on the nature of messages passed through to the communities during the sanitation and hygiene promotional campaigns and through the IEC materials reported in Table 20 above. The responses are arranged in a descending order, starting with the most mentioned response to the least mentioned response. The responses were not read out to the respondents during the main survey.

Table 4.21: Nature of Messages Passed through via Various BCC Channels

Response on nature of message received	Frequency	Percentage (N=290
Poor sanitation causes diarrhoea	263	90.7
It is important to construct and use a toilet	241	83.1
Lack of hand-washing causes diarrhoea	241	83.1
Use of a toilet prevents diarrhoea	232	80.0
Hand-washing prevents diarrhoea	230	79.3
It is important to keep our toilets clean	186	64.1
Diarrhoea is a dangerous disease	163	56.2
Open defeacation leads to disrespect in the community	114	39.3
None of the above	0	0.0

Table 4.21 shows that over 80% of the sampled respondents could effectively recall that the BCC campaigns and the IEC materials were relaying a clear message on the link between poor sanitation / hygiene and the diarrhea disease. Besides, 64.1% recalled the importance of keeping their toilets clean while 39.3% recalled that latrine construction / access prevents one from experiencing shame / disgust from the fellow community members. Table 4.22 below shows the proportion of sampled respondents who reported that they took some action based on the sanitation / hygiene message received from either of the BCC channels applied.

Table 4.22: Proportion of Respondents who Took Action Based on Relayed Messages

Response on whether action was taken or not	Frequency	Percentage
Yes	281	96.9
No	9	3.1
Totals	**290**	**100.0**

Table 4.22 shows that majority (96.9%) of the sampled respondents took action based on the messages relayed via various BCC channels. Some of the actions taken included: changed the toilet slab; changed the toilet's superstructure; constructed a new toilet; began cleaning the existing toilet; and some shared with friends / relatives about the importance of having or owning a toilet facility. Some of the reasons cited as having prompted the respondents to take action included: fear of getting diarrhoea; fear of own children getting diarrhoea; the desire for household members to defeacate with dignity; the desire for privacy during defeacation; and disgust associated with hands perceived to be contaminated with faeces.

4.6. Training of Sanitation and Hygiene Promoters

Sanitation and hygiene promotion campaigns are usually carried out by sanitation and hygiene promotion facilitators such as hygiene program coordinators, hygiene promoters and community mobilisers. While the different types of facilitators all have specific roles and skills, they should share abilities and characteristics conducive to working within cultural norms, shared beliefs and practices of the affected community members. Adequate training of sanitation / hygiene promotion facilitators is vital for ensuring the necessary knowledge, skills and capacities to deliver successful hygiene promotion campaigns in these settings. Facilitators must be knowledgeable in the present traditional beliefs of the community members and must be able to assess health problems related to water, sanitation and hygiene (WASH). Furthermore, they need to be equipped with communication skills as well as with the capacities to effectively deliver hygiene promotion messages. The study sought to find out the extent to which training of sanitation and hygiene promoters influence toilet use among the open defeacation free certified communities in Nyando Sub County. In order to establish influence of training to sustainability of toilet use, the study obtained the respondents' responses on: awareness on village level regulations on toilet use; source

of advice on sanitation and hygiene practices; knowledge of local sanitation promoters (if any); and the known roles of sanitation / hygiene promoters in the community.

4.6.1. Awareness on Village Level Regulations on Sanitation and Hygiene

Table 4.23 shows the distribution of the responses on the number of respondents who were aware of any village laws or regulations relating to having and using a latrine.

Table 4.23: Proportion of Respondents who knew of Village Sanitation and Hygiene Rules

Response on whether one knew or not	Frequency	Percentage
Yes	290	100.0
No	0	0.0
Totals	**290**	**100.0**

Table 4.23 shows that all the sampled respondents (100%) reported that they were aware of the applicable village laws or regulations relating to having and using a latrine. In some of the villages, it was reported that the villagers who defied the directive to construct or use a toilet for defeacation would be shamed during the regular *baraza* meetings usually convened by the chiefs. In other instances, the children would be requested by the teachers during the school parades to name and shame the local villagers who would be spotted defeacating in the open. These are some of the available informal sanctions used by hygiene promoters to enforce latrine use across the villages. In addition, the key informants also reported that there exists formal sanctions. For instance, in some of the villages, the chiefs had given directives that all households and homesteads would be expected to have a functional toilet facility at all times; and those who were found to be non-compliant would be arrested by a team of officers drawn from the provincial administration and the public health department of the sub-county. However, the informal sanctions were more popular amongst the respondents with very rare application of the formal sanctions.

4.6.2. Awareness on Village Level Regulations on Sanitation and Hygiene

Table 4.24 shows the distribution of the responses on who influenced the communities to eradicate the open defeacation practice and start using latrines. Table 4.24 shows that a large proportion of

the sampled community members were influenced to start using latrines by friends or neighbours (50.3%) with sanitation promoters influencing 23.8% of the sample. The influence of persons from local authorities (chief and health department) was reported in less than 10% of the sampled. The findings therefore show that the influence of latrine use is largely derived from community-driven behaviour change agents, mainly sanitation promoters, friends and neighbours.

Table 4.24: Source of Influence towards Latrine Usage

Response on who influence to start latrine use	Frequency	Percentage
Friend/ Neighbour	146	50.3
Sanitation promoters	69	23.8
Family member	44	15.2
Community health worker	23	7.9
Chief/Sub chief	8	2.8
Totals	**290**	**100.0**

4.6.3. Awareness on Village Sanitation and Hygiene Promoters and their Roles

Table 4.25 shows the distribution of the responses on the number of respondents who were aware of village level sanitation promoters and their specific roles in the community.

Table 4.25: Proportion of Respondents who knew of Village Sanitation and Hygiene Promoters and their Specific Roles in the Community

Response on whether one knew or not	Frequency	Percentage
Yes	202	69.7
No	88	30.3
Totals	**290**	**100.0**

Table 4.25 shows that majority (69.7%) of the sampled respondents reported that they were aware of sanitation promoters in their respective villages. The respondents were further asked to state one of their roles in ensuring that the village attains or maintains the ODF status. The cited roles included: participation in organizing and carrying out hygiene promotion and campaigns; act as a

link between the community and the local support organizations (mainly government and non-government agencies); mobilize the community to actively engage in improved sanitation and hygiene practices; provide support to village water committees, sanitation committees and other community groups; mobilize communities to participate in regular sensitization forums mainly at the chief's offices; collect and record data on routine activities and share with the relevant support agencies (mainly on latrine usage at the household level); and ensure that the sanitation and hygiene needs of the vulnerable groups (children, expectant women, the sickly and the elderly) are adequately addressed.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter presents summary of the findings, discussion, conclusions and recommendations following the objectives of the study. The study examined the factors that influence sustainability of open defeacation free environment in Nyando Sub County of Kisumu County. Specifically, the study sought to investigate the effect of: social factors, management practices of sanitation facilities, behaviour change communication campaigns, and the training of sanitation promoters.

5.2. Summary of the findings

The main findings are based on the results of data analysis following objectives of the study.

The findings on social factors influencing sustainability of open defeacation free environment show that majority (54.1%) of the respondents were females. The majority (59%) of the sampled households were male-headed with the remainder of 41% being female-headed. The sample was fairly split across various age categories with a significant number (38.6%) being in the age category of 26 – 35 years; followed by the age category of 36 – 45 years which constituted 30.7% of the sample. This shows that majority of the sampled households were headed by youthful-aged heads. The average size of the sampled households was 6 persons. Majority (86.2%) of the sampled households did not have persons with special needs that would affect their access to a toilet facility. About 13.8% of the sample had persons with special needs related to some form of health problem, being elderly, or some form of physical disability. The disabilities assessed included: difficulty seeing; difficulty walking or climbing steps; and difficulty with self-care such as washing or dressing. Majority (62.4%) of the respondents had attained primary level as the highest education level. In addition, 20.3% had attained secondary education. The proportion of those who had no formal education stood at 13.4% of the sample. Majority of the sampled households were headed by youthful-aged heads. Economically, majority of the sampled household heads engaged in peasant farming (63.4%) while those who were in business / trade activities / or self-employed was 20.3%. The remainder were unemployed or not engaging in any meaningful livelihood enhancement activities. Nearly all the sampled households (97.9%) demonstrated awareness to the

fact that the village was declared by the government to be Open Defeacation Free. This shows that the latrine usage norms had been deeply entrenched in communities that would previous accept open defecation as a normal practice.

The second objective sought to establish influence of management practices on toilet use. In this regard, the study obtained the respondents' responses on: status of the toilet facility that members of your household normally use; information on single usage or sharing of latrines; cleanliness and hygiene status of the latrine floor; gender issues on latrine usage and maintenance; and behavioural practices around maintenance or lack of it. The key findings included: that nearly all the sampled households (96.9%) had access to a toilet place either at home, at the neighbour's place, or a public utility; with a 3.1% OD reversal rate being reported. There was high level of commitment from the households to keep their latrine facilities in usable status in order avoid reversal to open defecation practice. Most of the sampled households were using hygienically designed (improved) latrine types (flush/pour flush toilets, 9.3%; ventilated improved pit latrines (VIP), 23.8% and pit latrines with slab, 51.2%). There was high level of commitment from the households to keep their latrine facilities in clean and hygienic status in order avoid spread of diseases associated with poor sanitation and hygiene. In most households, the responsibility of maintaining sanitation and hygiene is not gender-designated; even though anecdotal evidence showed that women usually take up the lead roles. The sampled communities had been able to put in place latrine design that can be accessed by the disadvantaged members of the society hence minimizing instances of open defecation. Key enablers to construction (and maintenance) of sanitation facilities were found to include: availability of materials locally (42.3%), cheap labour (from self and family, 36.4%), availability of land (32.4%), support from others in the community with construction, maintenance or repair; and external aid / subsidies on building and maintenance of sanitation facilities.

The third objective of the study sought to assess how behaviour change communication campaigns influence toilet use among the open defeacation free certified communities in Nyando Sub County. The key findings included: that community based forums were the most preferred channels or relaying information to communities in Nyando on the need to sustain sanitation and hygiene initiative at the household level in order to sustain the ODF status thereby achieved in their respective communities. According to the interviewed key informants, officials from the public

health department at the County level usually utilize the community gatherings to disseminate the messages of the need for maintaining proper sanitation and hygiene; including sanctions to be imposed on households that would revert to open defecation practice. On the targeted audience, all the respondents (100%) were unanimous that the messages were targeted to all members of the communities (the young children, the teenagers, adult men, and adult women). The findings indicate that community based sanitation and hygiene promoters played a lead role in dissemination of messages related to sustaining of good sanitation and hygiene practices. Behaviour change campaign organizers preferred brochures and leaflets as the most preferred means of communicating messages on improved sanitation and hygiene practices. According to the key informants, such brochures and leaflets are usually translated into Swahili and local *Dholuo* languages. The leaflets targeted for children are usually decoded as image-based vignettes. Some of the reported outcomes from behaviour change communication campaigns include: changing of the toilet slab; changing of the toilet's superstructure; construction of a new toilet; cleaning of the existing toilets to keep them clean and hygienic to use, among others. Some of the reasons cited as having prompted the respondents to take action included: fear of getting diarrhoea; fear of own children getting diarrhoea; the desire for household members to defeacate with dignity; the desire for privacy during defeacation; and disgust associated with hands perceived to be contaminated with faeces.

The fourth objective of the study assessed how training of sanitation and hygiene promoters influences toilet use among the open defeacation free certified communities in Nyando Sub County. The main areas of focus included: awareness on village level regulations on toilet use; source of advice on sanitation and hygiene practices; knowledge of local sanitation promoters; and the known roles of sanitation or hygiene promoters in the community. The key findings showed that the influence of latrine use is largely derived from community-driven behaviour change agents, mainly sanitation promoters, friends and neighbours. The training of sanitation promoters had enhanced their capacity in sanitation marketing and social mobilization. Key roles they have played in sustainability of ODF environment included: participation in organizing and carrying out hygiene promotion and campaigns; act as a link between the community and the local support organizations (mainly government and non-government agencies); mobilize the community to actively engage in improved sanitation and hygiene practices; provide support to village water

committees, sanitation committees and other community groups; mobilize communities to participate in regular sensitization forums mainly at the chief's offices; collect and record data on routine activities and share with the relevant support agencies (mainly on latrine usage at the household level); and ensure that the sanitation and hygiene needs of the vulnerable groups (children, expectant women, the sickly and the elderly) are adequately addressed.

5.3. Discussion of findings

A detailed discussion of findings from the study is given below.

5.3.1. Social factors and sustainability of toilet use among the open defeacation free certified communities

The findings demonstrate that majority (59%) of the inspected family units were male-headed. Worldwide water and sanitation specialists have perceived the significance of consolidating a sexual orientation point of view based among others, that basic societal practices decide men as property proprietors, heads of family units and principle leaders in general society circle. Therefore, men wind up being more intrigued by the specialized parts of a sanitation facility while ladies turn out to be more receptive to buyer messages. The sexual orientation headship of the family unit accordingly has a direction on toilet utilize conduct and cleanliness designs. This was additionally bolstered by Koita (2010) who demonstrated that lion's share of the sampled family units were going by energetic matured heads. Dedicated community groups are probably going to embrace present day and practical sanitation advancements (e.g. raised toilets or solid sections; building where clients enter, and different structures subterranean or far from the toilet or latrine to access, unfilled as well as treat the waste).

Majority (62.4%) of the respondents had achieved essential level as the most noteworthy training level. In any case, there was no immediate relationship set up between supported utilization of toilets and training levels of family unit individuals. This concurs with a study by Malebo (2012) that surveyed the training of family unit individuals and revealed that managed appropriation of toilets was not related with instruction. Most (83.7%) of the family units reported that their heads or grown-up individuals were occupied with some significant vocation improvement exercises. Independent work (business/trade) and cultivating were accounted for to be the key monetary exercises of the examined communities. At the point when family unit individuals take part in

salary acquiring work alternatives, it raises the social-financial status of the family. In an examination by Cairncross et al., (2005), sanitation scope and the utilization of toilets by men was firmly associated with the financial status of the area (Cairncross et al., 2005). The physical structure and building materials of abodes were altogether connected with having a toilet in an investigation in rural India (Barnard et al., 2013); while higher family unit social-financial status may empower a family to buy more solid development materials, bringing about longer toilet utilize.

5.3.2. Management practices and sustainability of toilet use among the open defeacation free certified communities

There was abnormal state of duty from the families to keep their toilet facilities in usable status all together stay away from inversion to open defecation practice. Most (84.3%) of the inspected family units were utilizing cleanly composed (enhanced) latrines (flush/pour flush toilets; ventilated improved pit latrines (VIP), and pit latrines with slab). These enhanced sanitation advancements show traits such toughness, comfort for client, safe control of feacal matter, and security for clients. Whaley and Webster (2011) found that impermanent lavatories built from locally accessible assets were a disliked alternative due to their low sturdiness. These structures break effortlessly or are disintegrated by wind, rain and termites. Ross et al., (2011) found that basic issues and absence of reasonableness were boundaries to toilet utilize.

In many family units, the duty of keeping up sanitation and cleanliness isn't sexual orientation assigned; despite the fact that episodic confirmation demonstrated that ladies typically take up the lead parts. Ladies assume a focal part in tending to the family, and their cleanliness propensities are emphatically corresponded to diminishing or transmitting fecal pollution inside the family unit. Be that as it may, as heads of family, men assign monetary assets and give fundamental labor amid overhauling of existing offices or establishment of new sanitation offices. The tested communities had possessed the capacity to set up latrine plan that can be gotten to by the impeded individuals from the general public consequently limiting occasions of open defeacation. Key empowering agents to development (and upkeep) of sanitation offices were found to include: accessibility of materials locally (42.3%), cheap labour (from self and family, 36.4%), accessibility of land (32.4%), aid from others in the community with development, support or repair; and outside

guide/endowments on building and support of sanitation offices. Every one of these variables show that cost of beginning proprietorship and resulting upkeep is a key thought for families. This consents to discoveries from prior investigations by Eder et al. (2012); Ross et al., (2011); and Simms et al., (2005) which revealed that the main consideration identified with innovation selection in low-pay settings is the cost of building a toilet. Cost additionally impacts on other essential factors in particular support, practicality of utilizing the innovation after some time and proceeded with usefulness, and establishment.

5.3.3. Behaviour change communication campaigns and sustainability of toilet use among the open defeacation free certified communities

The key findings demonstrated that community based discussions were the most favoured channels or handing-off information to communities in Nyando on the need to maintain sanitation and cleanliness activity at the family level to support the ODF status in this manner accomplished in their separate communities. Key utilization of Behaviour Change Communication (BCC) applies focused on messages and custom fitted ways to deal with advance sound practices and decreased hazard taking. BCC, otherwise called social and conduct change communication, incorporates health communication, social and network assembly, and it advanced from information, training and Communication (IEC) methodologies. With segments going from relational communication between a Community Health Officer and her customer to staggered broad communications campaigns, confirm based and hypothesis driven BCC mediations are a vital piece of a wide range of wellbeing advancement and ailment avoidance, and have been appeared to fundamentally enhance practices, eminently in the territories of country sanitation programming particularly in Nyando sub-county.

The findings demonstrate that community based sanitation and cleanliness promoters assumed a lead part in spread of messages identified with maintaining of good sanitation and cleanliness practices. This was additionally referred to in an investigation by Mara, Lane, Scott, and Trouba (2010) who expressed that community based sanitation and cleanliness promoters make mindfulness that open defecation contaminates environment and the water and food ingested by householders. Their approach energizes an agreeable, participatory approach towards consummation open defecation and making a perfect and clean condition from which everybody

benefits. The present investigation built up conduct change capaign coordinators favored handouts and flyers as the most favored methods for imparting messages on enhanced sanitation and cleanliness practices. With a specific end goal to empower or make interest for a management, it is imperative in any circumstance to comprehend what is driving interest (or absence of it). The utilization of pamphlets and leaflets is favored on the grounds that they are anything but difficult to configuration, print, appropriate and share among the focused on recipients, a reality which was additionally expressed in the investigation by Waddington and Snilstveit (2009).

A portion of the revealed results from conduct change communication campaigns include: changing of the toilet section; changing of the toilet's superstructure; development of another toilet; cleaning of the current toilets to keep them spotless and sterile to use, among others. A portion of the reasons refered to as having provoked the respondents to make a move included: fear of getting diarrhoea; fear of own children getting diarrhoea; the desire for household members to defeacate with dignity; the desire for privacy during defeacation; and disgust associated with hands perceived to be contaminated with faeces. Since people in general enthusiasm for sanitation is connected to its part as an essential hindrance of sickness anticipation wellbeing is frequently thought to be the guideline driver of interest. This agrees with a past report by the World Bank in the country Philippines which set up the accompanying purposes behind fulfillment with new toilets (arranged by need): absence of smell and flies; cleaner environment; protection; less humiliation when companions visit; and less gastrointestinal sicknesses (Cairncross, 1992).

Experimental proof demonstrated that there are four principle factors which will impact the profundity and expansiveness of family unit interest for a specific decent or benefit, and these likewise apply with respect to interest for sanitation products and ventures (Waterkeyn and Cairncross, 2005). These are: mindfulness, need, access and impact, particularly in the examination zone of Nyando sub-county. Mindfulness involves realizing that the products/administrations exist and that they have benefits. For instance, realizing that restrooms exist and can be utilized to store excreta and realizing that a toilet can enhance the strength of youngsters and positively affect family unit wage. Need involves choosing that the administration is adequately vital to justify required venture. For instance, choosing to fabricate a toilet as opposed to develop an extra room in the house or put resources into a bike. Need might be affected by

access to other need administrations or a scope of different factors, for example, status or social traditions. Need may likewise shift between individuals from the families – and it is vital to target request creation and appraisal exercises fittingly (for instance fabricating a restroom requires a choice by the individual from the family unit in charge of real capital interests in the home and that individual ought to be a key focus of a toilet promoting effort).

5.4. Conclusions

The following conclusions were made from the findings of the study.

5.4.1. Influence of social factors

The accomplishment of reasonable sanitation activities overall rely upon every day practices and long haul responsibility, in conjunction with fittingly usable and tough advancements. This investigation demonstrated that individual psychosocial factors, for example, perceived advantage, self-adequacy; outside help instruments, and different elements got from singular level social models, firmly rule the open defeacation free ecological manageability by communities in Nyando sub-county. The findings demonstrated that relational factors, for example, social standards are likewise appeared to firmly influence a person's proceeded with routine with regards to non-open defeacation sanitation practices. The more prominent setting around an individual was observed to be exceedingly powerful. Especially in toilet use, age and sexual orientation were solid determinants of a person's proceeded with training. Family unit headship compose additionally highlighted as a key statistic factor.

5.4.2. Influence of management practices

Cost and strength were the two most critical components identified with innovation that impact on continuous utilization of sanitation facilities. This presents regions where more research should be possible on adjusting cost-viability of materials and production community frameworks that help enduring equipment and long term conduct rehearse. Where sanitation facilities are severely arranged and built, inadequately kept up, utilized wrongly or not utilized by any means, their development can set up promote potential sickness transmission courses, and prompt pollution of the earth through open defeacation. Determination of the correct innovations, great plan, suitable utilize and appropriate management are required to secure against these extra dangers.

5.4.3. Influence of behaviour change communication campaigns

The study demonstrated that showcasing of sanitation technologies alongside sustained behaviour change are not attributes that can be achieved within short campaign spans. This clarified why households could have received a difference in conduct throughout the years after ODF affirmation of their towns by the administration in 2012. Both the state-based and non-state-based on-screen characters need to build up social showcasing frameworks that will have satisfactory assets to work with families in the long term to enhance their consciousness of sanitation, raise its need, increment family access to suppliers of products and enterprises, and prepare family units to impact those providers as required. Such advertising activities have best effect when limited methodologies are utilized e.g. utilization of nearby vernaculars in social communication campaigns and drawing in nationals in all phases of the sanitation inventory community.

5.4.4. Influence of training of sanitation promoters

The findings showed that the preparation of sanitation promoters improves their ability in sanitation showcasing and social assembly. The promoters are encouraged the CLTS steps (pre-activating, activating, development, confirmation, and festivity) amid introductory preparing, and they typically take an interest in setting off a community decision. For ODF maintainability, the sanitation promoters assume a key part in sorting out and doing cleanliness advancement and campaigns; connecting the community and the nearby help associations (basically government and non-government organizations); preparing the community to effectively participate in enhanced sanitation and cleanliness practices; and offering help to village water boards of trustees, sanitation councils and other local gatherings. CLTS exercises and projects would not be viable without appropriately prepared sanitation and cleanliness social promoting operators. Sanitation Marketing is an approach that animates and encourages changes in the supply side of sanitation benefits by working with uses little to medium scale private segment suppliers in the arrangement of sanitation management. Sanitation advertising utilizes procedures of business promoting to create interest for sanitation management. This underscores the way that CLTS is a versatile, participatory approach, and overseeing CLTS requires a differing set of aptitudes and joint effort between segments. There is an immediate linkage between learning, singular learner execution and change of CLTS results.

5.5. Recommendations

From the findings, recommendations were made in order to ensure sustainability of ODF environment.

5.5.1. Recommendations for Policy

i. The study prescribes utilization of sanitation showcasing to urge families to put resources into business materials – either instantly in light of CLTS activating or thereafter.
ii. Community sanitation facilitators could be urged to find out about normal family unit optional consumption in their program territory, drawing after existing data from different projects or organizations, (for example, national financial information).
iii. Sanitation and cleanliness advancement campaigns should be included unequivocally as a measuring stick on which supportability of ODF condition in the studied communities was tied down.
iv. To scale up the sanitation advancement drives, there is need for the administration to figure rules for social advertising that can be utilized by community sanitation promoters at the village level.
v. Facilitators should be proficient in the present conventional convictions of the nearby communities that they are assigned to serve and should have the capacity to survey medical issues identified with water, sanitation and cleanliness (WASH). Moreover, they should be outfitted with relational abilities and in addition with the abilities to successfully convey cleanliness advancement messages.
vi. For sustainability, other than promoting only the software component of WASH programmes (i.e. conduct change), there is need to also promote the hardware components of WASH.

5.5.2. Suggestions for Further Research

The suggestions for further research are shown below:

i. Further exploration of the connection between family unit wealth index and maintaining of ODF status should be done. This could incorporate testing whether a higher wealth level is associated with more prominent use on restroom and ensuing upkeep or updating; and

whether diverse individuals from the family unit are pretty much liable to assigned back towards sanitation.

ii. Disgust as an enabler to ODF supportability appears to fade off after some time, while social and health wellbeing was emphasized from among the variables named by ODF household units. Additionally testing of this is prescribed, including taking a gander at the issue of wellbeing advancement and wellbeing informing trying to comprehend what sorts (and timing) of messages are generally persuasive.

iii. Further research should be carried out in order to ascertain the role of social norms in the sustainability of ODF environment amongst the ODF certified communities. Mainstreaming the inclusion of social norms theory as a core of CLTS programming in behaviour change is necessary. In doing the use of local administrators, community adult members, and children as change agents should be explored.

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APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

Riungu Pascal Mugiria,
P.O. Box 21362,
Nairobi 00100,
Phone: 0735910716
Email: riungu.pascal@gmail.com
30th April, 2017

Dear respondent,

RE: INTRODUCTION AND CONSENT INFORMATION

I am a postgraduate student at the University of Nairobi, pursuing a Master of Arts Degree in Project Planning and Management and as part of partial fulfillment of the programme, I am conducting a research project paper on: "Factors Influencing Sustainability of Open Defeacation Free Environment in Nyando Sub-County of Kisumu County". I would appreciate if you could kindly spare a few minutes of your time in order to answer the questions to the best of your knowledge.

The information in this questionnaire will be used for research purposes only and in no instance will your name be mentioned in this research. In addition, the information will not be used for any other purpose other than for this research. Your assistance in facilitating the same will be highly appreciated.

Thank you in advance.

Yours Faithfully

Riungu Pascal Mugiria

L50/74786/2009

APPENDIX 2: QUESTIONNAIRE FOR HOUSEHOLD HEADS

Instructions

Please tick in the appropriate boxes and also fill in the blank spaces provided for the questions where elaborate answers are required. Use the space at the back of this questionnaire if you need more space for your responses.

SECTION A: SOCIAL FACTORS

Please put a tick where appropriate

1. Date of Interview _____/_____/2017
2. Questionnaire number _____
3. Village name _____
4. Ward Name _____
5. Respondent name code _____
6. Respondent gender
    i. Male
    ii. Female
7. Gender of household head
    i. Male
    ii. Female
8. Total number of household members _____
9. Total number of people in this household with special needs _____
10. Total number of household members aged below 5 years _____
11. What is the highest Level of education of the household head or person being interviewed?
    i. No formal education
    ii. Primary school
    iii. Secondary school
    iv. Tertiary College
    v. University Degree
12. Age of the household heads in years _____

13. Main occupation of the household head
    i. Housewife
    ii. Farmer
    iii. Business/ self-employed
    iv. Civil servant
    v. Unemployed
    vi. Other (specify) _____
14. Are you aware that this village was declared by the government to be Open Defeacation Free (ODF)?
    i. Yes
    ii. No

SECTION B: MANAGEMENT PRACTICES

15. Where is the toilet facility that members of your household normally use?
    i. In House
    ii. In Yard / Compound
    iii. Neighbour's house
    iv. Public Latrine
    v. No Toilet /Open Defeacation
16. Is this your first toilet to construct in the past five years?
    i. Yes
    ii. No
17. If No, is this an upgraded or a reconstructed toilet?
    i. Upgraded
    ii. Reconstructed
18. What is the type of latrine? Can you please show it to me?
    i. Flush/pour flush toilet
    ii. Ventilated improved pit latrine (VIP)
    iii. Pit latrine with slab
    iv. Pit latrine without slab
    v. Urine diversion toilet

vi. Bucket

vii. Other (Specify)…….

19. Is there evidence that the latrine is being used?

i. Yes

ii. No

20. How many households use this toilet facility?

i. One (only own household)

ii. More than one

21. How clean is the latrine floor? *Good* = No sign of shit anywhere. *Clean and tidy*; Fair = some faeces around pan/squatting plate only; *Poor* = faeces on floor, walls etc

i. Good

ii. Fair

iii. Poor

22. (If "*Good*" or "*Fair*" Ask) What material do you use for toilet slab/floor cleansing?

i. Water

ii. Ashes

iii. Other (specify) …….……..

23. Is there ashes visible or water near or inside the toilet for toilet cleansing?

i. Yes

ii. No

24. Who cleanses the toilet?

i. Adult men

ii. Adult women

iii. Young Boys

iv. Young Girls

v. No designated role play

vi. Others (e.g. Domestic worker)

25. Is there any evidence of Open Defeacation visible near or outside the toilet?

i. Yes

ii. No

26. Evidence of Shit in the compound

i. Yes

ii. No

27. Evidence of an OD site in the yard or near homestead (Observe and record)

i. Yes

ii. No

28. Child friendly toilet (Observe and record

i. Yes

ii. No

29. Disability friendly toilet (Observe and record)

i. Yes

ii. No

30. Is everyone in this household using the latrine to defeacate when at home?

i. Yes, Everyday

ii. Yes, Occasionally

iii. No, Open Defeacation

31. If Not All the time, why?

i. Illness

ii. Old age

iii. Injury

iv. Disability

v. Pregnancy

vi. Menstruating women

vii. Small children

viii. Other (specify) _____

For those with own latrines

32. Why did you decide to build your first latrine? (select all options)

i. Health concerns for the family

ii. Shame and Disgust

iii. Convenience, Comfort (Location)

iv. Privacy and Security (Location)

v. Accessibility for All Household Members
vi. Improving things for the family
vii. Sanitation and Hygiene Campaigns
viii. Follow-up visits/ External Support
ix. Force (by-laws, fines, and threats)
x. To be like others
xi. Cultural, Religious and Moral Beliefs

33. Who influenced you to start using a latrine? (select all options)
    i. Family member
    ii. Friend/ Neighbour
    iii. Community health worker
    iv. Chief/Sub chief
    v. Sanitation promoters
    vi. Other (specify) ……..
34. What made it easy to build first latrine? (select all options)
    i. Availability of materials locally
    ii. Low cost of skilled labour
    iii. Availability of water
    iv. Local soil and ground conditions (easy to dig)
    v. Support from the community
    vi. Availability of land
35. Your latrine looks well-kept and maintained, why have you continued to maintain and use your latrine? (Select all options)
    i. Quality of initial construction
    ii. Affordability/ Cost of materials
    iii. Support from others in the community with construction, maintenance or repair
    iv. Local soil and ground conditions good
    v. Subsidies

36. What made it difficult to build first latrine? What challenges did you experience? (Do not read out the options)
    i. Poor Local soil and ground conditions
    ii. Affordability/Cost
    iii. Shortage of Materials
    iv. Shortage of Labour
    v. Lack of water
    vi. Lack of Technical Advice or Knowledge
    vii. Lack of Support from others in the community with construction, maintenance or repair
    viii. Lack of Adequate Land
    ix. Lack of Subsidies

For those without own latrines/ Or those who no longer use their latrines/ OD HHs

37. Your latrine seems to be in a state of disrepair, why did you stop maintaining your latrine? (select all options)
    i. Unaffordable and lack of credit to rebuild
    ii. Poor quality of initial construction
    iii. Maintenance-repairs and pit emptying too difficult/ costly
    iv. Shared with others
    v. No more support from donors or government
38. *(*For households without own toilets and those defeacating in the Open*)* why have you gone back to shitting in the bush / Stopped using your latrine?
    i. Physical aspects of the toilet (Fear of harm - slab collapsing, user falling in or presence of rodents/snakes; Inconvenience and lack of comfort or privacy)
    ii. Sharing with others: (hence bringing social problems)
    iii. Location too far away or hard to reach
    iv. Maintenance challenges: (Cleaning; unaffordable and lack of credit to rebuild; poor quality of initial construction; maintenance costs)
    v. Peer pressure/being like others

vi. Cultural, religious, moral beliefs

vii. No more support

viii. State one other reason

_____

_____

39. Does this locality suffer any of the following problems Circle those that apply – leave blank for No?

i. Collapsing soil

ii. High water table entering bottom of the pit (especially in wet season

iii. Prone to flooding in wet season

iv. Other (specify – e.g. termites)……

40. Which one does affect the maintenance of latrines in this area?

i. Collapsing soil

ii. High water table entering bottom of the pit (especially in wet season)

iii. Prone to flooding in wet season

iv. Other (specify – e.g. termites)……

41. In the last 3 months have you carried out any repairs on the toilet as a result of the following?

i. Collapsing soil

ii. Flooding of the pit

iii. Termite invasions

iv. Other geo-technical reasons

SECTION C: BEHAVIOUR CHANGE COMMUNICATION CAMPAIGNS

42. Have you heard any promotion on good hand washing practice in the last 12 months? where?
    i. No
    ii. Yes, in a religious institution
    iii. Yes, in schools
    iv. Yes, in a workshop
    v. Yes, in a large gathering/ community meeting
    vi. Yes, on the radio
    vii. Yes, on TV/video
    viii. Yes, at home
43. From whom did you hear the hand washing promotion?
    i. Hygiene promoter
    ii. Community health worker
    iii. Local government
    iv. Don't know
44. Who do you think was targeted in this community?
    i. The young children
    ii. The teenagers
    iii. The adults (men)
    iv. The adults (women)
    v. Anyone in the community
45. Have you seen or received any material on hand washing promotion in the last 12 months?
    i. No
    ii. Yes, brochure/ leaflet
    iii. Yes, posters
    iv. Yes, calendars/ billboards/ flipcharts/
    v. Yes, SMS
    vi. Yes, TV/ Video

46. What message was passed on to you through the above channels?

i. It is important to construct and use a toilet
ii. It is important to keep our toilets clean
iii. Poor sanitation causes diarrhoea
iv. Open defeacation leads to disrespect in the community
v. Lack of hand-washing causes diarrhoea
vi. Hand-washing prevents diarrhoea
vii. Use of a toilet prevents diarrhoea
viii. Diarrhoea is a dangerous disease
ix. None of the above

47. Did you take any action after receiving this message?

i. Yes
ii. No

48. If YES, what prompted you to take the action?

i. Fear of getting diarrhoea
ii. Fear of my child getting diarrhoea
iii. Desire to defeacate with dignity
iv. Desire for privacy
v. Disgust of hands contaminated with faeces
vi. None of the above

49. What action did you take on toilet improvement?

i. Changed slab
ii. Changed superstructure
iii. Constructed toilet
iv. Began cleaning my toilet
v. Told a friend/relative about importance of a toilet
vi. None of the above

50. If NO, Why didn't you take any action?

i. I already had a hand-washing facility
ii. I already had a toilet

iii. I cannot afford a toilet
iv. I cannot afford a hand-washing facility
v. An improved toilet is not available
vi. Hand-washing facility is not available
vii. I don't know how to make a hand-washing facility
viii. I did not take the advice/promoter seriously
ix. I am planning to construct a toilet in the next 1 month
x. I am planning to purchase/make a hand-washing facility in the next 1 month
xi. None of the above

SECTION D: TRAINING OF SANITATION PROMOTERS

51. Are you aware of any village laws or regulations relating to having and using a latrine?
    i. Yes
    ii. No

    If YES, state one _____
    _____
    _____

For those with own latrines

52. Who influenced you to start using a latrine? (select all applicable options)
    i. Family member
    ii. Friend/ Neighbour
    iii. Community health worker
    iv. Chief/Sub chief
    v. Sanitation promoters
    vi. Other (specify) ……..

53. Are there trained community sanitation promoters in this village, you are aware of?
    i. Yes

ii. No

iii. Do not know

54. If yes, state one of their role in ensuring that the village attains or maintains the ODF status

_____

_____

_____

55. If no, state one way in which this has affected the usage of latrines in this community

_____

_____

_____

56. Give two recommendations which you can make on sustainability of ODF status

_____

_____

_____

_____

_____

THANK YOU FOR YOUR RESPONSES

APPENDIX 3: HOUSEHOLD WEALTH INDEX TOOL

Urban or Rural	Note whether the person lives in an urban or rural area	Urban ……..… Rural ……..…		code 1 2
W01	What is the main source of drinking water for members of your household?	Piped into dwelling/		11
		Piped to compound/plot/		12
		Public tap/standpipe.		13
		Borehole		14
		Open well in compound/plot		21
		Open public well		31
		Covered well in compound/plot		32
		Rainwater		41
		Bottled water		42
		Covered public well		51
		Spring		61
		River/stream		71
		Pond/lake		81
		Dam		96
		Other (specify)		91
W02	What kind of toilet facility do members of your Household usually use?	Flush toilet		11
		Traditional pit toilet		12
		Ventilated improved pit toilet . . .		13
		No facility/bush/field		61
		Other		96
	Do you have the following?:		Yes	No
W03	A clock or watch	Clock/watch/.	1	2
W04	Electricity	Electricity/.	1	2
W05	A radio	Radio/radio	1	2
W06	A television	Television/	1	2
W07	A mobile telephone	Mobile telephone/. . .	1	2
W08	A non-mobile telephone	Non-mobile telephone /	1	2
W09	A refrigerator	Refrigerator/	1	2
W10	A solar panel	Solar panel /	1	2
W11	Fan	Fan/.	1	2
W12	Sewing machine	Sewing machine/	1	2
W13	Cassette player	Cassette player/. .	1	2
W14	Plough	Plough/	1	2

W15	Grain grinder	Grain grinder/.	1	2
W16	VCR/DVD	Vcr/dvd /. .	1	2
W17	Tractor	Tractor/	1	2
W18	Hammer mill	Hammer mill/ _ . .	1	2
W19	None of the above	None of the Above.	1	2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES
W20	What type of fuel does your household mainly use for cooking?	Electricity . . . .01 LPG/ natural gas. . . . . ……02 Biogas. . . . . ……..03 Kerosene. . . . . ….04 Coal, lignite . . . . . ……05 Charcoal. . . . . ……06 Firewood/straw. . . . . ……07 Dung. . . . . 08 No food cooked in house…… 09 Other 96
W21	What is the main material of the floor in your household?/	Earth/sand. . . . . 11 Dung/. .. . . . . 12 Wood planks. . . . . 21 Vinyl or asphalt strips 32 Ceramic tiles/. . .. . 33 Cement / . . . . . 34 Other / 96
W22	What is the main material of the roofing in your household?	Thatch / leaf. . . . . 11 Sticks and mud. . . . . 12 Rustic mat / plastic sheet/ rustic mat / 21 Reed / bamboo. . . . . 22 Wood planks. . . . . 23 Corrugated iron . . . . . 31 Wood/ . . . . . 32 Calamine / cement fiber/. . . . . 33 Cement / concrete. . . . . 34 Roofing shingles/ 35 Other / 96
W23	What is the main material of the exterior walls in your household?	No Walls. . . . . 11 Cane/sticks/bamboo/reed 12 Bamboo/wood with mud 21

		Stone with mud. . . . . 22 Uncovered adobe/ uncovered adobe . . . 23 Plywood. ….. . . . . 24 Carton. . ….. . . . . 25 Cement.. . . . . 31 Stone with lime/cement. . . . . 32 Bricks . . . . . 33 Cement blocks. .. . . . . 34 Covered adobe/ covered adobe. . . . . 35 Wood planks/shingles 36 Other (specify) 96	
W24	How many people live in your household?		People. . . . .
W25	How many rooms in your household are used for sleeping?		Rooms. . . . .
	Does any member of your household own the following:		Yes No
W26	A bicycle	Bicycle	1 2
W27	A motorcycle or motor scooter	Motorcycle/ scooter. ...	1 2
W28	An animal-drawn cart	Animal-drawn cart	1 2
W29	A car, truck	Car/truck …….	1 2
W30	Boat with a motor	Boat ……..……	1 2

(*Adapted from the 2010 National Multiple Indicator Survey for Kenya)*

APPENDIX 4: INTERVIEW GUIDE FOR KEY INFORMANTS

The interview guide will be administered to 1 Community Health Worker (CHW) and 1 Public Health Officer (PHO) from each of the five wards.

Please give the following personal information:

1) Designation: a) CHW _____ b) PHO _____
2) What would you say is your role in the sanitation program in this area/ward/village/division?
3) What would you say are the social factors facilitating sustainability of toilet use among the ODF certified communities in Nyando Sub County?
4) What would you say are the social factors hindering sustainability of toilet use among the ODF certified communities in Nyando Sub County?
5) What would you say are the management factors facilitating sustainability of toilet use among the ODF certified communities in Nyando Sub County?
6) What would you say are the management factors hindering sustainability of toilet use among the ODF certified communities in Nyando Sub County?
7) In what ways have the behaviour change communication campaigns facilitated sustainability of toilet use among the ODF certified communities in Nyando Sub County?
8) In what ways have the behaviour change communication campaigns hindered sustainability of toilet use among the ODF certified communities in Nyando Sub County?
9) In what ways has the training of sanitation promoters as sanitation promoters facilitated sustainability of toilet use among the ODF certified communities in Nyando Sub County?
10) In what ways has the training of sanitation promoters as sanitation promoters hindered sustainability of toilet use among the ODF certified communities in Nyando Sub County?
11) What aspects do you think can be improved to avoid cases of communities reverting to Open Defeacation after achieving the ODF certification status?

THANK YOU FOR YOUR RESPONSES

APPENDIX 5: VILLAGES CERTIFIED AS OPEN DEFEACATION FREE IN 2011

1. Kamwanda B
2. Kanyikwaya
3. Kanyipola
4. Kaswindi
5. Kodongo
6. Koguta
7. Koloo
8. Kowuor
9. Kowuor
10. Kowuor Lower
11. Michura
12. Ongongo
13. Wachiegwe
14. Wagunga
15. Waswa Upper B
16. Nyachoda
17. Katieno
18. Koluoch
19. Awendo
20. Border
21. Holo Upper
22. Kabong'o **
23. Kabonyo Block 2
24. Kabonyo Block 3
25. Kabonyo Block 5
26. Kabonyo Block 6
27. Kabonyo block 8
28. Kadika
29. Kagola
30. Kajina
31. Kajina B
32. Kamagaga
33. Kamagoma
34. Kamahawa
35. Kambaria
36. Kamine
37. Kamiolo
38. Kamouro
39. Kamunda
40. Kamuoro

41. Kamwanda
42. Kamwanda A
43. Kanyagilo
44. Kanyathuomo
45. Kanyathuondo
46. Kanyibana paw tenge
47. Kanyilum
48. Kanyipola
49. Karabok Gem Rae
50. Kasboga
51. Kasilwal
52. Kasirere
53. Kasirere A
54. Kasirere B
55. Kasiwindi South
56. Kaswa
57. Katuk
58. Kawamoya
59. Kawandola
60. Kawino
61. Kayugi
62. Kiliti West
63. Kinasia Upper
64. Kobongo
65. Kochiewo
66. Kochola
67. Kodero
68. Kodhiambo
69. Kogello
70. Kojiem
71. Kojodo Lower
72. Kojodo upper
73. Kokul
74. Kondhiro
75. Konyibana Kowire
76. Kowiti A **
77. Kowiti B **
78. Kowour
79. Limtidi
80. Lower Kinasia
81. Makindu Bao
82. Makindu central
83. Makindu west

84. Masune
85. Miranga
86. Ngere
87. Nyando A
88. Nyando Central
89. Nyarombe upper
90. Ogango
91. Oren c
92. Oreng A
93. Oreng B
94. Oseng A
95. Oyani
96. Oyani Central
97. Oyani East
98. Sitima
99. Tura
100. Wagunga
101. Wang'aya
102. Waradho
103. Waswa Central
104. Waswa Lower
105. Waswa Upper A
106. Yogo

Source: UNICEF and Ministry of Health (2013)

APPENDIX 6: VILLAGES CERTIFIED AS OPEN DEFEACATION FREE IN 2012

1. Achego B
2. Awasi Town
3. Kaboi
4. Kabongo Bunde
5. Kabongo North
6. Kakola B
7. Kakola Gerliech
8. Kaloo North
9. Kaloo South
10. Kamanga
11. Kanyachambla
12. Kanyagiro Lower
13. Kanyak -Tum
14. Kanyangoro
15. Kanyathuondo
16. Kanyipola
17. Karating
18. Karondo
19. Kasambira
20. Kobongo 1
21. Kochogo
22. Kodwar Got
23. Kogolo
24. Kojunga
25. Miringo
26. Nyarombe Lower
27. Waondo

Source: UNICEF and Ministry of Health (2013)

APPENDIX 7: RESEARCH PERMITS

UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION
DEPARTMENT OF EXTRA-MURAL STUDIES
NAIROBI EXTRA-MURAL CENTRE

Your Ref:

Our Ref:

Telephone: 318262 Ext. 120

Main Campus
Gandhi Wing, Ground Floor
P.O. Box 30197
NAIROBI

5th October, 2016

REF: UON/CEES/NEMC/24/297

TO WHOM IT MAY CONCERN

RE: RIUNGU PASCAL MUGIRIA - REG NO L50/74786/2009

This is to confirm that the above named is a student at the University of Nairobi, College of Education and External Studies, School of Continuing and Distance Education, Department of Extra- Mural Studies pursuing Master of Arts in Project Planning and Management.

He is proceeding for research entitled **"factors influencing sustainability of open defeacation free environment in Nyando Sub- County, Kisumu County, Kenya."**

Any assistance given to him will be appreciated.

UNIVERSITY OF NAIROBI C.E.E.S. P.O. Box 30197 05 OCT 2016 NAIROBI EXTRA MURAL CENTRE

CAREN AWILLY
CENTRE ORGANIZER
NAIROBI EXTRA MURAL CENTRE

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/16/0718/14143**

Date: **8th November, 2016**

Riungu Pascal Mugiria
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Factors influencing sustainability of open defeacation free environment in Nyando Sub-County, Kisumu County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for the period ending **8th November, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.

THIS IS TO CERTIFY THAT:
MR. RIUNGU PASCAL MUGIRIA
of UNIVERSITY OF NAIROBI,
0-100 NAIROBI,has been permitted to
conductresearch in *Kisumu County*

on the topic: *FACTORS INFLUENCING SUSTAINABILITY OF OPEN DEFEACATION FREE ENVIRONMENT IN NYANDO SUB-COUNTY, KISUMU COUNTY, KENYA*

for the period ending:
8th November,2017

.....
Applicant's Signature

Permit No : NACOSTI/P/16/0718/14143
Date Of Issue : 8th November,2016
Fee Recieved :ksh 1000

.....
Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 11717

CONDITIONS: see back page

ORIGINAL

AC: 12779

OFFICIAL RECEIPT

Station NAIROBI Date 7-11-2016

Received from RIONGU PASCAL MOGIRA

Shillings ONE THOUSAND KENYA SHILINGS ONLY cents

on account of RESEARCH PERMIT FEE

Vote Head 43

NACOSTI

Item A-I-A

Cash

Cheque No. DIRECT DEPOSIT

USD

Kshs 1000/=

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Signature of Officer receiving remittance

APPENDIX 8: MAP OF STUDY AREA

APPENDIX 9: PLAGIARISM CHECK SUMMARY REPORT

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by Pascal Riungu

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