

**EVALUATION OF SANITATION FACILITIES IN RELATION TO
COMMUNICABLE DISEASES IN GOVERNMENT PRIMARY
SCHOOLS IN MKINGA DISTRICT COUNCIL**

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COMMUNICABLE DISEASES IN GOVERNMENT PRIMARY
SCHOOLS IN MKINGA DISTRICT COUNCIL**

By

Irene Vincent Mosha

**A Dissertation Submitted to the School of Public Administration and Management
in Partial Fulfilment of the Requirements for Award of the Degree of Master of
Science in Health Monitoring and Evaluation (MSc. HME) of Mzumbe University**

2018

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled “***Evaluation of Sanitation Facilities in relation to communicable diseases in Government Primary Schools in Mkinga District Council***” in partial fulfilment of the requirements for award of the degree of Masters of Science in Health Monitoring and Evaluation of Mzumbe University.

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Finally, special appreciation is to my family; my son, my mom and my brothers who spent their funds and devoted a lot of time praying for me and remained resilience with endless endurance during my home absences for data collection and execution of this study.

DEDICATION

I dedicate this thesis to my beloved Son Paul Patric Ndimbo, my Mother Benedicta Thadei Lyimo and brothers Arcad Vicent Mosha and Evance Lyimo.

ABBREVIATIONS AND ACCRONYMS

AMREF	-	African Medical and Research Foundation
MoVET	-	Ministry of Education and Vocational Training
MoHCDGEC	-	Ministry of Health Community Development, Gender, - Elderly and Children
NGOs	-	Nongovernmental Organizations
NSC	-	National Sanitation Campaign
PMO-RALG	-	President's Office, Regional Administration and Local - Government
SWASH	-	School Water Sanitation and Hygiene
SWASH	-	School Water Sanitation and Hygiene
SNV	-	Netherland Development Organization
UNICEF	-	United Nations International Children's Emergency Fund
WASH	-	Water Sanitation and Hygiene
WHO	-	World Health Organization

DEFINITION OF TERMS

Communicable Diseases an infectious disease transmissible (as from one person to person) by direct contact with an affected individual or individual's discharges or by indirect means (as by vector) – compare contagious diseases.

Sanitation is conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal (Oxford Dictionary).

Hygiene is conditions and practices that help to maintain health and prevent the spread of diseases. Medical hygiene therefore includes a specific set of practices associated with this preservation of health, for example environmental cleaning, sterilization of equipment, hand hygiene, water and sanitation and safe disposal of medical waste (WHO, 2010).

Improved Sanitation facilities: is defined as one that hygienically separates human excreta from human contact

Latrine is a toilet, especially a communal one in a camp or barracks (Oxford Dictionary)

Sanitation Facilities these are the facilities which used to stop transmission of diseases by removing the fecal matter from the environment that prevents the pathogens from entering waterways. These facilities are flush toilet, piped sewer system, septic tank, flush/ pour to pit latrine, ventilated improved pit latrine, pit latrine with slab and composting toilet.

ABSTRACT

Background: Water, Sanitation and Hygiene related diseases remain one of the most significant child health problems worldwide. Infections such as cholera, malaria, trachoma, bilharzias and diarrhoea are on increase in our communities. The most affected ones are children. These diseases not only affect children's physical development but also school attendance and academic performance. The challenges of School Water, Sanitation and Hygiene (SWASH) are more pronounced in developing countries unlike the developed world. This study evaluated the Sanitation facilities in government Primary Schools in Mkinga District Council.

Methodology: The study used cross sectional study design, drawing a sample of 285 respondents. Purposive sampling was used to select Key informants. Simple random sampling was used to select Ward Development Committee (WDC), Village Government members, members of school committee, and teachers and snowball sampling was used to select Pupils, Parents/community and Private sector, Local artisans and construction companies. Primary data were collected through questionnaire and direct observation. Content analysis method was used to analyse the data from in-depth interviews. Questionnaire data were analysed using SPSS computer software where descriptive statistics such as frequencies and percentages were deployed.

Results: A total number of 30% of Mkinga Public primary school have sanitation facilities. Pupils whom practice hygiene are 30% but not all pupils are provided with protective gears. Community members agreed that the hygienity of water sources was poor are 36%.

Conclusion: The sanitation facilities are insufficient in government primary schools. Pupils practice hygiene but not all pupils are provided with protective gears. The hygiene practice among community members is very poor due to the farming activities, which are conducted near the sources of water.

Recommendations: The Government should ensure that, the district level guidance and support for compliance reflects the National regulatory framework. Use appropriate guidelines where standards do not exist.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Water, Sanitation and Hygiene related diseases remain one of the most significant child health problems worldwide. Infections such as cholera, malaria, trachoma, bilharzias and diarrhea are on increase in our communities. The most affected ones are children. These diseases not only affect children's physical development but also school attendance and academic performance. The challenges of School Water, Sanitation and Hygiene (SWASH) are more pronounced in developing countries unlike the developed world. According to a report by the UN children's agency and its partners, titled "*Raising Clean Hands*," in sixty (60) countries in the developing world, more than half of primary schools have no adequate water facilities and nearly two-thirds lack adequate sanitation (UN, 2004). Furthermore, lack of separate and adequate sanitation and washing facilities for adolescent girls discourages them from attending school due to failure of meeting hygiene needs during menstruation, which in turn affects their school performance and increase their risk of dropping out. At this particular moment, they need changing room, adequate water and facilities for disposal of sanitary pads. Likewise, there are problems of accessibility to WASH facilities especially to schoolchildren with disabilities. Improving water supply, sanitation and hygiene in schools is crucial as it embraces the wellbeing of school children, reduces the risk of WASH related diseases, contributes to education enrolment and performance, increases dignity and cognitive ability and reduces absenteeism (NSPSWASH, 2012-2017).

In Tanzania, high rates of communicable diseases due to poor sanitation and unhygienic behaviour is experienced. The situation among other things is perpetuated by the existing coverage and access of school WASH facilities. The study conducted by SNV, Water Aid and UNICEF in 2009 in 16 districts covering 2697 schools in Tanzania mainland. The survey revealed that 6% of the schools had no latrines, 84% had no hand washing facilities, 86% had no water for hand washing and 38% of the schools had no water supply (SWASH Mapping Report, 2011). This critical shortage explains the

continued existence of diarrhea, worms, acute respiratory infections, trachoma and dysentery which are all linked to inadequate access to water supply, improper sanitation and unhygienic behaviour.

The WASH situation above has tremendously grown wider due to ongoing programs in primary and secondary schools. The Primary Education Development Programme (PEDP) and Secondary Education Development Programme (SEDP) have all led to the increased enrolment of children in schools. This increase has mounted a huge demand for facilities particularly classrooms, chairs, laboratories, latrine and water supply. Unfortunately, water and latrine facilities did not receive equal attention like others. As a result, the situation of WASH continues to deteriorate. (NSPSWASH, 2012-2017).

The Tanzanian National Sanitation Campaign (NSC), launched in June 2012, aims to stimulate demand for sanitation and improve supply. The NSC is coordinated by the Ministry of Health and Social Welfare and involves (Non-Governmental organizations (NGOs), the private sector and other government ministries. Four key ministries involved in NSC are Ministry of Health and Social welfare (MoHSW), Ministry of Education and Vocational Training (MoEVT), Ministry of Water and Irrigation (MoWI) and Prime Minister's Office, Regional Administration and Local government (PMO-RALG). The National Sanitation campaign has two components which are household sanitation and hygiene and promotion of School Water sanitation and hygiene (School WASH). This evaluation focused on the component of School WASH in which the memorandum of understanding that was signed between the four key ministries gave the mandate to the MoEVT to lead the project (National Guideline for SWASH in Tanzania, Oct, 2010).

The Government has taken different measures to improve WASH situation in schools. Incorporation of hygiene education in school curricular together with provision of latrines and water facilities in some schools indicate the Government's commitment to address the SWASH challenges. However, other actors such as Development Partners, NGOs, CSO, Communities and individuals are implementing school WASH in the country.

The nation-wide survey has shown that in 2006 the number of schools with proper latrine was only 38%, leaving behind more than 60% of schools in need of proper latrines (BEST, 2006). This gap represents only demand in toilet facilities beside other provisions such as hand washing facilities, operation and maintenance.

The mapping of school WASH in 16 districts of Tanzania mainland conducted by SNV, WaterAid and UNCEF in 2009 indicates that only 10% of schools have adequate sanitary facilities, two thirds of all schools in these districts have more than 50 pupils per pit, where as 6% were reported to have no latrines at all. This survey results show that there is a large shortage of latrines in schools. (NSP for SWASH 2012-2017).

The operation and maintenance of latrine is also a challenge to many schools. The issue of privacy in latrine use particularly for girls during menses leaves a lot to be desired. In many schools there are inadequate or no provisions to facilitate change and safe disposal of sanitary pads. Equally important, there are no adequate WASH facilities suitable for children, teachers and other school staff with disabilities (NSP for SWASH 2012-2017).

1.2 Statement of Problem

Since 1990s, the government has been making effort to improve sanitation and hygiene in order to overcome communicable diseases. Several reforms have been made one of them is the Tanzanian National Sanitation Campaign (NSC), launched in June 2012. This programme aimed to stimulate demand for sanitation and improve supply. The NSC was coordinated by the Ministry of Health and Social Welfare and involves (Non-Governmental organizations (NGOs), the private sector and other government ministries.

Despite the efforts made by government the rate of access to School water sanitation and hygiene as well as facilities has been very low due to the rise of the number of primary schools from 11, 873 in 2001 to 14,700 in 2006. As a result of this massive increase of primary schools, there has been a necessity of resources to keep pace with this vast increase, hence there has been a need of more than 240,000 extra drop holes in all the schools in Tanzania (UNICEF, 2010). As the result the government came up with School Water, Sanitation and Hygiene (SWASH) programme in 2012.

SWASH programme was introduced in 2012 with the aim of improving sanitation and hygiene in primary and secondary schools in Tanzania in order to reduce communicable diseases. Mkinga is one of the districts in Tanzania where this programme is implemented. Since the program started, it has been progressively conducted every year with the insufficient clear information of the achievements of some of the indicators.

In Annual SWASH report of Mkinga District from 2016 to 2017 it was observed that 55% of school had good pit latrine compared to 45% that had poor latrine; but the report lack behind the issue of clean and safe water for both domestic uses and school use, which is very important indicator in control of communicable diseases especially cholera and other water borne illness.

In spite of program progress, there are insufficient sanitation facilities in Government primary schools and the community at large. Therefore, this study evaluated SWASH programme in government primary schools in Mkinga district council to see whether the programme has reduced communicable diseases in public primary school in Mkinga District.

1.3 General evaluation question

Are the Sanitation Facilities in Public Primary Schools in Mkinga District complies with the specific standards set by the Ministry of Health and Social Welfare; National Sanitation Options and Construction Guidelines, September 2012.

1.3.1 Specific evaluation questions

- i. Is there availability of sanitation facilities for Primary Government Schools in Mkinga District?
- ii. Are pupils, families and community practice the hygiene behavior? if Yes how, if No why?
- iii. What are the sources of water in Mkinga Primary schools?
- iv. What are the communicable diseases affecting the Pupils in Mkinga Primary Schools?

1.4 Evaluation Objectives

1.4.1 General objective

To evaluate sanitation facilities in relation to communicable diseases in government primary schools in Mkinga District Council.

1.4.2 Specific evaluation objectives

- i. To determine availability of sanitation facilities in Mkinga Public Primary Schools.
- ii. To examine hygiene practices among Pupils in Mkinga Public Primary Schools.
- iii. To assess hygienity of water sources in Mkinga District.

1.5 Significant of the Study

The findings in this report are useful to Mkinga District School Wash Program to assess the sanitation facilities in Primary schools as well as a working tool for different stakeholders in the field of environmental sanitation dealing with planning; designing; implementing and monitoring and evaluation of sanitation programmes in the country. Result gathered will assist in formulation of policy and measures to be taken to achieve the Millenium Development goals in 2025. Finally, the report is part of the fulfillment of my Masters degree required and submitted to Mzumbe University for academic purpose.

1.5.1 Description of SWASH

The Government of Tanzania has been implementing Primary Education Development Programme (PEDP I) 2002 -2006 and Secondary Education Development Program (SEDP I) since 2004 -2009. The main objectives been making education more accessible and improving its quality to all school children. While significant success has been made in extending access, improving quality remains a challenge. The increase of number of schools is inversely proportional with the increase of sanitation facilities. The Ministry of Education and Vocational Training (MoEVT) has defined clearly the standards for school sanitation facilities. These standards include setting latrines with the ratio of one drop hole per 20 girls and one per 25 boys. In 2009, UNICEF, Water

Aids and SNV carried out a survey (2009) to find out the existence situation and standards of WASH facilities in schools. Survey revealed that most of the schools have not met these standards. This situation has prompted the MoEVT to join effort with Development Partners to design a School Wash and Hygiene (SWASH) program in scaling up the sanitation facilities in schools (SWASH, 2012)

Previous studies showed that poor performance in schools was associated with poor sanitation facilities that results to pupils' illness and drop out. Tinograh (2009) has explained the shortage of water in school latrines was a highly contributing factor of school girls dropping out of school due to the hardships they face during their menstrual periods. 90% of children in Tanzanian districts use toilets but they do not have access to wash their hands as a result they go to class with dirty hands (Waddington, 2009).

1.5.2 Overall goal of school wash programme

The overall goal for the SWASH programme was to promote good environmental health, safety and wellbeing-of school communities through the provision of adequate and accessibility safe water, sanitation and hygiene services in schools (SWASH strategic guideline, 2013). This programme will be achieved by doing the following specific objectives;

Specific objectives of the School wash programme

- i. To influence communities to participate in planning, Construction use and maintenance of user friendly water, sanitation and hygiene facilities for school and communities.
- ii. To build human resources capacity for improved schools Water, sanitation and hygiene services delivery which is gender friendly and accessible
- iii. To provide conducive, accessible and inclusive environment for school children with special needs.
- iv. To improve hygiene practices among school children, their families and communities.
- v. To improve water, sanitation and hygiene facilities for better health and well being for school and children.

SWASH programme is carried out in all Regions in Tanzania under the National Sanitation campaign. Evaluation is focusing on improving sanitation facilities for better health and well-being for school children.

1.6 Programme activities and resources

Activities that need to be implemented in School WASH are:-

- i. training of teachers and students on School WASH
- ii. construction of new latrines
- iii. rehabilitation of latrines and other improvements like building
- iv. purchasing hand washing facilities for the students and teachers
- v. Mobilizing communities to participate in School WASH.

Resources that are needed for the implementation of that activities are fund, human resources i.e. trainers and teachers.

1.6.1 Programme stakeholders

School WASH is a cross-cutting issue of which its coordination needs clear direction for implementation and adequate guidelines with specific roles and responsibilities of each key player. SWASH interventions by players from different ministries, partners and agencies need a clear coordination structure. The Memorandum of Understanding (MoU) signed by four key Ministries responsible for School WASH (MoHCDGEC, MoEST, PO-RALG and MoWI) provided coordination, mechanism and clarifies roles and responsibilities. The structure below illustrates the relationship among the four key Ministries.

Table 1.1 Stakeholder's roles and responsibilities

Stakeholder	Roles and Responsibilities
National Level	
MoEST	• Take the lead in the formulation and enforcement of SWASH standards. • Take the lead in monitoring the implementation and coordination of WASH in schools • Jointly Chair the Technical Working Group for School WASH with the MoHCDGEC • Develop and review policy guidelines for School WASH in collaboration with the MoHCDGEC MoWI, PO-RALG and CSOs • Ensure the provision of SWASH training to LGAs • Develop/review materials for inclusion of SWASH in the school curriculum • Mainstream WASH in school curriculum and develop teaching and learning materials related to WASH for schools. • Monitor implementation of national policies, SWASH minimum standards and use of national guidelines by LGAs. • In collaboration with PO-RALG, ensure monitoring and evaluation of SWASH activities and facilities. • Coordinate planning and budgeting of SWASH for the implementation of NSC at Central level. • Mobilize and Solicit funds for School WASH activities • Conduct school inspection of WASH activities and facilities through Zonal and Council School Quality Assurance.
MoHCDGEC	• Chair the National Sanitation and Hygiene Steering Committee • Coordinate the National Sanitation and Hygiene, Technical Committee. • Jointly Chair the Technical Working Group for School WASH with the MoEST • Coordinate the formulation of policy, guidelines and strategies for hygiene and sanitation • Enforce Acts and Regulations relating to sanitation, hygiene and water quality regarding SWASH • Set appropriate and realistic standards and enforce them (to protect public health) for sanitation and hygiene and regulating processes in

Stakeholder	Roles and Responsibilities
	collaboration with MoWI • Provision of technical assistance to LGAs regarding sanitation and hygiene. • Harmonise and promote participatory approaches for sanitation and hygiene services • Monitor implementation of national policies, standards and use of national guidelines by LGAs • In collaboration with PO-RALG and MoEST, ensure monitoring and evaluation of SWASH activities and facilities.
PO-RALG	• Coordinate planning and implementation of LGA SWASH projects and ensure clarity of responsibilities for operation and maintenance. • Responsible for the development of the guidelines for SWASH budgeting at the LGA level, in collaboration with the MoF. • Provide information on the basis of which the distribution of LGA SWASH funds are allocated. • Together with MoEST, monitor and supervise construction of SWASH facilities. • Coordinate institutional streamlining and capacity building for LGAs, such as strengthening of CWSTs regarding SWASH. • Supervision and monitoring the performance of LGAs and other actors in SWASH. • Ensure all SWASH minimum standards and reporting system are adhered to by LGAs. • Mobilize and Solicit funds for School WASH.
MoWI	• Formulation of the SWASH component in National Water Policy (NAWAPO). • Facilitate provision of adequate water in schools. • Be involved in setting standards for sewerage systems in schools. • Monitoring, evaluation and assess quality assurance of water and wastewater in schools. • Coordination of water sector development activities concerning sanitation and hygiene including in schools. • Monitor implementation of national policies, SWASH minimum standards and use of national guidelines by LGA. • Monitoring School WASH in collaboration with LGAs.
Development	• Capacity building to support: a gradual and sustained process of

Stakeholder	Roles and Responsibilities
Partners (Donors).	strengthening the capacities of individuals, organizations, and society recognizing the type of capacity needs at each of these levels and the interrelationship between the levels. • SWASH Resource mobilization and financing for SWASH. • Support Monitoring and Evaluation of SWASH. • Support policy dialogue and formulation in SWASH.
INGOs/LNGOs; FBOs; CBOs.	• Facilitate, support, and carry out research and learning regarding SWASH. • Supporting provision of SWASH services in schools. • Support policy dialogue and formulation in SWASH. • Support Monitoring and Evaluation of SWASH. • Conduct SWASH policy analysis and advocacy. • Contribute experience, knowledge, financial, technical and material resources to the improvement and provision of SWASH activities. • Participate effectively in planning, implementing and monitoring of SWASH activities.
• Regional Level	
Regional Secretariat	• Supervision and monitoring of LGAs on efficiency and effectiveness of use of resources related to School WASH. • Provision of technical advice to LGAs for implementation of School WASH. • Supervise planning, budgeting, implementation and reporting of LGAs.
• Local Government Level	
Local Government Authority (Council Director, Municipal Executive Director, Town Director, District Executive Director)	• Provide resources and guidance for setting; achieving and maintaining the targets set by schools. • Ensure that assessment (using Tool Kit 1A) of School WASH facilities is carried out once a year. • Advocate at national and Council levels for equitable and adequate resources regarding School WASH. • Coordinate local School WASH service providers.

Stakeholder	Roles and Responsibilities
	• Ensure that sufficient technical support is provided during School WASH interventions. • Monitoring and supervision of implementation School WASH guidelines in schools as part of the routine monitoring and inspection process (using Tool Kit 1B, twice a year). • Organise and provide SWASH training (including hygiene education) and advice to teachers, head of schools, other school staff and school committees/boards. • Ensure correct and cost effective design and construction of School WASH facilities. • Ensure correct and cost effective maintenance of School WASH facilities. • Share reports timely on Council budgets and expenditure for School WASH among stakeholders to enhance transparency and accountability in response to Open Government Partnerships (OGP) principles. • Plan and coordinate School WASH competitions. • Ensure procurement procedures are adhered to during school WASH interventions. • To ensure motivation of teachers and pupils through tailor made courses, teaching aids and rewards for best performers in School WASH. • Mobilize and Solicit fund for School WASH.
Council Water and Sanitation Team (CWST)-School WASH lead by Council Education Officers.	• -Provide the day to day leadership and coordination for School WASH activities in the District. • Plans and manages the Council's School WASH programme. • Serves as the communication link with all stakeholders in the District, and supervises and supports School WASH service providers. • Inform and consult Council Structures E.g. Full Council, Social Services Committee, departments heads (CMT), Council Tender Board, on School WASH developments. • Collect and analyze data on SWASH services and needs of schools in the District, in order to identify gaps (using ToolKit 1A and/or 1B). • Keep records and develop a data base /inventory on all SWASH facilities in the District.

Stakeholder	Roles and Responsibilities
	• Assist the Council Directors (CD) on the day to day coordination of School WASH. • Prepare Council Water and Sanitation Plan (CWSP) and annual plans, which include a SWASH component. • Promote awareness on SWASH projects and facilitate community demand. • Consolidate community proposals in SWASH and prepare consolidated budget. • Coordinate SWASH training of school staff, ward extension officers that is ward health officers, ward education coordinators, and communities. • Supervise and monitor school staff, ward extension officers i.e. ward health officers and ward education coordinators, and communities in SWASH activities. • Supervise and certify construction works and ensure quality standards in SWASH. • Administration of contracts, progress reports, bid evaluation report. • Trouble shooting help solve conflicts and problems at different levels. • Organize monitoring and evaluation of SWASH interventions. • Provide continuous backup support to communities and schools regarding SWASH.

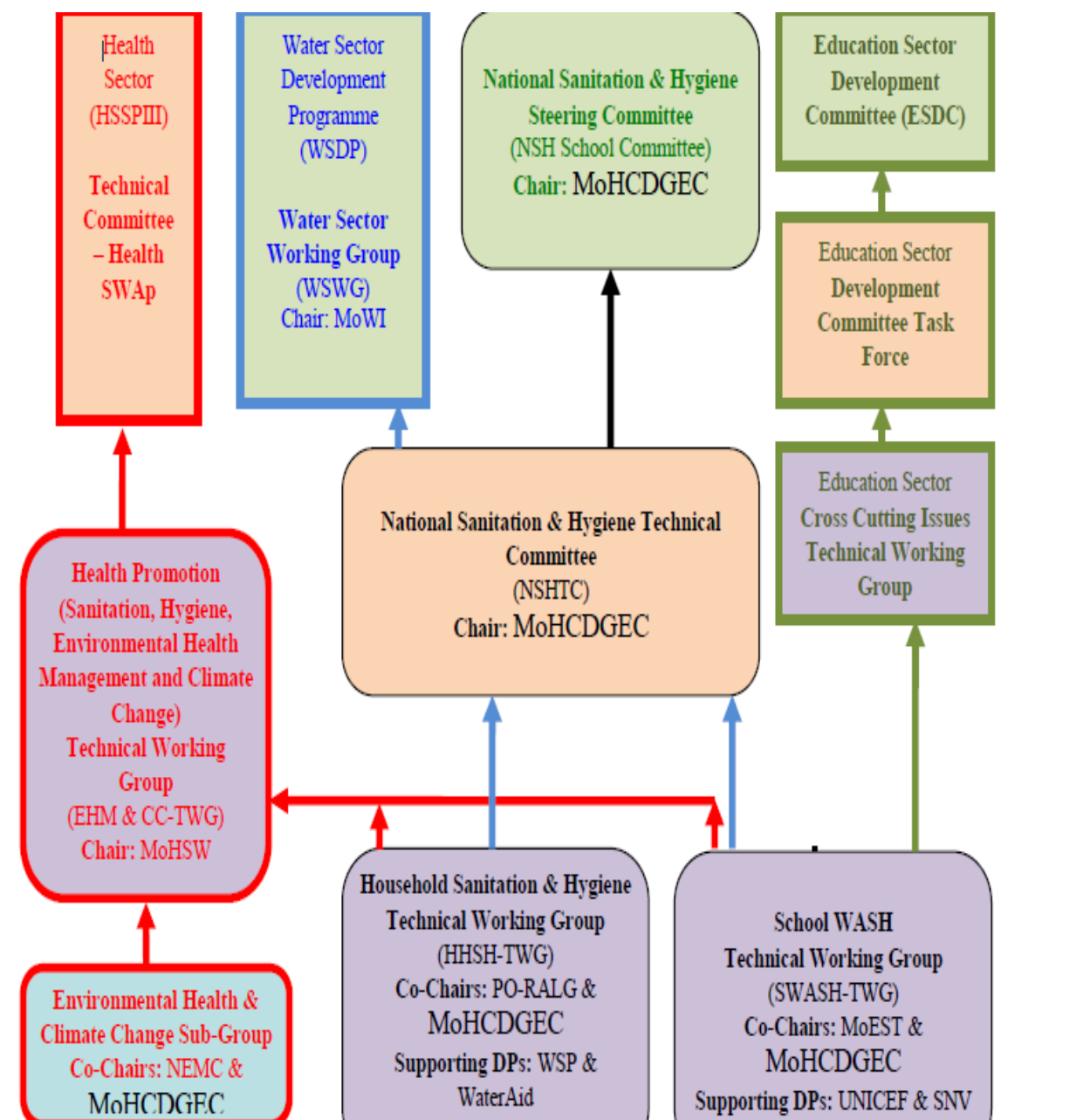
Local Government - Ward Level	
Ward Development Committee	• Coordinate planning and budgeting of School WASH. • Coordinate all organisations and institutions supporting SWASH in the ward. • Follow up the implementation of water and sanitation activities in schools. • Facilitate community mobilization for SWASH activities. • Ward Education Coordinators participate in assessment/monitoring and school site supervision of School WASH activities (Toolkit 1A and 1B).
Local Government - Village Government Level	
Village Government	•

Local Government - Ward Level	
	• Implement, monitor and support the development of improved School WASH facilities and practices and report to the Village/Mtaa assembly on progress. • Facilitate community mobilization as well as other types of resource mobilisation for School WASH. • Planning and budgeting on village funds for School WASH at community and school level. • Ensure the Health & Environment Committee and/or the Water Committee address School WASH as part of their core responsibilities. • Organising community meeting/assembly in which SWASH is on the agenda. • Prepare Village/Mtaa financial reports and present to communities and the LGA through Village/Mtaa meeting after every three months on all progress and financial sources used for School WASH. • Contract management with local artisans or service companies in School WASH. • Promotion of awareness and action on School WASH. • Coordination between Social Services Committees and other relevant organization involved in School WASH. • To supervise construction of SWASH facilities and to ensure every school and household has latrines.
School Level	
School Committee	• Make sure minimum standards and targets for School WASH are met. Create enabling environment to encourage teachers and pupils to meet the set standards. • Make sure hygiene education is part of school teaching activities. • Develop and enforce school rules and regulations to promote good hygiene and a healthy school environment. • Encourage communities-teachers to actively get involved in School WASH development. • Setting and enforcing regulations and by-laws in the proper use of WASH facilities. • To ensure provision of security to protect WASH facilities in schools. • To demand the provision of School WASH teaching aids at the LGA.

Local Government - Ward Level	
	• Organise the communities contributions for the O&M fund. • Plan, budget for finances available for School WASH from any source. • Plans for O&M of the School WASH facilities. • Prepare and share annually a report on SWASH achievements, progress as well as financial reports with the school and community on the use of expenditure on School WASH from the school capitation and development grant or other funding. • Quarterly monitoring of School WASH (using ToolKit 1C). • Encourage active involvement of communities in School WASH monitoring. • Ensure the facilities are correctly used and maintained.
Teachers	• Participate in training on hygiene and sanitation education. • Guide pupils to adopt good sanitation and hygiene behaviour changes through hygiene education programme. • Motivate pupils to participate in SWASH extra-curricular activities and serve as the catalyst for sanitation and hygiene promotion at home and in the community. • Supervise and promote proper use and maintenance of School WASH facilities and the school environment. • To teach and assess exercises based on sanitation and hygiene topics. • To establish and supervise an active School WASH club.
Pupils	• Use School WASH facilities correctly and responsibly. • Practice good hygienic behaviour. • Participate in school campaigns, development of hygiene messages, competitions and projects on School WASH. • Play an active role in cleaning and maintenance of SWASH facilities. • Act as a catalyst of change in the community on matters related to School WASH.
Parents/ community	• Educate/encourage children to practise good hygienic practices. • Contribute to the construction, rehabilitation and O&M of School WASH facilities in cash or in kind as and when required.

Local Government - Ward Level	
	• Actively participate in School WASH facility development (planning; selection of appropriate technical options, construction supervision, quality control, fund raising, etc.). • Participate in monitoring of SWASH activities to endure good quality of the constructed facilities. • To demand for School WASH budget and expenditures reports. • Work closely with schools in the area and other relevant organisations.
Private sector Local artisans construction companies	• • Advise on technical designs and materials appropriate for the location. • Provide cost efficient and quality services. • - Undertake quality construction of School WASH facilities. • - Undertake maintenance of School WASH facilities if contracted to do so.

Figure 1.1 Water, Sanitation and Hygiene Coordination Structure



Source: SWASH guideline 2012-2017

CHAPTER TWO

LITERATURE REVIEW

2.1 Sanitation and Hygiene programme

School Water, Sanitation and Hygiene Education (SWASH) refers to the collaborative efforts of various stakeholders; government, NGO'S and international institutions, to ensure safe and healthy schools through the provision of clean water, latrines for both girls and boys, and appropriate hygiene education. This is put in context as estimates indicate that 1.1 billion people worldwide lack access to improved water supplies and 2.6 billion people lack adequate sanitation (UNICEF, 2010).

Less than two thirds of the global population, an approximate 2.6 billion people do not use improved sanitation. The greatest numbers are found in Southern Asia followed by large populations in Eastern Asia and Sub-Saharan Africa. Access to water is better with 87% of the world population and 84% in developing countries getting their drinking water from improved sources. But sub-Saharan Africa fares poorly with only 60 % of its population using improved sources of drinking water, (WHO/UNICEF, 2010).

The international bodies such as UNICEF, WHO, amongst others have been active in spearheading, WASH campaigns across the world with special emphasis in developing countries in Asia and Africa. Studies indicate that children due to diarrhea (Hutton et al, 2004) lose annually 272 million school days. This has obvious detrimental effects on academic performance. The availability of water and sanitation facilities In schools has been shown to reduce diarrhoea and hygiene related diseases amongst schoolchildren (Curtis et al 2003; Pruss-Ustun et al, 2008).

An estimated one in three school-aged children in the developing world is infested with intestinal worms (Savioli et al, 2002). A more recent study estimates that 400 million school children and 47 percent of 5-6year olds in the developing world are affected by worms (Hall et al, 2008). The same study indicates that 100 percent of annual soil transmitted worm infestation cases are attributable to inadequate sanitation and hygiene. The reduction of open defecation through adequate latrine provision especially at

schools; may definitely reduce and eventually break the cycle of infection and re-infections.

Where sanitation is poor and water supply is inadequate and unsafe, outbreaks of disease with severe health consequences tend to occur. Water and sanitation related diseases include diarrhoea, cholera, typhoid, dysentery, hepatitis A, Poliomyelitis, acute respiratory infections and soil-transmitted-helminth infections. The global Disability Adjusted Life Years (DALY's) for diarrhoeal diseases is estimated to be 4.1 percent and it's also estimated to be the cause of death for 1.8million people annually (WHO, 2010), most of them being children in developing countries.

Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. Studies indicate a 30 percent reduction in diarrhoea cases when hand washing is practiced in day care centres and primary schools (Ejemot et al, 2008).In addition other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008).

Availability of latrines and water improves school attendance and is especially important for adolescent girls who are menstruating as they require the privacy of separate latrines and also water. When this is lacking there is consistent absenteeism during their monthly period and this can reach up to twenty percent of school time (IRC, 2005). Many times such girls drop out all together from school especially as they also face challenges accessing sanitary towels due to its cost.

2.2 Challenges of Sanitation in Developing Countries

Developing countries face challenges in the provision of sanitation facilities and this is markedly more so in schools. A study in India evaluating the environment and sanitation in a rural government school as compared to national guidelines found that only 50% of the schools had adequate latrines for boys and 60% had adequate latrines for girls, while only 10% had adequate hand washing points with soap (Majra et al, 2010).

In Bangladesh a UNICEF study on sanitation facilities in primary schools (UNICEF, 2004) showed an average of one latrine for 152 pupils, with 25% having one latrine, 44% with two latrines, 13% with non functional latrines and 6% having none. The same study also indicates that 19% of all schools had no water facilities, 28% having non functional water sources and 53% with functional water sources. There are no national guidelines on sanitation facilities in primary schools in the country (Nahar et al 2006).

The situation of inadequate sanitation facilities in schools is replicated in Africa. Many times those entrusted with school administration are neither adequately informed nor knowledgeable on the policies in place. A study on Knowledge and practice of School Health Programmes in a local government area in Nigeria reported that 27.7% of the schools had no toilet facility, 33% had pit latrines while 40% had water closets. Only 25.6% had hand washing facilities. Additionally, none of the head teachers had adequate knowledge on the school health programme (Ofofwe et al, 2007).

In Ghana a study carried out to determine the conditions of the existing sanitation facilities indicated that out of 30 selected schools, 53% were without toilet facilities while 83% were without safe water on site (Gyabaah et al, 2009). The Ghanaian education policy requires all schools to have adequate sanitation and safe water facilities with a required ratio of 50 persons per squatting hole set by the Community Water and Sanitation Agency (CWSA) 2004).

In South Africa, twenty-three percent of the population is without access to basic sanitation while nine percent lack access to safe water. In regards to school sanitation, the government of South Africa aims to ensure that all schools have adequate sanitation facilities by 2014 (Global Water Challenge, 2010).

2.3 Intervention Impacts towards sanitation programme

The WASH concept incorporates the aspect of child-friendly facilities to enable pupils easily and safely utilize the latrines and hand washing points provided. This requires that the facilities constructed should take into consideration and be adapted, to fit children's smaller size and not just construct 'standard' latrines. Thus the latrine squatting hole and foot rests should be customized with children in mind as well as the height and location

of the taps at hand washing points. A study in Tanzania showed a 12 percent increase in school attendance when water is available within a 15 minute walk (Redhouse, 2004).

Availability of sanitation facilities on the other hand, leads to improved health outcomes for children and keeps girls in school. An evaluation of WASH in schools in Kenya showed that girls were less absent in schools where there was more hand washing and high toilet use, and there were reduced incidences of diarrhoeal diseases and helminth infestation (Njuguna et al, 2008).

2.4 Empirical Literature

The study by Njuguna et al. (2008) An evaluation of WASH in schools in Kenya. the study found that availability of sanitation facilities leads to improved health outcomes for children and keeps girls in school, the study further showed that girls were less absent in schools where there was more hand washing and high toilet use, and there were reduced incidences of diarrhoeal diseases and helminth infestation.

The findings by Global Water Challenge (2010) In South Africa found out that twenty-three percent of the population is without access to basic sanitation while nine percent lack access to safe water. In regards to school sanitation, the government of South Africa aimed to ensure that all schools have adequate sanitation facilities by 2014 (Global Water Challenge, 2010).

The study by IRC (2005) stated that availability of latrines and water improves school attendance and is especially important for adolescent girls who are menstruating as they require the privacy of separate latrines and also water.

When this is lacking there is consistent absenteeism during their monthly period and this can reach up to twenty percent of school time. Another study conducted in Tanzania showed that 12 percent increase in school attendance when water is available within a 15-minute walk (Redhouse, 2004).

A study by Ofovwe et al., (2007) on Knowledge and practice of School Health Programmes in a local government area in Nigeria reported that 27.7% of the schools had no toilet facility, 33% had pit latrines while 40% had water closets. Only 25.6% had

hand washing facilities. Additionally, none of the head teachers had adequate knowledge on the school health programme.

UNICEF (2004) conducted in Bangladesh a UNICEF study on sanitation facilities in primary schools showed an average of one latrine for 152 pupils, with 25% having one latrine, 44% with two latrines, 13% with nonfunctional latrines and 6% having none. The same study also indicates that 19% of all schools had no water facilities, 28% having nonfunctional water sources and 53% with functional water sources.

Jemot et al, (2008) indicated a 30 percent reduction in diarrhoea cases when hand washing was practiced in day care centres and primary schools. In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008).

Also the study in India evaluating the environment and sanitation in a rural government school as compared to national guidelines found that only 50% of the schools had adequate latrines for boys and 60% had adequate latrines for girls, while only 10% had adequate hand washing points with soap, 50% clean toilets and other environment with no protective gears leading to diseases (Majra et al., 2010).

Hutton et al., (2004) the studies indicate that annually 272 million school days are lost by children due to diarrhea. The availability of water and sanitation facilities in schools has been shown to reduce diarrhoea and hygiene related diseases amongst school children (Curtis et al., 2003; Pruss-Ustun et al, 2008).

Moreover, Savioli et al. (2002) found that one in three school-aged children in the developing world is infested with intestinal worms (Savioli et al, 2002). A more recent study estimates that 400 million school children and 47 percent of 5-6year olds in the developing world are affected by worms (Hall et al, 2008). The same study indicates that 100 percent of annual soil transmitted worm infestation cases are attributable to inadequate sanitation and hygiene. The reduction of open defecation through adequate latrine provision especially at schools; may definitely reduce and eventually break the cycle of infection and re-infections.

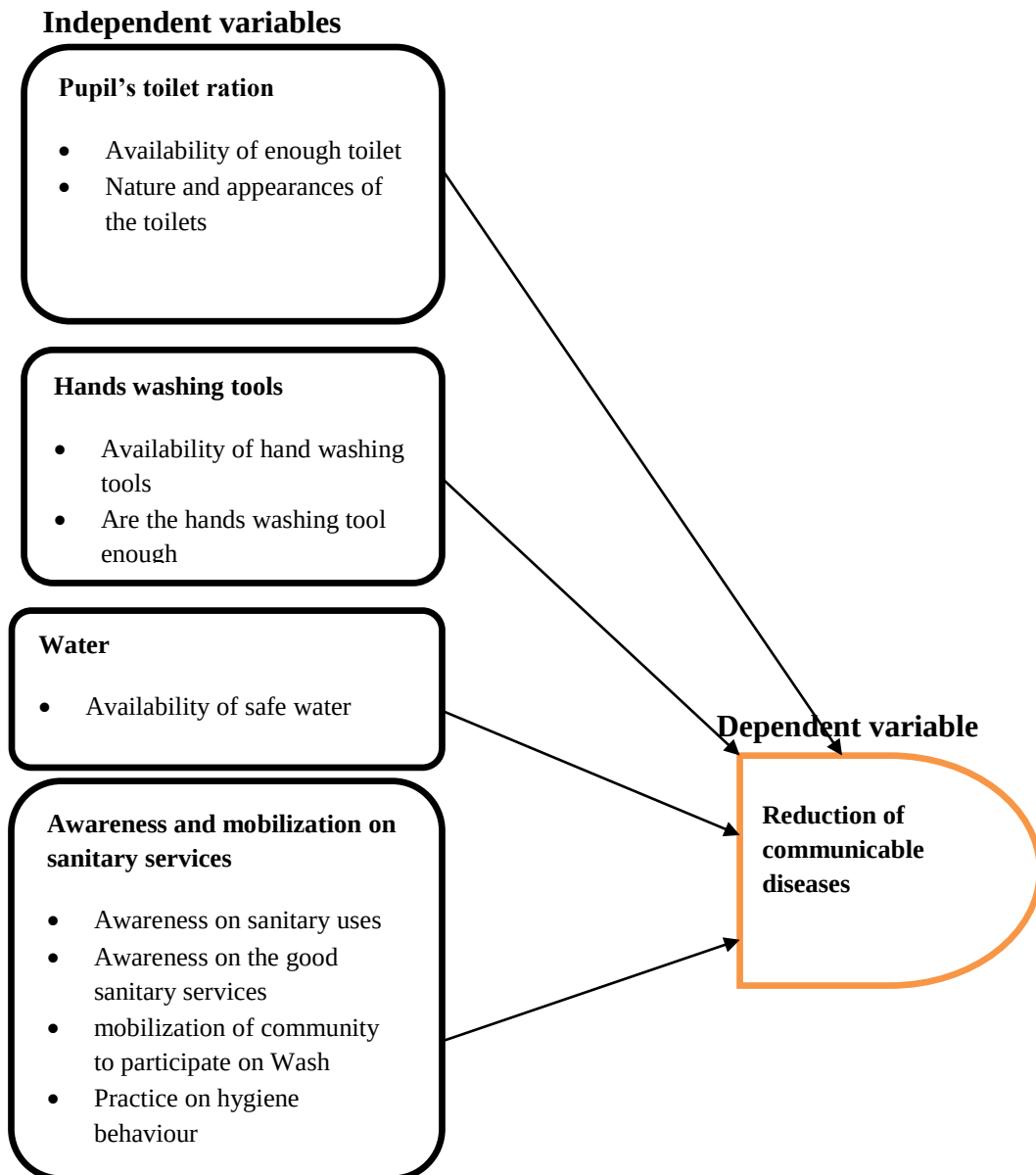
Studies indicate that annually 272 million school days are lost by children due to diarrhoea (Hutton et al., 2004). This has obvious detrimental effects on academic performance. The availability of water and sanitation facilities in schools has been shown to reduce diarrhoea and hygiene related diseases amongst school children (Curtis et al 2003; Pruss-Ustun et al, 2008).

Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. Studies indicate a 30 percent reduction in diarrhoea cases when hand washing is practiced in day care centres and primary schools (Ejemot et al, 2008). In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008).

2.5 The conceptual framework

Is the researcher's understanding of how the particular variables are connecting to each other. It identifies the variables that are needed to the research. According to McGaghie *et al.* (2001) put it: define The conceptual framework as “sets the stage” for the presentation of the particular research question that drives the investigation being reported based on the problem statement. The problem statement of a thesis presents the context and the issues that caused the researcher to conduct the study. Figure 2.1 *below* identifies the Independent and Dependent Variables and clarifies the relationships among those variables.

Figure 2.1: Conceptual framework



Source: Researcher 2017.

CHAPTER THREE

EVALUATION METHODOLOGY

3.1 Evaluation approach

The study employed a process evaluation approach, where it specifically evaluating the sanitation facilities in relation to communicable diseases in Public Primary Schools in Mkinga District. This evaluation uses process evaluation because the programme was introduced in 2012 and it is an ongoing programme, this is elaborated in Appendix 1.

3.2 Evaluation Design

Mixed study design was used. Both qualitative and quantitative study design was employed. Being qualitative and quantitative a cross sectional study design was applied to evaluate this program. The study design was chosen in order to get detailed information on people's understanding, availability of water and other sanitation activities also success relating to the achievements and failures of SWASH programme was evaluated. Since the purpose of this evaluation study was to evaluate the sanitation facilities in government primary schools in Mkinga district council. Cross Sectional design was applied as it collects data a single time from a sample drawn from a population whereby the investigator measures the outcome and the exposures in the study participants at the same time.

Considering sanitation facilities in Government Primary schools in Mkinga District, cross sectional design was used. The design fit the main objectives of this study which aims at evaluating sanitation facilities in government primary schools in Mkinga District Council. The objective evaluated and explained phenomenon being studied. The use of cross sectional study in this research facilitates in-depth study of sanitation facilities in government primary schools. The researcher used cross sectional design due to fact that it allows data collection at a single point in time. Cross sectional design allowed the researcher easy access of data at a single point in time. It is easy, reliable and worthwhile economically where resources constraints such as time, labor, and fund

dictated the operation and outcomes. One of the advantageous of using cross sectional design includes the use of various methods of data collection.

3.3 Evaluation period

In consideration of academic factors, this evaluation process began with an evaluation plan in November 2017, where an availability assessment was conducted by studying the area where the evaluation takes place. An evaluation proposal was prepared in November 2017 and all the stakeholders were identified during that period. Data collection for the evaluation was conducted for the period of two months, where data was collected from February 2018 to April 2018.

3.4 Study Area

Mkinga is one of 8 districts of Tanga Region. The study was conducted in Mkinga District Government/Public primary schools, which was established According to the Local Government (District Authorities) ACT (No. 7 of 1982) Mkinga District Council was established in 1st July 2007, under sections 8 and 9 of the Local Government (District Authorities) ACT, 1. The district is divided into two divisions namely Mkinga and Maramba respectively. Within these two divisions, there are 22 wards and 85 villages. The District covers a total area of 2,948 sq.kms and a total of 23,214 households with a population of 106,065 people of whom 52,871 (49.5%) are males and 53,966 (50.5%) are females as per the 2012 Population and Housing census.

The district is relatively new to Tanga Region but a strategic bridge between the coast of Tanzania and Kenya and springboard to the Islands of Zanzibar and Pemba. The District had a range of comfortable climates with binomial rainfall, rich soils, scenic mountains and forest reserves, mineral deposits, big game and the exotic Indian Ocean. The major activities in Mkinga District are agriculture including coconut, livestock keeping, fishing, mariculture and spice production.

The district has 80 primary schools and 15 secondary schools. The district has a shortage of sanitation facilities which forces the Ministry of Education, science and Technology with the Ministry of Health Community Development Gender Elderly and

Children to implement school Wash program in Mkinga District by improving sanitation facilities in primary schools. The programme is an ongoing process in Mkinga District and District Sanitation Coordinator and Regional Sanitation Co-ordinator, coordinate it.

This evaluation will be conducted in Mkinga District in the government primary schools. Since Mkinga district has been implementing the School Wash and Hygiene (SWASH) program for the past six years from 2012 up to date, Mkinga DC had a shortage of sanitation facilities compared to other district in Tanga region (RACC, 2012). Therefore, required data for this study will be available in this district council, also most of the primary schools in Mkinga district are located near from one primary school to another, they are also allocated in the two divisions only namely Mkinga and Maramba this makes the process of data collection easily. Therefore, given its location of primary schools and economic activities within and outside the District and favourite environment for data collection, this helps the researcher to have access of available data on sanitation and hygiene.

3.5 Study Populations

3.5.1 Target Population

The general population for this study was the primary schools in Mkinga DC, Local Government Authority (Council Director, Municipal Executive Director, Town Director, District Executive Director), Council Water and Sanitation Team (CWST)-School WASH lead by Council Education Officers. Ward Development Committee (WDC), Village Government, School Committee, teachers, Pupils, Parents/ community, Private sector, Local artisans and construction companies.

3.5.2 Source population

The source population was the selected public primary schools in Mkinga District that was involved in SWASH Programme at any point and all pupils and teachers that interviewed for those selected schools. The implementers were from Mkinga district council specifically from the department of education and health.

3.5.3 General Population

According to the National Bureau of Statistics Tanzania (Web), Mkinga District has the population of 118,065 whereby 57,760 Males and 60,305 Females. The percentage of households with latrines was 76% out of which 51% being simple pit latrines (NSMIS). The district had 80 public primary schools with a total population of 30,432 pupils whereby there are 15,555 boys and 14,877 girls as of July 2017(District Education Office, Mkinga, 2017).

3.5.4 Study Population

The study population's sampling frame involve all the public primary schools in Mkinga District Council, registered by the Ministry Education science and technology Office, Ward Education Coordinator, District Executive Director, Council Water and Sanitation Team (CWST)-School WASH lead by Council Education Officers. Ward Development Committee (WDC), Village Government, School Committee, teachers, Pupils, Parents/community, Local artisans and construction companies.

3.6 Study Unity

The sampling unit was 85 public primary schools in Mkinga District Council. The district has 2 divisions and 22 wards for assessing the sampling frame that was provided by the District Education Officer. Four (4) schools were involved in the study.

3.7 Variables and Their measurements

3.7.1 Indicators/Variables

The exploratory variables in the study was the availability of latrines, accessibility/Usability of latrines, availability of water, adequacy of the sanitation facilities, cleanliness of the latrines, privacy of the latrines, availability of hand washing stations, funding for sanitation facilities and type/extent of funding and community participation and practice. The dependent Variable Reduction of Communicable diseases

3.7.2 Confounders

The confounder was those Public Primary Schools that have been receiving funding and donations for sanitation projects. These were in the form of direct financial aid for specific sanitation infrastructure or material donation of structures such as water tanks. So those schools had better facilities than others that did not receive such funding. Thus a section of the questionnaires enquired about the extent and type of donor funding and addressed the findings in the analysis.

3.7.3 Inclusion Criteria

Schools included in the study were:-

- i. Public primary schools funded and administered by the Ministry of Education science and Technology.
- ii. These could also be mixed/co-ed (both boys and girls), or single sex (only girls or only boys) in composition
- iii. May be day and/or boarding schools.

3.7.4 Exclusion Criteria

A school that has private ownership and exclusively privately funded was not part of the study.

3.8 Sample Size and sampling techniques

3.8.1 Sample Size

The study has confidence of 95% and estimation proportion of 0.5 and the study formula is as follows. The following formula was calculated the sample size for respondents who involved in study.

Formula

$$N = (Z^2 \times P(1-P)) / e^2$$

$$N = (95^2 \times 5(1-5)) / 0.5^2 =$$

$$285 = (95^2 \times 5(1-5)) / 0.5^2$$

Where

N=Sample size, Z=Value from standard normal distribution corresponding to desired confidence level, P= is expected true proportion, E= is desired precision (half desired CI width)

Two hundred and one thousand seven hundred and ninety-nine (201,799) respondents were estimated as sample frame where by sample size will be drawn from the sample frame to find the representative. The estimated proportion is 0.5 with confidence level of 0.95 and the desired precision of estimates 0.05. Using the above formula and parameters the estimated sample size is 385 participants.

Table 3.1: Sample size

INPUTS	
Estimated proportion	0.5
Confidence level	0.95
Desired precision of estimate	0.05
Sample frame	301,799
Sample size	285

The sample size is as follows: 1 Council Director, 10 members of water and Sanitation Team (CWST), 4 School WASH lead by Council Education Officers. 10 members of Ward Development Committee (WDC), 30 Village Government members, 26 members of school committee, 50 teachers, 120 Pupils, 114 Parents/community, 20 Private sector, Local artisans and construction companies.

3.8.2 Sampling Frame

The sub-sampling frames which used in this study was obtained from the council, ward, village offices, schools, water committees and private sector. First sub-sampling frame consist of District council officials, the second sub-sampling frame consists of ward officials, the third sub-sampling frame consist of village council members, the fourths sub-sampling frame consist of schools and the last sampling frame consist of private sectors.

3.8.3 Sampling procedure

Sampling procedure is the act, process, or technique of selecting a suitable sample or a representative part of the population determining permanent or characteristics of the whole population (Kombo & Tromp, 2006).

For the purpose of this study the following sampling procedures used was: -

3.8.3.1 Purposive sampling

Judgmental or purposive sampling was done basing on researchers subjective that particular unit should be sampled as it ensures inclusion of the relevant and resourceful unit of inquiry in the sample (Kombo and Tromp 2006).

The researcher used purposive sampling to select 15 key informants who belonged in all categories, Council, Ward and Village level. In the Council level 1 Council Director, 10 members of water and Sanitation Team (CWST) will be selected, in schools 4 School WASH lead by Council Education Officers will be selected.

Purposive sampling method used in this group where respondents was selected by virtual of their position and believed to be potential and resourceful, to provide relevant information for the study. Respondents selected based to their position.

3.8.3.2 Simple random sampling

This sampling method was used to select 10 members of Ward Development Committee (WDC), 30 Village Government members, 25 members of school committee, and 50 teachers. The researcher used this sampling technique for this group because any respondent selected from the group could be able to provide the same information, which could be provided by another respondent. Therefore, selecting any respondent from this group could help the researcher have relevant information. This sampling was used to give equal chances of the respondents to be included in the sample.

3.8.3.3 Snowball sampling

Snowball sampling is a non-probability sampling technique that is used by researchers to identify potential subjects in studies where subjects are hard to locate. This sampling technique was used to select 120 Pupils, 15 Parents/community and 20 Private sector, Local artisans and construction companies whom were included in the sample. This was possible due to the assistance of teachers, village chairpersons and council director who helped the researchers to get the respondents from the schools, villages and private sector whom were included in the sample.

3.9 Data collection methods

3.9.1 Quantitative data collection

Quantitative data was collected using questionnaire; the questionnaire was addressed to 270 respondents. These include 10 members of Ward Development Committee (WDC), 30 Village Government members, 25 members of school committee, 50 teachers, 120 Pupils, 15 Parents/community, 20 Private sector, Local artisans and construction companies.

This set of questions was aiming at collecting information on the issues of the availability of sanitation facilities in Primary Government Schools in Mkinga District, the hygiene practices behavior among pupils, families and community in Mkinga District Council and the sources of safety water in Primary Government Schools in Mkinga District. The questionnaire was prepared in English and translated in Swahili.

3.9.2 Qualitative data collection

3.9.2.1 Interview

The researcher used face-to-face interview to collect information from 15 key informants who belonged in all categories, Council, Ward and Village level. In the Council level 1 Council Director, 10 members of water and Sanitation Team (CWST), 4 School WASH lead by Council Education Officers. This group gave the insights into the issue of the availability of sanitation facilities in Primary Government Schools in

Mkinga District, the hygiene practices behavior among pupils, families and community in Mkinga District Council and the sources of safety water in Primary Government Schools in Mkinga District. The interview guide was prepared in English and translated in Swahili. The key informant's interview helped the researcher to get opinion about respondents and how sanitation facilities were conducted.

3.9.2.2 Observation

Marshall and Rossman (1989) argued that observation is a systematic explanation of behavior, events and artifacts in the particular social setting. Erlandson, Harris, Skipper, & Allen (1993) further added that observation is a method of data collection which enables the researcher to study in detail the existing situation using five senses.

The researcher used direct observation to collect data from primary schools on the issue of proper sanitation and water activities. The researcher was observing how pupils practice hygiene and later she recorded on the note book.

3.9.2.3 Documentary review

In this study, the researcher used secondary data from various sources such as the hospital registry OPD diagnosis books to view the cases of Communicable, National Guideline for SWASH in Tanzania, Oct, 2012) from MoH , Mkinga quarterly reports for SWASH Programme, and Mkinga Strategic Plan draft 2016 -2020. A secondary source used to provide more sufficient and realistic information and justification to the present study.

3.10 Data management and analysis

3.10.1 Data entry

Data was entered into and analyzed by using Microsoft Excel. The questionnaires to key informants was coded and tallied for easier and comprehensive analysis. Excel was used for data cleaning and simple description of the data. However, the process of data cleaning was carried out through the whole process of data collection.

3.10.2 Data cleaning

After data collected from the field, the researcher was coded data from text into numerals and enter into MS excel by double entrants and later clean to remove errors in terms of accuracy, consistence, and responses. Each possible answer was assigned number to ease the determination of correctness of data during the whole process of data entry and cleaning. Then, analysis of the clean data was done by stata according to research objectives.

3.10.3 Minimization of Errors and Biases

Before the commencement of the study, a study pre-test was carried out at one of the public primary school in Muheza District, which was not part of the study sample. The pre-test was carried out during a week day in the school term when all pupils and staff was available. The pretest and its results were used to fine tune the survey instruments and to make any necessary adjustments to address any shortcomings and challenges prior to conducting the actual study. The schools studied were all public primary schools both day and boarding as was the case, to ensure that the resources, facilities, structures, staff and students were as similar as possible.

3.11 Data analysis

3.11.1 Qualitative data analysis

Qualitative data analysis is a process through which the data collected through interviews and other related methods are subjected to assessment or evaluation. It is a very personal process with very few rigid rules and procedures. Thus, for the purpose of effectively analyzing the qualitative data the researcher had to go through a process called Content Analysis by using Atlas ti.

Content Analysis; under content analysis the researcher analysed the contents of an interview (data collected) in order to identify the main themes that emerge from the responses given by the respondents. Content analysis involves coding and classifying data, also referred to as categorizing and indexing and the aim of content analysis is to make sense of the data collected and to highlight the important messages, features or

findings. So to carefully conduct the Content analysis the goes to go through the following steps;

Identifying the main themes, the researcher was very carefully to go through the descriptive responses given by respondents to each question in order to understand the meaning they communicate. The researcher assigning codes to main themes: when the researcher wants to count the number of times a theme has occurred in an interview, she selected a few responses to an open- ended question and identify the main themes. Classifying the responses under the main themes; for the content analysis to be effective, the researcher goes through the transcripts of all the interviews and classifies the responses under the different themes. Integrating themes and responses into the text of the report; after identifying the responses that fall within different themes, the next step was to integrate into the text of the report.

3.11.2 Quantitative data analysis

Data representing characteristics of respondents and information collected through questionnaire was coded from text into numerals and entered into MS excel by double entrants and later clean to remove errors in terms of accuracy, consistence, and responses. Each possible answer was assigned number to ease the determination of correctness of data during the whole process of data entry and cleaning.

Lastly, the data was entered into a computer and checked for errors before being analysed using the stata computer programme. Descriptive statistics such as frequencies and percentages was determined and the information was presented in form of tables.

3.12 Ethical issues

A researcher was aware of the ethical issues during the research study. A researcher submitted research ethics application for approval before the research. The researcher was ethically bound to respect the participant's human dignity, free and informed consent, privacy and confidentiality, justice and inclusiveness. Before the study, the participants were informed about the nature, purpose and procedures of the study. Participants were free to answer specific questions, and withdraw from the study at any time, for any reason.

CHAPTER FOUR

PRESENTATION OF THE FINDINGS

4.1 Introduction

This chapter presents findings obtained from the study. The chapter contains, to determine availability of sanitation facilities in relation to communicable diseases in Mkinga Public Primary Schools, hygiene practice among Pupils, families and communities in Mkinga District Council, to find out the hygienity of water sources in Mkinga District.

4.2 Sanitation facilities in Mkinga Public Primary Schools

The sanitary facilities at Mkinga public primary school was determined and described to establish the available sanitary facilities in Mkinga District. The aim was to understand whether SWASH programme introduced in 2012 with the aim of improving sanitation and hygiene in primary and secondary schools in Tanzania had succeeded. In determining the sanitary facilities available in Mkinga primary schools the questionnaire was addressed to pupils, teachers and members of school committees. The findings are presented in table 4.3 and 4.4.

Mkinga District has 80 Public Primary School and one private primary school. The District has 6 (six) Public primary schools which has been supported by school Wash Programme but the researcher collected information's from four (4) public primary schools which were included in the SWASH programme. The primary schools were Maramba 'B' Primary school, Bamba Mwarongo primary school, Duga primary school and Kichangani primary school. The primary schools are located in four different wards and villages at Mkinga District council. Bamba Mwarongo Primary school is located in Bamba Mwarongo Village, Doda ward in the division of Mkinga, Duga Primary school is located at Bwagamacho village, Duga ward in Mkinga division, Maramba B Primary school is located at Mbuyuni village, Maramba ward, Maramba division and Kichangani Primary school is located at Kichangani village, Mnyenzani ward, Maramba Division.

The primary schools' populations are as follow; Maramba 'B' Primary school had a total of 703 pupils, these include 373 boys, 330 girls. Bamba Mwarongo primary school has a total of 231 pupils, this include 123 boys and 108 girls. Duga primary school has a total of 546 pupils, this include 267 boys and 279 girls and Kichangani primary school has a total of 333 pupils this include 179 boys and 154 girls.

4.2.1 Sanitation facilities in each Primary school (Pupils responses)

Different sanitation facilities were found in public primary schools in Mkinga District council. Each school had some but not all sanitation facilities, although most of the public primary schools in Mkinga had similar sanitation facilities. The details of sanitation facility in each primary school were as follows;

Table 4.1: Sanitation facilities in Mkinga District council responses from pupils and teachers

		Frequency and Percentages of respondents			
Variable	Response	Bamba Mwarongo Primary school	Duga Sigaya Primary school	Maramba B Primary school	Kichangani Primary school
Main source of water at school	Harvest rain water	30 (100%)	30 (100%)		30 (100%)
	Water ponds	30 (100%)	30 (100%)		
	No water source pupils (come with water)			30 (100%)	
How many water collection points are there	One	30 (100%)	30 (100%)		30 (100%)
	No water collection points			30 (100%)	
Are they enough to all students?	Yes				
	No	30 (100%)	30 (100%)	30 (100%)	30 (100%)
Are you using the same source for drinking?	Yes	30 (100%)	30 (100%)		30 (100%)
	No			30 (100%)	
Are there latrines at your school	Yes	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	No				
Are the latrines enough to all pupils	Yes				
	No	30 (100%)	30 (100%)	30 (100%)	30 (100%)
Is there Urinal present for boys?	Yes	30 (100%)	30 (100%)		30 (100%)
	No			30 (100%)	
Is there a latrine for very young learners in pre-unit and lower primary?	Yes				30 (100%)
	No	30 (100%)	30 (100%)	30 (100%)	

		Frequency and Percentages of respondents			
Is there a latrine of pupils with special needs?	Yes		30 (100%)		30 (100%)
	No	30 (100%)		30 (100%)	
How many latrine holes are present for boys and girls	Girls	4	4	4	5
	Boys	2	4	4	3
	Female Staff	0	0	0	0
	Male staff	0	0	0	0
	Pupils with special need	0	0	0	0
	Young Learners (Pre-Unit)	0	0	0	0
	Shared staff	1	1	1	1
Is there a hand washing facility at your school	Yes	30 (100%)	30 (100%)		30 (100%)
	No			30 (100%)	
Is water available at the hand washing points?	Yes	30 (100%)	30 (100%)		30 (100%)
	No			30 (100%)	

Source; Field data 2018

The findings presented in table 4.3 reveal that the main sources of water in the primary schools were as follows; main source of water for, Bamba Mwarongo primary school was rain water collected using water tanks this was agreed by all 30 (100%) Despite having rain water during dry season the school collect water from water pond allocated near the school. Maramba 'B; primary school had no any source of water at the school or near by the schools, at this school pupil had to come to school with water. The main source of water for Duga Siagaya primary school was rain water collected using water tanks this was agreed by all 30 (100%) Despite having rain water during dry season the school collect water from water pond allocated near the school. The main source of water for Kichangani primary school was rain water collected using water tanks. Water collection points found at Bamba Mwarongo primary school, Duga Siagaya primary school and Kichangani primary school was one (1) in every school, this was agreed by all 30 (100%) pupil in every school. At Maramba 'B' primary school there was no water collection point since there was no water source at the school.

The findings further reveal that the water sources are insufficient to all pupils and staff this was agreed by all 30 (100%) respondents from each primary school making a total of 120 (100%) Basing on the number of available sources of water for each primary school at Mkinga District council it seems the water sources are insufficient.

This is due to the fact that Bamba Mwarongo primary school had a total of 231 pupils (123 boys and 108 girls). Duga Sigaya primary school has a total of 546 pupils (267 boys and 279 girls) and Kichangani primary school has a total of 333 pupils (179 boys and 154 girls). With all pupils, both schools have only one source of water and one water collection point. Maramba 'B' Primary school had a total of 703 pupils (373 boys, 330 girls) but it has no any water source and water collection points the pupils had to come to school with water.

The findings also revealed that pupils use the same source for drinking; this was agreed by all 30 (100%) pupils from three primary schools namely Duga Sigaya primary school, Kichangani primary school and Bamba Mwarongo primary school. However, at Maramba 'B' primary school pupils were drinking the water that they came with it at school. The findings further revealed that all four primary schools (Kichangani primary school and Bamba Mwarongo primary school. However, at Maramba 'B' primary school had latrines, this was agreed by all 30 (100%) pupils from each primary school, making a total of 120 (100%) pupil. Despite that all primary schools had latrines but the latrines were insufficient to all pupils.

This was agreed by all 30 (100%) pupils from each primary school, making a total of 120 (100%) pupil. The researcher compared the number of pupils in each primary school with the number of available latrines and the findings found were as follows; Bamba Mwarongo primary school had a total of 231 pupils (123 boys and 108 girls), the school has four (4) latrines holes for girls and two (2) for boys. Duga primary school has a total of 546 pupils (267 boys and 279 girls), the school has four (4) latrine holes for boys and four (4) latrines for girls. Kichangani Primary School has a total of 333 pupils (179 boys and 154 girls), the school has five (5) latrine holes for girls and three (3) for boys and Maramba 'B' Primary school had a total of 703 pupils (373 boys, 330 girls), the school has four (4) latrine holes for boys and four (4) for girls. Basing on the number of pupils available at each school and the number of latrines holes it can be said that the latrines holes available in four (4) primary schools are insufficient.

The findings further revealed that the three primary schools out of four have urinal present for boys these were; Bamba Mwarongo primary school, Duga Primary School and Kichangani Primary School. Maramba 'B' Primary School had no urinal present for boys; boys had to urinate in the toilets (see table 4.1). The findings further revealed that there was a latrine for very young learners in pre-unit and lower primary at Kichangani Primary School, this was agreed by all thirty 30 (100%) of all respondents. It was also found that there was a hand washing facility at Bamba Mwarongo primary school, Duga Primary School and Kichangani Primary School, this was agreed by all 30 (100%) respondents in each primary school. The hand washing facility was not found at Maramba 'B' Primary School. There was a latrine for people with special need at Duga primary school and Kichangani Primary School. However, there was no latrine for people with disability at Bamba Mwarongo Primary School and Maramba 'B' Primary School.

4.2.2 Sanitation facilities in each Primary school (Teachers and members of school committee responses)

As it was found in the responses provided by pupils, teachers and members of the school committee provided similar results. Different sanitation facilities were found in public primary schools in Mkinga District council. Each school had some but not all sanitation facilities, although most of the public primary schools in Mkinga had similar sanitation facilities. The details of sanitation facility in each primary school were as follows;

Table 4.2 Sanitation facilities in Mkinga Primary school (Schools teacher's and members of school committee responses)

		Frequency and Percentages of respondents			
Variable	Response	Bamba Mwarongo Primary school	Duga Sigaya Primary school	Maramba B Primary school	Kichangani Primary school
Main source of water at school	Harvest rain water	19 (100%)	19 (100%)		19 (100%)
	Water ponds	19 (100%)	19 (100%)		
	No water source pupils (come with water)			30 (100%)	
How many water collection points are there	One	19 (100%)	19(100%)		19 (100%)
	No water collection points			19 (100%)	
Are they enough to all students?	Yes				
	No	19 (100%)	19 (100%)	19 (100%)	19 (100%)
Are you using the same source for drinking?	Yes	19 (100%)	19 (100%)	19 (100%)	19 (100%)
	No				
Are there latrines at the school	Yes	19 (100%)	19 (100%)	19 (100%)	19 (100%)
	No				
Are the latrines enough to all pupils	Yes				
	No	19 (100%)	19 (100%)	19 (100%)	19 (100%)
Is there Urinal present for boys?	Yes	19 (100%)	19 (100%)		19 (100%)
	No			19 (100%)	
Is there a latrine for very young learners in pre-unit and lower primary?	Yes				19 (100%)
	No	19 (100%)	19 (100%)	19 (100%)	
Is there a latrine of pupils with special needs?	Yes		19 (100%)		19 (100%)
	No	19 (100%)		19 (100%)	
How many latrine holes are present for	Girls	4	4	4	5
	Boys	2	4	4	3
	Female Staff	0	0	0	0
	Male staff	0	0	0	0
	Pupils with special need	0	0	0	0
	Young Learners (Pre-Unit)	0	0	0	0

		Frequency and Percentages of respondents			
	Shared staff	1	1	1	1
Is there a hand washing facility school	Yes	19 (100%)	19 (100%)		19 (100%)
	No			19 (100%)	
Is water available at the hand washing points?	Yes	19 (100%)	19 (100%)		19 (100%)
	No			19 (100%)	

Source; Field data 2018

The findings presented in table 4.3 are similar to the findings presented in table 4.4. The findings revealed that the main sources of water in the primary schools were as follows; main source of water for, Bamba Mwarongo Primary School was rain water collected using water tanks this was agreed by all 19 (100%) Despite having rain water during dry season the school collect water from water pond allocated near the school. Maramba 'B'; Primary School had no any source of water at the school or near by the schools, at this school pupil had to come to school with water. The main source of water for Duga Siagaya Primary School was rain water collected using water tanks this was agreed by all 19 (100%) Despite having rain water during dry season the school collect water from water pond allocated near the school. The main source of water for Kichangani Primary School was rain water collected using water tanks. Water collection points found at Bamba Mwarongo Primary School, Duga Siagaya Primary School and Kichangani Primary School was one (1) in every school, this was agreed by all 19 (100%) pupil in every school. At Maramba 'B' Primary School there was no water collection point since there was no water source.

The findings further revealed that the water sources are insufficient to all pupils and staff this was agreed by all 19 (100%) respondents from each primary school making a total of 76 (100%) Basing on the number of available sources of water for each primary school at Mkinga District council it seems the water sources are insufficient. This is due to the fact that Bamba Mwarongo primary school had a total of 231 pupils (123 boys and 108 girls). Duga Sigaya primary school has a total of 546 pupils (267 boys and 279 girls) and Kichangani primary school has a total of 333 pupils (179 boys and 154 girls). With all pupils, both schools have only one source of water and one water collection point. Maramba 'B' Primary school had a total of 703 pupils (373 boys, 330 girls) but it

has no any water source and water collection points the pupils had to come to school with water.

The findings also revealed that pupils use the same source for drinking; this was agreed by all 19 (100%) pupils from three primary schools namely Duga Sigaya Primary School, Kichangani primary school and Bamba Mwarongo Primary School. However, at Maramba 'B' Primary School pupils were drinking the water that they came with it at school. The findings further revealed that all four primary schools (Kichangani primary school and Bamba Mwarongo Primary School. However, at Maramba 'B' Primary School) had latrines, this was agreed by all 19 (100%) pupils from each primary school, making a total of 76 (100%) pupil. Despite that all primary schools had latrines but the latrines were insufficient to all pupils. This was agreed by all 19 (100%) pupils from each primary school, making a total of 76 (100%) pupil. The researcher compared the number of pupils in each primary school with the number of available latrines and the findings found were as follows; Bamba Mwarongo Primary School had a total of 231 pupils (123 boys and 108 girls), the school has four (4) latrines holes for girls and two (2) for boys. Duga Sigaya Primary School has a total of 546 pupils (267 boys and 279 girls), the school has four (4) latrine holes for boys and four (4) latrines for girls. Kichangani Primary School has a total of 333 pupils (179 boys and 154 girls), the school has five (5) latrine holes for girls and three (3) for boys and. Maramba 'B' Primary School had a total of 703 pupils (373 boys, 330 girls), the school has four (4) latrine holes for boys and four (4) for girls. Basing on the number of pupils available at each school and the number of latrines holes it can be said that the latrines holes available in four (4) primary schools are insufficient.

The findings further revealed that the three primary schools out of four have urinal present for boys these were; Bamba Mwarongo Primary School, Duga Primary School and Kichangani Primary School. Maramba 'B' Primary School had no urinal present for boys; boys had to urinate in the toilets (see table 4.1). The findings further revealed that there was a latrine for very young learners in pre-unit and lower primary at Kichangani Primary School, this was agreed by all thirty 19 (100%) of all respondents. It was also found that there was a hand washing facility at Bamba Mwarongo Primary School, Duga Sigaya Primary School and Kichangani Primary School, this was agreed by all 19

(100%) respondents in each primary school. The hand washing facility was not found at Maramba 'B' Primary school. There was a latrine for people with special need at Duga Primary School and Kichangani Primary School. However, there was no latrine for people with disability at Bamba Mwarongo Primary School and Maramba 'B' Primary School.

4.3 Hygiene practice among Pupils, families and communities in Mkinga District Council

The hygiene practices at Mkinga District council was determined and described to establish whether students, pupils and families practice hygiene. The aim was to understand whether SWASH programme introduced in 2012 with the aim of improving sanitation and hygiene in primary and secondary schools in Tanzania had succeeded. In determining the hygiene practices in Mkinga district council the questionnaire was addressed to pupils, families and communities. The findings are presented in table 4.5 and 4.6 and 4.7.

4.3.1 Hygiene practice among Pupils

The hygiene practices at Mkinga Public Primary School was determined and described to establish whether pupils practice hygiene. In determining the hygiene practices in Mkinga Public Primary Schools the questionnaire was addressed to 120 pupils, from four public primary schools namely Bamba Mwarongo Primary School, Duga Primary School and Kichangani Primary School, Maramba 'B' Primary school. The findings are presented in table 4.5

Table 4.3 Hygiene practice among Pupils in Mkinga Public Primary Schools

		Frequency and Percentages of respondents			
Variable	Response	Bamba Mwarongo Primary school	Duga Primary school	Maramba B Primary school	Kichangani Primary school
Are you cleaning the toilet?	Yes	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	No				
How many times are the toilets cleaned?	Once a day	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	Twice a day				
	Once a week				
When cleaning the toilets are you provided with protective gears?	Yes		30 (100%)		30 (100%)
	No	30 (100%)		30 (100%)	
Are you washing hands with soap after toilet?	Always	3 (10%)	5 (16.7%)	2 (6.7%)	4 (13.3%)
	Sometimes	2 (6.7%)	5 (16.7%)	19(63.3%)	15 (50%)
	I do not wash	25 (83.3%)	20(66.7%)	9 (30%)	11 (36.7%)
Are you washing hands with soap before eating anything?	Always	3 (10%)	5 (16.7%)	7 (23.3%)	4 (13.3%)
	Sometimes	14 (46.6%)	18 (60%)	4 (13.3%)	15 (50%)
	I do not wash	13 (43.3%)	7 (23.3%)	19(63.3%)	11 (36.7%)
Are you drinking water from school water sources?	Yes	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	No				
Are you cleaning the outside environment?	Always	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	Once per week				
	Once per months		30 (100%)		30 (100%)
When cleaning the outside environment are you provided with protective gears?	Yes				
	No	30 (100%)		30 (100%)	
Are you cleaning classes?	Yes	30 (100%)	30 (100%)	30 (100%)	30 (100%)
	No				
When cleaning classes are you provided with protective gears?	Yes		30 (100%)		30 (100%)
	No	30 (100%)		30 (100%)	
Are you taking baths regularly	Yes	19 (63.3%)	21 (70%)	12 (40%)	15 (50%)
	No	11 (36.7%)	9 (30%)	18 (60%)	15 (50%)

Source; Field data

The findings revealed that pupils were cleaning the toilets; this was agreed by all 30 (100%) pupils. The toilets were cleaned every day; this was also agreed by 30 (100%) of all pupils. The findings further revealed that pupils from Duga Primary School and

Kichangani primary are provided with protective gears when cleaning the toilets, this was agreed by 30 (100%) respondents. Pupils from Bamba Mwarongo Primary School and Maramba 'B' primary school were not provided with protective gears when cleaning the toilets. Despite the fact that pupils from Duga Sigaya school and Kichangani primary said that they are provided with protective gears when cleaning the toilets, the researcher through observation observed pupils cleaning the toilets putting on only gloves, with no gumboots, mask and coverall.

The findings further revealed that 3 (10%) pupils from Bamba Mwarongo primary school were washing hands with soap after toilet always, 2 (6.7%) were washing hands sometimes and 25 (83.3%) were not washing hands after toilet, The findings further revealed that 20 (66.7%) Duga Sigaya primary school were washing hands always 5 (16.7%) were washing hands sometimes and 5 (16.7%) were not washing hands after toilet. The findings further shown that 2 (6.7%) from Maramba 'B' were washing hands always, 19(63.3%) were washing hands sometimes and 9 (30%) were not washing hands after toilet. The findings further shown that 4 (13.3%) from Maramba 'B' were washing hands always, 15 (50%) were washing hands sometimes and 11 (36.7%) were not washing hands after toilet. Basing on the findings it can be said that more pupils were not washing hands always, they washed sometimes and others never washed hands after toilet.

The findings further revealed that 3 (10%) pupils from Bamba Mwarongo Primary School were washing hands always with soap before eating anything, 14 (46.6%)13 were washing hands sometimes before eating anything and 13 (43.3%) were not washing hands before eating anything. The findings further revealed that 5 (16.7%) pupils from Duga Primary School were washing hands always before eating anything, 18 (60%) were washing hands sometimes and 7 (23.3%) were not washing hands before eating anything. The findings further shown that 7 (23.3%) from Maramba 'B' were washing hands always, 4 (13.3%) were washing hands sometimes and 19(63.3%) were not washing hands after and before eating anything. Also four 4 (13.3%) from Kichangani were washing hands always, 15 (50%) were washing hands sometimes and 11 (36.7%) were not washing hands with soap before eating anything.

Basing on the findings it can be said that more pupils were not washing hands always, before eating anything. It seems most of the pupils were eating without washing hands; this might have been caused by lack of sufficient water sources. Failure in washing hands before eating anything causes communicable diseases.

Drinking dirty, unsafe and untreated water causes transmissions of communicable diseases. The findings revealed that all students 30 (100%) from were drinking water from school water sources, the primary schools were using rain water and ponds water. These water sources are not safe sources for pupils to drink, therefore these water sources lead to transmissions of communicable diseases. The findings further shown that pupils from all four primary schools were cleaning classes and outside environment with no protective gears, this was agreed by all 30 (100%) pupils from each primary school making a total of 120 (100%) pupils. Cleaning environment without protective gears caused these pupils to touch dirty with their hands.

4.3.2 Hygiene practice among families and community members

The hygiene practices at among families and community members at Mkinga District council was determined and described to establish whether family and community members practice hygiene. In determining the hygiene practices among families and community members in Mkinga district council the questionnaire was addressed to 30 Village Government members and 114 Parents/community members this makes a total of 144 respondents who were provided with questionnaire. All 144 respondents came from four (4) villages namely Bamba Mwarongo village, Duga and Kichangani village and Maramba 'B' village. The findings are presented in table 4.6.

Table 4.4 Hygiene practice among families and community members (N=45)

Variable	Response	Frequency and Percentages of respondents			
		Bamba Mwarongo Village	Duga Village	Maramba 'B' Village	Kichangani Village
Main source of drinking-water for members of your household	Surface water (river, dam, lake, pond, stream, canal, irrigation channels)	36 (100%)	36 (100%)		36 (100%)
	Piped water			36 (100%)	
	Rain water	36 (100%)	36 (100%)	36 (100%)	36 (100%)
How long does it take to go there, get water and come back	10-15 minutes	11 (30.65%)	27 (75%)	32 (88.9%)	36 (100%)
	30 minutes and above	25 (69.4 %)	9 (25%)	4 (11.1%)	
Do you treat your water in any way to make it safer to drink?	Yes	2 (5.6%)	2 (5.6%)	24 (66.7%)	10 (27.8%)
	No	34 (94.4%)	34 (94.4%)	12 (33.3%)	26 (72.2 %)
What do you usually do to the water to make it safer to drink	Boil	6 (16.7%)	2 (5.6%)	26 (72.2%)	6 (16.7%)
	Add bleach/chlorine	4 (11.1%)			3 (8.3%)
	Strain it through a cloth	3 (8.3%)			
	Use a water filter (ceramic, sand, composite, etc.)	14 (38.9%)			
	Solar disinfection	9 (25%)			1 (2.8%)
	Let it stand and settle		34 (94.4%)	10 (27.8%)	26 (72.2 %)
Do you have a toilet	Yes	36 (100%)	36 (100%)	36 (100%)	36 (100%)
	No				
What Kind of toilet facilities do members of your households usually use	Flush/pour flush	1 (2.8%)		17 (47.2%)	2 (5.6%)
	Piped sewer systems	3 (8.3%)			1 (2.8%)
	Septic tank	3 (8.3%)			
	pit latrine	29 (80.9%)	3 (8.3%)		33 (91.7%)
	Bucket		33 (91.7%)	18 (54.4%)	
Do you clean the toilet	Yes	25 (69.4 %)	19 (52.7%)	27 (75%)	17 (47.2%)
	No	11 (30.65%)	17 (47.2%)	9 (25%)	18 (54.4%)
Do you share latrine with other family members	Yes	26 (72.2%)	11 (30.65%)	27 (75%)	6 (16.7%)
	No	9 (25.0%)	25 (69.4 %)	9 (25%)	25 (69.4 %)
How many households use this toilets	1-4	26 (72.2%)	11 (30.65%)	9 (25%)	6 (16.7%)
When cleaning the toilets do you put on with protective gears?	Yes				
	No	36 (100%)	36 (100%)	36 (100%)	36 (100%)
Are you washing hands with soap	Always	3 (8.3%)	5 (13.9%)	3 (8.3%)	5 (13.9%)
	Sometimes	2 (5.5%)	5 (13.9%)	2 (5.5%)	5 (13.9%)

		Frequency and Percentages of respondents			
after toilet?	I do not wash	31 (86.1%)	16 (44.4%)	31 (86.1%)	16 (44.4%)
Are you washing hands with soap before eating anything?	Always	10 (27.7%)	11 (30.65%)	10 (27.7%)	11 (30.65%)
	Sometimes	5 (13.9%)	18 (50%)	5 (13.9%)	18 (50%)
	I do not wash	20 (55.6.3%)	7 (19.4%)	20(55.6.3%)	7 (19.4%)

Source: Field data, 2018

The findings revealed that Main source of drinking-water for members of your household for the three villages Bamba Mwarongo village, Duga village and Kichangani village were Surface water (river, dam, lake, pond, stream, canal, irrigation channels) and rain water, this was agreed by 36 (100%) respondents from each village. The main source of water for Maramba ‘B’ village was piped water. The village had piped. The findings further revealed that more community members were living near water sources since they had to take 10-15 minutes to take water and come back. This was agreed by 11 (30.65%) from Bamba Mwarongo village, 27 (75%), from Duga, 32 (88.9%) from Maramba ‘B’ village and 36 (100%) Kichangani village. Most of respondents from Bwagamacho village 34 (94.4%) and Kichangani village 26 (72.2 %) had to let water stand and settle to make it safer to drink, however 26 (72.2%) respondents from Maramba ‘B’ village boil water to make it safer and 14 (38.9%) Use a water filter (ceramic, sand, composite, etc.).

The findings shown that all respondents who were provided with questionnaire had toilets, this was agreed by 36 (100%) of all respondents from each village namely Kichangani village, Mbuyuni village, Bamba Mwarongo village and Duga village. Type of toilets found were Pit latrines at Bamba Mwarongo village 29 (80.9%) and Kichangani village 33 (91.7%) Despite that all respondents agreed that they have toilets but 26 (72.2%) from Bamba Mwarongo Village and 27 (75%) respondents from Maramba ‘B’ village were shearing toilets with other family members. This shows there are some community members with no toilets. As it is presented in table 4.6 More respondents from villages agreed that they are cleaning the toilets however none of them use protective gears when cleaning the toilets. Basing on the findings in table 4.6 it was found that more respondents 31 (86.1%) from Bamba Mwarongo village, 16 (44.4%) from Bwaga macho village, 31 (86.1%) Mbuyuni Village and 16 (44.4%) from

Kichangani village were not washing hands with soap after toilet. Also more respondents were not washing hands with soap before eating anything. Through observation the researcher observed a number of community members eating without washing their hands with soap.

4.4 Hygienity of water sources in Mkinga District

The Hygienity of water sources in Mkinga District council was determined to establish whether water sources at Mkinga district council are clean. In determining the hygiene of water sources, the questionnaire was addressed to 30 Village Government members and 114 Parents/community members this makes a total of 144 respondents who were provided with questionnaire. All 144 respondents came from four (4) villages namely Bamba Mwarongo village, Bwagamacho and Kichangani village and Mbuyuni village. The findings are presented in table 4.7.

Table 4.5 Hygienity of water sources in Mkinga District

		Frequency and Percentages of respondents			
Variable	Response	Bamba Mwarongo Village N=45	Maramba 'B' Village N=45	DUGA N=45	Kichangani Village N=45
Main source of drinking-water for members of your household	Surface water (river, dam, lake, pond, stream, canal, irrigation channels)	36 (100%)	36 (100%)		36 (100%)
	Piped water			36 (100%)	
	Rain water	36 (100%)	36 (100%)	36 (100%)	36 (100%)
Are farming activities done near water sources	Yes	36 (100%)		36 (100%)	36 (100%)
	No		36 (100%)		
Are there people taking bath near water sources	Yes	36 (100%)		36 (100%)	36 (100%)
	No		36 (100%)		
Are people defecating near water ponds	Yes	36 (100%)		36 (100%)	36 (100%)
	No		36 (100%)		
Are animals drinking water in the same water source	Yes	36 (100%)		36 (100%)	36 (100%)
	No		36 (100%)		
Are family members and communities washing clothes near water sources	Yes	36 (100%)		36 (100%)	36 (100%)
	No		36 (100%)		
Is the water ponds protected?	Yes		36 (100%)		
	No	36 (100%)		36 (100%)	36 (100%)

Source; Field data, 2018

The findings shown that farming activities were conducted near water sources. All 36 (100%) respondents from each of the three villages, which were Bwagamacho village, Bamba Mwarongo village and Kichangani village, agreed this. Despite that farming activities were conducted in the three mentioned villages, the situation was different at Mbuyuni; village since farming activities were not conducted near water sources. The study further found that people were taking bath near water sources also there were defecation near water ponds, animals were also drinking water in the same water source furthermore family members and communities were washing clothes near water sources these were agreed by 36 (100%) respondents from three villages Bwagamacho village, Bamba Mwarongo village and Kichangani village. However, at Mbuyuni village people were not taking bath near water sources also there were no defecation near water ponds and the animals were not drinking water in the same water source. Water sources at Mbuyuni village were protected.

4.5 Communicable diseases affecting Pupils in Mkinga District

In exploring the communicable diseases affecting Pupils in Mkinga District an interview was conducted with District director, community development officers, ward health officers, District Medical Officer and health teachers from four public primary schools which were Mkinga primary school, Duga Sigaya primary school, Kichangani primary school and Maramba 'B' Primary school.

The researcher found out that one of the common communicable diseases affecting pupils at Mkinga district council was cholera. The diseases were affecting the area mainly during rain seasons. In the interview sessions with District director it was stated that;

Ooooh the biggest communicable disease we have in our district is cholera, you know most of the families in this district have no latrines, and some have small pit latrines, this cause most of the families to defecate in bushes and others near water sources, therefore during rainy season, cholera can easily be transmitted since water containing bacteria moves across through water

Further health teacher from Maramba 'B' added that;

Last year we our pupils were highly affected with by cholera, the disease was caused by lack of water in our school, as you can see we don't have any water source across the schools, the tanks you see were contracted to collect rain water but they are not working. Due to lack of water our pupils were drinking water from different sources; this caused cholera transmissions to our pupils

Basing on the two statements provided it can be said that cholera is one of the problem affecting Mkinga district council, the diseases is affecting the area due to lack of clean and safe water and lack of latrines to most members of Mkinga District council.

The findings further found that diarrhoea is another disease affecting pupils and community members of Mkinga district council. The disease is caused by dirty drinking water. During interview sessions with District Medical Officer it was stated that;

We have been receiving a number of cases of diarrhoea in the district, the problem has been caused by the use of dirty water. Most members of the district are using water from ponds, rivers, wells, swamps and rain water. Water from ponds, rivers and wells are not safe since people defecate nearby water sources, others urinate in the water. When people use such water they end up being affected by diarrhoea

Basing to the statement above, it can be said that diarrhoea is another disease affecting pupils and community members of Mkinga district council. Another communicable disease affecting the area is schistosomiasis the diseases is caused by helminth infection caused by hookworm. And it is transmitted through contaminated water. During interview sessions with Medical Officer it was stated that;

Mkinga is also affected by schistosomiasis the diseases are caused by helminth infection caused by hookwork, the diseases is transmitted through the use of dirty water and contaminated water. Since the major water sources at Mkinga District are ponds, wells, rivers and ocean, transmission of schistosomiasis becomes very easy.

The findings have shown that Mkinga is affected by three major communicable diseases cholera, Diarrhoea and schistosomiasis. The three communicable diseases are caused by using dirty and contaminated water in the area. This is because the area uses ponds, river, wells and ocean as water sources.

CHAPTER FIVE

DISCUSSIONS OF THE FINDINGS

5.1 Introduction

This chapter presents discussion of the findings presented in chapter four. The discussion mainly focuses on specific objectives, which are to determine availability of sanitation facilities in Mkinga Public Primary Schools, hygiene practice among Pupils, families and communities in Mkinga District Council, to find out the hygienity of water sources in Mkinga District and to explore on communicable diseases affecting Pupils in Mkinga District.

5.2 Sanitation facilities in Mkinga Public Primary Schools

As it is presented in chapter four there were various sanitation facilities in public primary schools in Mkinga District council. The sanitation facilities include water sources, latrines, hand washing points. Availability of sanitation facilities on the other hand, leads to improved health outcomes for children and keeps girls in school. An evaluation of WASH in schools in Kenya showed that girls were less absent in schools where there was more hand washing and high toilet use, and there were reduced incidences of diarrhoeal diseases and helminth infestation (Njuguna et al., 2008).

Main sources of water in the primary schools were rain water collected using water tanks except in Maramba 'B' primary school which has no any source of water. Despite this major source of water there were ponds nearby the school which were used as source of water during dry seasons. The school water sources are not effective in offering water to the schools since they school had to depend to the rain and when no rain the schools had no water. Despite depending to the rain water all primary schools had one (1) tank to collect water during rainy season. The size of the tanks was small, therefore they could not have capacity to carry enough water, this caused the collected water to be used a certain period of time. Maramba primary schools had water collection tanks hence there was no any source of water in the school. This shows that public primary schools in Mkinga district lack sufficient water sources.

The findings are similar to the findings by Global Water Challenge (2010) In South Africa; the study found out that twenty-three percent of the population is without access to basic sanitation while nine percent lack access to safe water. In regards to school sanitation, the government of South Africa aimed to ensure that all schools have adequate sanitation facilities by 2014 (Global Water Challenge, 2010). However, availability of sanitation facilities on the other hand, leads to improved health outcomes for children. Most primary schools in Tanzania lack clean and safe water.

Despite that fact that the researchers study did not focused on the availability of water and school attendance but the researcher witnessed dirty toilets in Maramba 'B' primary schools, most of the latrine holes had defecation on the doors. Due to the dirty condition and lack of water some pupils who were living near the school were moving to their home to take water for drinking this might affect their ways of studying. The study by IRC (2005) stated that availability of latrines and water improves school attendance and is especially important for adolescent girls who are menstruating as they require the privacy of separate latrines and also water. When this is lacking there is consistent absenteeism during their monthly period and this can reach up to twenty percent of school time. A study conducted in Tanzania showed that 12 percent increase in school attendance when water is available within a 15-minute walk (Redhouse, 2004).

All four primary schools (Kichangani primary school, Bamba Mwarongo primary school, Maramba 'B' primary school and Kichangani primary school) had latrines. Despite that all primary schools had latrines but the latrines were insufficient to all pupils. Basing on the number of pupils in each primary school with the number of latrine hole available, the latrines hole was insufficient for instance Bamba Mwarongo primary school had a total of 231 pupils (123 boys and 108 girls), the school has four (4) latrines holes for girls and two (2) for boys. Duga Sigaya primary school has a total of 546 pupils (267 boys and 279 girls), the school has four (4) latrine holes for boys and four (4) latrines for girls. Kichangani primary school has a total of 333 pupils (179 boys and 154 girls), the school has five (5) latrine holes for girls and three (3) for boys and. Maramba 'B' Primary school had a total of 703 pupils (373 boys, 330 girls), the school has four (4) latrine holes for boys and four (4) for girls. Basing on the number of pupils available at each school and the number of latrines holes it can be said that the latrines

holes available in four (4) primary schools are insufficient. Despite being insufficient latrines holes were dirty in all schools due to lack of water.

There was latrine for very young learners in pre-unit and lower primary at Kichangani Primary School. There was a latrine for people with special need at Duga Primary School and Kichangani Primary School. However, there was no latrine for people with disability at Bamba Mwarongo Primary School and Maramba 'B' Primary School. Lack of latrines for young learners in pre-unit and people with disability made the two groups to share the same latrines with other pupils this was a great challenge to pupils with special needs since due to their ability, transmissions of diseases to them was so easy. However, the four primary schools visited had toilets but the toilets were insufficient compared to the number of pupils available per specific primary schools. Also there were no toilets for pupils with special needs and young learners in pre-unit.

The current study is similar to the study conducted in Bangladesh a UNICEF study on sanitation facilities in primary schools (UNICEF, 2004) showed an average of one latrine for 152 pupils, with 25% having one latrine, 44% with two latrines, 13% with nonfunctional latrines and 6% having none. The same study also indicates that 19% of all schools had no water facilities, 28% having nonfunctional water sources and 53% with functional water sources. There are no national guidelines on sanitation facilities in primary schools in the country (Nahar et al., 2006). Also in the current study the researcher found that the numbers of pupils were large compared to the available toilets.

As it is presented in chapter four there was a hand washing facility at Bamba Mwarongo primary school, Duga primary school and Kichangani primary school, The hand washing facility was not found at Maramba 'B' Primary school. Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. Despite that there were hand washing facility at Bamba Mwarongo primary school, Duga primary school and Kichangani primary school but in all the three schools there was only one hand washing facility. Having one hand washing facility in three primary schools caused some pupils fail to wash their hands hence diseases transmission.

The current study is similar to the study by Jemot et al, (2008) Studies indicated a 30 percent reduction in diarrhoea cases when hand washing was practiced in day care centres and primary schools (Ejemot et al., 2008). In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008). Therefore, lack of hand washing points with soap lead to the transmissions of diseases among pupils since pupils were eating food without washing hands, others were not washing hands with soap after toilet.

5.3 Hygiene practice among Pupils, families and communities

5.3.1 Hygiene practice among Pupils

As it is presented in chapter four pupils were cleaning the toilets, classes and outside environment; the toilets were cleaned daily, however pupils were not provided with protective gears like mask, gumboot, gloves and coverall. Despite the fact that pupils from Duga primary school and Kichangani primary agreed that they are provided with protective gears when cleaning the toilets, classes and outside environment but the researcher observed pupils cleaning the toilets with no gumboots, mask and coverall, only few pupils were having gloves. Pupils from Bamba Mwarongo primary school and Maramba 'B' primary school were not provided with protective gears when cleaning the toilets. Lack of protective gears causes diseases transmission since pupils are contaminated with faces. Developing countries face challenges in the provision of sanitation facilities and this is markedly more so in schools. A study in India evaluating the environment and sanitation in a rural government school as compared to national guidelines found that only 50% of the schools had adequate latrines for boys and 60% had adequate latrines for girls, while only 10% had adequate hand washing points with soap, 50% clean toilets and other environment with no protective gears leading to diseases (Majra et al., 2010).

Few students from four primary schools (Bamba Mwarongo Primary School, Duga Primary School and Kichangani Primary School and Maramba 'B' Primary School) were washing hands with soap after toilet and before eating anything. Basing on the

findings it can be said that more pupils were not washing hands always, they washed sometimes and others never washed hands after toilet and before eating anything. Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. The current study is similar to the study by Jemot et al, (2008) Studies indicated a 30 percent reduction in diarrhoea cases when hand washing was practiced in day care centers and primary schools (Ejemot et al, 2008). In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008). Therefore, lack of hand washing points with soap lead to the transmissions of diseases among pupils since pupils were eating food without washing hands, others were not washing hands with soap after toilet.

Drinking dirty, unsafe and untreated water causes transmissions of communicable diseases. The findings revealed that all students from were four primary school were drinking water from school water sources, the primary schools were using rain water and ponds water. These water sources are not safe sources for pupils to drink, therefore these water sources lead to transmissions of communicable diseases. Where sanitation is poor and water supply is inadequate and unsafe, outbreaks of disease with severe health consequences tend to occur. Water and sanitation related diseases include diarrhoea, cholera, typhoid, dysentery, hepatitis A, Poliomyelitis, acute respiratory infections and soil-transmitted-helminth infections. The global Disability Adjusted Life Years (DALY's) for diarrhoeal diseases is estimated to be 4.1 percent and it's also estimated to be the cause of death for 1.8million people annually (WHO, 2010), most of them being children in developing countries. The study is similar to the study by (Hutton et al., (2004) the studies indicate that annually 272 million school days are lost by children due to diarrhoea. The availability of water and sanitation facilities in schools has been shown to reduce diarrhoea and hygiene related diseases amongst school children (Curtis et al., 2003; Pruss-Ustun et al, 2008). Therefore, the eruption of diseases in four primary schools could occur due to lack of sufficient hands washing points.

5.3.2 Hygiene practice among families and community members

Practicing hygiene in the World is difficult since 1.1 billion people worldwide lack access to improved water supplies and 2.6 billion people lack adequate sanitation (UNICEF, 2010). The hygiene practices among families and community members living in four (4) villages namely Bamba Mwarongo village, Duga and Kichangani village and Maramba 'B' village at Mkinga District was bad. Main source of drinking-water for members of your household for the three villages Bamba Mwarongo village, Duga village and Kichangani village were Surface water (river, dam, lake, pond, stream, canal, irrigation channels) and rain water. However, the main source of water for Maramba 'B' village was piped water. Most of respondents from Duga village and Kichangani village had to let water stand and settle to make it safer to drink, few village members were to boil water to make it safer. The findings are similar to the findings by, WHO/UNICEF (2010). It was stated that less than two thirds of the global population, an approximate 2.6 billion people does not use improved sanitation. The greatest numbers are found in Southern Asia followed by large populations in Eastern Asia and Sub-Saharan Africa. Access to water is better with 87% of the world population and 84% in developing countries. However, around 90% are getting their drinking water from improved sources. But sub-Saharan Africa fares poorly with only 60 % of its population using improved sources of drinking water. Also in the current study the same situation was found.

Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. Studies indicate a 30 percent reduction in diarrhoea cases when hand washing is practiced in day care centres and primary schools (Ejemot et al, 2008). In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008).

Despite that all respondents agreed that they have toilets but 26 (72.2%) from Bamba Mwarongo and 27 (75%) respondents from Maramba 'B' village were sharing toilets with other family members. These shows there are some community members with no

toilets. Despite having toilets most of the toilets were not cleaned and the cleaned toilets were cleaned without using protective gears. Villagers were not washing hands with soap after toilet. Also more respondents were not washing hands with soap before eating anything. Through observation the researcher observed a number of community members eating without washing their hands with soap. Where sanitation is poor and water supply is inadequate and unsafe, outbreaks of disease with severe health consequences tend to occur. Water and sanitation related diseases include diarrhoea, cholera, typhoid, dysentery, hepatitis A, Poliomyelitis, acute respiratory infections and soil-transmitted-helminth infections. The global Disability Adjusted Life Years (DALY's) for diarrhoeal diseases is estimated to be 4.1 percent and it's also estimated to be the cause of death for 1.8million people annually (WHO, 2010), most of them being children in developing countries. Availability of latrines and water improves school attendance and is especially important for adolescent girls who are menstruating, as they require the privacy of separate latrines and water. When this is lacking there is consistent absenteeism during their monthly period and this can reach up to twenty percent of school time (IRC, 2005). Many times such girls drop out all together from school especially as they also face challenges accessing sanitary towels due to its cost.

5.4 Hygienity of water sources in Mkinga District

The Hygienity of water sources from three (3) villages namely Bamba Mwarongo village, Bwagamacho and Kichangani villages was poor since farming activities were conducted near water sources at Bamba Mwarongo village, Duga and Kichangani village. Despite that farming activities were conducted in the three mentioned villages, the situation was different at Maramba 'B' village since farming activities were not conducted near water sources. In the three (3) villages (Bamba Mwarongo village, Bwagamacho and Kichangani) village and Maramba 'B' people were taking bath near water sources also there were defecation near water ponds, animals were also drinking water in the same water source furthermore family members and communities were washing clothes near water source. However, at Mbuyuni village people were not taking bath near water sources also there were no defecation near water ponds and the animals were not drinking water in the same water source. Water sources at Mbuyuni village

were protected. School Water, Sanitation and Hygiene Education (SWASH) a collaborative efforts of various stakeholders; government, NGO'S and international institutions, to ensure safe and healthy schools through the provision of clean water, latrines for both girls and boys, and appropriate hygiene education has not succeeded in three villages except in Maramba 'B' village.

The study is similar to the study by Savioli et al. (2002). Who found that one in three school-aged children in the developing world is infested with intestinal worms (Savioli et al, 2002). A more recent study estimates that 400 million school children and 47 percent of 5-6year olds in the developing world are affected by worms (Hall et al, 2008). The same study indicates that 100 percent of annual soil transmitted worm infestation cases are attributable to inadequate sanitation and hygiene. The reduction of open defecation through adequate latrine provision especially at schools; may definitely reduce and eventually break the cycle of infection and re-infections.

The international bodies such as UNICEF, WHO, amongst others have been active in spearheading, WASH campaigns across the world with special emphasis in developing countries in Asia and Africa. Studies indicate that annually 272 million school days are lost by children due to diarrhoea (Hutton et al., 2004). This has obvious detrimental effects on academic performance. The availability of water and sanitation facilities in schools has been shown to reduce diarrhoea and hygiene related diseases amongst school children (Curtis et al 2003; Pruss-Ustun et al, 2008). Despite of the good campaigns in schools but still most community members still lack clean water and sanitation hence increase in communicable diseases transmissions. Less than two thirds of the global population, an approximate 2.6 billion people does not use improved sanitation.

The greatest numbers are found in Southern Asia followed by large populations in Eastern Asia and Sub-Saharan Africa. Access to water is better with 87% of the world population and 84% in developing countries getting their drinking water from improved sources. But sub-Saharan Africa fares poorly with only 60 % of its population using improved sources of drinking water (WHO/UNICEF, 2010).

5.5 Communicable diseases affecting Pupils in Mkinga District

Where sanitation is poor and water supply is inadequate and unsafe, outbreaks of disease with severe health consequences tend to occur. Water and sanitation related diseases include diarrhoea, cholera, typhoid, dysentery, hepatitis A, Poliomyelitis, acute respiratory infections and soil-transmitted-helminth infections. The global Disability Adjusted Life Years (DALY's) for diarrhoeal diseases is estimated to be 4.1 percent and it's also estimated to be the cause of death for 1.8million people annually (WHO, 2010), most of them being children in developing countries.

As it is presented in chapter four Mkinga District is affected by various communicable diseases including cholera, Diarrhoea, typhoid and schistosomiasis. Studies indicate that children due to diarrhoea (Hutton et al., 2004) lose annually 272 million school days. This has obvious detrimental effects on academic performance. The availability of water and sanitation facilities in schools has been shown to reduce diarrhoea and hygiene related diseases amongst school children (Curtis et al., 2003; Pruss-Ustun et al., 2008). However, as the result of dirty water in the area, the area is highly affected by diarrhoea. The communicable diseases are caused by the use of dirty and contaminated water in the area. This is because the area uses ponds, river, wells and ocean as water sources. An estimated one in three school-aged children in the developing world is infested with intestinal worms (Savioli et al., 2002). A more recent study estimates that 400 million school children and 47 percent of 5-6year olds in the developing world are affected by worms (Hall et al, 2008). The same study indicates that 100 percent of annual soil transmitted worm infestation cases are attributable to inadequate sanitation and hygiene. The reduction of open defecation through adequate latrine provision especially at schools; may definitely reduce and eventually break the cycle of infection and re-infections.

Other than providing adequate latrines, the availability of water and soap for hand washing further enables the reduction of diarrhea disease and respiratory infections. Studies indicate a 30 percent reduction in diarrhoea cases when hand washing is practiced in day care centres and primary schools (Ejemot et al, 2008). In addition, other studies also indicate washing hands with soap could reduce acute respiratory infections

including pneumonia, which is the highest cause of child mortality, by 25 percent (WHO, 2008).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the research conclusion, suggestions and recommendation by which different people, countries, actors and research consumers should workup on. Chapter also provides conclusion, advices and recommendation, which can give chances for improvement.

6.2 Summary

This study examined the evaluation of sanitation facilities in government primary schools in Mkinga district council. The specific objectives were: To determine availability of sanitation facilities in Mkinga Public Primary Schools, hygiene practice among Pupils, families and communities in Mkinga District Council, to find out the hygienity of water sources in Mkinga District and to explore on communicable diseases affecting Pupils in Mkinga District.

The study used a cross sectional evaluation design to evaluate this program. The sample consisted of 385 participants who provided detailed and comprehensive information for the study. These participants were distributed as follow; 1 Council Director, 10 members of water and Sanitation Team (CWST), 4 School WASH lead by Council Education Officers. 10 members of Ward Development Committee (WDC), 30 Village Government members, 26 members of school committee, 50 teachers, 120 Pupils, 114 Parents/community, 20 Private sector, Local artisans. Primary data was collected through interviews, questionnaire and direct observation, and secondary data were collected through documentary reviews. Content analysis method was used to analyze the in depth interviews. Questionnaires were coded from text into numerals and entered into MS excel by double entrants and later clean to remove errors in terms of accuracy, consistence, and responses. Each possible answer was assigned number to ease the determination of correctness of data during the whole process of data entry and cleaning.

Lastly, the data were entered into a computer and checked for errors before being analysed using the Stata computer programme. Descriptive statistics such as frequencies and percentages was determined and the information was presented in form of tables.

The study found various sanitation facilities in public primary schools in Mkinga District council. The sanitation facilities include water sources, latrines, hand washing points. Main sources of water in the primary schools were rain water collected using water tanks except in Maramba 'B' primary school which has no any source of water. Despite this major source of water there were ponds nearby the school which were used as source of water during dry seasons.

All four primary schools (Kichangani Primary School, Bamba Mwarongo Primary School, Maramba 'B' Primary School and Duga Primary School) had latrines. Despite that all primary schools had latrines but the latrines were insufficient to all pupils. There was a latrine for very young learners in pre-unit and lower primary at Kichangani Primary School. There was a latrine for people with special need at Duga Primary School and Kichangani Primary School. However, there was no latrine for people with disability at Bamba Mwarongo Primary School and Maramba 'B' Primary School. Lack of latrines for young learners in pre-unit and people with disability made the two groups to share the same latrines.

The findings further revealed that Pupils were cleaning the toilets, classes and outside environment; the toilets were cleaned daily, however pupils were not provided with protective gears like mask, gumboot, gloves and coverall. Few pupils from four primary schools (Bamba Mwarongo Primary School, Duga Primary School and Kichangani primary and Maramba 'B' Primary School) were washing hands with soap after toilet and before eating anything. The findings revealed that all students from four primary school were drinking water from school water sources, the primary schools were using rain water and ponds water. These water sources are not safe sources for pupils to drink, therefore these water sources lead to transmissions of communicable diseases.

The hygiene practices among families and community members living in four (4) villages namely Bamba Mwarongo village, Bwagamacho, Kichangani village and Mbuyuni village at Mkinga District was bad. Main source of drinking-water for

members of the household for the three villages Bamba Mwarongo village, Bwagamacho village and Kichangani village were Surface water (river, dam, lake, pond, stream, canal, irrigation channels) and rain water. However, the main source of water for Maramba 'B' village was piped water. Most of respondents from Bwagamacho village and Kichangani village had to let water stand and settle to make it safer to drink, few village members were to boil water to make it safer.

The Hygienity of water sources from three (3) villages namely Bamba Mwarongo village, Bwagamacho and Kichangani villages was poor since farming activities were conducted near water sources at Bamba Mwarongo village, Bwagamacho and Kichangani village. Despite that farming activities were conducted in the three mentioned villages, the situation was different at Mbuyuni village since farming activities were not conducted near water sources. In the three (3) villages (Bamba Mwarongo village, Bwagamacho and Kichangani) village and Mbuyuni people were taking bath near water sources also there were defecation near water ponds, animals were also drinking water in the same water source furthermore family members and communities were washing clothes near water source. However, at Mbuyuni village people were not taking bath near water sources also there were no defecation near water ponds and the animals were not drinking water in the same water source. The findings revealed some communicable diseases such as cholera, Diarrhoea, typhoid and schistosomiasis.

6.3 Conclusions

The findings indicated that there were sanitation facilities including water sources, latrines, hand washing points. However, the sanitation facilities were insufficient to all pupils. Main sources of water in the primary schools were rain water collected using water tanks except in Maramba 'B' primary school which has no any source of water.

Pupils were not provided with protective gears like mask, gumboot, gloves and coverall when cleaning toilets. The hygiene practices at among families and community members living in four (4) villages namely Bamba Mwarongo village, Bwagamacho and Kichangani village and Mbuyuni Village at Mkinga District was bad.

The Hygienity of water sources from three (3) villages namely Bamba Mwarongo village, Bwagamacho and Kichangani villages was poor since farming activities were conducted near water sources at Bamba Mwarongo village, Bwagamacho and Kichangani village. Various communicable diseases including cholera, Diarrhoea, typhoid and schistosomiasis were found.

6.4 Recommendations

Due to the above findings, the following essential recommendations should be taken into consideration: -

- i. The Government should promote, provide and/ or Facilitate funding for national programmes
- ii. Availability of water in the schools is the major challenge which leads to spread of communicable diseases so the Ministry of Water and Irrigation should ensure the availability and accessibility of water specifically in schools and community.
- iii. The district should monitor all the ongoing conditions in all school and promote corrective action where required.
- iv. The local level should create an appropriate body to oversee the implementation of standards in schools.
- v. Local level should provide advice and training to staff, schoolchildren and parents.

6.5 Policy implication

The Government should ensure that, the district level guidance and support for compliance reflects the National regulatory framework. Use appropriate guidelines where standards do not exist. The Government should also ensure that Water, Sanitation and hygiene components are adequately reflected in the education management information system at the National level.

Finally, The Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEC) should ensure that all the required sanitation facilities should be constructed to all schools compliance with the Specific standards set by the Ministry of Health and social Welfare and Social Welfare; national Sanitation Options and Construction Guidelines, September 2012.

6.6 Programmatic implications and use of findings for strategic planning

The (Local Level) schools and Community should mobilize the support from teachers, school children, families and other local stakeholders to archive and sustain healthy school environment.

The Key departments of Water, Education and Health in Mkinga district should collaborate together and prepare the strategic plan of how to implement the Swash Programme in Mkinga District.

Further in depth studies should be carried out in this and so as to the status of sanitation facilities in Public primary schools in Mkinga District Council. This will enable the District to know where we are in regards to the Millennium Development Goals as well as Vision 2030.

6.7 Limitation

This study was carried out in Government Primary Schools in Mkinga District Council but there are evidence that there is inadequate latrines for pupils in the rural areas which lead to spread of communicable diseases. So the results cannot be used to all Government Primary Schools which are supported by donors and Private primary schools.

6.8 Areas for Further Research/ Evaluation

Research should be carried out to make the comparison between the sanitation facilities in Government primary schools and Privet Primary Schools in Mkinga District Council.

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APPENDICES

Appendix I : Work plan

ACTIVITIES	November 2017	December 2017	January 2018	February 2018	March 2018	April 2018	May 2018
Proposal writing and correction from supervisor	✓	✓	✓				
Data Collection			✓				
Data entering and cleaning			✓				
Report writing				✓	✓		
Preparation for master sheet and supervisor recommendations					✓		
Dissemination of report findings						✓	✓

Appendix II: Structures Questionnaire

Respondents: Head Teachers, School Committee, VEOs and WEOs

Dear Informant

My name is **Irene Mosha** a student of **MZUMBE UNIVERSITY** pursuing a Msc HM&E. I am conducting a Minor research study on **EVALUATION OF SANITATION FACILITIES IN GOVERNMENT PRIMARY SCHOOLS IN MKINGA DISTRICT COUNCIL** as a requirement for the completion of my studies. This study is for academic purposes and not otherwise. I humbly request your voluntarily participation in responding to the attached questions which intend to collect information that will be used as findings of the study. Your answers will be kept confidential.

1. Sex
- 2 Age.....
3. Education Level.....
4. Occupation.....
5. School Name
6. Division.....Ward.....Village
7. Date

No.	Question	Yes	No	Code
8	Is this a public primary school only funded by the government of Tanzania?			
	Has the school been funded by donors to improve the sanitation facilities?			
	Can this be quantified – indicate the facilities provided by this funding			
9	Total enrolment primary:	Indicate no.		
	Primary Boys :			
	Primary Girls:			
	Nursery school total enrolment:			
	Nusery school boys:			
	Nursery school girls:			
10	What is the total number of staff in the school?	Indicate number		
	Teaching staff:			
	Support staff:			
	Male staff:			
	Female staff:			
11	Is there a latrine for people with disability?			
12	Is there a hand washing point? If yes, what type is it?			

	a) Tippy tap? b) Tank and tap? c) Piped to tap?			
	If yes, how many are available a) Near latrines b) Near feeding area c) Near classrooms d) Other area			
13	Is the water available at the school?			
14	Where do you fetch water?			
15	Is water available at the hand washing points?			
	Is access restricted?			
16	Is there soap or ash for hand washing?			
17	Is there a separate wash point for girls?			
	If yes, is it behind a screen or wall?			
	Is the area around the latrines bushy?			
17	Is there a school feeding programme?			
18	Is there a hand washing facility next to the feeding area?			

19. what times is selected for the pupils go for break?

20. At what times are students allowed to use latrines.

Appendix III : Structured Questionnaire

Respondents: Health Teachers/Teachers

Dear Informant

My name is **Irene Mosha** a student of **MZUMBE UNIVERSITY** pursuing a Msc HM&E. I am conducting a Minor research study on **EVALUATION OF SANITATION FACILITIES IN GOVERNMENT PRIMARY SCHOOLS IN MKINGA DISTRICT COUNCIL** as a requirement for the completion of my studies. This study is for academic purposes and not otherwise. I humbly request your voluntarily participation in responding to the attached questions which intend to collect information that will be used as findings of the study. Your answers will be kept confidential.

1. Sex
- 2 Age
3. Education Level
4. Occupation
5. School Name
6. DivisionWard Village
7. Date

No.	Respondent	Yes	No	Code
8	Is sanitation and hygiene part of the school curriculum?			
	Does the school have active health clubs?			
	Who cleans the latrines in the school? a. Students b. Staff			

9. How many times are they cleaned? Tick answer.
- a. Once a day:
 - b. Twice a day:
 - c. Every other day:
 - d. Once a week:
 - e. Other (state)
10. If Pupils clean the latrines, how is the clean up organised?.....
11. Do the Pupils provided the protective gear for cleaning? Tick answer.
- a. Yes
 - b. No

Appendix IV: Structured Questionnaire

Respondents pupils, families and community

Dear Informant

My name is **Irene Mosha** a student of **MZUMBE UNIVERSITY** pursuing a Msc HM&E. I am conducting a Minor research study on **EVALUATION OF SANITATION FACILITIES IN GOVERNMENT PRIMARY SCHOOLS IN MKINGA DISTRICT COUNCIL** as a requirement for the completion of my studies. This study is for academic purposes and not otherwise. I humbly request your voluntarily participation in responding to the attached questions which intend to collect information that will be used as findings of the study. Your answers will be kept confidential.

1. Sex
- 2 Age
3. Education Level
4. Occupation
5. Division WardVillage
6. Date
7. What is the main source of drinking-water for members of your household?

The aim of this question is to determine the main source of drinking-water for members of the household (i.e. the water source that supplies most of the household drinking-water needs).

- a. Piped water into dwelling
- b. Piped water to yard/plot
- c. Public tap/standpipe
- d. Tube well/borehole
- e. Protected dug well
- f. Unprotected dug well (.....)
- g. Protected spring
- h. Unprotected spring
- i. Rainwater collection
- j. Bottled water
- k. Cart with small tank/drum
- l. Tanker-truck
- m. Surface water (river, dam, lake, pond, stream, canal, irrigation channels)
- n. Other (specify)

8. What is the main source of water used by your house-hold for other purposes, such as cooking and hand wash?

- a. Piped water into dwelling
- b. Piped water to yard/plot
- c. Public tap/standpipe
- d. Tube well/borehole (.....)
- e. Protected dug well
- f. Unprotected dug well
- g. Protected spring
- h. Unprotected spring
- i. Rainwater collection
- j. Bottled water
- k. Cart with small tank/drum

- l. Tanker-truck
- m. Surface water (river, dam, lake, pond, stream, canal, irrigation channels)
- n. Other (specify)

9. How long does it take to go there, get water and come back?

The purpose of this question is to assess whether the main drinking-water source is available and sufficiently close or accessible to the household to ensure that there is an adequate daily volume of water for basic household purposes.

- a. No. of Minutes
- b. water premises (.....)
- c. I don't know

10. Who usually go to this source to fetch the water for your households?

The purpose of this question is to know who usually goes to the source to fetch water for the household. This information gives a sense of whether there are gender and generational disparities with respect to water-hauling responsibilities.

- a. Adult Woman
- b. Adult men
- c. Female child (under 15 years) (.....)
- d. Male child (under 15 years)

11. Do you treat your water in any way to make it safer to drink?

The purpose of the following two questions is to know whether the household drinking water is treated within the household and, if so, what type of treatment is used. The questions are intended to gather information on water treatment practices at the household level, which provides an indication of the quality of the drinking-water used in the household.

- a. Yes
- b. No (.....)
- c. I don't know

12. What do you usually do to the water to make it safer to drink?

- a. Boil
- b. Add bleach/chlorine
- c. Strain it through a cloth
- d. Use a water filter (ceramic, sand, composite, etc.) (.....)
- e. Solar disinfection
- f. Let it stand and settle
- g. Other (specify)
- h. I don't know

13. What Kind of toilet facilities do members of your households usually use?

The purpose of this question is to determine the type of sanitation facility used by adults in the household, which provides an indication of whether the household uses adequate sanitation. The question specifically asks about actual use of a facility, rather than asks if a household has or owns a toilet facility. This should avoid counting facilities not in use or dysfunctional.

- a. Flush/pour flush to:
- b. piped sewer system
- c. septic tank
- d. pit latrine
- e. elsewhere

- f. unknown place/not sure/Don't Know where
- g. Ventilated improved pit latrine (.....)
- h. Pit latrine with slab
- i. Pit latrine without slab/open pit
- j. Composting toilet
- k. Bucket
- l. Hanging toilet/hanging latrine
- m. No facilities or bush or field
- n. Other (specify)

14. Do you share the toilets with other households?

The purpose of these questions is to know whether the household shares its sanitation facility with other households. The shared status of a sanitation facility is important because shared facilities can be less hygienic than facilities used by a single household. Unhygienic conditions (faeces on the floor, seat or wall, and flies) may discourage use of the facility.

- a. Yes
- b. No (.....)

15. How many households use this toilets?

16. How many other households share this toilet?

17. How many households use this toilets?

- a. Yes
- b. No (.....)

Appendix V : Structured Direct Observation

No.	Background	Yes	No	Codes	Comments
1.	Type of sanitation facilities a) Ordinary pit latrine' b) Ventilated Improved Pit (VIP) c) Water closets d) Other(specify(.....))				
2.	Are there pit latrine away at least 10 metres from houses?				
3.	Are there Pit latrines of the wind side				
4.	Are the latrines at least 15metres (50ft) away from a borehole or well or water supply point				
5.	In mixed schools are the girls sanitation areas separate from the boys?				
	Do they offer complete privacy?				
6.	How many latrine doors are present for a) Girls b) Boys c) Female staff d) Male staff e) Shared staff	No. of doors			
7.	Is there a urinal present for boys?				
8.	Is there a provision for learners with special needs?				
9.	Is there provision for very young learners in pre-unit and lower primary?				

10	Are the latrines clean? (i.e. free from visible faeces on floor and walls?				
11	Are they well ventilated? i.e. do they have a vent pipe?				
12	Are they well maintained? i.e. How many have doors? a) Girls latrines b) Boys latrines c) Female staff latrines' d) Male staff latrines' e) Shared staff latrine				
13	How many lack doors? a) Girls latrines b) Boys latrines c) Female staff latrines' d) Male staff latrines e) Shared staff latrine				
14	What is the condition of the latrine floors? a) Wet b) Dry c) Have faecal matter d) Clean				
15	What is the condition of the walls? a) In good condition b) Have cracks				
16	Is there a latrine for people with disability?				
17	Who cleans the latrines? a) Pupils				

	b) Staff Do they have protective gear for cleaning?				
18	Is there a hand washing point? If yes, what type is it? a) Tippy tap? b) Tank and tap? c) Piped to tap?				
	If yes, how many are available a) Near latrines b) Near feeding area c) Near classrooms d) Other area				
19	Is water available at the hand washing points?				
	Is access restricted?				
20	Is there soap or ash for hand washing?				
21	Is there a separate wash point for girls?				
	If yes, is it behind a screen or wall?				
22	Is the area around the latrines bushy?				
23	Is there evidence in the area around the latrine of a) Urination? b) Defecation?				
24	Are there health messages (talking walls) in the school?				
25	Is the school environment well kept i.e. clean, neat and free from litter				

26	Is there a school feeding programme?				
27	Is there a hand washing facility next to the feeding area?				

Appendix VI: Interview Guide

Interview guide for School Pupils

Dear Informant

My name is a student of **MZUMBE UNIVERSITY** pursuing a Msc HM&E. I am conducting a Minor research study on **EVALUATION OF SANITATION FACILITIES IN GOVERNMENT PRIMARY SCHOOLS IN MKINGA DISTRICT COUNCIL** as a requirement for the completion of my studies. This study is for academic purposes and not otherwise. I humbly request your voluntarily participation in responding to the attached questions which intend to collect information that will be used as findings of the study. Your answers will be kept confidential. This information will enable us to determine the hygiene practices in government primary schools in Mkinga district. The discussion will take 30 minutes. There is no wrong and right answer in this discussion. The discussion will also be audio recorded for easy analysis but no one will be quoted in the final report. Shall we begin our discussion?.

Name of interviewer:

Date:

Name, Position:

Discussion Questions:

1. Is it necessary to practice personal hygiene every day? Why?
2. Why is it important to use soap or other materials to clean different parts of the body?
3. When do you usually wash your hands? Do you think this is sufficient for disease prevention? Why or why not?
4. When you get up in the morning and before you come to school, what are some personal hygiene habits that you normally practice? Please describe.
5. Do you think the drinking water in the classroom is clean or dirty? When you think

drinking water is dirty, what can you do to make clean drinking water?

4. Besides personal hygiene practices, what other habits should you have in order to have good health? Why do you need these habits?
5. Will others be affected if you do not practice good personal hygiene daily? Why?
6. What are some of the reasons why a person would not practice good personal hygiene?
7. If a friend is not practicing good personal hygiene, what can you do? What can you say to him/her? Please give an example.
8. Which habit is better, washing hands before meals or after meals? Why?
9. What kind of diseases can be caused from not washing hands before eating? Why?
10. What diseases can you get from dirty drinking water? Why?
11. Can diarrhea be caused by dirty drinking water? Why?

Appendix VII: Interview guide for implementers (*Local authority, Council Water and Sanitation Team*)

Name of interviewer:

Date:

Name, Position:

Introduction: We are here to review the school water, sanitation, and hygiene project implemented in Mkinga District. We want to use the information to improve the project and get your perceptions as implementers, so your comments and opinions are very important to us. Please feel free to talk freely. Your comments will be recorded, but we will not quote you in our report. We will share a summary of our final report with you later.

1. General information

- 1.1. What are the most common health problems in this area?
- 1.2. Are there any sanitary problems?

2. General information

- 2.1. Please tell us about the project interventions. What was your role?
- 2.2. Have any other interventions concerning sanitation, hygiene, or drinking water been implemented in the area/ district?
- 2.3. What results do you think the project intervention has brought to your area?
- 2.4. Do you have any recommendations to improve this package?

3. Hygiene promotion

- 3.1. How do children learn about hygiene? (family, peers, school, health workers, other)
- 3.2. How are children educated about hygiene in schools? (In what classes, how often,)
- 3.3. What role does your office play in hygiene promotion?

3.4. Do you have any recommendations to make hygiene promotion more effective?

4. Support from Project Implementation Unit

4.1. How often do you have contact with the Project Implementation Unit? When was their last visit?

5. Wrap up

5.1. What other recommendations do you have for improving the water, sanitation, and hygiene

situation in Mkinga district especially in Primary Schools?

5.2. What are your perception towards this project?

Probe: is it realistic? Why? Why not?

5.3. Any questions?

Thank you for your time