



# **EXPANDING THE MTUMBA MODEL: CREATING A PRODUCT FOR SCALE UP**

**Principal Investigator: Yolanda J. Mbatia**

National Institute for Medical Research, P.O. Box 9653, Dar es Salaam, Tanzania

Email: [yolanda.mbatia@gmail.com](mailto:yolanda.mbatia@gmail.com)

[yombatia@nimr.or.tz](mailto:yombatia@nimr.or.tz)

**Other Investigators: Hamisi M. Malebo, Robert Mussa, Veritas Msimbe and Julius J. Massaga**

**September 2015**

## **ACKNOWLEDGEMENT**

Our research team at the National Institute for Medical Research (NIMR) first recognizes the generous financial support from UK Department for International Development (DFID) through the Sanitation and Hygiene Applied Research for Equity (SHARE) consortium for the project titled “Expanding the MTUMBA model: creating a product for scale up”. Special thanks to Dr. Sue Cavill (SHARE Consortium) and Dr. Sally Faulkner (WaterAid) for their continuous advice and support. NIMR is especially thanked for the ethical clearance to conduct this study. We also recognize the crucial collaboration of Geita Region Government Authorities: Mr. Severine Kahitwa, the Regional Administrative Secretary (RAS) for accepting the project and for his authorization for the project to be implemented in Geita Region; Hon. Mr. Mangochie O. Mangochie, the District Commissioner (DC) for his support for the project to be implemented in Geita District; Mr. Ali Kidwaka, the Geita District Executive Director (DED) and Ms. Margaret Nakainga, the Geita Town Director for their permission and support for the project to be implemented in Katoma and Kalangalala Ward, respectively. We would like to thank Mr. Johnes Shuma, the District Health Officer (DHO) for Geita District Council and Mr. Japhet Masesa, the Geita Town Health Officer (THO) for their crucial collaboration and support. We also extend our appreciation to Mr. Jimmy Mtabwa, Health Officer (HO) at the Regional Health Office and Ms. Winner Mwansite, Health Officer (HO) at the District Health Office for their collaboration and support during the implementation of the project.

We are highly indebted to Hon. Komanya Anjelo, the Ward Counselor and Village Chairman; Mr. Gaspar Kapaya, the Ward Executive Officer (WEO); Mr. Ng’wina the Village Executive Officer (VEO); Artisans; Animators; Mr. Steven Honoka (Artisan Trainer); Mr. Jeremiah Kataga (Artisan Trainer); Chumax (Designer and painter); Ms. Thecla Mutemi, Project Accountant and Mr. Paul Samwel, the Regional Transport Officer; for their immense support, collaboration and initiatives that was critical in the implementation of the project.

NIMR officials are thanked for their technical support and advice which enabled implementation of this project. Last but not least, the Katoma community members are also thanked for their willingness to participate in the project as well as our enumerators who assisted in data collection in the surveyed wards.

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## **ACRONYMS**

<b>CBOs</b>	Community Based Organizations
<b>CCHP</b>	Comprehensive Council Health Plan
<b>CLTS</b>	Community Led Total Sanitation
<b>DC</b>	District Commissioner
<b>DED</b>	District Executive Director
<b>DHO</b>	District Health Officer
<b>FGDs</b>	Focus Group Discussions
<b>IDIs</b>	In Depth Interviews
<b>IPLs</b>	Improved Pit Latrines
<b>JMP</b>	Joint Monitoring Program
<b>LGA</b>	Local Government Authority
<b>MDGs</b>	Millennium Development Goals
<b>NGOs</b>	Non-Government Organizations
<b>NIMR</b>	National Institute for Medical Research
<b>PHAST</b>	Participatory Hygiene and Sanitation Transformation
<b>PRA</b>	Participatory Rural Appraisal
<b>RAS</b>	Regional Administrative Secretariat
<b>SanPlat</b>	Sanitation Platform
<b>SHARE</b>	Sanitation and Hygiene Research for Equity
<b>TDHS</b>	Tanzania Demographic and Health Survey
<b>THO</b>	Town Health Officer
<b>TPLs</b>	Traditional Pit Latrines
<b>UN WWAP</b>	United Nations World Water Assessment Programme

<b>UNICEF</b>	United Nations Children's Fund
<b>VIP</b>	Ventilated Improved Pit Latrine
<b>WEO</b>	Ward Executive Officer
<b>WHO</b>	World Health Organization

## **CHAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 Millennium Development Goals (MDGs) and Sanitation improvement**

In the world today, only 63% of the population have access to improved sanitation, and estimated to increase only slightly to 67% by 2015, and this is well below the 75% aim of the Millennium Development Goals (MDGs). Unless there is a revolution in the pace of change in access to improved sanitation, otherwise the MDG target may not be achieved worldwide until 2026.

Tanzania is also off-track from meeting the MDG target for sanitation, and is unlikely to do so by 2015. Currently, there is generally very low coverage of improved sanitation especially in rural areas in Tanzania and that, households owning *any* form of latrine are currently 85% out of which only 13% are the improved latrines although in some areas the coverage is as low as 2%. There is a very slight improvement on the coverage of improved latrines in Tanzania which was shown to rise from 10% in 2004 to 13% in 2010. *More worrying is the fact that 14% of households in Tanzania do not have any form of latrine/toilet facility (shared or not shared) hence open defecation in the fields, forests, bushes, bodies of water or other open spaces* (WHO/UNICEF, 2006; 2010). The current situation of sanitation and hygiene in Tanzania is not conducive for supporting a disease free and happy living environment. Access to improved sanitation is only 35% according to the definition of the Joint Monitoring Programme for Water Supply and Sanitation (WHO/UNICEF, 2010). Only 3% of the population has access to flush toilet.

A recent household survey by the National Institute for Medical Research (NIMR) revealed that, most of households with latrines in rural areas (overall 80.8%), had temporary latrines with muddy floor and poor superstructures. The overall coverage of hygienically acceptable latrines in the surveyed areas was only 19.2% (Malebo *et al.*, 2007). NIMR findings revealed that, many of these basic latrines constructed were of a very low standard, unsafe, unhygienic and ineffective at preventing the spread of disease. This has been an inherent problem which underscores the need of a strategy to rectify the situation especially in rural areas. According to the 2012 census report, the use of improved sanitation facilities in urban areas is 25% while in rural areas is 7% hence a challenge facing Tanzania is how to convince urban and rural households that currently have a poor standard of latrines to construct improved latrines.

## **1.2 MTUMBA Sanitation and Hygiene Participatory Approach as an innovative methodology for improving access to improved sanitation**

The MTUMBA Sanitation and Hygiene Participatory Approach, named after the MTUMBA village in Dodoma region in Tanzania, is an amalgamation of modified tools from Participatory Hygiene and Sanitation Transformation (PHAST), Community Led Total Sanitation (CLTS), and Participatory Rural Appraisal (PRA). The MTUMBA Sanitation and Hygiene Participatory Approach focuses on community involvement through participatory planning, implementation, monitoring and evaluation. The approach is targeted to achieve its goals through capacity building in terms of skills development of the district sanitation team/department, community based artisans and animators, lobbying for the District Health Department to adequately budget for Sanitation and include the same in the Council Comprehensive Health Plans (CCHP). The approach also focuses on the empowerment of the district team to continue promoting latrine construction and use even after the project has ended. In addition, the approach also targeted to empower the community to continue taking individual and collective actions to ensure latrine construction and use of its members even after the project has ended.

The MTUMBA approach was piloted in three ward of Mambali (Nzega district), Mtoa (Iramba district) and Masieda (Mbulu district) – covering 13 villages with a total population of 54,081 running from March 2008 to March 2011. The recent evaluation by the National Institute for

Medical Research (NIMR) reveals that, overall latrine coverage in the surveyed areas has gone up from 36.3% in 2007 to 68% in 2011 (Malebo *et al.*, 2012). The percentage of improved latrines increased from 0% in 2007 to 21.4% in 2011 which is higher than the national average of 13% (Malebo *et al.*, 2012). Evidence collected from a previous evaluation of MTUMBA Sanitation and Hygiene Participatory Approach in Mbulu, Iramba and Nzega indicated that the approach is effective in increasing the coverage of improved pit latrines, and improving the prevalence of consistent and proper hand washing, and it helps in overcoming some of the obstacles to latrine construction and the challenges for adoption of improved hygiene behaviours.

On this background, scaling up and dissemination of the tested approach and technologies in Geita district is the main interest of this study, nonetheless significant level of confidence has been established on the effectiveness of the MTUMBA approach. Scaling up of MTUMBA approach had been planned to start in one urban ward (Kalangalala) and one rural ward (Katoma).

This research builds on previous experience with MTUMBA Sanitation and Hygiene Participatory Approach in the piloted districts whereby a total of 14 different types of latrines were promoted. Only four types of improved latrines were preferred and picked up and constructed by villagers in the districts based on simplicity of the designs, availability of building materials, cultural acceptance and cost. The latrine technologies that were preferred by households in the original MTUMBA implemented areas are improved pit latrine 1, improved latrine 2, improved latrine 3 and improved latrine 4. Improved pit latrine 1 is made of a mud/thatched roof (Maluli), its pit is made of wattle (Kihenge), a floor with SanPlat and its superstructure of poles with mud/mud bricks. Improved pit latrine 2 is made of a mud/thatched roof (Maluli), its pit made of burnt bricks, a floor with SanPlat and its superstructure of poles with mud/mud bricks. Improved pit latrine 3 is made of a roof of corrugated iron sheets, its pit made of cement bricks, a floor with SanPlat and its superstructure of cement/mud bricks. Improved pit latrine 4 is made of a roof of corrugated iron sheets, its pit made of dry bond, a floor with SanPlat and its superstructure of cement/mud bricks.

In this project, the four improved latrine models shown to be more accepted by rural households were introduced in Katoma Village, Geita district in order to optimize and find the most preferred improved latrine model for urban and rural areas, optimize the design, as well as develop ways in



which the cost efficiency could be improved. This information will then be used to design a highly effective “MTUMBA Sanitation and Hygiene Participatory Approach program package” which will allow Local Government Authorities (LGA) and other stakeholders to easily, quickly and effectively implement the MTUMBA Sanitation and Hygiene Participatory Approach program in other locations. With the above background, it is crucial to further develop the most cost effective and acceptable ways to scale up this approach across Tanzania so as to facilitate and increase the access to improved sanitation, attainment of MDGs and sustainability of hygiene behaviour changes in both urban and rural areas in the country.

### **1.3 Research Objectives: General and specific objectives**

This research sought to implement MTUMBA Sanitation and Hygiene Participatory Approach, with emphasis to the four latrine designs of the approach which were most preferred by households during the pilot implementation in Mbulu, Nzega and Iramba districts. This information will then be used to optimize the Mtumba approach with emphasis to the four latrine designs which will allow the scale-up of Mtumba program in other locations.

The **main objective** underlying this project is to improve access to sanitation by finding out the best way to scale-up Mtumba in urban and rural wards in Geita district in Tanzania.

The **specific objectives** underlying the proposed project are;

1. To promote Mtumba sanitation approach and identify the potential and optimal ways for scaling up access to sanitation and use of hygienic practices.
2. To assess the adoption rate and outcome of the Mtumba approach in terms of behaviour change and demand.
3. To quantify cost implication of implementing Mtumba at individual, household and community level.
4. To determine the social factors affecting the choice of sanitation and hygiene technologies in the study villages.

The project planned to achieve this by answering the following research questions, and then incorporating that new knowledge into the creation of a Mtumba program ‘package’:

- 1) What project components contributed most to the success of Mtumba?
- 2) What project alterations allows for faster, more cost-effective and acceptable replication of Mtumba during scale up?
- 3) What products, services and methodology allow fast and cost-effective replication of Mtumba during scale up?

**Phase 1 of the project (Baseline survey in selected villages)**

**Objective:** To determine the indicators of socio-economic indicators, as well as to track sanitation infrastructure coverage and prevalence of relevant hygiene behaviours at baseline.

**Phase 2 of the project (Artisans and animators refresher sensitization on promoting improved latrine construction and provision of technical support on the construction of 4 latrine options in Katoma village in Geita)**

**Objective:** Community sensitization and triggering to take action against open defecation, construction and use of improved latrines, improving traditional pit latrines, protecting water sources, drinking safe water and hygienic hand washing.

## **CHAPTER TWO**

### **2.0 METHODOLOGY**

#### **2.1 Study Design**

The study employed Mtumba approach by encouraging participation from communities, Local Government health officials, local animators and artisans in promotion and adoption of improved sanitation behaviour. This research used the 4 basic components of the MTUMBA approach namely;

1. Interactions with the community and village leaders
2. Interactions with animators and artisans
3. Interactions with the Local Government health officials
4. Creation of ‘sanitation and hygiene resource centre’ in the study village

Within each of these components, the materials used and the services provided was evaluated for effectiveness. The services provided to the community include; village leader meetings and community meetings, educational interactions at the community level and latrine promotion. In addition training was provided to selected local animators and artisans who consented to promote the construction of latrines in their village.

#### **2.2 Sample size estimation**

In order to estimate the sample size needed, first the Intra-cluster coefficient of variance (ICC) was estimated using the results of a previous MTUMBA intervention. This previous intervention found that the pre-intervention coverage rate for improved latrines in three different villages was

approximately 30%, 20% and 10%; the variance for each of these villages was then divided by the sum of the variance across all three villages. This yielded an estimate of the proportion of the total variance which was constituted by intra-cluster variation (as opposed to inter-cluster variation) for each of the villages. The intra-cluster coefficients were then averaged across all three villages yielding a final estimate of the ICC of 0.3. This is an extremely high ICC, but it might be expected with the outcome variable in question (construction of an improved latrine).

It was assumed that coverage of improved latrines would increase, from 20% of household to 50% of households, as was found in the previous Mtumba study. Requiring sufficient power to discern this size of an effect at a 5% level of confidence of rejecting a true positive (Type 1 error) and a 10% level of confidence of accepting a false negative (Type 2 error). Selecting 2 villages (clusters) and 350 households per arm allows for just over 600 households per village. 600 households per village give a design effect of 8.4; dividing 350 by this yielded an effective sample size which met the adopted confidence interval criteria. Allowing for a maximum dropout rate of 20% between the baseline and the follow up survey, this brings up the number of households needed in each study arm to 500.

### **2.3 Sampling procedure for household survey**

A community meeting was held in Katoma village and Geita town during which a lottery was held in order to randomly choose 1200 households to be surveyed. A total of 1,157 households were surveyed using a standardized household questionnaire. This survey collected information on the indicators of socio-economic status, as well as track sanitation infrastructure coverage and prevalence of relevant hygiene behaviours at baseline. All potential survey participants were informed of the risks of participating, the reasons for the surveys and the precautions that will be taken in order to preserve the secrecy of their information. The study village was stratified into its constituent hamlets, whereby equal number representation of households was randomly selected. Systematic sampling was used to select households from each selected hamlet, the number of households per hamlet depending on the number of hamlets in a village.

## **2.4 Data collection**

Semi-structured questionnaires were developed and used to collect data from households in order:

- i. To establish social, economic, gender and geographic factors associated with construction and usage of latrines in the survey areas.
- ii. To identify social, economic, geographic, environmental and behavioural factors associated with hand washing practices at critical times.
- iii. Identification of the available latrine options, coverage and utilization in the project area
- iv. To assess the operation and maintenance aspects of latrines, hygiene facilities and latrine structural condition.
- v. To identify social, economic, geographic, environmental and behavioural factors associated with household water treatment and safe storage.
- vi. Household survey to determine the number of household members with diarrhoea in the past 14 days

Qualitative data was collected by Focus Group Discussion (FGD) using a special guide and non-participant observation using an observation checklist. The FGD guide had themes and subthemes aimed to determine the indicators of socio economic indicators as well as to track sanitation infrastructure coverage and prevalence of relevant hygiene behaviours. There were four FGD groups namely; of men, women, youths and community leaders, all conducted by the research team.

## **2.5 Data management and report writing**

Data Management at NIMR is fully computerized. Prior to data entry, a data entry screen was created considering all instructions as stipulated on the respective survey forms followed by orientation of the data entry clerks. Analysis work was done using statistical software named; Stata (Stata Co-operation, College Station, Texas, USA). All forms were double entered and verified (compared) using EPI-Info software. STATA (version 7) and SPSS (version 9) were used in analyzing entered data. Qualitative information was analyzed manually.

## 2.6 Ethical consideration

Ethical clearance to conduct the study was sought from the National Medical Research Coordinating Committee (MRCC) at the National Institute for Medical Research. Permission to implement the project in Geita District was provided by the Regional Administrative Secretary (RAS). Participation in this study by households and individuals invited for FGDs was absolutely free, consent to participate in the study was sought from each head of household and individual concerned.

### Activity Timeline

Activity	Specific output	Month and Year
Selection of study villages, securing of permissions from local authorities, preparation of materials for intervention.	-Data collection tools  -Materials to train research assistants (English version) artisans and animators (both in Kiswahili)	May 2014
Baseline survey in selected villages	-Baseline survey conducted in selected villages in Kalangalala and Katoma wards. 1,157 households were surveyed in the participating villages.	June – July 2014
Creation of sanitation centre in Geita	-The Sanitation Centre in Katoma created by constructing the 4 most preferred latrine designs  - Training of selected artisans and animators	August 2014
Creation of project outreach materials	-Project outreach materials: educational posters and leaflets (Kiswahili versions) distributed during the launch	August 2014

	of the Katoma Sanitation Centre	
Baseline data analysis	-Data entry and cleaning done and thereafter data analysis  -Transcriptions of the audio recorded Focus Group Discussions (FGDs) done and thereafter translation (from Kiswahili to English)	September 2014
Preparation of baseline report	-Baseline report written and submitted on 3/11/2014	October 2014
Translation of Artisans and animators training manuals	-Artisan and Animators training manuals (English version)	November 2014 – February 2015
Artisans and Animators refresher sensitization	-5 sanitation and hygiene committees  -5 declaration forms signed by hamlet chairperson and village leaders	March – April 2015
Stakeholders work session to review the drafted artisans and animators manuals	-Refined versions of Artisans and Animators training manuals	May 2015
Preparation of final report	-Final report written and submitted on 19/9/2015	June – September 2015

## **CHAPTER THREE**

### **3.0 RESULTS AND DISCUSSION**

#### **3.1 PROJECT IMPLEMENTATION**

##### **3.1.1 Permission and community entry**

The National Health Research Ethics Committee of the Medical Research Coordinating Committee (MRCC) permitted the study to be conducted in Tanzania. At region level, permission to conduct the study in Geita district was given by the Regional Administrative Secretary (RAS). Selection of study villages and focal persons was done in collaboration with the local government authority (LGA). This was done in order to establish rapport and relate with Local Government, traditional leaders and community members so as to explain the objectives of the intervention and create local ownership. The focal people were assigned roles and responsibilities in order to fulfil project objectives. At village level, a meeting was conducted to inform villagers about the project, to request for their involvement and for the community to identify reputed artisans to be empowered by the project on latrine construction as well as animators for health promotion in the community.

##### **3.1.2 Allocation of land and construction of Sanitation Centre**

Request for land to construct a Sanitation Centre in Katoma village was sent to the Regional Administrative Secretary (RAS) and the District Executive Director (DED). The DED directed the village government to allocate free of charge part of its land for the project. The village government allocated 150 m x 80 m piece of land for the construction of the Sanitation Centre. Thereafter, the Sanitation Centre at Katoma village was created by constructing the 4 most preferred latrine designs. The Sanitation centre displays how the latrine pit is supposed to be dug, different designs



of pit linings, different designs of SanPlats, latrine floors, superstructures and roofing approaches of the four latrine models that are promoted by the project.

The pit linings designs at the Katoma Sanitation Centre are horizontally placed stabilized cement with dry bonding agent, vertically placed stabilized cement blocks and pit lining model for stable pit walls stabilized stones. The SanPlats designs at the Centre are Sungura and Katoma slab.

The four latrine models promoted by the project are Improved pit latrine 1, Improved pit latrine 2, Improved pit latrine 3 and Improved pit latrine 4. Improved pit latrine 1 is made of a water proof cement floor hence can be cleaned with soap and water, has a drop hole which is properly covered, the sub structure is a pit lined by Sungura slab, the super structure is made of mud and poles and the roof is made of grass. Improved pit latrine 2 is made of a water proof cement floor hence can be cleaned with soap and water, has a drop hole which is properly covered, it has a vent pipe, the pit is located offsite, the sub structure is a pit lined by Katoma slab, the super structure is made of bricks and the roof is made of wood. Improved pit latrine 3 is made of a water proof cement floor hence can be cleaned with soap and water, has a drop hole which is properly covered, the pit is located directly below the pan, the sub structure is a pit lined by Katoma slab, the super structure is made of bricks and the roof is made of wood. Improved pit latrine 4 is made of a water proof cement floor hence can be cleaned with soap and water, has a drop hole which is properly covered, it has a vent pipe, the sub structure is a pit lined by Katoma slab, the super structure is made of bricks and the roof is made of iron sheets. The four pit latrine models were preferred and picked up and constructed by villagers in Mtumba Implemented areas based on simplicity of the designs, availability of building materials, cultural acceptance and reasonable cost.

In addition, animators and artisans received training on how to wash hands well using soap and water after visiting the toilet. Hand washing and anal cleansing facilities are also demonstrated at the Sanitation Centre.

### **3.1.3 Training of artisans and animators**

The village meeting at Katoma selected 18 artisans and 10 animators. The selected artisans and animators were trained on Water, Sanitation and Hygiene (WASH) related diseases; how they are spread, preventive and control measures. Thereafter animators training focused on the provision of health education, health promotion and behaviour change communication. The training of artisans focused on the understanding of soil types, latrine designs, pit digging, pit lining, sanitation platform (SanPlat) production, construction of floor, superstructure, roofing, door fitting as well as making bills of quantities for latrines.



Artisan trainer Mr. Jeremiah Kataga providing instruction on how to produce a SanPlat during a practical session at the Sanitation Centre in Katoma village. Photo credit: Hamisi Malebo



Animators during observation at the main water source in Katoma village during a practical session on how surface water can be contaminated by human and animal activities. Photo credit: Hamisi Malebo

### **3.1.4 Launching of the Sanitation Centre and improved latrine promotion meeting**

After completion of construction of the Sanitation Centre at Katoma village and the baseline survey, official launching of the project on promotion of latrine construction and /or improvement based on the 4 models was done in Katoma Village. The launching was officiated by the Acting District Executive Director and attended by key district departments: Health and Social Welfare, Community Development, Education and Environment. During the launching, majority of the community members attended, triggering was done, and the questions on WASH that were asked by community members, were answered well by artisans and animators. There was a general realization that solutions to most of their problems as regards to the construction of improved latrines are available within the community and that, once artisans and animators perform their

duties well and behaviour change among community members will occur hence sanitation revolution is possible. Furthermore, project leaflets on the promotion of improved latrine construction and use were distributed to community members by animators and artisans and who provided additional explanation whenever the needed arose.

### **3.2 BASELINE INFORMATION ON EXISTING SITUATION ON WATER, SANITATION AND HYGIENE (WASH) IN KATOMA AND KALANGALALA WARDS IN GEITA DISTRICT**

#### **3.2.1 Socio-economic and demographic characteristics of study populations**

A detailed presentation of socio-economic and demographic characteristics of respondents surveyed per ward is presented in Appendix 1. A total of 1,157 head of households participated in this baseline study from Kalangalala and Katoma wards. That is 721 respondents from Kalangalala ward and 436 respondents from Katoma ward. The majority of respondents in the 2 wards were women (69.8%). The mean age score of respondents in Kalangalala and Katoma wards were  $34.9 \pm 13.9$  and  $40.1 \pm 16.7$ , respectively. During the survey it was found that, majority of the respondents were single (62.5%). There were a few who were married (16.6%) while some other few were separated (9.4%), cohabiting (7.4%), divorced (2.4%) and widowed (1.7%). The overall literacy level of respondents was 72.2%, ranging from 79.4% in Kalangalala ward and 60.1% in Katoma ward as shown in Appendix 1. There were more respondents who cannot read and write in rural Katoma ward than in the urban Kalangalala ward. Most of the respondents in Katoma and Kalangalala wards had primary school level of education while the second large majority had no formal education (Figure 1). A few of the respondents have secondary education that is those with above secondary education and those with adult education.

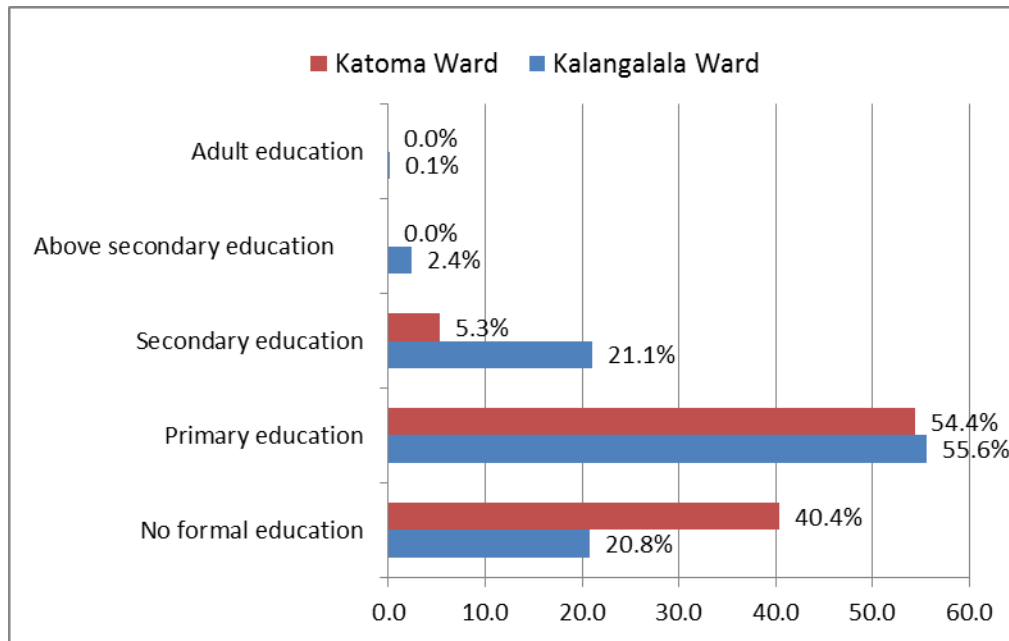


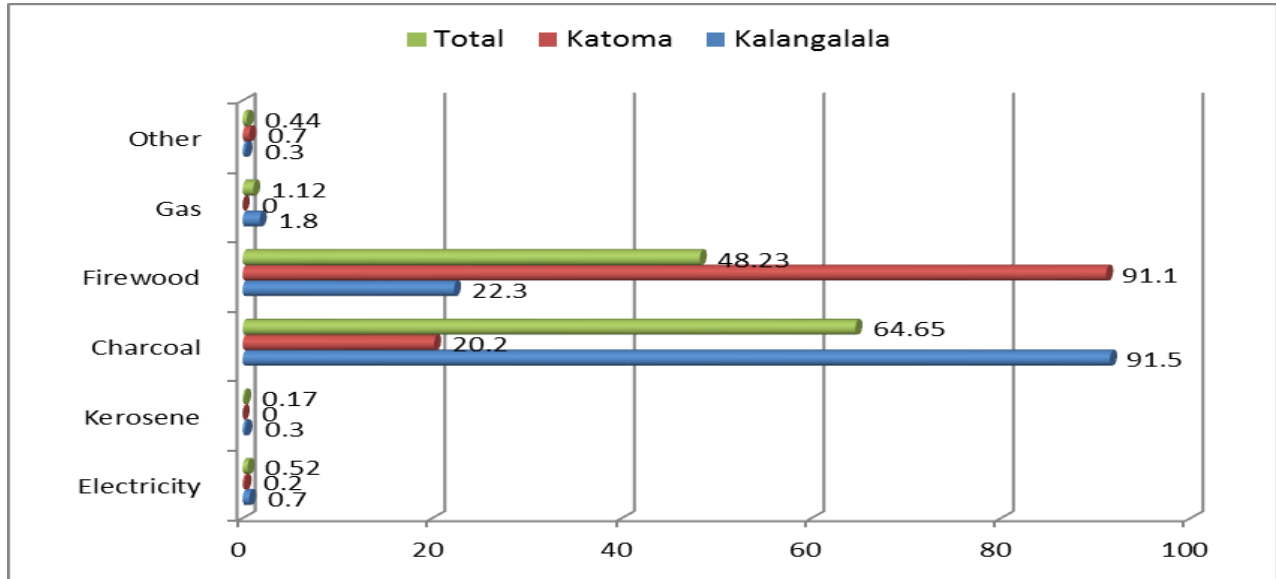
Figure 1: Level of education of respondents in Katoma and Kalangalala wards

Majority of respondents in Katoma ward (91.3%) engage in agriculture activities while most of respondents in Kalangalala ward (32.5%) engage in petty businesses. When it comes to assets available, most of respondents owned houses (82.9%), cell phones (78.1%), land (76.2%) and radio's (63.4%). Some respondents owned bicycles (48.7%), TV (28.4%), motorcycles (8.0%), solar system (5.4%) and cars (3.7%) as shown in Appendix 2 and 3.

Majority of the Focus Group Discussion participants mentioned that men are the bread winners of the family while women usually engage in small income generating activities and keep the money for themselves. The household responsibilities such as child rearing, cooking, cleaning, fetching water and firewood are done by women while men provide food, cloth, shelter, health care, latrine construction and education.

The mean household size in Katoma and Kalangalala was found to be 6.4 persons. A larger mean household size was found in Katoma (6.7) persons. Most the houses in the study area are roofed with corrugated iron sheets/tiles (89.1%), followed by thatched grass (10.8%) and other materials

(0.1%) as shown in Appendix 4. The main sources of energy for cooking at the study areas is charcoal (64.7%) and firewood (48.2%), other sources are rarely used, gas (1.1%), electricity (0.5%), other sources of energy (0.4%) and kerosene (0.2%) as depicted in Appendix 1.



**Figure 2:** Main source of energy in the surveyed households

### 3.2.2 Sources of water in the surveyed wards

The main sources of water found in the study area are tap/piped water, protected wells, protected springs, unprotected springs, unprotected wells, unprotected springs, rivers/streams/lakes/ponds, stored harvested rain water, water bought from vendors and water purchased from vehicles selling water. Most of the respondents collect water from unprotected wells (34.3%). The second major sources of water serving 29.8% of respondents are the protected wells. Tap/ piped water reported to serve (23.0%), unprotected springs (4.9%), protected springs (3.5%), water bought from vendors (3.4%) and rivers/streams/lakes/ponds (0.6%). In a few households water is purchased from vehicles selling water (0.4%) and a few household stored harvested rain water (0.1%). Most households (69.8%) collect water from community/village owned sources, (16.7%) collect water from the sources they own while (11.2%) collect water from sources owned by their neighbours and (2.3%) collect water from other sources as depicted in Appendix 1.

### 3.2.3 Awareness, practice and availability of hand washing facilities in the study sites

Although most of the respondents reported to wash their hands after using the toilet (65.3%) and before eating (91.9%). 81.5% of the households had no hand washing facility in or outside the latrine, whereas only 4.7% of the households use soap and water during hand washing, while most of the respondents (89.5%) use water only. Our study revealed that, 48.7% of the respondents reported to own traditional pit latrine and 87.3% of the respondents claimed to use the latrines all the time. When asked where they dispose child's stool, majority (93.1%) replied that the child's stool is disposed in the toilets.

Our study revealed that, more than 85% of the respondents have not received health education on water, sanitation and hygiene (WASH) as depicted in Table 1 below. Majority of the respondents indicated to be in need of WASH education.

**Table 1:** Number and percent of respondents who have received water, hygiene and sanitation education

<b>WASH education</b>	<b>Kalangalala (Number (%))</b>	<b>Katoma (Number (%))</b>	<b>Total (Number (%))</b>
Construction of improved latrine	49 (6.8%)	7 (1.6%)	56 (4.9%)
Environmental hygiene	117 (16.2%)	46 (10.6%)	163 (14.1%)
How to treat drinking water	93 (12.9%)	83 (19.1%)	176 (15.2%)
Safe storage of drinking water	67 (9.3%)	68 (15.7%)	135 (11.7%)
How to prevent water, sanitation and hygiene related diseases	58 (8.1%)	42 (9.7%)	100 (8.7%)

Analysis of data on WASH related diseases incidence revealed the occurrence of more cases in rural Katoma ward as compared to the urban Kalangalala ward. There were more reported cases of WASH diseases in Katoma ward in 2 weeks' time before the survey as well as in the past 12 months as reflected in Table 2 and 3 below.

**Table 2:** Number and percent of respondents who have suffered from diseases in the past 2 weeks

Household members who suffered in the past 2 weeks	Kalangalala (Number (%))	Katoma (Number (%))	Total (Number (%))
Stomach aches	230 (32.0%)	237 (54.5%)	467 (40.5%)
Diarrhoea	153 (21.3%)	148 (34.0%)	301 (26.1%)
Cholera	1 (0.1%)	3 (0.7%)	4 (0.4%)
Dysentery	19 (2.7%)	50 (11.5%)	69 (6.0%)
Intestinal worms	107 (14.9%)	142 (32.6%)	249 (21.6%)
Typhoid	97 (13.5%)	42 (9.7%)	139 (12.1%)
Skin diseases	52 (7.2%)	58 (13.3%)	110 (9.5%)
Eye diseases	58 (8.1%)	66 (15.2%)	124 (10.8%)

**Table 3:** Number and percent of respondents who have suffered from diseases in the past 12 months

Household members who suffered in the past 12 months	Kalangalala (Number (%))	Katoma (Number (%))	Total (Number (%))
Stomach aches	380 (52.8%)	282 (64.8%)	662 (57.3%)
Diarrhoea	279 (38.8%)	207 (47.6%)	486(42.1%)
Cholera	4 (0.6%)	4 (0.9%)	8 (0.7%)
Dysentery	38 (5.3%)	69 (15.9%)	107 (9.3%)
Intestinal worms	208 (29.0%)	197 (45.3%)	405 (35.1%)
Typhoid	207 (28.9%)	78 (18.0%)	285 (24.8%)
Skin diseases	70 (9.7%)	79 (18.2%)	149 (12.9%)
Eye diseases	67 (9.3%)	89 (20.6%)	156 (13.6%)

### 3.2.4 Existing hygiene and sanitation facilities in the surveyed areas

The respondents that own latrines were 990 (88.1%) while 134 (11.9%) respondents do not have latrines. Traditional pit latrines were found in 48.7% of the households surveyed. The ventilated improved pit latrine (18.8%), pour flush latrines (13.1%), improved pit latrines (13.0%) and water closet (2.9%) as shown in Table 4. Most of the traditional pit latrines have no roof 532 (58.2%), are not properly covered 941 (95.4%), and have inadequate safety 430 (95.8%) and no privacy 416 (92.2%).

**Table 4:** Latrine coverage in the surveyed households in Kalangalala and Katoma wards

The type of latrine owned by households	Kalangalala (Number (%))	Katoma (Number (%))	Total (Number (%))
Traditional pit latrine	171 (26.9%)	310 (88.1%)	481 (48.7%)
Improved pit latrine	120 (18.9%)	8 (2.3%)	128 (13.0%)
Ventilated Improved Pit Latrine (VIP)	170 (26.7%)	16 (4.6%)	186 (18.8%)
Pour flush latrine	118 (18.6%)	11 (3.1%)	129 (13.1%)
Water closet	27 (4.3%)	2 (0.6%)	29 (2.9%)
Other	30 (4.7%)	5 (1.4%)	35 (3.5%)
<b>Total</b>	<b>636 (100)</b>	<b>352 (100)</b>	<b>988 (100)</b>

Our findings revealed the use of various materials and techniques for anal cleansing after defecation. Most of the Focus Group Discussion (FGD) participants stated that there is use of leaves, water and paper for anal cleansing.

*“Mostly the 2 are being used, that is water and leaves but most people use leaves for anal cleansing”* (a Male FGD participant Katoma ward).



*“Some people put water in their toilets to be used for anal cleansing but some of the visitors usually use leaves since they’re used to using leaves for anal cleansing”* (a Female FGD participant Katoma ward).

*“Very few people in this village wash their hands after visiting the toilet though people use paper or leaves for anal cleansing”* (a participant from the Youth FGD, Katoma ward) .

The study revealed that the children buttocks are sometimes cleaned by the soil. Some adults also use the soil for anal cleansing.

*“In families with children, the children buttocks are simply dragged on the ground after defecation so that feces are wiped off with the soil”* (a Male FGD participant Katoma ward).

*“I’ve seen an adult who collected sand then he dragged himself on it”* (a Female FGD participant Katoma ward).

*“Most children here are dragged on the ground after defecation so that feces on their buttocks are wiped off with soil. This is done by their parents”* (a participant from the Youth FGD, Katoma ward).

### **3.2.5 Defecation practices in the surveyed wards**

Out of the 1,157 households that were surveyed, 134 (11.9%) didn’t own a latrine and conceded for not using latrines. Those who conceded that they do not use latrines mentioned a couple of reasons of not using latrines, including; *“our pit is full; we don’t own a latrine; our latrine collapsed; our latrine is being constructed; and our latrine is water logged”*.

The households that do not have latrines stated that they defecate in one of the following places; *“at the neighbours latrine; in a hole which is dug up in the nearby bush/forest and then the feces are buried in the soil; and some practice open defecation in the nearby bush or forest”*.

Children’s feces are disposed; in the toilet; thrown into the wilderness; being buried in the soil and being thrown into garbage.

A few of respondents in both wards (34.7%) are aware of the bylaws that govern latrine construction and usage. The level of awareness is slightly higher in Kalangalala (38%) than Katoma (29.1%). However, the level of awareness is generally low.

### **3.3 ARTISANS AND ANIMATORS REFRESHER SENSITIZATION ON PROMOTING IMPROVED LATRINE CONSTRUCTION AND PROVISION OF TECHNICAL SUPPORT ON THE CONSTRUCTION OF 4 LATRINE OPTIONS IN KATOMA VILLAGE IN GEITA**

#### **3.3.1 Artisans and animators refresher sensitization**

During the refresher sensitization training, the selected artisans, animators, village health offices and village leaders gave feedback concerning the number of improved latrines that have been constructed within Katoma and Kakubilo (a nearby village) and challenges that they have been facing since baseline survey.

Artisans, Animators and village health officers were trained on how to fill in the National booklet of following up the construction improved latrines and hand washing with soap at household level (used country wide by the NSC) for proper record keeping, continuous monitoring and evaluation and consistent reporting from village up to National level.

Artisans, Animators and village officers were guided on how to prepare a constitution for the artisan and animators group so that they can be registered and easily funded by LGA's. The constitutions of both groups were finalized by March 2015 and they are in operation since April 2015.

During the refresher sensitization training, the selected artisans and animators had to answer questions prepared by the research team; the questions were on WASH related diseases, how the diseases are spread, prevention and control. Then animators' had to answer questions on the provision of health education, health promotion and behavior change communication; while artisans had to answer questions concerning how to construct a latrine depending on the soil type of the area, latrine designs, pit digging, pit lining, how to make San plats, construction of latrine floors, superstructures, roofs, door fitting, how to make bills of quantities for latrine construction and maintenance and repair of latrines. All the questions were answered well by the artisans and animators through a group discussion lead by the research team.

### **3.3.2 Sanitation and hygiene committees**

Sanitation and hygiene committees were formed in each hamlet of Katoma village. Among the members in each committee are the hamlet chairperson, artisan, animator, ward health officer and villagers.

Drawing on the CLTS concept the committee is in the driver's seat in making sure every household provides sanitary facilities and in this case improved latrines and to stop open defecation where applicable.

The committee coordinates all hygiene and sanitation activities in the hamlet/village. They regularly follow up with households without improved latrines, carry out meetings with the community and give feedback on the progress at least once in two months.

During the regular follow up, the committees have to monitor, the number of households with improved latrines, the number of households with functional hand washing facilities, the number of hamlets with signed declarations and deadline to improve household sanitation and hygiene, the number of schools meeting a ratio of 25 for male pupils, 20 for female pupils (national standard for

pupil to latrine ratio), the number of schools with functional hand washing facilities for boys and girls, and the number of diarrhoea cases per quarter.

By the end of March 2015, the following information was collected from hamlets in Katoma village as a starting point for the committees to start monitoring;

**Luchiri hamlet**

No of people within the hamlet	Number of Households within the hamlet	Number of Households without latrines	Number of Households that have latrines	Number of Households with Improved latrines	Number of Households with Traditional pit latrines
659	108	18	8	2	80

**Senta hamlet**

No of people within the hamlet	Number of Households within the hamlet	Number of Households without latrines	Number of Households that have latrines	Number of Households with Improved latrines	Number of Households with Traditional pit latrines
1054	175	22	90	8	55

**Chang'ombe hamlet**

No of people within the hamlet	Number of Households within the hamlet	Number of Households without latrines	Number of Households that have latrines	Number of Households with Improved latrines	Number of Households with Traditional pit latrines
920	139	10	30	8	91

### **Mataho hamlet**

No of people within the hamlet	Number of Households within the hamlet	Number of Households without latrines	Number of Households that have latrines	Number of Households with Improved latrines	Number of Households with Traditional pit latrines
462	93	12	43	3	35

### **3.3.3 ‘Triggering’**

‘Triggering’ is a process borrowed from CLTS and seeks to initiate community action by exposing communities to a disgusting or shameful situation or crude facts about open defecation and its negative impacts on their health. Mtumba adapts this approach as follows;

#### **3.3.3.1 Community sanitation mapping**

Sanitation mapping was done in each hamlet in Katoma village. Community sanitation mapping is used as a way of engaging community members and encouraging them to analyze their own situation, by identifying households and institutions without improved latrines and areas where open defecation is practiced e.g along valleys, bushes or near water sources. The maps were drawn on the ground using stones and leaves and then were transferred to a flip chart as a baseline map which was kept in the village office. Making use of other information obtained from the survey and desk reviews, the community reached a consensus on what to do about the situation.

### **3.3.3.2 Transect walk/health walk**

Transect walk was also done in each hamlet in Katoma village. The transect walk is used to confirm the information that has been mapped. It involved walking with Katoma community members from one side of the village to the other observing the extent of open defecation by visiting the most unsanitary areas. When the community reached or found a place with feces, they discussed together with the research team how feces can reach a human mouth, what happens if the rain comes and the run-off water sweeps away the feces, how flies contaminate food and the risks to children who play on the ground. Such understanding triggered them into discussing what to do as a community. This approach helped community members to see for themselves the status of latrines in their community and ignited collective community actions for improved latrines.

During Community sensitization and triggering community members from each hamlet in Katoma village declared to stop open defecation, promised to construct and use latrines and they also promised to include latrine issue in their bylaws. They also agreed that bylaws should be enforced in circumstances where negligence and resistance to change is noticed. And that the authority is compelled to exercise its jurisdiction to coerce those who refuse to construct and use latrine.

In all the hamlets of Katoma village, community members agreed that by the end of September 2015 each household should have an improved latrine.

## New latrines in the ward



Photo credit: Hamisi Malebo



Photo credit: Hamisi Malebo



Photo credit: Hamisi Malebo



Photo credit: Hamisi Malebo



Photo credit: Hamisi Malebo

### **3.3.4 Talk of Health Education**

Health education talks were conducted in Katoma primary school and Nyamboge secondary school. The talk was on healthy water, sanitation and hygiene (WASH) practices and how to prevent WASH related disease. The talk aimed and informing pupils on WASH issues so that they can be well informed and actively play their role as agents of change. The primary and secondary pupils received training on how to wash hands well using soap and water after visiting the toilet. The hand washing activity was followed by the distribution of project leaflets showing health problems associated with poor latrines and open defecations as well as the benefits of improved latrines on human health and dignity.

### **3.3.5 Acceptability of Mtumba after Baseline**

In this project, only baseline survey was carried out, formative and summative evaluation was not funded, hence not conducted. The only formative and summative information is from discussions with artisans, animators and village leaders. Their opinion was that, the introduction of Mtumba Scale up study in Geita has facilitated behaviour change as more people are taking the initiative of constructing new latrines and using them, upgrading and repairing the existing latrines and more people are washing their hands at critical times. Villagers at Kakubilo (a village nearby Katoma)



have also constructed improved latrines after the baseline study that was done in Katoma village. Katoma village artisans are getting several orders for improved latrines construction from Katoma and Kakubilo villagers. Kakubilo villagers have also made bylaws and introduced fines for those who don't own latrines, unhygienic food premises and guest houses.

### **3.3.6 Challenges of implementing Mtumba**

Animators and artisans have to walk a long distance with no remuneration during advocacy and construction of latrines. There is also a challenge of having to fetch water far from households during construction of slabs, latrine structure, latrine cleaning and the for general hygiene purposes.

Cultural beliefs' also pose a challenge to Mtumba scale up, most of the villagers at Katoma and the Sukuma tribe in general believe that a man can't use the same toilet with his daughter inlaw. "The man goes to the bush to defecate claiming that he cannot share the latrine with his daughter in law (in Sukuma language = "kusangila choo na ngwenga") – a leader FGD participant Katoma ward.

Open defecation is rampant at Katoma due to forests nearby, a place where people defecate easily with excuses that they are no toilets at bushes when people are digging, grazing animals and when people go clubbing at night.

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

The Sanitation Centre for the promotion of latrine construction and use has been constructed in Katoma ward in Geita district in Tanzania. Artisan and Animators training manuals have been drafted (in Kiswahili version translated to English). The training manuals are improved versions from the manuals used during the original Mtumba and the ongoing National Sanitation Campaign.

Mtumba is an amalgamation of PHAST, CLTS and PRA as indicated in the introduction. The National Sanitation Campaign has picked components from the three to create awareness, sensitize and trigger the community to influence behaviour change so that people construct and use improved latrines and practice proper hygiene; to sensitize LGAs to take charge and incorporate the

promotion and implementation of improved latrines and hygienic practices into their plans; and to mobilize communities to select and work hand in hand with artisans and animators whose roles are running the water, sanitation and hygiene technology demonstration centres, promotion of sanitation technologies and hygienic practices in the community as well as providing technical support in the construction of improved latrines and repair of existing ones and provision of water sources at household and community level. Hence, Mtumba Sanitation components have been implemented in the National Sanitation Campaign. For instance, after triggering using CLTS, the component on informing the community on improved latrine options is purely adopted from Mtumba approach.

During baseline survey, animators and artisans trainings and village meeting; majority of respondents with poor and temporary latrines conceded that, lack of understanding on the benefits of improved sanitation facilities made them to construct and use such facilities. Poverty plays marginal part in the large number of poor/unimproved latrines in the community. Hence, education, health promotion and behaviour change communication can have impact in such a community.

During community sensitization and triggering, the communities' initial reaction and action was to stop open defecation, promised to construct and use latrines and they also promised to include latrine issue in their bylaws.

There is generally fair level of knowledge among community members on Water, Sanitation and Hygiene (WASH) related diseases however, weak linkages with human feces in the environment have been noted. Such a linkage need to be created to elicit community action towards fighting open defecation by promoting latrine construction and hygienic use. Sanitary disposal of wastes is another key issue as clear understanding on public health risks due to liquid and solid wastes is low in the community. Furthermore, lack of hygiene and sanitation facilities in the community for hand washing, anal cleansing and solid waste collection and disposal emerged to be among the concerns. Provision of health education, sanitation and hygiene facilities and supplies is a priority in the study areas.

There is need for an office and meeting room at the Sanitation Centre to effectively allow for artisans and animators to assume their responsibilities. The Sanitation Centre at Kalangalala ward was also supposed to be constructed, however due high costs of construction materials' re-budgeting is being done for additional fund for the urban sanitation centre, the £ 50,000 budget was calculated in 2012 when building materials were cheaper compared to 2014 and 2015 (project implementation) as the project was scheduled to start in January 2013.

## 5.0 REFERENCES

1. Robinson, A. “Enabling Environment Endline Assessment: Tanzania” *The World Bank’s Water and Sanitation Program (WSP)*, December 2011
2. Mara D, Lane J, Scott B, Trouba D, “Sanitation and Health” *PLoS Medicine, Volume 7, Issue 11*, November 2010
3. Government of Tanzania (2008), Sanitation and Hygiene Status for Tanzania, A President’s Report for African Union Summit.
4. UNICEF Tanzania, 2009. *Baseline study for UNICEF/GoT interventions in the 7 Learning Districts (and 6 non-learning districts)*. Ifakara Health Institute (unpublished draft).
5. WHO/UNICEF (2006). Meeting the MDG Drinking Water and Sanitation Target: The Urban and rural challenge of the decade. Geneva, Switzerland.
6. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. Progress on Sanitation and Drinking-water: 2010 Update. 2010. WHO Press, Geneva.
7. United Republic of Tanzania (URT): Tanzania Demographic and Health Survey 2010
8. Makundi, E.A., Kisinza, W.N., Malebo, H.M., Nyigo, V.A., Lugimbana, L., Senkoro, K., Hiza, P., Ngaeje, B., Mwita, Y., Massaga, J.J. and Swai, M. (2006). Evaluation of participatory hygiene and sanitation transformation (PHAST) activities in Tanzania: Focusing on environmental health and water sanitation in Six districts of Tanzania mainland. *PHAST Report*, MoH.
9. Malebo, H.M., Kisinza, W.N., Nyigo, V.A., Lugimbana-Malebo, L., Imeda, C., Nyoni, J., Dillip, A., Mcharo, J., Senkoro, K., Massaga, J.J., Lyimo, A., Rwakibalila, G., Kahesa, A. and Bibby, S (2007). *A review of Effectiveness of the Participatory Hygiene and Sanitation Transformation Strategy (PHAST) in Tanzania*. (Final report submitted to MoHSW, WSP, WaterAid and UNICEF).
10. Hamisi M. Malebo, Emmanuel A. Makundi, Robert Mussa, Adiel K. Mushi, Michael A. Munga, Mwifadhi Mrisho, Kesheni P. Senkoro, Jonathan M. Mshana, Jenester Urassa, Veritas Msimbe and Philemon Tenu (2012). Outcome and impact monitoring for scaling up MTUMBA Sanitation and Hygiene Participatory Approach in Tanzania. NIMR/MoHSW/SHARE/WaterAid Report, August 2012.
11. Chambers, R (2009). Going to Scale with Community-Led Total Sanitation: Reflections on Experience, Issues and Ways Forward. Institute of Development Studies (IDS), University of Sussex Brighton BN1 9RE UK, IDS Practice Paper 1.
12. Marko J. Msambazi, Sue Cavill and Ben Cole, “Guidelines and Tools for Scaling Up Rural Sanitation in Tanzania” WaterAid Tanzania, May 2013

## APPENDICES

### 1: Demographic and socio-economic characteristics of respondents in the surveyed wards

Region	Geita		
District	Geita		
Ward			
<i>Kalangalala</i>	721 (62.32)		
<i>Katoma</i>	436 (37.68)		
<b>Total</b>	<b>1157 (100)</b>		
	Kalangalala (Number (%))	Katoma (Number (%))	Total (Number (%))
<b>Sex</b>			
Male (number/%)	205 (28.4)	144 (33)	349 (30.16)
Female (number/%)	516 (71.6)	292 (67)	808 (69.84)
<b>Total (Number (%))</b>	<b>721 (100)</b>	<b>436 (100)</b>	<b>1157 (100)</b>
<b>Age groups in years</b>			
19-34 (number/%)	411 (57)	191 (43.8)	602 (52.03)
35-44 (number/%)	152 (21.1)	97 (22.3)	249 (21.52)
45-60 (number/%)	108 (15)	81 (18.6)	189 (16.34)
60+ (number/%)	50 (6.9)	67 (15.4)	117 (10.11)
<b>Mean age + SD</b>	<b>34.9 + 13.9</b>	<b>40.1 + 16.7</b>	<b>37+15.23</b>
<b>Marital status</b>			
Single (number/%)	436 (60.5)	286 (65.8)	722 (62.46)
Married (number/%)	137 (19)	55 (12.6)	192 (16.61)
Separated (number/%)	74 (10.3)	35 (8.1)	109 (9.43)
Divorced (number/%)	15 (2.1)	13 (3)	28 (2.42)
Widowed (number/%)	9 (1.3)	11 (2.5)	20 (1.73)
Cohabiting (number/%)	50 (6.9)	35 (8.1)	85 (7.35)
<b>Total</b>	<b>721 (100)</b>	<b>435 (100)</b>	<b>1157 (100)</b>
<b>Literacy level</b>			
Literate (number/%)	570 (79.4)	262 (60.1)	835 (72.17)
Illiterate (number/%)	148 (20.6)	174 (39.9)	322 (27.83)
<b>Total</b>	<b>721 (100)</b>	<b>436 (100)</b>	<b>1157 (100)</b>
<b>Level of education (number/%)</b>			
No formal education	150 (20.8)	176 (40.4)	326 (28.18)
Primary education	401 (55.6)	237 (54.4)	638 (55.14)
Secondary education	152 (21.1)	23 (5.3)	175 (15.13)
Above secondary education	17 (2.4)	0 (0)	17 (1.47)

Adult education	1 (0.1)	0 (0)	1 (0.09)
<b>Total</b>	<b>721 (100)</b>	<b>436 (100)</b>	<b>1157 (100)</b>
<i>Mean Household size (Mean + SD)</i>	<b>6.2 + 3.3</b>	<b>6.7 + 3.1</b>	<b>6.4 + 3.2</b>
<b>Adults</b>			
Male (Mean + SD)	1.6 + 1.1	1.6 + 0.9	1.6 + 1.02
Female (Mean + SD)	1.7 + 1	1.6 + 0.9	1.7 + 0.98
<b>Children</b>			
Girls (Mean + SD)	1.8 + 1	1.9 + 1.1	1.8 + 1.02
Boys (Mean + SD)	1.7 + 1	1.9 + 1.1	1.8 + 1.08
<b>Ownership of Livestock</b>			
Sheep (number/%)	5 (0.7)	1 (0.2)	6 (0.52)
Goats (number/%)	49 (6.8)	137 (31.5)	186 (16.09)
Cows (number/%)	8 (1.1)	86 (19.7)	94 (8.14)
Chicken (number/%)	176 (24.4)	255 (58.5)	431 (37.28)
Duck (number/%)	132 (18.3)	129 (29.6)	261 (22.56)
Donkey (number/%)	1 (0.1)	0 (0)	1 (0.09)
Pigs (number/%)	16 (2.2)	1 (0.2)	17 (1.47)
Others (number/%)	36 (5.1)	34 (7.8)	70 (6.13)
<b>Source of energy for cooking</b>			
Electricity (number/%)	5 (0.7)	1 (0.2)	6 (0.52)
Kerosene (number/%)	2 (0.3)	0 (0)	2 (0.17)
Charcoal Separated (number/%)	660 (91.5)	88 (20.2)	748 (64.65)
Firewood Separated (number/%)	161 (22.3)	397 (91.1)	558 (48.23)
Gas Separated (number/%)	13 (1.8)	0 (0)	13 (1.12)
Other Separated (number/%)	2 (0.3)	3 (0.7)	5 (0.44)
<b>Main Source of water (number/%)</b>			
Tap/Piped water	249 (34.6)	17 (3.9)	266 (23.01)
Protected wells	239 (33.2)	106 (24.3)	345 (29.84)
Protected springs	14 (1.9)	26 (6)	40 (3.46)
Unprotected wells	136 (18.9)	261 (59.9)	397 (34.34)
Unprotected springs	34 (4.7)	23 (5.3)	57 (4.93)
Rivers/streams/lakes/ponds	7 (1)	0 (0)	7 (0.61)
Stored harvested rain water	0 (0)	1 (0.2)	1 (0.09)
Non-stored harvested rain water	0 (0)	0 (0)	0 (0)
Water bought from vendors	37 (5.1)	2 (0.5)	39 (3.37)
Water purchased from vehicles selling water	4 (0.6)	0 (0)	4 (0.35)
Bottled water	0 (0)	0 (0)	0 (0)
Other sources	0 (0)	0 (0)	0 (0)

<b>Total</b>	<b>720 (100)</b>	<b>436 (100)</b>	<b>1156 (100)</b>
<b><i>Ownership of Water Sources</i></b>			
Self	162 (22.5)	31 (7.1)	193 (16.71)
Community/village	424 (58.9)	382 (87.8)	806 (69.78)
Other household	118 (16.4)	11 (2.5)	129 (11.17)
Others	16 (2.2)	11 (2.5)	27 (2.34)
<b>Total</b>	<b>720 (100)</b>	<b>435 (100)</b>	<b>1155 (100)</b>

### Appendix 2: Households source of income

<b><i>Economic activity</i></b>	<b>Kalangalala (Number (%) )</b>	<b>Katoma (Number (%) )</b>	<b>Total (Number (%))</b>
Agriculture	316 (43.9)	398 (91.3)	714 (61.76)
Animal keeping	4 (0.6)	0(0)	4 (0.35)
Agriculture and animal keeping	2 (0.3)	1 (0.2)	3 (0.26)
Petty business	234 (32.5)	21 (4.8)	255 (22.06)
Employed	79 (11)	7 (1.6)	86 (7.44)
Self-employment	85 (11.8)	9 (2.1)	94 (8.13)

### Appendix 3: Ownership of various properties in the households

<b><i>Ownership of Assets</i></b>	<b>Kalangalala (Number (%) )</b>	<b>Katoma (Number (%) )</b>	<b>Total (Number (%))</b>
House (number/%)	557 (77.3)	402 (92.2)	959 (82.89)
Land ownership	504 (69.9)	377 (86.5)	881 (76.15)
Radio (number/%)	502 (69.6)	232 (53.2)	734 (63.44)
TV (number/%)	304 (42.2)	24 (5.5)	328 (28.35)
Motorcycle (number/%)	69 (9.6)	23 (5.3)	92 (7.95)
Bicycle (number/%)	318 (44.1)	245 (56.2)	563 (48.66)
Car (number/%)	39 (5.4)	4 (0.9)	43 (3.72)
Cell phone	641 (88.9)	263 (60.3)	904 (78.13)
Solar system	37 (5.1)	25 (5.7)	62 (5.36)

### Appendix 4: Roofing material for the household's main house

<b><i>Roofing material</i></b>	<b>Kalangalala (Number (%) )</b>	<b>Katoma (Number (%) )</b>	<b>Total (Number (%))</b>
Corrugated iron/tiles (number/%)	716 (99.4)	313 (72)	1029 (89.09)
Thatched grass (number/%)	4 (0.6)	121 (27.8)	125 (10.82)

Mud/earth	0 (0)	0 (0)	0 (0)
Other	0 (0)	1 (0.2)	1 (0.09)
<b>Total</b>	<b>720 (100)</b>	<b>435 (100)</b>	<b>1155 (100)</b>

#### Appendix 5: The type and quality of latrines in the surveyed wards

QUALITY OF EXISTING LATRINE	Traditional Pit latrine			Ventilated Improved pit latrine		
	KALANGALALA	KATOMA	Total	KALANGALALA	KATOMA	Total
<b>Floor</b>						
Present	97 (64.7%)	141 (47.8%)	238 (53.5%)	73 (100)	13 (92.9%)	86 (98.9%)
Absent	53 (35.3%)	154 (52.2%)	207 (46.5%)	0 (0)	1 (7.1%)	1 (1.2%)
<b>Privacy</b>						
Sufficient	19 (12.5%)	16 (5.4%)	35 (7.8%)	54 (74.0%)	12 (85.7%)	66 (75.9%)
Insufficient	133 (87.5%)	283 (94.7%)	416 (92.2%)	19 (26.0%)	2 (14.3%)	21 (24.1%)
<b>Roof</b>						
Iron sheets	10 (6.7%)	13 (4.4%)	23 (5.2%)	56 (76.7%)	14 (4.0%)	70 (80.5%)
Tiles	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Grass	1 (0.7%)	32 (10.8%)	33 (7.4%)	0 (0)	0 (0)	0 (0)
Thatch	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Plastic tarp	1 (0.2%)	1 (0.3%)	1 (0.2%)	0 (0)	0 (0)	0 (0)
No roof	139 (92.7%)	250 (84.5%)	389 (87.2%)	17 (23.3%)	0 (0)	17 (19.5%)
<b>Safety</b>						
Sufficient	6 (4.0%)	13 (4.4%)	19 (4.2%)	41 (56.2%)	9 (64.3%)	50 (57.5%)
Insufficient	144 (96.0%)	286 (95.7%)	430 (95.7%)	32 (43.8%)	5 (35.7%)	37 (42.5%)



**Appendix 6: The type and quality of latrines in the surveyed wards**

QUALITY OF EXISTING LATRINE	Improved pit latrine			Simple pit latrine		
	KALANGAL ALA	KATOMA	Total	KALANGAL ALA	KATOMA	Total
<b>Floor</b>						
Present	74 (98.7%)	6 (100%)	80 (98.77)	32 (97%)	3 (50%)	35 (89.7%)
Absent	1 (1.3%)	0 (0)	1 (1.23)	1 (3.0%)	3 (50%)	4 (10.3%)
<b>Privacy</b>						
Sufficient	53 (70.7%)	6 (100%)	59 (72.8%)	25 (75.8%)	1 (16.7%)	26 (66.7%)
Insufficient	22 (29.3%)	0 (0)	22 (27.2%)	8 (24.2%)	5 (83.3%)	13 (33.3%)
<b>Roof</b>						
<b>Iron sheets</b>	<b>49 (66.2%)</b>	<b>4 (66.7%)</b>	<b>53 (66.3%)</b>	<b>15 (45.5%)</b>	<b>2 (33.3%)</b>	<b>17 (43.6%)</b>
Tiles	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Grass	0 (0)	0 (0)	0 (0)	0 (0)	1 (16.7%)	1 (2.6%)
Thatch	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Plastic tarp	0 (0)	1 (16.7%)	1 (1.3%)	0 (0)	0 (0)	0 (0)
No roof	25 (33.8%)	1 (16.7%)	26 (32.5%)	18 (54.6%)	3 (50%)	21 (53.9%)
<b>Safety</b>						
Sufficient	34 (46%)	4 (66.7%)	38 (47.5%)	5 (15.2%)	2 (33.3%)	7 (18%)
Insufficient	40 (54.1%)	2 (33.3%)	42 (52.5%)	28 (84.9%)	4 (66.7%)	32 (82.1%)
	<b>74 (100%)</b>	<b>6 (100%)</b>	<b>80 (100%)</b>	<b>33 (100%)</b>	<b>6 (100%)</b>	<b>39 (100%)</b>

Appendix 7: The type and quality of latrines in the surveyed wards

QUALITY OF EXISTING LATRINE Floor	Pour flush direct to pit			Pour flush off set		
	KALANGAL ALA	KATOMA	Total	KALANGAL ALA	KATOMA	Total
Present	26 (100%)	4 (100%)	30 (100%)	251 (99.6%)	11 (100%)	262 (99.6%)
Absent	0 (0)	0 (0)	0 (0)	1 (0.4%)	0 (0)	1 (0.4%)
<b>Privacy</b>						
Sufficient	25 (96.2%)	3 (75%)	28 (93.3%)	217 (85.4%)	10 (90.9%)	227 (85.7%)
Insufficient	1 (3.9%)	1 (25%)	2 (6.7%)	37 (14.6%)	1 (9.1%)	38 (14.3%)
<b>Roof</b>						
Iron sheets	21 (84%)	3 (75%)	24 (82.8%)	179 (70.5%)	8 (72.7%)	187 (70.6%)
Tiles	0 (0)	0 (0)	5 (17.2%)	0 (0)	0 (0)	0 (0)
Grass	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Thatch	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Plastic tarp	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No roof	4 (16%)	1 (25%)	5 (17.2%)	75 (29.5%)	3 (27.3%)	78 (29.4%)
<b>Safety</b>						
Sufficient	18 (72%)	3 (75%)	21 (72.4%)	124 (49.0%)	7 (63.6%)	131 (49.6%)
Insufficient	7 (28%)	1 (25%)	8 (27.6%)	129 (51%)	4 (36.4%)	133 (50.4%)

Appendix 8: The type and quality of latrines in the surveyed wards

QUALITY OF EXISTING LATRINE	Water closet		
	KALANGALALA	KATOMA	Total
Floor			
Present	26 (100%)	2 (100%)	28 (100%)
Absent	0 (0)	0 (0)	0 (0)
<b>Privacy</b>			
Sufficient	26 (100%)	2 (100%)	28 (100%)
Insufficient	0 (0)	0 (0)	0 (0)
<b>Roof</b>			
Iron sheet	25 (96.2%)	2 (100%)	27 (96.4%)
Tiles	0 (0)	0 (0)	0 (0)
Grass	0 (0)	0 (0)	0 (0)
Thatch	0 (0)	0 (0)	0 (0)
Plastic tarp	0 (0)	0 (0)	0 (0)
No roof	1 (3.9%)	0 (0)	1 (3.6%)
<b>Safety</b>			
Sufficient	23 (88.5%)	1 (50%)	24 (85.7%)
Insufficient	3 (11.5%)	1 (50%)	4 (14.3%)

## Appendix 9: Household Questionnaire and Checklist

### LATRINE QUALITY AND USAGE HOUSEHOLD SURVEY QUESTIONNAIRE (MTUMBA SCALE UP)

#### INTRODUCTION

I am \_\_\_\_\_ working on behalf of National Institute for Medical Research. We are involving the community at household level in assessing water safety, environmental hygiene and the construction of adequate and clean latrine within the community. The study is done in order to assess the available facilities, infrastructure and personal hygiene in issues of water and sanitation in Geita. The results of this study will be used by the Government to improve the facilities and infrastructures of water and sanitation, and also to improve hygiene condition so as to prevent diseases. If you agree to participate in this study, questions will be asked on water safety, environmental hygiene and proper latrine usage and construction of improved latrines. Your participation will facilitate scaling up of MTUMBA approach here and in other places in Tanzania. Participation in this study is completely voluntary. You are supposed to decide to participate or not to participate in this study. Once you sign paper, it will signify that you have read and understood the above information or the above information has been explained to you.

Are you willing to participate in this study?

*If the participant agreed to participate in the study, continue with the questions below. If he/she disagreed, thank him/her and go to the next household.*

Signature of the Head of the Household..... Date.....

Signature of witness (if participant cannot read)..... Date .....

Signature of research assistant ..... Date.....

Questionnaire number.....

#### I. GENERAL INFORMATION

Region: \_\_\_\_\_

District: \_\_\_\_\_

Ward: \_\_\_\_\_

Village: \_\_\_\_\_

Hamlet/Street: \_\_\_\_\_

Household Identification Number:

Name of the Head of the Household: 

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Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Start Time: Hr :Mins: \_ : \_

#### II. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS

1. Gender: (1 = Male , 2 = Female)
  
2. What is your age, in years?.....
  
3. What is your position in this household (Mention the options)?
  1. Head of the household
  2. Spouse of the head of the household
  3. Child of the head of the household
  4. Relative (uncle, aunt, nephew, niece etc)

- 5. Friend, acquaintance
  - 6. House maid
4. Marital status of the interviewee
- 1 = Married
  - 2 = Single
  - 3 = Cohabiting
  - 4 = Separated
  - 5 = Divorced
  - 6 = Widow/Widower
5. Can you read and write?
- 1 = Yes,
  - 2 = No (If the answer to this question is no, go on to question 7)
6. What is the highest level of education completed by the Head of the household?
- 1 = No formal education
  - 2 = Primary school
  - 3 = Secondary school
  - 4 = University
  - 5 = Adult education
7. What is your main occupation?
- 1 = Farming
  - 2 = Livestock keeper
  - 3 = Farming and Livestock keeper
  - 4 = Small scale business man or woman
  - 5 = Employed
  - 6 = Other (Specify) .....
8. Total size of Household .....

Household members

	Number of women	Number of men
Adults (over 18 years old)		
Children (5 – 17 years old)		
Children (< 5 years old)		

**II. Economic aspects**

9. Which of these items does your household have (Please select all that apply)
- 9.1 = House (1 = Yes, 2 = No)
  - 9.2 = Latrine (1=Yes, 2 = No)
  - 9.3 = Land (1=Yes, 2 = No)
  - 9.4 = Certificate of owning a piece of land (1=Yes, 2=No)
  - 9.5 = Radio (1 = Yes, 2 = No)
  - 9.6 = Television (1 = Yes, 2 = No)
  - 9.7 = Motorcycle (1 = Yes, 2 = No)
  - 9.8 = Bicycle (1 = Yes, 2 = No)
  - 9.9 = Car (1 = Yes, 2 = No)
  - 9.10= Mobile phone (1 = Yes, 2 = No)

- 9.11 = Electricity (1=Yes, 2=No)
  - 9.12 = Solar energy (1 = Yes, 2 = No)
  - 9.13 = Generator (1 = Yes, 2 = No)
  - 9.14 = A bank account (1 = Yes, 2 = No)
  - 9.15 = Other (Specify)
- .....

10. Which of these animals does your household keep?

<b>Animal</b>	<b>How many of each?</b>
Sheep	(1 = Yes, 2 = No)
Goats	(1 = Yes, 2 = No)
Cows	(1 = Yes, 2 = No)
Chickens	(1 = Yes, 2 = No)
Ducks	(1 = Yes, 2 = No)
Donkeys	(1 = Yes, 2 = No)
Pigs	(1 = Yes, 2 = No)
Other (Specify) .....	

11. What type of fuel does your household mainly use for cooking?

- 1 = Electricity
- 2 = Kerosene
- 3 = Charcoal
- 4 = Firewood
- 5 = Gas
- 6 = Solar energy
- 7 = Other (Specify) .....

12. What material was used to roof your house? (Observe)

- 1 = locally made Iron sheets
- 2 = Iron sheets from South Africa
- 3 = Tiles
- 4 = Grass
- 5 = Thatch
- 6 = Other (Specify) .....

13. Where does your family usually fetch water from?

- 1 = A well that uses a hand pump
- 2 = Ring well
- 3 = Tap water
- 4 = Deep drilled well
- 5 = A well protected spring
- 6 = Shallow well
- 7 = Unprotected springs
- 8 = Puddle
- 9 = River
- 10 = Ditch
- 11 = Pond
- 12 = Well stored rain water
- 13 = Rain water that is not well stored
- 14 = From local vendors
- 15 = from trucks that sell water

- 16 = Mineral water
- 17 = other sources (Specify) .....

14. Who owns the water source?
- 1 = Household
  - 2 = Community
  - 3 = Neighbours
  - 4 = Other (Specify).....

**IV.KNOWLEDGE, PERCEPTION AND PERFORMANCE REGARDING ENVIRONMENTAL HYGIENE AND SANITATION**

15. When should you wash your hands? (Don't mention the options)
- 1 = After defecation
  - 2 = Before eating
  - 3 = After cleaning a babies bottom
  - 4 = Before preparing meals
  - 5 = Before feeding a child
  - 6 = After handling livestock
  - 7 = Other (Specify)
  - 8 = I don't know

16. How do you wash your hands (Please select all that apply)
- 1 = Soap
  - 2 = Ash
  - 3 = Water only
  - 4 = Lime
  - 5 = Water and soap
  - 6 = Other (Specify) .....

17. Are you aware of the by laws that govern latrine construction and usage within your village?
- 1 = Yes
  - 2 = No

18. If the answer to question 17 is yes, are the bylaws adhered to when it comes to latrine construction and usage (If the answer to question 17 is no, go on to question 20 )
- 1 = Yes
  - 2 = No
  - 3 = I don't know

19. If the answer to question 17 is yes, how are the bylaws enforced?
- 1 = Imposing fine
  - 2 = Giving warnings
  - 3 = Taking the trespasser to court
  - 4 = Other (Specify).....

20. If the answer to question 17 is no, why are the bylaws not fully enforced?
- 1 = Lack of supervision
  - 2 = People are not aware of the bylaws
  - 3 = Customs and traditions

- 4 = People take the bylaws for granted  
 5 = Other (Specify).....

21. Where do members of your household defecate?

- 1= Toilet  
 2= Bushes  
 3 = We dig up holes  
 4 = Elsewhere (Specify) .....

22. If you use the existing latrine, who owns the toilet? (If the household does not have a latrine, go on to question 29)

- 1= Household  
 2= Neighbours  
 3= School/Institution  
 4 = Other (Specify).....

23. What type of latrine do you own? (Request to see it)

- 1 = Traditional pit latrine  
 2 = Improved pit latrine  
 3= Ventilated Improved Pit Latrine (VIP)  
 4 = Pour flush latrine  
 5 = Water closet  
 6 = Other (Specify): .....

24. In your opinion, which among the following latrines cost more in terms of cleaning and maintenance

- 1 = Traditional pit latrine  
 2 = Improved pit latrine  
 3 = Ventilated Improved Pit Latrine (VIP)  
 4 = Pour flush latrine  
 5 = Water closet  
 6 = Other (Specify): .....

25. What was the cost of constructing the latrine you own? Kindly mention the actual or estimated cost of equipment's and labour charge that was used

Item	Equipments used (Mention)	Cost of equipment	Labour charge	Total
25.1. To dig the pit and floor construction	Bricks, gravel			
	To dig up the pit			
	Cement			
	Iron rod, wire mesh			
	Timber au poles			
	water			
25.2 Construction of the pipe and door				
25.3 Construction of a roof				



Grand Total				

26. When the pit got full, which service was used to empty the pit?  
 1 = Truck that collects sewage  
 2 = Cart that collects sewage  
 3 = Emptying it manually (using hands and gargets to scope out the sewer)  
 4 = N/A

27. If the pit has never been emptied, is such a service essential within your community?  
 (1 = Yes, 2 = No)

28. Have you ever constructed a new latrine after the pit get got full?  
 (1 = Yes, 2 = No)

29. Are you satisfied with the type of latrine you are currently using?  
 1 = Satisfied  
 2 = Unsatisfied

Explain the reasons for your answer in question 29

Response	Reasons
Satisfied	
Unsatisfied	

30. Are you sufficiently safe when using the latrine?  
 1 = Safe  
 2 = Unsafe

Explain the reasons for your answer in question 30

Response	Reasons
Safe	
Unsafe	

31. Does the toilet that you are using need renovation? (If the answer to this question is no, go on to question 33)  
 1 = Yes  
 2 = No

32. What should be done during the renovation?  
 1 = Reconstruction of the pit  
 2 = Construct a water washable floor  
 3 = Put a roof  
 4 = Construction of ventilation pipe  
 5 = Other (Specify).....

33. How often do you clean your latrine?  
 1 = Once a day  
 2 = Often/whenever it is dirty  
 3 = A few times in a week

4 = I never clean it

34. Is the existing latrine being used at all times (If the answer to this question is yes, go on to question 37)

- 1 = Yes
- 2 = No
- 3 = I don't know

35. If the answer to question 34 is no, are there any reasons for not using the existing latrine at all times?

- 1 = Too many people use the latrine
- 2 = The latrine stinks
- 3 = Worried about safety
- 4 = No privacy
- 5 = Customs and traditions
- 6 = Other (Specify).....

36 Where do family members dispose children stools?

- 1 = Toilet
- 2 = Thrown into the wilderness
- 3 = Buried
- 4 = Thrown into garbage
- 5 = Carelessly thrown away
- 6 = Other (Specify).....

37. What impedes the construction of adequate latrines within your community? (Don't mention the options)

Challenges	Yes	No
1. Water scarcity		
2. Soil type (Sandy soil, soil has lots of gravel)		
3. Wetland area		
4. Step slope		
5. Cost of construction		
6. Construction materials are out of reach		
7. Other (Specify)		

38. Do the customs and traditions impede the construction of adequate latrines within your community?

- 1=Yes
- 2=No

39. If the answer to question 38 is yes, specify.....

40. Does the household have a garbage bin to dispose solid wastes (request to see it)?

- 1. Yes
- 2. No

41. Where does the household dispose solid wastes?

- 1. Into a garbage hole
- 2. A collective garbage disposal area
- 3. Garbage collectors (by carts or cars)

4. Municipal trucks
42. What is the cost of disposing garbage that is collected by the municipal council or by private sectors?
1. Cost in shillings - .....
  2. N/A
43. Is there a sewage collection system leave along septic sewage?
1. Yes
  2. No
44. If the answer to question 43 is yes, which type of system?
1. Septic tanks
  2. Uncovered septic tanks
  3. The sewer trickles down the streams
  4. Other (Specify).....
45. If the answer to question 43 is no, how is sewage disposed of?
1. To a sandy or stony area
  2. To a grassy area
  3. Spread on the field or on the ground
46. Is there a hand washing facility in the latrine or outside the latrine?
- 1 = Yes
  - 2 = No
47. Which of the following is used as a hand washing facility
- 1 = Pot
  - 2 = Bucket
  - 3 = Tippy tap
  - 4 = Basin
  - 5 = Other (Specify) .....
48. Where is the hand washing facility?
- 1 = Outside the latrine
  - 2 = Inside the latrine
  - 3 = Inside and outside the latrine

49. Have you ever been taught health education concerning the following issues

Topics	Yes	No	If you have been taught, who taught you?
1. Education on adequate latrine construction			
2. Education on environmental hygiene			
3. Education on how to treat drinking water			
4. Education on safe storage of drinking water			
5. Education on how to prevent water, sanitation and hygiene related diseases.			

## V. DISEASES

50. Has any of the household members suffered from the following diseases in the past 2 weeks?

<b>Disease</b>	<b>Yes</b>	<b>No</b>
1. Stomach aches		
2. Diarrhoea		
3. Cholera		
4. Dysentery		
5. Intestinal worms		
6. Typhoid		
7. Skin diseases		
8. Eye diseases		
9. Other (Specify)		

51. Has any of the household members suffered from the following diseases in the past 12 months?

<b>Disease</b>	<b>Yes</b>	<b>No</b>
1. Stomach aches		
2. Diarrhoea		
3. Cholera		
4. Dysentery		
5. Intestinal worms		
6. Typhoid		
7. Skin diseases		
8. Eye diseases		
9. Other (Specify)		

52. What causes the following diseases? How do they spread?

<b>Disease</b>	<b>Cause</b>
1. Stomach aches	
2. Diarrhoea	
3. Cholera	
4. Dysentery	
5. Intestinal worms	
6. Typhoid	
7. Skin diseases	
8. Eye diseases	
9. Other (Specify)	

53. What should be done to prevent the following diseases?

<b>Disease</b>	<b>Prevention</b>
1. Stomach aches	
2. Diarrhoea	
3. Cholera	
4. Dysentery	
5. Intestinal worms	
6. Typhoid	
7. Skin diseases	
8. Eye diseases	
9. Other (Specify)	

Completion Time: Hr: Mins \_ : \_

*Thank you for participating*

## LATRINE QUALITY AND USAGE HOUSEHOLD OBSERVATIONAL CHECKLIST

(Don't ask questions! Just observe and score accordingly)

Observation started at: Hr:Min \_:\_

### SANITATION AND HYGIENE FACILITIES AVAILABLE

1. Is there a latrine within the household?

1 = Yes, 2 = No

2. If there is a latrine do a thorough check of the presence and condition of the following (tick out the appropriate answer)

Type	Floor	Privacy	Roof	Safety																																								
2.1 Condition of the existing latrine	<p>1. Waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>2. Non waterproof floor which cannot be cleaned using water and soap (floor made of mud/sand/splint)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	Yes	No	1.	2.	<p>1. Has a door</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>2. User cannot be seen while using</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>3. The super structure has walls</p> <p><b>NOTE: Privacy is described sufficient if the latrine has the features outlined above.</b></p>	Yes	No	1.	2.	Yes	No	1.	2.	<p>1. Present</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>2. Absent (No roof)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	Yes	No	1.	2.	<p>1. Concrete cover for pit</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>2. No need to move out a long distance at night</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>3. The latrine is about to break/sink</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table> <p>4. Is the size of the hole smaller than 6 inches wide to ensure the safety of small children?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	Yes	No	1.	2.	Yes	No	1.	2.	Yes	No	1.	2.
Yes	No																																											
1.	2.																																											
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2.2 Traditional pit latrine	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Yes</td> <td style="width: 50%;">No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	<p>1. Sufficient</p> <p>2. Insufficient</p>	<p>1. Iron sheet</p> <p>2. Tiles</p> <p>3. Grass</p> <p>4. Thatch</p> <p>5. Plastic tarp</p> <p>6. No roof</p> <p>7. Other (specify)</p>	<p>1. Sufficient</p> <p>2. Not sufficient</p>																																				
Yes	No																																											
1.	2.																																											

2.3 Ventilated Improved pit Latrine	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	3. Sufficient 4. Insufficient	1. 1.Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof 7. Other (specify)	1.Sufficient 2.Not sufficient
Yes	No							
1.	2.							
2.4 Improved Pit latrine	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1. Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							
2.5 Simple pit latrine	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1. Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							
2.6 Pour flush-direct to pit	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1. Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							
2.7 Pour flush-offset	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1.Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							
2.8 Septic tank system (Water Closet)	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1. Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							
2.9.Other(mention)	<table border="1"> <tr> <td>Yes</td> <td>No</td> </tr> <tr> <td>1.</td> <td>2.</td> </tr> </table>	Yes	No	1.	2.	1. Sufficient 2. Insufficient	1. Iron sheet 2. Tiles 3. Grass 4. Thatch 5. Plastic tarp 6. No roof	1. Sufficient 2. Not sufficient
Yes	No							
1.	2.							

3. Is the latrine that is available within the household being used

Signs of foot marks to the toilet	Floor soiled with excreta	Presence of cleaning supplies	Did the construction of existing latrine consider the following groups (Check: Presence of poles or handrails, ramp, seats/stools)		
			Children < 5 years	Elderly	Disabled
1. Present	1. Yes 2. No	1.Yes 2.No	1.Yes 2. No	1. Yes 2. No	1.Yes 2. No

4. Drop holes are properly covered

Yes	No
1.	2.

5. Presence of hand washing supplies

Water storage facility	Presence of water in the storage facility	Presence of a handle on the storage facility	Evidence that the water is being used right next to each water storage facility NOTE: Check if the ground of the surrounding area is wet	Presence of soap
1. Bucket	1.Yes 2. No	1. Yes 2. No	1.Yes 2. No	1. Present 2.Absent
2. Tippy tape	1.Yes 2. No	Not Applicable	1.Yes 2. No	1.Present 2. Absent
3. Pot	1.Yes 2. No	1.Yes 2.No	1.Yes 2. No	1.Present 2. Absent
4. Tap water	Not applicable	Tap	1.Yes 2.No	1.Present 2.Absent
5.Other (specify)				

6. The surrounding environment of the household

(a) Cleanliness

1. Recently wet
2. Litter scattered around the living area

(b) Floor soiled with excreta

1. Yes

2. No

(c) Garbage disposal

1. Open spaces
2. Thrown into the bushes
3. Thrown into a landfill garbage place
4. Thrown into garbage bin
5. Burned
6. Other (Specify).....

(d) Presence of a place where dishes are kept to dry

1. Present
2. Absent

7. Has there been any change in ensuring that the surroundings of your household are clean for the past 1 year (Probe)

Activities	Yes	No
Digging up a hole to dispose garbage		
Washing dishes		
A place to keep dishes to dry		
Construction of adequate latrine		
No open defecation		
Improve drainage system		
Slashing bushes around the house		
Other (Specify)		

Observation completed at: Hr:Min \_:\_



## **Appendix 10: Focus Group Discussion (FGD) Guide**

### **Total of Four groups per each Site (Two Groups per each Ward)**

**Category I- Community Leaders (Ward, Village & Influential persons)**

**Category II-Youth Group**

**Category III- Men and Women representatives (Leaders of men and women groups, selected men and women from households- with good, moderate and no toilets)**

### **Group composition- 8-12 participants**

#### **THEMES**

1. What are your opinions concerning the availability of safe water to be used in households? (Probe: Availability of water, water sources, how far away is the water source you fetch water for domestic purposes – the approximate distance in kilometers; the taste, smell and appearance of water. Are people satisfied?)
2. What are your opinions concerning the available drinking water treatment options and safe storage of drinking water? (Probe: Current practices of treating and safe storage of drinking water, the treatment options that are known and used by the community. The habit of treating and safe storing of drinking water. The habit of using a cup to get water from a storage container and is the same cup used to drink water?)
3. What are your opinions concerning improved latrines? (Probe: The current latrine condition and usage, does the community know the qualities that an improved latrine ought to have? Can they site an example of an improved latrine? Why traditional pit latrines or shallow temporary latrines still being constructed and used within the community? Presence of bylaws that govern latrine construction and usage within the village, are the bylaws adhered to, what are the challenges of implementing the bylaws? The types of latrine that are common within the community and are they being used?)
4. What is the cost of latrine construction? (Probe: Cost of constructing a traditional pit latrine and the cost of constructing an improved latrine? The group members should quantify the cost of digging the bore hole for the latrine, putting slab, making a pipe and constructing a roof – cost should be of purchasing construction materials and labour charge.
5. Is the community willing to own improved latrines? (Probe: Reasons for presence of traditional pit latrines, would they like to own other types of latrines, are they satisfied with the latrines they're using, what are the challenges they face when constructing improved latrines? Would they like to participate in Mtumba scale up project?)
6. Which customs and taboos impede the construction of improved latrine, hand washing after visiting the toilet, before eating, after cleaning or helping children use the latrine and before preparing meals; and the customs and taboos that impede boiling drinking water? (Probe: Customs and taboos that impede latrine usage, hand washing at critical times, reasons for not boiling drinking water)
7. In your opinion, what causes diarrhea? (Probe: Whether in the last 12 months the villagers have suffered from diarrhea, dysentery, cholera or mucous diarrhea, eye diseases. What causes the diseases?)
8. What are your opinions concerning Non-Governmental Organization/Community Based Organization that advocate improved latrine construction in the village. (Probe: The names of the existing NGOs/CBOs, what each one does in terms of improved latrine construction, how do they work with the village leaders?)

**Appendix 11: Declaration form**

**GEITA DISTRICT COUNCIL**

**DECLARATION FORM (KATOMA VILLAGE, KATOMA WARD, GEITA)**

Facilitator's name: ..... Title: .....  
 Department: ..... Mobile number: .....

Attendance: Female .....  
 Male .....

**DECLARATION**

We residents of .....hamlet, promise that from this date ..... we have decided to stop open defecation. We have also decided that the households which don't have latrines should construct improved latrines by.....; and the households that have traditional pit latrines should construct improved latrines by .....

The hamlets current situation:

No of people within the hamlet	Number of Households within the hamlet	Number of Households without latrines	Number of Households that have latrines	Number of Households with Improved latrines	Number of Households with Traditional pit latrines

The elected sanitation and hygiene committee members:

Name:..... Post: ..... Mobile no:.....  
 Name:..... Post: ..... Mobile no:.....  
 Name:..... Post: ..... Mobile no:.....  
 Name:..... Post: ..... Mobile no:.....

Hamlet Chairperson's name: ..... Sign: ..... Mobile no: ..... Date:.....  
 Village Executive Officer's name..... Sign:..... Mobile no:.....Date:.....  
 Village Chairperson's name: ..... Sign: ..... Mobile no: ..... Date: .....  
 Ward Executive Officer's name: ..... Sign: ..... Mobile no: .....Date: .....  
 Ward Counselors name: ..... Sign: ..... Mobile no: .....Date: .....

## Annex 1: Advocacy materials



# JENGA NA TUMIA CHOO BORA KWA AFYA BORA

## INAWEZEKANA KUJENGA CHOO BORA

Utafiti wa hali halisi wa afya ya mazingira ya mji wa Geita uliofanywa na Taasisi ya Taifa ya Utafiti wa Magonjwa ya Binadamu (NIMR) umebaini yafuatayo:

- Asilimia 87 ya vyanzo vya maji vina chembe-chembe za vinyesi (visima, vijito, malambo, maji ya ziwa)
- Asilimia 44 ya wakazi wa mji wa Geita hawana miundo-mbinu sahihi ya usafi wa mazingira (vyoo, mashimo ya taka, karo za maji machafu)
- Asilimia 18.6 ya wakazi wa mji wa Geita wanajisaidia ovyo katika mazingira (kaya hazina vyoo)
- Asilimia 22.6 ya wakazi wa Geita waliopimwa afya na NIMR walibainika kuwa na vimelea vya magonjwa ya kuhara na taifodi (wabeba-vimelea)
- Asilimia 20.1 ya wakazi wa Geita waliopimwa afya walibainika kuwa na vimelea vya magonjwa ya amiba, kichocho na minyoo tumbo
- Shule zote za msingi na sekondari katika mji wa Geita hazina vyoo vinavyostahili kutumika na wanafunzi wenye ulemavu
- Wastani wa idadi ya wanafunzi kwa matundu ya vyoo:
  - \* Wavulana (60:1)
  - \* Wasichana (64:1)



Vyoo duni huchangia maambukizi ya magonjwa (hatari kwa afya)

### MIUNDO-MBINU YA USAFI WA MAZINGIRA

Hali ya miundo-mbinu ya usafi wa mazingira ya mji wa Geita hairidhishi na inachangia maambukizi ya magonjwa yanayoenezwa na kinyesi cha binadamu kama vile kuhara, taifodi, amiba, minyoo tumbo, magonjwa ya ngozi na macho. Mbinu kuuu ya kujikinga na magonjwa haya ni udhibiti mahsusi wa kinyesi cha binadamu.

### KINGA AFYA YAKO KWA KUTUMIA CHOO BORA

Choo bora kimethibitishwa na wataalamu kuwa kina uwezo wa kudhibiti kinyesi cha binadamu kikamilifu na kinazuia kusambaa kwa kinyesi katika mazingira na kusababisha magonjwa. Choo kisicho bora kinachangia kusambaa kwa kinyesi katika mazingira na kusababisha maambukizi ya magonjwa.



Matumizi ya vyoo bora huzuia maambukizi ya magonjwa



### Mabadiliko katika ujenzi na matumizi sahihi ya vyoo bora yanawezekana

- Ni bora kujenga choo bora kuliko gharama za matibabu kutokana na magonjwa yaambukizwayo kwa njia ya kinyesi.
- Kila mwaka, takribani wakazi 102,966 wa mji wa Geita wanaugua magonjwa yatokanayo na kinyesi cha binadamu. Ikinge familia na jamii kwa kujenga na kutumia choo bora.
- Waathirika wakuu wa magonjwa yatokanayo na kinyesi ni watoto wenye umri chini ya miaka 5, wazee na wagonjwa.
- **UJENZI NA MATUMIZI YA VYOO BORA HUIEPUSHA JAMII NA MAGONJWA, VIFO NA GHARAMA ZA MATIBABU**



This material has been funded by UK aid from the Department for International Development (DFID). However, the views expressed do not necessarily reflect the Department's official policies.



## UJENZI WA VYOO BORA VYA GHARAMA NAFUU

**AFYA NI UHALI, THAMINI MAISHA KWA KUJENGA NA KUTUMIA CHOO BORA**

*Vyoo duni vinahatarisha afya: vinachangia maambukizi ya magonjwa ya kuhara, taifodi, aniba, minyoo-tumbo, kichocho, magonjwa ya ngozi na magonjwa ya macho*



*Vyoo duni vinafedhehesha, ni hatari kwa afya, si salama kwa watoto wazee na wagonjwa*



*Maboma ya vyoo bora vya gharama nafuu kwa maeneo ya vijijini na mijini*

*Shimo la choo bora*



*Sakafu zinazotumika katika ujenzi wa vyoo bora*



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## Annex 2: Artisan Training Manual



# ARTISANS TRAINING MANUAL

## TRAINING ON CONSTRUCTION AND USAGE OF IMPROVED LATRINES

*Prepared by:*

*Environmental Health Management and Safety Research Unit, National Institute for Medical Research (NIMR) in collaboration with Geita District Council and Ministry of Health and Social Welfare*

**Prepared by:**

Yolanda J. Mbatia, Robert M. Njee, Veritas F. Msimbe, Johnes Shuma, Winner Mwansite, Jimmy Mtabwa and Hamisi M. Malebo



Photo credit: Hamisi Malebo

**JULY, 2015**

# **ARTISANS TRAINING MANUAL**

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**JULY, 2015**

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## **WHY THIS MANUAL**

The Ministry of Health and Social Welfare (MoHSW) through the Environmental Health Unit in the Directorate of Preventive Services (DPS) prepared Sanitation *Options and Construction Guidelines* of March, 2012 and the Kiswahili version “*Mwongozo wa Ujenzi Wa Vyoo Bora Na Usafi Wa Mazingira*” of June 2013. The guidelines are useful in guiding the community and artisans in the selection, designs and construction of improved latrines. Evidences obtained from the previous Mtumba Sanitation evaluation in the piloted areas indicated skewed community preferences on certain types of latrine options. This manual is an output from Mtumba Scale up project findings. This manual focuses specifically on the design and construction of four improved latrine options appropriate for rural areas in Tanzania. The manual is designed to achieve 4 specific objectives: (1) awareness creation to households in rural areas on the four latrine options suitable for their contexts that can be constructed from locally available materials, (2) guide households on choosing the latrine options for construction, (3) equip artisans with guidelines on how to construct the latrine options and (4) disseminate to stakeholders, community and health workers at District, Ward and Village level with information required in the selection and construction of the four latrine options which are most appropriate to the rural setting.

.



## **1.0 INTRODUCTION**

### **1.1 Objectives**

**Main objectives:** To equip artisans with skills on how to construct improved latrines and to give them knowledge on how improved latrines prevent transmission of fecal-oral diseases.

### **1.2 Specific objectives:**

- i. To provide health education on the routes of transmission of disease from feces
- ii. To provide education on how to prevent fecal oral disease transmission
- iii. To provide education on participatory approaches which can be used to sensitize the community on how to prevent fecal oral disease transmission
- iv. To provide education on latrine types and the qualities of each type.
- v. To provide education on the qualities of an improved latrine and participatory approaches of how to construct improved latrines at household level and at community level.
- vi. To construct the various types of improved latrines within the community
- vii. To prepare the bills of quantity of each latrine type
- viii. To provide education on how to repair and maintain improved latrines.

### **1.3 Target audience**

Artisans within the community

### **1.4 Participants capacity building;**

- i. To be provided with the appropriate information on fecal oral diseases and how to prevent them
- ii. To equip artisans with the skills of how to construct and maintain improved latrines

### **1.5 Role of artisans;**

- i. Informer - Deliver information that people need to know concerning disease transmission and prevention (stop open defecation)
- ii. Promoter (activist) - persuade individuals and communities to make choices of the relevant latrine options

- iii. Constructors - to provide technical support for improvement of existing latrines and to construct new improved latrines
- iv. Entrepreneurship – to operate and maintain sanitation centres

## **1.6 What you need to do as an artisan;**

- i. Get acquainted with the necessary information on various latrine options and cost analysis
- ii. Take up the interest and put on a smile because you are a change agent
- iii. Be prepared to take on challenges involved

## **1.7 Important operational tips**

- *Be ready*
- *Be proud of what you are doing*
- *Do your best to transmit what you know to your subjects*
- *Offer to provide more if needs be*
- *Be the agent of change*

## **1.8 Promotion approach**

Awareness creation through key hygiene and sanitation messages:

- ✓ hand washing with soap,
- ✓ safe drinking water,
- ✓ household water treatment and safe storage (HWTS) and;
- ✓ latrine improvements/ construction in the community.

Demonstration on:

- ✓ water treatment methods,
- ✓ drinking water drawing practices,
- ✓ safe storage facilities and;
- ✓ hand washing facilities (simple technologies).

Key discussion points are on:

- 1.8.1 The role of open defecation on the contamination of water sources and spread of diseases in the community
- 1.8.2 Advantages of construction and use of latrines
- 1.8.3 Disadvantages of not having a latrine
- 1.8.4 How to overcome challenges of construction and use of improved latrines
- 1.8.5 Disease prevention through proper disposal of human feces, handwashing with soap and drinking safe water
- 1.8.6 How to overcome challenges of maintenance of relevant latrine options
- 1.8.7 How to facilitate daily and proper cleaning of latrines
- 1.8.8 Sanitation promotion and marketing
- 1.8.9 Entrepreneurship skills which includes formation of Community Based Organizations, development of constitution, registration, development of strategic plan and training on how to manage funds of the group

## **2. FECAL ORAL DISEASES**

### ***2.1 Routes of fecal oral disease transmission***

Fecal–oral transmission of diseases occurs when protozoa, bacteria, viruses or intestinal worm eggs found in the stool of one person (or animal) are swallowed by another person. Undisposed fresh

human and animal feces can be transported through various means and can be unintentionally ingested by a human being as shown in Figure 1 below. Fecal material available in the environment is mainly transported by rain water into water sources during rains. Feces from one person can be transported by dirty hands to another person through hand shaking; eating food prepared by a person with dirty hands i.e. hands not washed with water and soap after visiting latrine or cleaning a defecated child. Feces are passed on from person to person through handshakes and within a short time a large number of people can be smeared with the feces in their hands. When the person with feces on his/her hands, eats without washing hands, then he/she ingests his/her or other people's feces together with the food. Insects such as houseflies and cockroaches are transporters of feces which contaminate human food owing to their behavior of landing onto unattended or uncovered food stuff.

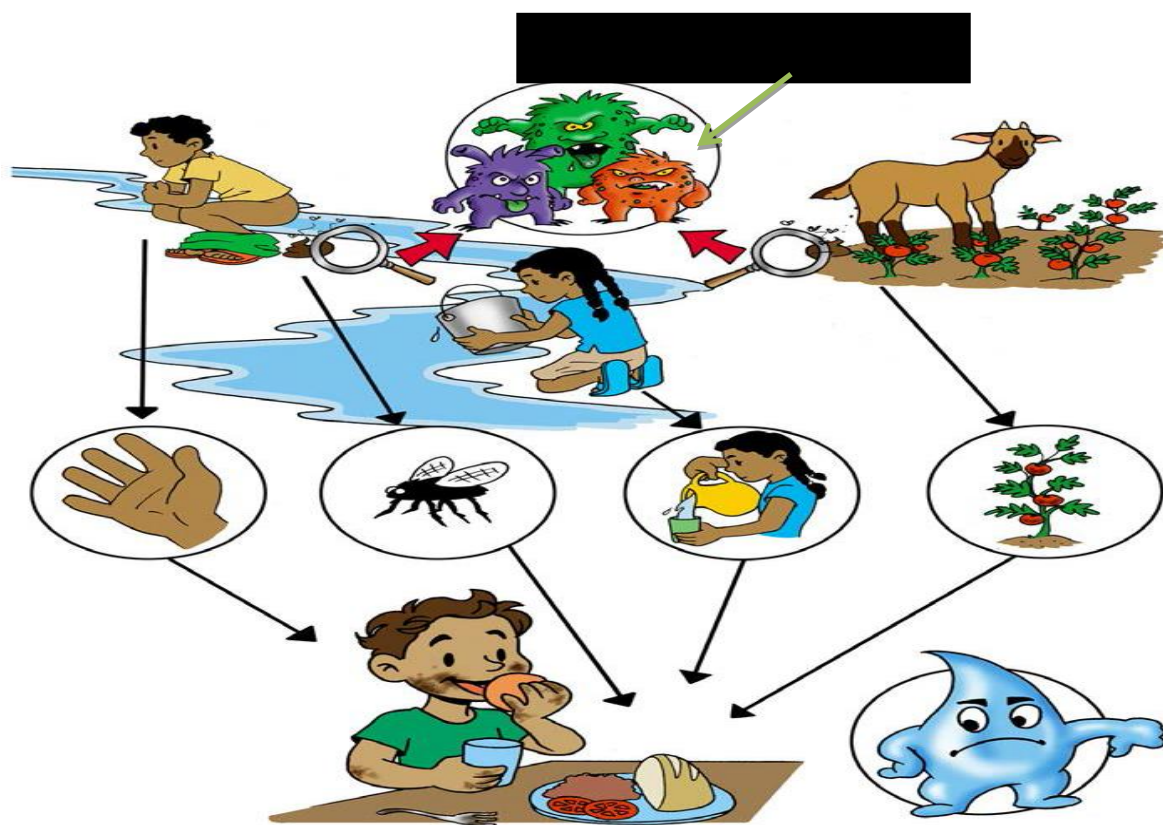


Figure 1. The diagram is copied from: A CAWST TRAINING MANUAL March 2009 Edition; it shows transmission of diseases from feces to human mouth

### 2.1.1 Common infectious agents in infected human feces

Fecal-oral pathogens and parasites live in the large intestine; they travel in the feces of infected people, and can contaminate hands during improper anal cleansing, feces disposal, washed into water supplies in places where sanitation is poor. The pathogens and parasites can contaminate fruits and vegetables grown in areas where human feces are used as fertilizer. They can be transferred on the dirty hands of infected people who don't wash their hands often or incorrectly.

- i. ***Escherichia coli (E. coli)*** – *E. coli* bacteria normally live in the intestines of people and animals. Most *E. coli* are harmless and actually are an important part of a healthy human intestinal tract. However, some *E. coli* are pathogenic, they cause illness, either diarrhea or illness outside of the intestinal tract. Symptoms occur when *E. coli* bacteria enter the intestine. Most of the time symptoms develop 24 to 72 hours after being infected. The most common symptom is sudden, severe diarrhea that is often bloody. Other symptoms may include: fever, gas, loss of appetite, stomach cramping and vomiting (rare)
- ii. **Cholera bacteria** - It is caused by eating food or drinking water contaminated with a bacterium called *Vibrio cholerae*. Cholera is an infectious disease that causes severe watery diarrhea, which can lead to dehydration and even death if untreated.
- iii. **Hepatitis A virus** – cause hepatitis (liver disease), it is rarely fatal, but it can cause debilitating symptoms and fulminant hepatitis (acute liver failure), which is associated with high mortality.
- iv. **Polio virus** - Polio, or poliomyelitis, is a crippling and potentially deadly infectious disease. It is caused by the poliovirus that spreads from person to person and can invade an infected person's brain and spinal cord, causing paralysis. Paralysis is the most severe symptom associated with polio because it can lead to permanent disability and death.
- v. **Giardia** - cause giardiasis: symptoms include weakness in the body loss of appetite, diarrhea, loose or watery stools, stomach cramps, upset stomach, vomiting, excessive stomach gas and burping.
- vi. **Amoeba** - amoeba cause gastrointestinal amoebiasis. Once amoeba enter the mouth, they travel through the digestive system and settle in the large intestine. Harmless strains of the parasite (*Entamoeba dispar*) live there without causing damage. *Entamoeba*

- histolytica* can live in the intestine without causing symptoms, but it also can cause severe disease. These amoebas may invade the wall of the intestine, leading to amoebic dysentery, an illness that causes intestinal ulcers, bleeding, increased mucus production and diarrhea. These amoebas also may pass into the bloodstream and travel to the liver or, infrequently, to the brain, where they form pockets of infection (abscesses).
- vii. **Intestinal worm eggs and larva** - they are generally passed through human and animal feces. They spend part of their life in hosts that live in water before being passed on to people through the skin
  - viii. **Pinworms** – a helminth which is generally passed through human and animal feces
  - ix. **Salmonella** – cause salmonellosis, the infection is spread by eating food contaminated by feces of an infected animal or person, or by drinking contaminated water. It can also be spread from person-to-person. Symptoms include sudden onset of fever, headache, diarrhea, stomach cramps, nausea and sometimes vomiting. Most of the time symptoms develop from 6 to 72 hours after becoming infected.
  - x. **Tapeworms eggs** - are generally ingested through food, water or soil contaminated with human or animal (host) faeces. Once ingested, the larvae then develop into adult tapeworms in the intestines. The most common tapeworms in humans are the pork tapeworm (*Taenia solium*) and the beef tapeworm (*Taenia saginata*),
  - xi. **Helicobacter pylori** - is a type of bacteria that causes infection in the stomach. The germs can enter the body and live in the digestive tract. After several years, they can cause sores called ulcers (peptic ulcers). It may be spread by unclean food and water.
  - xii. **Shigella** – cause Shigellosis, the infection is caused by the bacterium passing from stools or soiled fingers of one person to the mouth of another person. This is due to inadequate basic hygiene and hand washing habits. The disease may also be acquired from eating contaminated food. Symptoms include diarrhea (often bloody), fever, and stomach cramps that start a day or two after exposure to the bacteria. Often the disease develops after 5 to 7 days after being infected

- xiii. **Rotavirus** – the infection caused by the virus is spread through contamination of hands, objects, food or water with infected feces. Symptoms include vomiting, fever and watery diarrhoea. The onset of the disease is sudden and the symptoms last for 3 to 7 days.
- xiv. **Skin diseases** = (“*lume*”: in kisukuma language, a fungal skin disease due to walking bare foot and stepping on a damp surface infected by fecal matter).
- xv. **Eye disease** called conjunctivitis is caused by virus and bacteria. Both can be prevented by proper hygiene.
- xvi. **Trachoma** – is caused by a bacterium *Chlamydia trachomatis*. The disease can spread easily through direct personal contact, shared towels and cloths, and flies that have come in contact with the eyes or nose of an infected person. If not treated, repeated trachoma infections can cause severe scarring of the inside of the eyelid and can cause the eyelashes to scratch the cornea leading to a permanent damage which can lead to irreversible blindness. Trachoma usually spreads in areas with inadequate access to water and sanitation.
- xvii. **Bilharzia** – also known as Schistosomiasis, in humans is caused by 3 species of flatworms, namely; *Schistosoma haematobium*, *Schistosoma japonicum*, and *Schistosoma mansoni*. Infection occurs when a free-swimming larvae penetrates the human skin. The larvae develop into fresh-water snails. Humans are infected when they enter water that has the larvae for domestic, occupational and recreational purposes. The larvae penetrate the skin and transform and are carried by the blood to the veins draining the intestines or the bladder where they mature, mate and produce eggs. Eggs cause damage to various tissues, particularly the bladder and liver. The reaction to the eggs in tissues causes inflammation and disease. When infected humans excrete parasite eggs through feces or urine into water, the eggs hatch releasing larvae that in turn infect aquatic snails. In the snail the parasite transforms and divides into second-generation larvae which are released into fresh water ready for human re infection.
- xviii. **Typhoid fever** - is caused by a bacterium called *Salmonella typhi*. The disease is highly contagious, an infected person can pass the bacteria out of their body in their feces. If someone else eats food that has been contaminated with the feces, they can become infected with the bacteria and develop typhoid fever. Symptoms include a high

temperature that can reach 39-40°C (103-104°F), stomach pain , headache , constipation or diarrhea.

**2.1.2** The trainees should mention the routes by which disease pathogens are transmitted from feces to human mouth. The trainees should draw the road map from feces to human mouth. Ask the artisans to list the places in their community whereby persons without access to latrines use for defecation. A follow up question is where do feces go during dry and rain season in their community. Ask artisans to draw or write the different agents or pathways which bring feces into households. By using the items given below, artisans should organize routes of transportation of feces to human mouth and the risks associated with ingesting fresh human feces.

- i. Animals (chicken, rats, dogs, pigs)
- ii. Insects (houseflies, cockroaches)
- iii. Dirty hands (contaminated with disease pathogens from feces)
  - a. After defecation
  - b. After cleaning a children's/patients buttocks
  - c. After handling dirt
  - d. Hand washing in a communal pot
- iv. Drinking unsafe water
  - a. Contaminated water (with disease pathogens from feces)
  - b. Untreated water
  - c. Unsafe stored water
- v. Walking bare foot
  - a. Intestinal worms
  - b. Bilharzia
  - c. Skin infections



### **3. ARTISAN SELECTION**

Village leaders should list artisans within their community. Then the artisan should be invited to a meeting which they will be informed about the training and encouraged to attend. The Artisans should meet the following criteria;

- i. He/she should be a resident of the particular village
- ii. He/she should be a mason at least with 2 years' experience
- iii. A literate person
- iv. He/she should be less than 60 years

### **4. PRACTICAL TRAINING**

Artisans should do the following;

- i. Visit the households within the community and look at the types of latrines, how the latrines were constructed, their durability, the challenges and success in use of a particular latrine.
- ii. Discuss the types of latrines they have seen within the community and discuss how to improve those that are of poor quality
- iii. Mention the soil types and the latrine type recommended for a particular type of soil
- iv. Learn how to dig a pit and they should have hands on experience of digging a pit. Artisans should be taught about the required depth and diameter of the pit of an improved latrine.
- v. Learn how to stabilize pit walls during pit lining and they should have a hands on experience of pit lining for stable pit walls using stones or bricks
- vi. Learn how to make a Sungura, Msumbiji and Katoma slabs and they should make the 3 types of slabs with lids to cover the drop holes.
- vii. Learn how to put the slabs on latrine floors and how to complete the construction of latrine floors. Artisans should know the difference between Sungura, Msumbiji and Katoma slabs in terms of materials needed for construction.
- viii. Learn how to put a ventilation pipe on a Ventilated Improved Latrine (VIP) and a pour flush latrine
- ix. Learn how to put a water trap/ water seal on a pour flush latrine
- x. Learn how to make hand washing facilities that have a tap, a place to put soap and a proper drainage system. Artisans should make hand washing facilities.

- xi. Learn how to construct septic tanks and they should construct a septic tank
- xii. Learn how to repair improved latrines

## **5. SELECTED IMPROVED LATRINE OPTIONS APPROPRIATE FOR RURAL AREAS**

The selection of improved latrine options appropriate for rural areas is based on previous experience with MTUMBA Sanitation and Hygiene Participatory Approach in the piloted districts of Iramba, Mbulu and Nzega whereby a total of 14 different types of latrines were promoted. Only four types of improved latrine options were preferred and picked up and constructed by villagers in the districts based on simplicity of the designs, availability of building materials, cultural acceptance and cost. The latrine technologies that were preferred by households in the original MTUMBA implemented areas are the:

- i. improved pit latrine 1: is made of a mud/thatched roof, its pit is made of wattle (Kihenge), a floor with SanPlat and its superstructure of poles with mud/mud bricks.
- ii. improved latrine 2: is made of a mud/thatched roof, its pit made of burnt bricks, a floor with SanPlat and its superstructure of poles with mud/mud bricks.
- iii. improved latrine 3: is made of a roof of corrugated iron sheets, its pit made of cement bricks, a floor with SanPlat and its superstructure of cement/mud bricks.
- iv. improved latrine 4: is made of a roof of corrugated iron sheets, its pit made of dry bond, a floor with SanPlat and its superstructure of cement/mud bricks.

### **Main features of an Improved Pit Latrine**

- i. The pit is deep enough with a minimum of 6 feet and it is lined with bricks, stones or wattles.
- ii. Stable SanPlat and impervious washable floor which can be cleaned with water and soap.
- iii. The presence of a stable and permanent superstructure, door, window and roof that ensures privacy to users and it can be used at all times.
- iv. The drophole has a lid that ensures that flies and other insects can not enter into the pit.
- v. The latrine has a hand washing facility nearby.

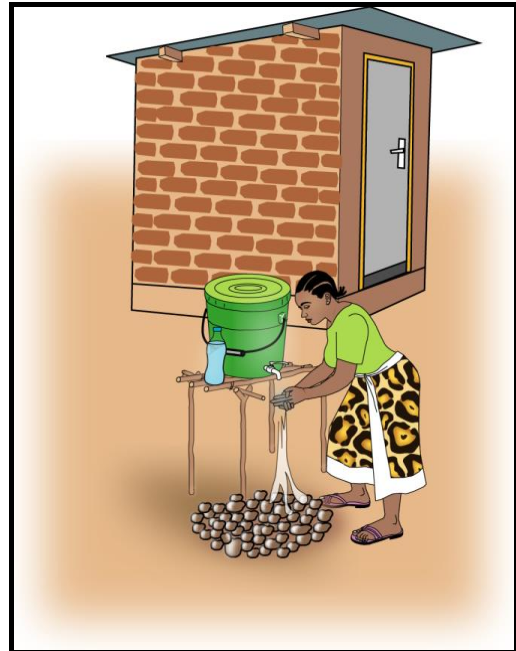
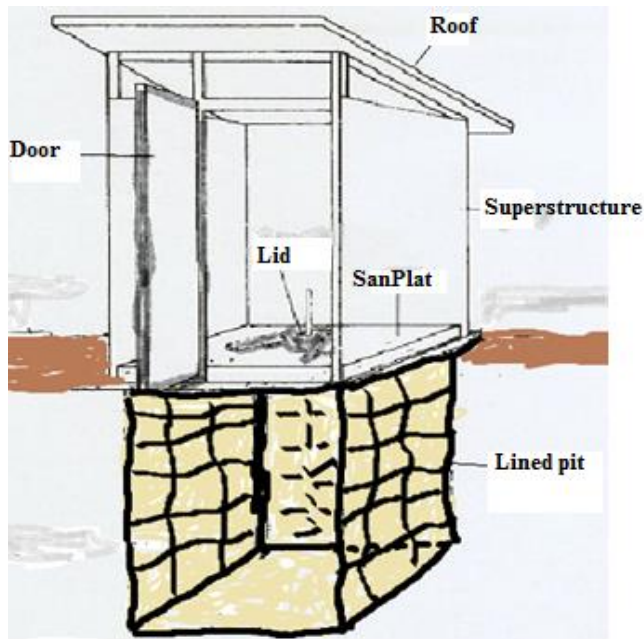



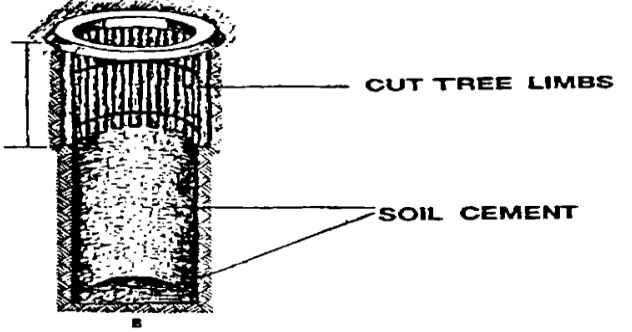


Figure 2: Improved Pit Latrine fitted with a hand washing facility. Figure 4 taken from the National Guideline on the construction of improved latrines and environmental sanitation (MoHSW)




## 6. GUIDELINES FOR THE CONSTRUCTION OF IMPROVED LATRINE OPTIONS APPROPRIATE FOR RURAL AREAS

### 6.1 Improved Pit Latrine 1

Pictures of the Latrine;	Alternative	
 <p>Photo credit: Hamisi Malebo</p>	 <p>Photo credit: Hamisi Malebo</p>	
 <p>Photo credit: Hamisi Malebo</p>	 <p>CUT TREE LIMBS AND SOIL CEMENT LINING</p>	
<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Use mainly locally available materials</li> <li>• Katoma/Msumbiji slab can be re-used when it is full.</li> <li>• Impervious slab – washable with water and soap</li> </ul>	<p><b>Suitable rural areas;</b></p> <ul style="list-style-type: none"> <li>• Dry or drought prone areas with firm or sandy soils</li> <li>• Pastoralist areas</li> </ul>	<p><b>Main components of the latrine;</b></p> <ul style="list-style-type: none"> <li>• Substructure: Pit, partial lining, Katoma/Msumbiji Slab</li> <li>• Superstructure: Local materials or bricks with iron roof</li> </ul>

<b>Requirements:</b> <ul style="list-style-type: none"> <li>Household effort or hired labor to dig the pit</li> <li>Hired artisan for pit lining</li> <li>Katoma or Msumbiji slab</li> <li>Local materials or industrial materials to make superstructure.</li> </ul>	<b>Instruction</b> <ul style="list-style-type: none"> <li>Construct the latrine 5m from the main house</li> <li>If possible, locate it downhill at a minimum distance of 30 meters from any type of water source.</li> <li>Wash and clean the latrine regularly and maintain it clean</li> </ul>	<b>Pit Emptying;</b> Not easy to empty. When it is full, fill it with earth (soils) and built a new latrine.
<b>Cost estimation:</b> <ul style="list-style-type: none"> <li>For substructure : 20,000 TZS (USD 10) with partial lining including slab</li> <li>For Superstructure:             <ul style="list-style-type: none"> <li>Local materials = 16,000 TZS (USD 8)</li> <li>Roofing materials =10,000 TZS (USD 5)</li> </ul> </li> </ul> Estimated total cost: 46,000 TZS (USD 23)		

## 6.2 Improved Pit Latrine 2

Pictures of the Latrine;	Alternative
 <p>Photo credit: Hamisi Malebo</p>	 <p>Photo credit: Hamisi Malebo</p>
 <p>Photo credit: Hamisi Malebo</p>	 <p>Photo credit: Veritas Msimbe</p>

<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Use mainly locally available materials</li> <li>• Katoma/Msumbiji slab can be re-used when it is full.</li> <li>• Impervious slab – washable with water and soap</li> </ul>	<p><b>Suitable rural areas;</b></p> <ul style="list-style-type: none"> <li>• All except water logged areas</li> <li>• Pastoralist areas</li> </ul>	<p><b>Main components of the latrine;</b></p> <ul style="list-style-type: none"> <li>• Substructure: Pit, lined, Katoma/Msumbiji Slab</li> <li>• Superstructure: Local materials or bricks with iron roof</li> </ul>
<p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>• Household effort or hired labor to dig the pit</li> <li>• Hired artisan for pit lining</li> <li>• Burnt bricks or stones and cement for lining the pit.</li> <li>• Katoma or Msumbiji slab</li> <li>• Local materials or industrial materials to make superstructure.</li> </ul>	<p><b>Instruction</b></p> <ul style="list-style-type: none"> <li>• Construct the latrine 5m from the main house</li> <li>• If possible, locate it downhill at a minimum distance of 30 meters from any type of water source.</li> <li>• Wash and clean the latrine regularly and maintain it clean</li> </ul>	<p><b>Pit Emptying;</b> It is easy to empty.</p>
<p><b>Cost estimation:</b></p> <ul style="list-style-type: none"> <li>• For substructure : 30,000 TZS (USD 15) with lining including slab</li> <li>• For Superstructure: <ul style="list-style-type: none"> <li>○ Local materials = 16,000 TZS (USD 8)</li> <li>○ Roofing materials =10,000 TZS (USD 5)</li> </ul> </li> </ul> <p>Estimated total cost:56,000 TZS (USD 28)</p>		

### 6.3 Improved Pit Latrine 3


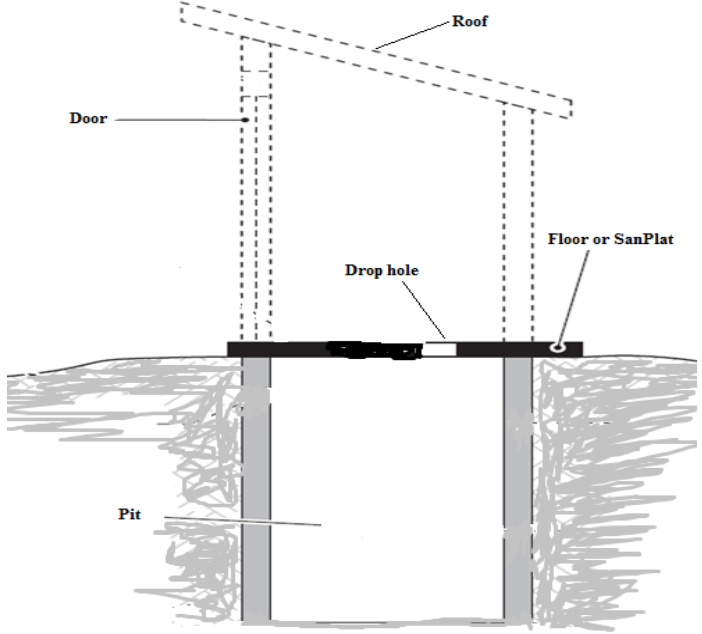



<p><b>Pictures of the Latrine;</b></p>	<p><b>Sketch</b></p>
 <p>Photo credit: Hamisi Malebo</p>	



Photo credit: Yolanda Mbatia

<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Use mainly locally available materials</li> <li>• Katoma/Msumbiji slab can be re-used when it is full.</li> <li>• Impervious slab – washable with water and soap</li> </ul>	<p><b>Suitable rural areas;</b></p> <ul style="list-style-type: none"> <li>• All except water logged areas</li> </ul>	<p><b>Main components of the latrine;</b></p> <ul style="list-style-type: none"> <li>• Substructure: Pit, lined Katoma/Msumbiji Slab</li> <li>• Superstructure: Local materials or bricks with iron roof</li> </ul>
<p><b>Requirements:</b></p> <ul style="list-style-type: none"> <li>• Household effort or hired labor to dig the pit</li> <li>• Hired artisan for pit lining</li> <li>• Burnt bricks or stones and cement for lining the pit.</li> <li>• Katoma or Msumbiji slab</li> <li>• Local materials or industrial materials to make superstructure.</li> </ul>	<p><b>Instruction</b></p> <ul style="list-style-type: none"> <li>• Construct the latrine 5m from the main house</li> <li>• If possible, locate it downhill at a minimum distance of 30 meters from any type of water source.</li> <li>• Wash and clean the latrine regularly and maintain it clean</li> </ul>	<p><b>Pit Emptying;</b> It is easy to empty.</p>
<p><b>Cost estimation:</b></p> <ul style="list-style-type: none"> <li>• <b>For substructure : 60,000 TZS (USD 30) with lining including slab</b></li> <li>• <b>For Superstructure:</b> <ul style="list-style-type: none"> <li>○ Bricks = 50,000 TZS (USD 25)</li> <li>○ Roofing materials =40,000 TZS (USD 20)</li> </ul> </li> </ul> <p>Estimated total cost: <b>150,000 TZS (USD 75)</b></p>		

## 6.4 Improved Pit Latrine 4

Pictures of the Latrine;	Alternative	
 <p data-bbox="186 766 500 793">Photo credit: Hamisi Malebo</p>		
 <p data-bbox="186 1291 506 1318">Photo credit: Yolanda Mbatia</p>		
<p data-bbox="186 1327 321 1354"><b>Advantages:</b></p> <ul data-bbox="186 1354 592 1516" style="list-style-type: none"> <li>• Use mainly locally available materials</li> <li>• Katoma/Msumbiji slab can be re-used when it is full.</li> <li>• Impervious slab – washable with water and soap</li> </ul>	<p data-bbox="613 1327 831 1354"><b>Suitable rural areas;</b></p> <ul data-bbox="613 1354 982 1381" style="list-style-type: none"> <li>• All except water logged areas</li> </ul>	<p data-bbox="1084 1327 1458 1354"><b>Main components of the latrine;</b></p> <ul data-bbox="1084 1354 1474 1507" style="list-style-type: none"> <li>• Substructure: Pit, lined Katoma/Msumbiji Slab</li> <li>• Superstructure: Local materials or bricks with iron roof</li> </ul>
<p data-bbox="186 1528 344 1556"><b>Requirements:</b></p> <ul data-bbox="186 1556 592 1768" style="list-style-type: none"> <li>• Household effort or hired labor to dig the pit</li> <li>• Hired artisan for pit lining</li> <li>• Burnt bricks or stones and cement for lining the pit.</li> <li>• Katoma or Msumbiji slab</li> <li>• Local materials or industrial materials to make superstructure.</li> </ul>	<p data-bbox="613 1528 734 1556"><b>Instruction</b></p> <ul data-bbox="613 1556 1063 1747" style="list-style-type: none"> <li>• Construct the latrine 5m from the main house</li> <li>• If possible, locate it downhill at a minimum distance of 30 meters from any type of water source.</li> <li>• Wash and clean the latrine regularly and maintain it clean</li> </ul>	<p data-bbox="1084 1528 1237 1556"><b>Pit Emptying;</b></p> <p data-bbox="1084 1556 1274 1583">It is easy to empty.</p>



**Cost estimation:**

- **For substructure : 60,000 TZS (USD 30) with lining including slab**
- **For Superstructure:**
  - **Bricks = 70,000 TZS (USD 35)**
  - **Roofing materials =60,000 TZS (USD 30)**

Estimated total cost: **190,000 TZS (USD 105)**

## 7. CONSTRUCTION OF A SANITATION CENTRE



Figure 3: Artisan cementing a sign post that is used to indicate the direction to the sanitation centre at Katoma village in Geita. Photo credit: Yolanda Mbatia



*Figure 4: Preparations of a pit model which is an example of a pit to be used in constructing improved latrines.  
Photo credit: Hamisi Malebo*



*Figure 5: The Principal Investigator of Mtumba Sanitation and Hygiene participatory approach (Mtumba Scale up) – Yolanda Mbatia together with Artisan trainer of trainers (TOT) Stephen John during the preparatory stages of the construction of the sanitation centre at Katoma village. Photo credit: Hamisi Malebo*



*Figure 6: Pit lining model for stable pit walls - stabilized cement blocks placed horizontally. Photo credit: Hamisi Malebo*



*Figure 7: Pit lining model for stable pit walls - stabilized cement blocks placed vertically. Photo credit: Jimmy Mtabwa*



*Figure 8: Pit lining model for stable pit walls - stabilized stones. Photo credit: Hamisi Malebo*



*Figure 9: Artisan (TOT) Jeremiah Kataga (with a hat on) instructing artisans on how to make Katoma slab ( a slab which has been innovated by NIMR in collaboration with artisan TOTs and Katoma village artisans). Photo credit: Yolanda Mbatia*





*Figure 10: Artisan TOT Jeremiah Kataga explaining the major parts of Katoma slab to Katoma village artisans.  
Photo credit: Hamisi Malebo*



*Figure 11: Katoma slab contains urine within a small range and the urine drains back to the drop hole hence less smell and easy cleaning of the latrine. Photo credit: Yolanda Mbatia*



*Figure 12: Construction of the superstructure of improved latrine – pour flush off set to pit type. Photo credit: Jimmy Mtabwa*



*Figure 13: An improved pit latrine model with a squared wall superstructure at the final stages of construction.  
Photo credit: Jimmy Mtabwa*

## 8. THE SUMMARY OF ARTISAN TRAINING

The training on how to construct improved latrines is scheduled to take 13 days (theory and practice). The sequence of the training is outlined on the table below;

**Table 1. A timetable for construction of improved latrines training sessions**

Days	Activities
Day 1	<ul style="list-style-type: none"> <li>i. Registration</li> <li>ii. Introduction</li> <li>iii. Groups formation and household visits to see the available latrines</li> <li>iv. Discussion about the various types of latrines within the community</li> <li>v. Training purpose (construction of improved latrines)</li> <li>vi. Discussion about fecal oral diseases (group activities)</li> <li>vii. To discuss the routes of transmission of fecal oral diseases and how to prevent the diseases</li> <li>viii. Theory on how to dig latrine pits</li> </ul>
Day 2	<ul style="list-style-type: none"> <li>i. Recap on how to dig latrine pits</li> <li>ii. Dig up the latrine pits</li> <li>iii. Theory on how to make bricks to be used for construction of latrine pits</li> <li>iv. Brick laying for latrine pit construction</li> </ul>
Day 3	<ul style="list-style-type: none"> <li>i. Theory on the various types of latrine slabs</li> <li>ii. Preparation of Sungura, Msumbiji and Katoma slab and floor construction</li> </ul>
Day 4	<ul style="list-style-type: none"> <li>i. Theory on pit lining for stable pit walls</li> <li>ii. Construction of latrine pits</li> </ul>
Day 5	<ul style="list-style-type: none"> <li>i. Construction of latrine pits (Sungura slab )</li> <li>ii. Construction of latrine pits ( Katoma slab )</li> <li>iii. Construction of latrine pits (Msumbiji slab )</li> </ul>
Day 6	<ul style="list-style-type: none"> <li>i. Theory on how to cover the pit of Sungura slab</li> <li>ii. Theory on how to cover the pit of Katoma slab</li> <li>iii. Theory on how to cover the pit of Msumbiji slab Discussion and practice of construction techniques</li> </ul>

Day 7	<ul style="list-style-type: none"> <li>i. Completion of pit covers and floor construction for Sungura and pour flush latrines.</li> <li>ii. Completion of pit covers and floor construction for Katoma and Mumbiji slab.</li> </ul>
Day 8	<ul style="list-style-type: none"> <li>i. Theory on construction of latrine walls for Sungura, Katoma, Mumbiji and pour flush latrines</li> <li>ii. Purchase of construction materials</li> <li>iii. Latrine sketch/design</li> </ul>
Day 9	<ul style="list-style-type: none"> <li>i. Construction of latrine walls for Sungura, Katoma, Mumbiji and pour flush latrines</li> </ul>
Day 10	<ul style="list-style-type: none"> <li>i. Construction of latrine walls for Sungura, Katoma, Mumbiji and pour flush latrines</li> </ul>
Day 11	<ul style="list-style-type: none"> <li>i. Construction of latrine roofs for Sungura, Katoma, Mumbiji and pour flush latrines</li> </ul>
Day 12	<ul style="list-style-type: none"> <li>i. Theory on how to make hand washing facilities</li> <li>ii. Production of hand washing facilities</li> <li>iii. Construction of sewage system</li> </ul>
Day 13	<ul style="list-style-type: none"> <li>i. Theory on how to repair improved latrines</li> <li>ii. Hand on experince of repairing some of the improved latrines within the village</li> </ul>

## 9. REFERENCES

- *National guidelines on how to construct improved latrines and environmental health*
- *National sanitation options and construction guidelines (English Version)*
- *Handout on construction of school latrines*
- *Community Led Total Sanitation Manual*
- *Mtumba Sanitation and hygiene participatory approach manual*
- *Artisan Training Manual, Ministry of Health and Social Welfare, Tanzania (Kiswahili Version)*

## Annex 3: Animators Training



# ANIMATORS TRAINING MANUAL

## TRAINING ON PREVENTION OF FECAL ORAL DISEASES: CONSTRUCTION AND USE OF IMPROVED LATRINES, DRINKING SAFE WATER AND PERSONAL HYGIENE

*Prepared by:*

*Environmental Health Management and Safety Research Unit, National Institute for Medical Research (NIMR) in collaboration with Geita District Council and Ministry of Health and Social Welfare*

**Prepared by:**

Yolanda J. Mbatia, Robert M. Njee, Veritas F. Msimbe, Johnes Shuma, Winner Mwansite, Jimmy Mtabwa and Hamisi M. Malebo



Photo credit: Hamisi Malebo

**JULY, 2015**



**ANIMATORS TRAINING MANUAL - TRAINING ON PREVENTION OF  
FECAL ORAL DISEASES: CONSTRUCTION AND USE OF IMPROVED  
LATRINES, DRINKING SAFE WATER AND PERSONAL HYGIENE**

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**JULY, 2015**

## **ACKNOWLEDGEMENT**

This manual on animators training is a product of efforts invested by NIMR and Geita District Council. NIMR and Geita District Council are grateful to all whom in one way or another contributed to the preparation of this manual.

We thank Dr. Hamisi M. Malebo (NIMR), Yolanda J. Mbatia (NIMR) and Mr Robert M. Njee (MoHSW) for their technical contribution.

We are grateful to Hon. Komanya Anjelo, the Katoma Ward Counselor and Village Chairman; Mr. Ng’wina the Katoma Village Executive Officer (VEO); Artisans and Animators of Katoma village and Ms. Thecla Mutemi, Project Accountant for their support, collaboration and initiatives that were crucial in the preparation of the manual.

Last but not least, we thank Mr. Stephen Honoka (KIWAMA) and Mr. Jeremiah Kataga (KIWAMA) for their technical contribution on improved latrine options and construction requirements.

## ACRONYMS

CLTS	Community Led Total Sanitation
HWTS	Household Water Treatment and Storage
KIWAMA	Kikundi cha Wajenzi Mazingira Mambali
MoHSW	Ministry of Health and Social Welfare
NIMR	National Institute for Medical Research
NSC	National Sanitation Campaign
SanPlat	Sanitation Platform
SHARE	Sanitation and Hygiene Applied Research for Equity
WASH	Water, Sanitation and Hygiene
WC	Water Closet

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# MODULE ONE

## 1. INTRODUCTION

The Sanitation and Hygiene Applied Research for Equity (SHARE) consortium in collaboration with the National Institute for Medical Research (NIMR) and Geita District Council is implementing environmental sanitation project aimed at sensitizing the community to take action to construct and use improved latrines and wash hands with water and soap at critical moments. The major goal of this project is to reduce water, sanitation and hygiene (WASH) related infections, morbidities and deaths. In this project, the community is being sensitized and made aware on the health benefits of construction and use improved latrines and washing hands with water and soap at critical moments through a MTUMBA Sanitation and Hygiene Participatory Approach. The MTUMBA approach is aimed at empowering the community to take action on sanitation and hygiene improvement in their areas. This project involves the training of animators on the design and construction of recommended improved latrines in their communities. In recognition of the importance of improved latrines in the community, NIMR in collaboration with Geita District Council prepared this manual as a guide to the choice and construction of improved latrines as well as recommended designs to guide animators on the promotion of construction and maintenance of improved latrines.

This manual has also been prepared to support the National Sanitation Campaign (NSC) led by the Ministry of Health and Social Welfare (MoHSW) being implemented in 112 councils.

### 1.1 *Objectives*

**Main objectives:** To promote and facilitate an interdisciplinary approach so as to prevent fecal oral disease transmission through the construction and use of improved latrines, drinking safe water and proper hygiene within the community.

### 1.2 **Specific objectives:**

- ix. To provide education on ways in which infected fecal matter can be spread.
- x. To provide education on the routes of transmission of disease from feces
- xi. To provide education on how to prevent fecal oral disease transmission

- xii. To provide education on participatory approaches which can be used to sensitize the community on how to prevent fecal oral disease transmission

### **1.3 Target audience**

#### **Primary audience - Animators**

**Secondary audience** - Heads of households (men and women), school going children, community members (people attending public institutions, leaders, etc.), general community, households within the study area and their neighbours.

### **1.4 Expected output of the training**

- i. To be provided with the appropriate information on fecal oral diseases and how to prevent them
- ii. To equip animators with knowledge of primary health care and the need of behavior changes on issues of construction and use of improved latrines, safe drinking water and proper hygiene.
- iii. To give them the required resources for community sensitization.

### **1.5 Role of animators**

- i. Informer - Deliver information that people need to know concerning disease transmission and prevention.
- ii. Educator - ensure that citizens understand concepts
- iii. Promoter (activist) - persuade individuals and communities to make choices and take actions to prevent diseases for better health

### **1.6 What you need to do as an animator**

- iv. Get acquainted with the necessary information on safe drinking water, hygiene and construction and use of improved latrines

- v. Follow up to facilitate behavior change
- vi. Carry out regular sensitization meetings
- vii. Play an active role in monitoring and evaluation
- viii. Report challenges that impede the progress of constructing improved latrines and hygiene practices in the community, and playing an active role in taking appropriate actions.
- ix. Use Information, Education and Communication materials and behavioral change messages during sensitization meetings
- x. Take up the interest and put on a smile because you are a change agent
- xi. Be prepared to take on challenges involved

### **1.7 Important operational tips**

- *Be ready*
- *Be proud of what you are doing*
- *Do your best transmit what you know to your subjects*
- *Offer to provide more if needs be*

### **6.8 Promotion activities**

Awareness creation through key hygiene and sanitation messages (hand washing with soap, safe drinking water, household water treatment and safe storage (HWTS) and latrine improvements/ construction in the community). Demonstration of water treatment methods, drinking water safe storage facilities and hand washing facilities (simple technologies). Key discussion points are on:

- 6.8.1 Issues related to open defecation and the communities perception on this and the presence of feces on the surrounding environment.

- 6.8.2 The role of open defecation on the contamination of water sources and spread of diseases in the community
- 6.8.3 Advantages of construction and use of latrines
- 6.8.4 Disadvantages of not having a latrine
- 6.8.5 Challenges of latrine construction and use. within the community
- 6.8.6 How to overcome challenges of construction and use of improved latrines
- 6.8.7 Disease prevention through proper disposal of human feces, hand washing with soap and drinking safe water
- 6.8.8 Follow up and monitoring
- 6.8.9 Sanitation marketing strategies for latrine promotion and behaviour change.




# MODULE TWO

## 7. FECAL-ORAL DISEASES

This module addresses on the risks and transmission of fecal-oral infections.


	<b>Total Duration: 60 minutes</b>
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	<b>Facilitator activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the module and explains the objectives</li></ul>	

### Materials

Picture/ drawings

Slides or flip chart

	<b>Learning objectives</b>
<p>Upon completion of this module, participants should be able to:</p> <ul style="list-style-type: none"><li>• aware of the fecal oral diseases within the community.</li><li>• able to discuss the transmission of fecal oral diseases within the community.</li><li>• able to discuss the various anal cleansing methods used in the community.</li><li>• able to explain the importance of washing hands at critical times.</li><li>• able to outline barriers against fecal-oral infections</li></ul>	



## Facilitator /Learner activities

- Facilitator introduces the topic and explains the objectives
- Facilitator will ask participants to explain existing defecation practices in the community
- Facilitator will ask participants to explain existing feces disposal practices and facilities available in the community
- Facilitator will ask participants to explain where feces defecated in the field/bush go during dry and rain season in their community
- Facilitator elaborate by showing pictures of defecation practices and ask participants to identify good and bad behaviours
- Participants to buzz on advantages and disadvantages of existing latrine types in their community.
- Participants to discuss on how open defecation and feces in the field can contaminate water sources
- Facilitator leads a detailed discussion of fecal-oral diseases afflicting humans, how are they transmitted and the risk behaviours.
- Facilitator emphasizes on the transmission of fecal-oral infections and their potential health risks.
- Participants should discuss and present in the plenary discussion while the facilitator highlights and re-emphasizes important points.

### **2.1 Fecal–Oral Route Transmission of Diseases**

Fecal–oral transmission of diseases occurs when protozoa, bacteria, viruses or intestinal worm eggs found in the stool of one person (or animal) are swallowed by another person. Undisposed fresh human and animal feces can be transported through various means and can be unintentionally

ingested by a human being as shown in Figure 1 below. Fecal material available in the environment is mainly transported by rain water into water sources during rains. Feces from one person can be transported by dirty hands to another person through hand shaking; eating food prepared by a person with dirty hands i.e. hands not washed with water and soap after visiting latrine or cleaning a defecated child. Feces transport from person to person through handshakes is quick and in a very short time large number of people can be having feces in their hands. When the person with feces on his/her hands, eats without washing hands, then he/she ingests his/her or others feces together with the food. Insects such as houseflies and cockroaches are transporters of feces which contaminate human food owing to their behavior of stepping on unattended or uncovered food stuff.

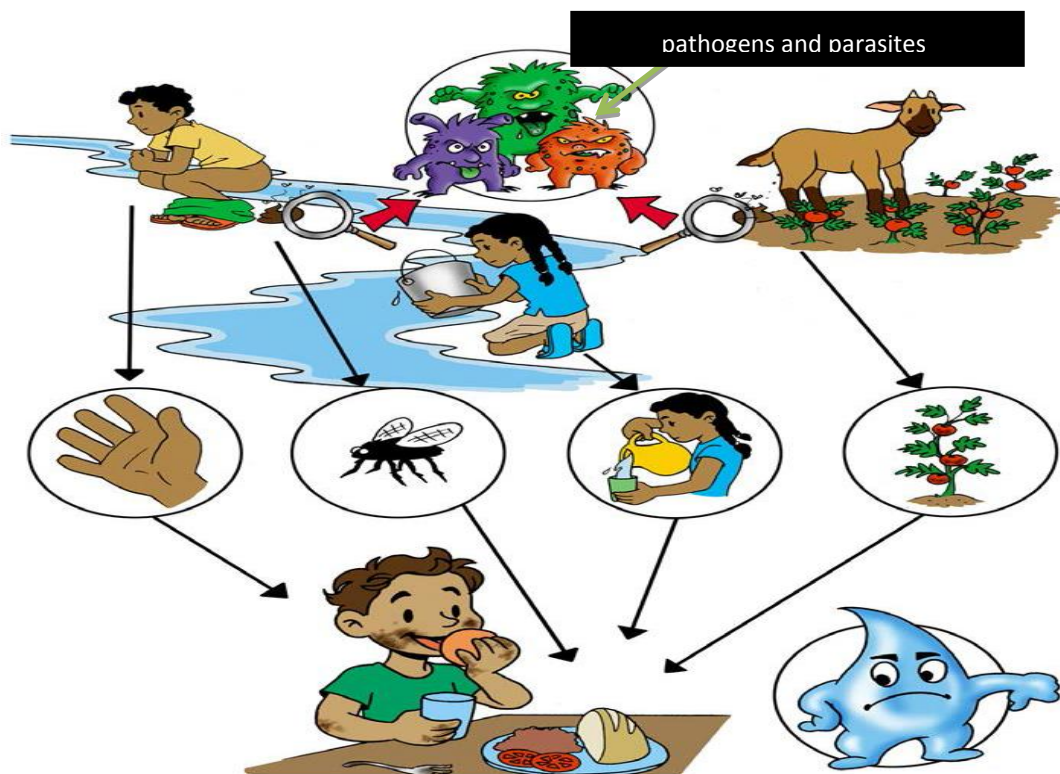


Figure 1: The diagram is copied from: A CAWST TRAINING MANUAL March 2009 Edition; it shows transmission of diseases from feces to human mouth.

### 2.1.1 Common infectious agents in infected human feces

Fecal-oral pathogens and parasites live in the large intestine; they travel in the feces of infected people, and can contaminate hands during improper anal cleansing, feces disposal, washed into water supplies in places where sanitation is poor. The pathogens and parasites can contaminate

fruits and vegetables grown in areas where human feces are used as fertilizer. They can be transferred on the dirty hands of infected people who don't wash their hands often or correctly.

- xix. ***Escherichia coli (E. coli)*** – *E. coli* bacteria normally live in the intestines of people and animals. Most *E. coli* are harmless and actually are an important part of a healthy human intestinal tract. However, some *E. coli* are pathogenic, they cause illness, either diarrhea or illness outside of the intestinal tract. Symptoms occur when *E. coli* bacteria enter the intestine. Most of the time symptoms develop 24 to 72 hours after being infected. The most common symptom is sudden, severe diarrhea that is often bloody. Other symptoms may include: fever, gas, loss of appetite, stomach cramping and vomiting (rare)
- xx. **Cholera bacteria** - It is caused by eating food or drinking water contaminated with a bacterium called *Vibrio cholerae*. Cholera is an infectious disease that causes severe watery diarrhea, which can lead to dehydration and even death if untreated.
- xxi. **Hepatitis A virus** – cause hepatitis (liver disease), it is rarely fatal, but it can cause debilitating symptoms and fulminant hepatitis (acute liver failure), which is associated with high mortality.
- xxii. **Polio virus** - Polio, or poliomyelitis, is a crippling and potentially deadly infectious disease. It is caused by the poliovirus that spreads from person to person and can invade an infected person's brain and spinal cord, causing paralysis. Paralysis is the most severe symptom associated with polio because it can lead to permanent disability and death.
- xxiii. **Giardia** - cause giardiasis: symptoms include weakness in the body loss of appetite, diarrhea, loose or watery stools, stomach cramps, upset stomach, vomiting, excessive stomach gas and burping.
- xxiv. **Amoeba** - amoebas cause gastrointestinal amebiasis. Once amoebas enter the mouth, they travel through the digestive system and settle in the large intestine. Harmless strains of the parasite (*Entamoeba dispar*) live there without causing damage. *Entamoeba histolytica* can live in the intestine without causing symptoms, but it also can cause severe disease. These amoebas may invade the wall of the intestine, leading to amoebic dysentery, an illness that causes intestinal ulcers, bleeding, increased mucus production

- and diarrhea. These amoebas also may pass into the bloodstream and travel to the liver or, infrequently, to the brain, where they form pockets of infection (abscesses).
- xxv. **Intestinal worm eggs and larva** - they are generally passed through human and animal feces. They spend part of their life in hosts that live in water before being passed on to people through the skin
  - xxvi. **Pinworms** - a helminth which is generally passed through human and animal feces
  - xxvii. **Salmonella** – cause salmonellosis, the infection is spread by eating food contaminated by feces of an infected animal or person, or by drinking contaminated water. It can also be spread from person-to-person. Symptoms include sudden onset of fever, headache, diarrhea, stomach cramps, nausea and sometimes vomiting. Most of the time symptoms develop from 6 to 72 hours after becoming infected.
  - xxviii. **Tapeworms eggs** - are generally ingested through food, water or soil contaminated with human or animal (host) faeces. Once ingested, the larvae then develop into adult tapeworms in the intestines. The most common tapeworms in humans are the pork tapeworm (*Taenia solium*) and the beef tapeworm (*Taenia saginata*),
  - xxix. **Helicobacter pylori** - is a type of bacteria that causes infection in the stomach. The germs can enter the body and live in the digestive tract. After several years, they can cause sores called ulcers (peptic ulcers). It may be spread by unclean food and water.
  - xxx. **Shigella** – cause Shigellosis, the infection is caused by the bacterium passing from stools or soiled fingers of one person to the mouth of another person. This is due to inadequate basic hygiene and hand washing habits. The disease may also be acquired from eating contaminated food. Symptoms include diarrhea (often bloody), fever, and stomach cramps that start a day or two after exposure to the bacteria. Often the disease develops after 5 to 7 days after being infected
  - xxxi. **Rotavirus** – the infection caused by the virus is spread through contamination of hands, objects, food or water with infected feces. Symptoms include vomiting, fever and watery diarrhoea. The onset of the disease is sudden and the symptoms last for 3 to 7 days.
  - xxxii. **Skin diseases** = (“*lume*”: in kisukuma language, a fungal skin disease due to walking bare foot and stepping on a damp surface infected by fecal matter).

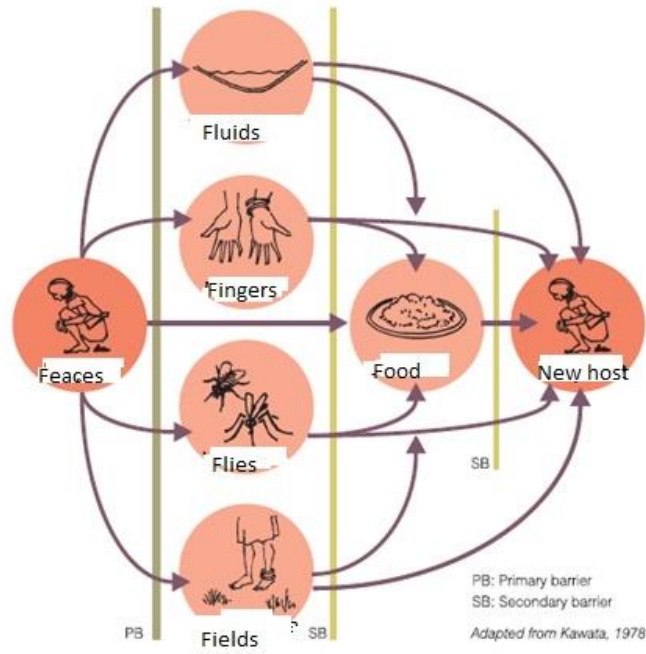
- xxxiii. **Eye disease** called conjunctivitis is caused by virus and bacteria. Both can be prevented by proper hygiene.
- xxxiv. **Trachoma** – is caused by a bacterium *Chlamydia trachomatis*. The disease can spread easily through direct personal contact, shared towels and cloths, and flies that have come in contact with the eyes or nose of an infected person. If not treated, repeated trachoma infections can cause severe scarring of the inside of the eyelid and can cause the eyelashes to scratch the cornea leading to a permanent damage which can lead to irreversible blindness. Trachoma usually spreads in areas with inadequate access to water and sanitation.
- xxxv. **Bilharzia** – also known as Schistosomiasis, in humans is caused by 3 species of flatworms, namely; *Schistosoma haematobium*, *Schistosoma japonicum*, and *Schistosoma mansoni*. Infection occurs when a free-swimming larvae penetrates the human skin. The larvae develop into fresh-water snails. Humans are infected when they enter water that has the larvae for domestic, occupational and recreational purposes. The larvae penetrate the skin and transform and are carried by the blood to the veins draining the intestines or the bladder where they mature, mate and produce eggs. Eggs cause damage to various tissues, particularly the bladder and liver. The reaction to the eggs in tissues causes inflammation and disease. When infected humans excrete parasite eggs through feces or urine into water, the eggs hatch releasing larvae that in turn infect aquatic snails. In the snail the parasite transforms and divides into second-generation larvae which are released into fresh water ready for human re infection.
- xxxvi. **Typhoid fever** - is caused by a bacterium called *Salmonella typhi*. The disease is highly contagious, an infected person can pass the bacteria out of their body in their feces. If someone else eats food that has been contaminated with the feces, they can become infected with the bacteria and develop typhoid fever. Symptoms include a high temperature that can reach 39-40°C (103-104°F), stomach pain , headache , constipation or diarrhea.

### 2.1.2 Learning activity 1

The trainees should mention the routes by which disease pathogens are transmitted from feces to human mouth. The learners should draw the road map from feces to human mouth. Ask the animators to list the places in their community whereby persons without access to latrines use for defecation. A follow up question is where do feces go during dry and rain season in their community. Ask animators to draw or write the different agents or pathways which bring feces into households. By using the items given below, animators should organize routes of transportation of feces to human mouth and the risks associated with ingesting fresh human feces.

- vi. Animals (chicken, rats, dogs, pigs)
- vii. Insects (houseflies, cockroaches)
- viii. Dirty hands (contaminated with disease pathogens from feces)
  - a. After defecation
  - b. After cleaning a children's/patients buttocks
  - c. After handling dirt
  - d. Hand washing in a communal pot
- ix. Drinking unsafe water
  - a. Contaminated water (with disease pathogens from feces)
  - b. Untreated water
  - c. Unsafe stored water
- x. Walking bare foot
  - a. Intestinal worms
  - b. Bilharzia
  - c. Skin infections

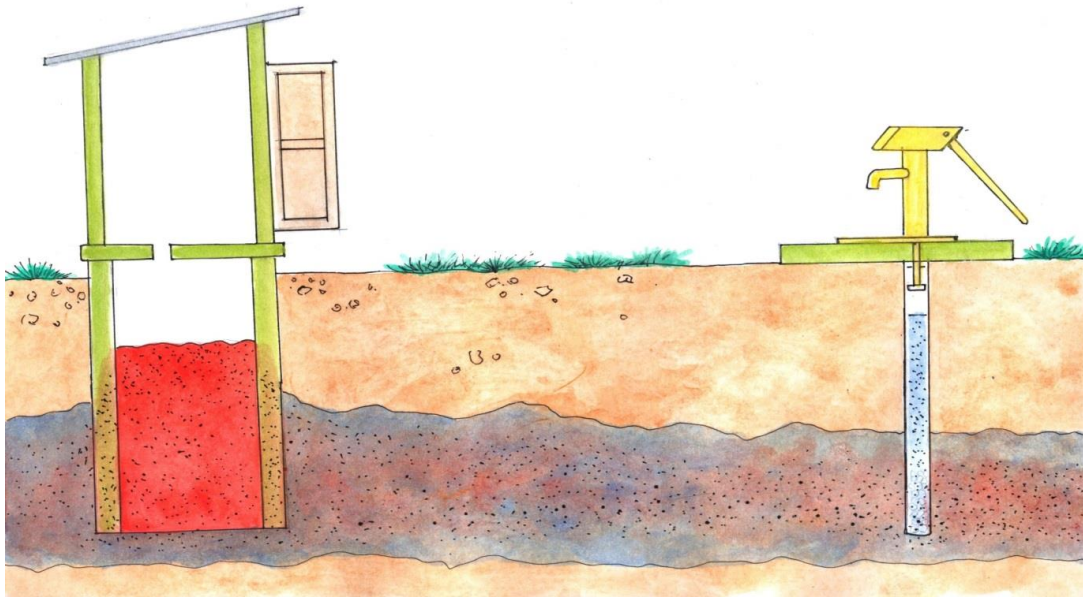
Figure 2: The diagram below summarizes the transmission of feces to human mouth



Transmission of disease from feces

### 2.1.3 Learning activity 2

The trainees should observe and discuss the scenarios depicted in the diagrams and determine the chances that disease pathogens are transmitted from feces to human mouth.

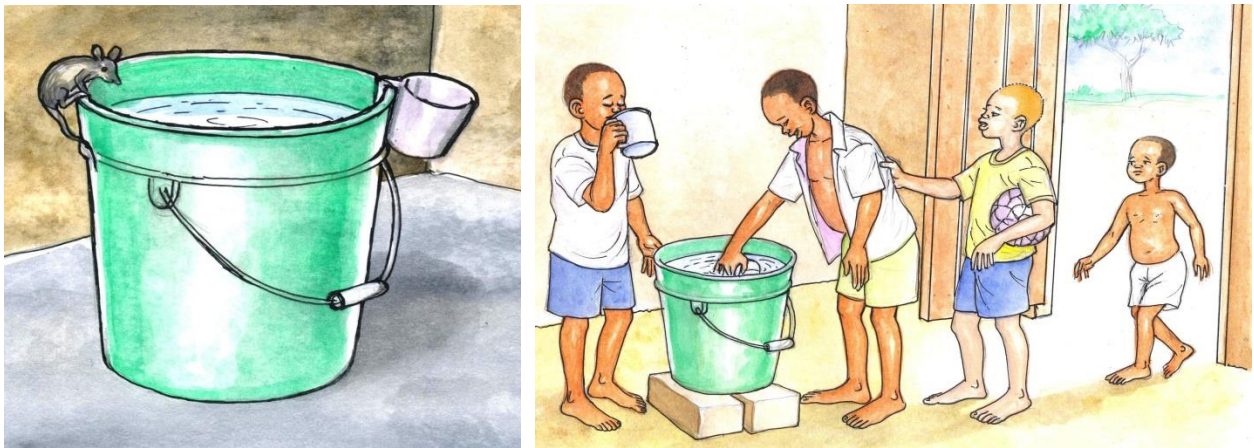




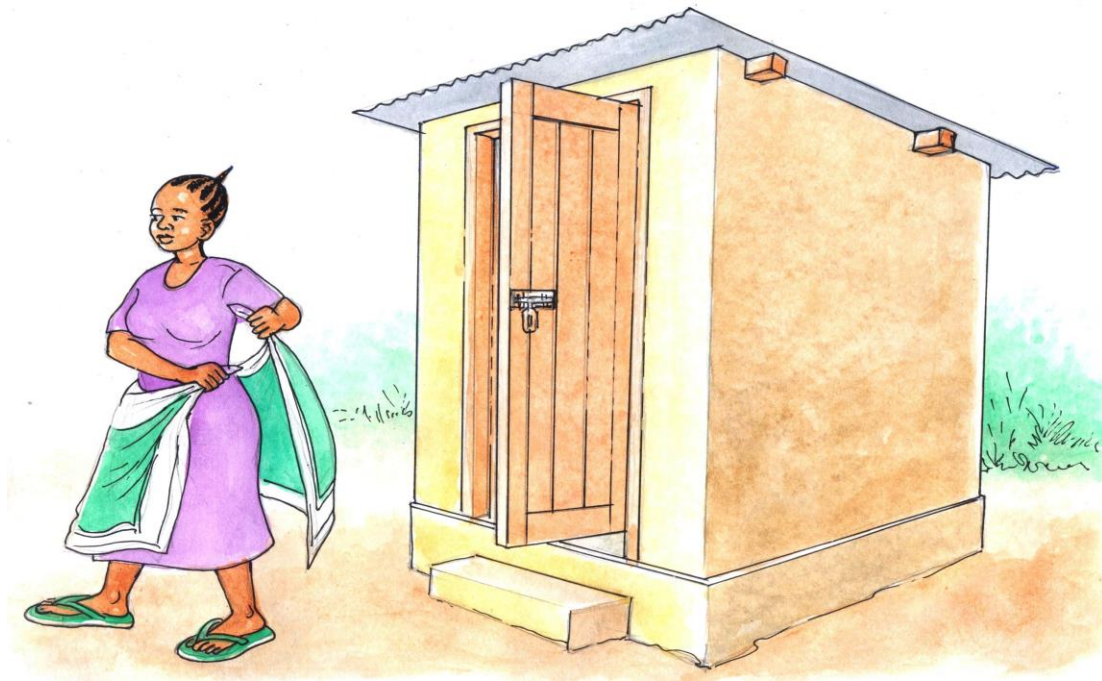
*Figure 3: Latrines that are constructed near water sources get contaminated by underground sewage that flows into ground water. Hence a well that has been constructed near a toilet its water gets contaminated with human feces*



*Figure 4: Human and animal activities (swimming, washing, urination, defecation etc.) contaminate water sources*



*Figure 5: Water can be re-contaminated after being treated; it can be re-contaminated by feces and other wastes from human hands, animals, flies etc.*

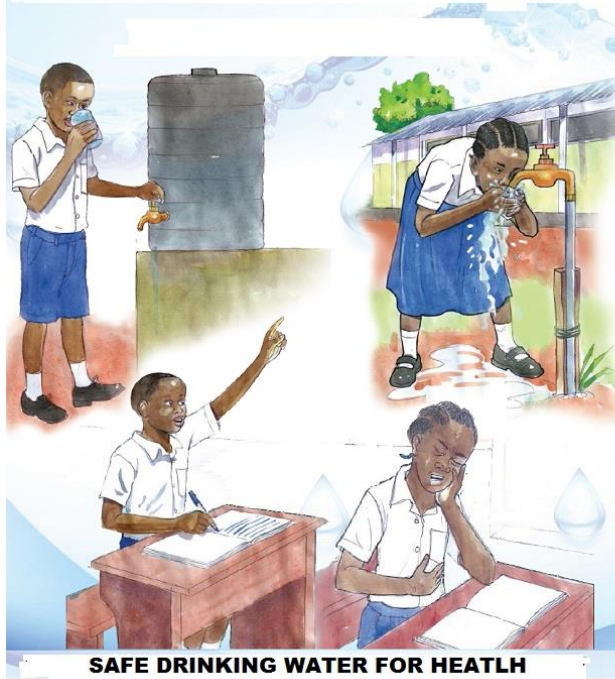


*Figure 6: Not washing hands after visiting latrine. Most of latrines in rural areas are not fitted with hand washing facilities.*



*Figure 7: Drawing of drinking water by dipping a cup into stored water allows contaminants from a cup and/or from the human hand to contaminate or re-contaminate drinking water.*

**UNSAFE DRINKING WATER LEADS TO DISEASES LIKE  
DIARRHOEA, TYPHOID FEVER AND INTESTINAL WORMS**



**SAFE DRINKING WATER FOR HEALTH**


*Figure 8: Safe drinking water*

# MODULE THREE

## 3. PREVENTION AND CONTROL OF FECAL-ORAL DISEASES

The module addresses the prevention and control of fecal-oral diseases.


	<b>Total Duration: 60 minutes</b>
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	<b>Facilitator activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the module and explains the objectives</li></ul>	

### Materials

Picture/ drawings

Slides or flip chart

	<b>Learning objectives</b>
<p>Upon completion of this module, participants should be able to:</p> <ul style="list-style-type: none"><li>• list fecal-oral diseases within their community.</li><li>• outline the transmission routes of fecal-oral diseases in their community.</li><li>• discuss the various methods used in the prevention and control of fecal-oral diseases.</li><li>• explain the health and socio-economic benefits of controlling fecal-oral infections</li></ul>	

in their community

- demonstrate how the disease barriers can applied at community level



### **Facilitator /Learner activities**

- Facilitator introduces the topic and explains the objectives
- Facilitator will ask participants to explain existing community practices on protection of water sources, hand washing, foot protection and defecation practices in the community
- Facilitator will ask participants to explain existing government and local government laws, bylaws and regulations on protection of water sources, hand washing, foot protection and defecation and particularly on safe disposal of human feces
- Facilitator will ask participants to explain existing community/village norms on protection of water sources, hand washing, foot protection and defecation practices
- Participants to buzz on advantages and disadvantages of of hand washing, wearing shoes, treating drinking water and using latrines in their community.
- Facilitator will ask participants to explain why some of the households in their community do not treat drinking water, do not wash hands at critical times, those who do not have latrines and those who do not use the latrines; what influences this behavior?
- Facilitator elaborates by showing pictures the advantages of using latrines, hand washing, treating drinking water, protecting the feet in the prevention and control of fecal-oral infections.
- Facilitator will ask participants to describe the available latrine options.
- Participants to discuss on how to eliminate open defecation in their community
- Participants should discuss and present in plenary discussion while the facilitator highlights and re-emphasizes important points.

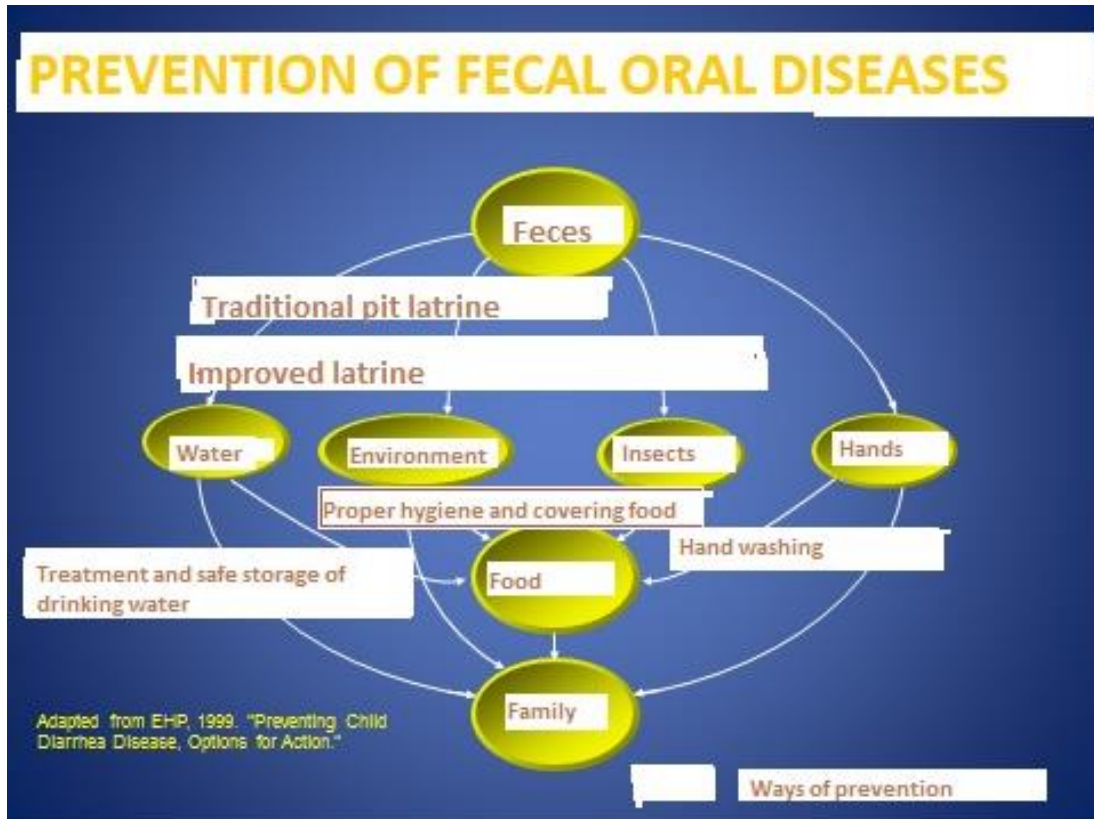
### 3.1 *How to prevent fecal oral diseases*

The trainees should identify means of preventing fecal oral diseases with regards to each of the below listed routes of transmission.

<b>Routes of transmission of fecal oral diseases</b>	<b>Prevention</b>
i. Animals (chickens, rats, dogs, pigs)	Treat drinking water, Safe storage of drinking water, covering food, safe disposal of children's/ patients feces
ii. Insects (houseflies, cockroaches)	Destroy breeding sites, construct healthy houses, proper waste disposal and proper hygiene
iii. Dirty hands (contaminated with disease pathogens from feces)	Hand washing with soap and water at critical times
a. After visiting the toilet	Tippy tap, sink or bucket with tap
b. After cleaning children's/patients buttocks	Tippy tap, sink or bucket with tap
c. After handling dirt	Hand washing before preparing food
d. Washing hands in a communal pot	Wash hands with flowing water and soap before meals
xi. Drinking unsafe water	Drink treated water
a. Contaminated with feces	Protecting water sources, safe transportation of water for domestic purposes and safe storage of water at home
b. Untreated drinking water	Treat drinking water at household level

- |      |                                  |   |
|------|----------------------------------|---|
| c.   | Unsafe storage of drinking water | Safe storage of drinking water at household level |
| xii. | Walking bare foot                | Wearing shoes                                     |

Figure 9: The diagram below summarizes on the prevention and control of fecal-oral diseases



### 3.2 Learning activity 3:

The trainees should discuss various methods which can help in the prevention and control of fecal-oral infections. The following ways to ensure proper hygiene acts as guides and they are intended to help animators to build cases on the proper methods of fecal-oral disease control.

1. Drinking water treatment methods (boiling, treating with Chlorine or "takasa maji <a disinfectant-flocculent> , using a pot filter)

2. Safe storage of drinking water (to prevent contamination of drinking water)
3. Use of latrine
4. Proper hand washing
5. Foot protection

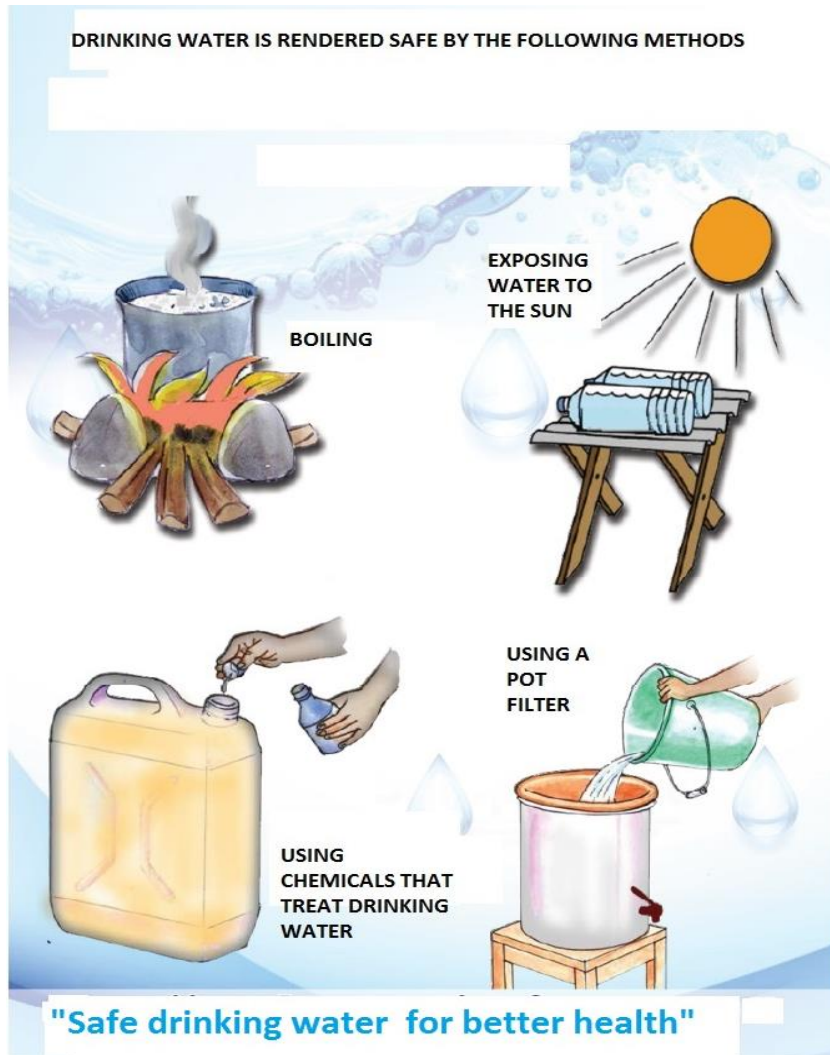


Figure 10: Ways to treat drinking water





Figure 11: Boiling as one of the drinking water treatment methods and safe storage in a container that has a narrow mouth, a cork and a lid

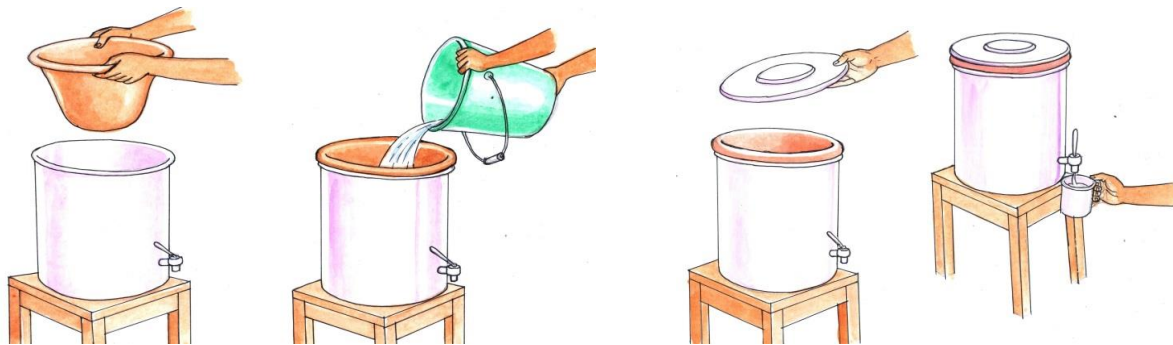


Figure 12: A pot filter is used to treat drinking water and the water is stored in a storage container that has a narrow mouth, a cork and a lid

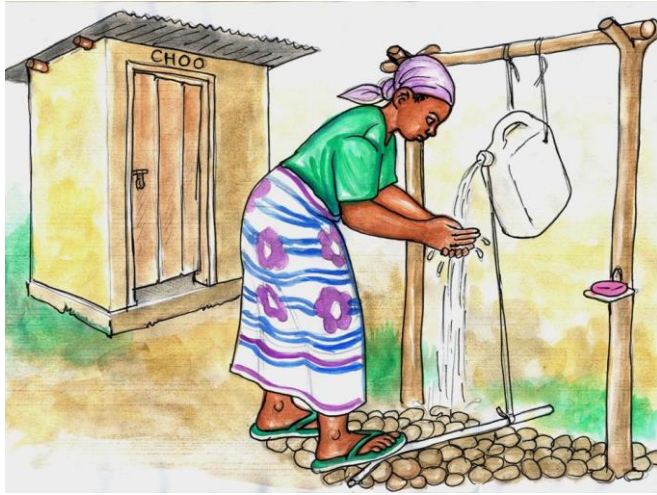


Figure 13: A safe storage container ensures that water is not contaminated by dipping the cup into the storage container

## SAFE STORAGE OF TREATED DRINKING WATER



*Figure 14: Safe storage containers*





*Figure 14: Proper hand washing with soap and flowing water after visiting the toilet*

# MODULE FOUR

## 4. CONSTRUCTION AND USE OF IMPROVED LATRINES

The module addresses the construction and use of improved latrines.

	<b>Total Duration: 60 minutes</b>
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	<b>Facilitator activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the module and explains the objectives</li></ul>	

### Materials

Picture/ drawings

Slides or flip chart

Visit latrines within the community

### Learning objectives



Upon completion of this module, participants should be able to:

- outline the latrine options within the community, the state of cleanliness and how are the latrines maintained
- identify the different types of latrine options.

- outline the advantage and disadvantage of each latrine option.
- outline the locally available materials for construction of improved latrines
- discuss the qualities of an improved latrine and community health relevance
- discuss how to regularly clean and maintain improved latrines
- explain on the health and socio-economic benefits of using a latrine



### **Facilitator /Learner activities**

- Facilitator introduces the topic and explains the objectives
- Facilitator will ask participants to explain existing latrine types in their community
- Facilitator will ask participants to explain the importance of using and maintaining latrines in their community
- Participants to buzz on construction costs, availability of constructions materials and available alternatives within their community.
- Facilitator will ask participants to identify the most preferred latrine option in their community and why?
- Facilitator elaborates by showing pictures of the different designs of improved latrine options.
- Facilitator elaborates by showing pictures of different types of improved latrine options suitable for different climatic conditions in rural areas.
- Participants to discuss on how to select and construct a latrine option in their community
- Facilitator emphasizes on the importance of constructing and the use of latrines in the prevention and control of fecal-oral infections.
- Participants should discuss and present in the plenary discussion while the facilitator highlights and re-emphasizes important points.

#### **4.1 *Disadvantages of a polluted environment***

- i. Participants should discuss pollution in general; the various ways by which water, air and land are contaminated; the disadvantages and consequences of pollution to human health.
- ii. Participants should discuss the social economic cost of fecal oral diseases

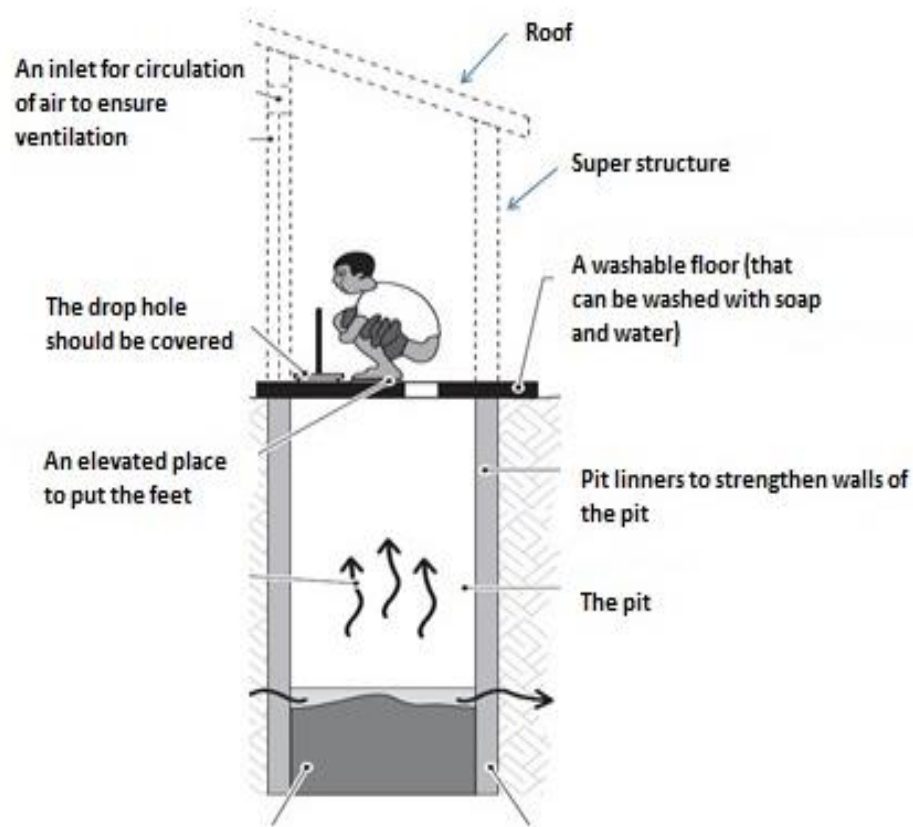
#### **4.2 *Advantages of environmental hygiene***

- i. Participants should discuss environmental hygiene, the importance and advantages of environmental hygiene to human health.
- ii. Participants should discuss and understand the importance of improved latrines
  - a) To prevent fecal oral diseases (diarrhoea, dysentery, typhoid, amoeba, intestinal worms, cholera, stomach ulcers, skin diseases, trachoma and other eye illnesses, polio, hepatitis etc)
  - b) For privacy
  - c) Decency

#### **4.3 *The Latrine concept***

When using a latrine human beings have privacy. The primary purpose of latrines is to isolate excrement in order to interrupt disease transmission routes. Human beings urinate and defecate daily. A latrine consists of the following parts;

- i. A pit for urine or feces storage
- ii. An impervious and washable floor e.g. Sanplat
- iii. A superstructures (for privacy and for safety and protection from wind, sun, rain etc)



*Figure 15: Parts of an improved latrine*

#### 4.3.1 Types of latrines

- i. **A traditional pit latrine** is a typically a hole dug in the ground, with a cover slab made of wood, mud overlaying the wood and a superstructure made from locally available materials. The pits are usually shallow, the superstructures are made of temporary materials and most of the latrines are not roofed, the slab is simply made of mud or wood floor, and a cover plate is not used. This type of latrine is inadequate and of poor quality.



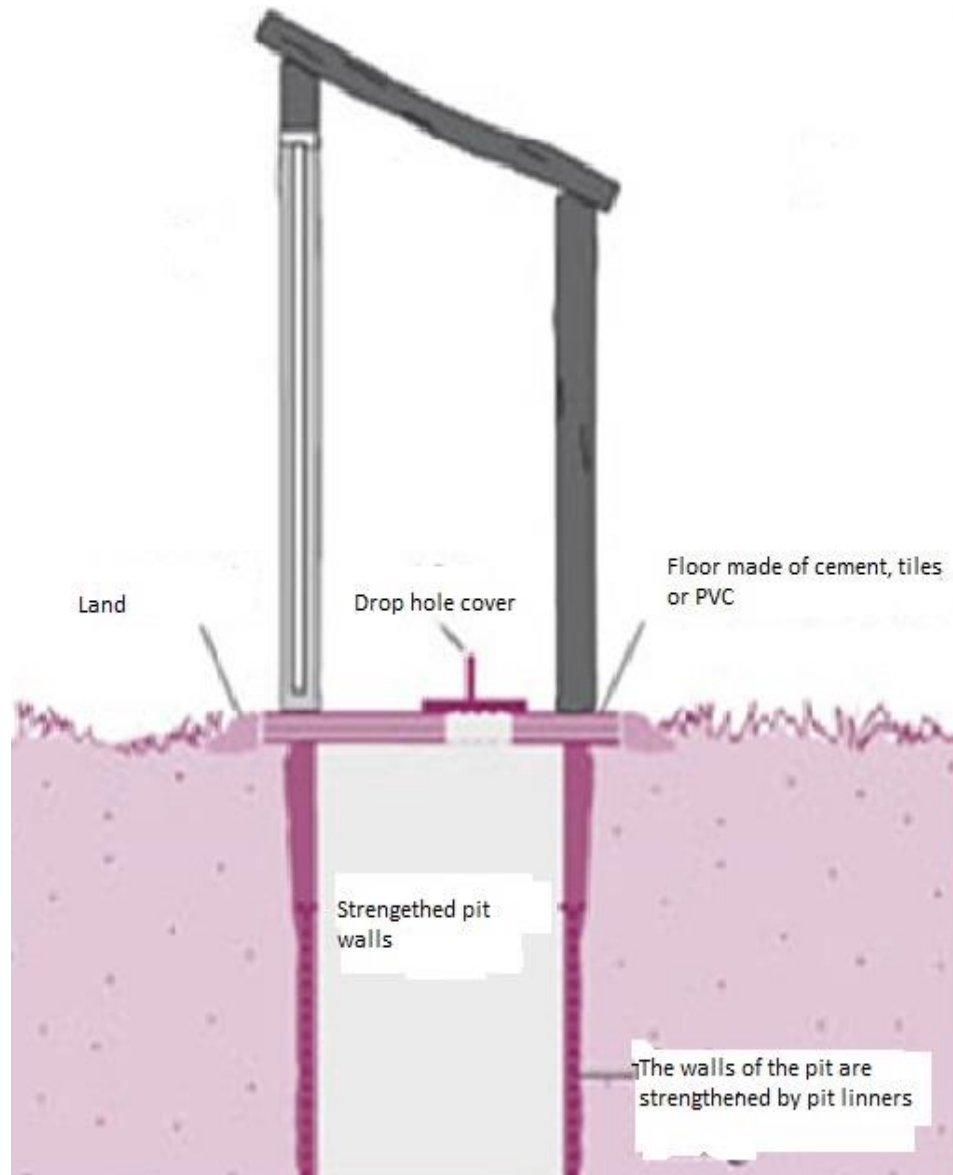
*Figure 16: Unimproved latrines. Photo's credit: Hamisi Malebo*

*Unimproved latrines are dangerous to human health due to the high risk of transmission of diarrhoea, typhoid, amoeba, intestinal worms, schistosomiasis, skin diseases and eye diseases.*

*Unimproved latrines are dangerous to human health due to the high risk of transmission of diarrhea, typhoid, amoeba, intestinal worms, schistosomiasis, skin diseases and eye diseases.*

ii **Improved traditional pit latrine:** Waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc), has a drop hole which is properly covered, it does not have a vent pipe, the super structure can be made of grass, stalks of maize, plastic tarp or bricks. This type is an improved latrine.





*Figure 17: An improved traditional pit latrine without a vent pipe*

iii. **Ventilated Improved Pit latrine (VIP):** Waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc), has a drop hole which is properly covered, it has a vent pipe, the super structure can be made of grass, stalks of maize, plastic tarp or bricks. This type is an improved latrine.

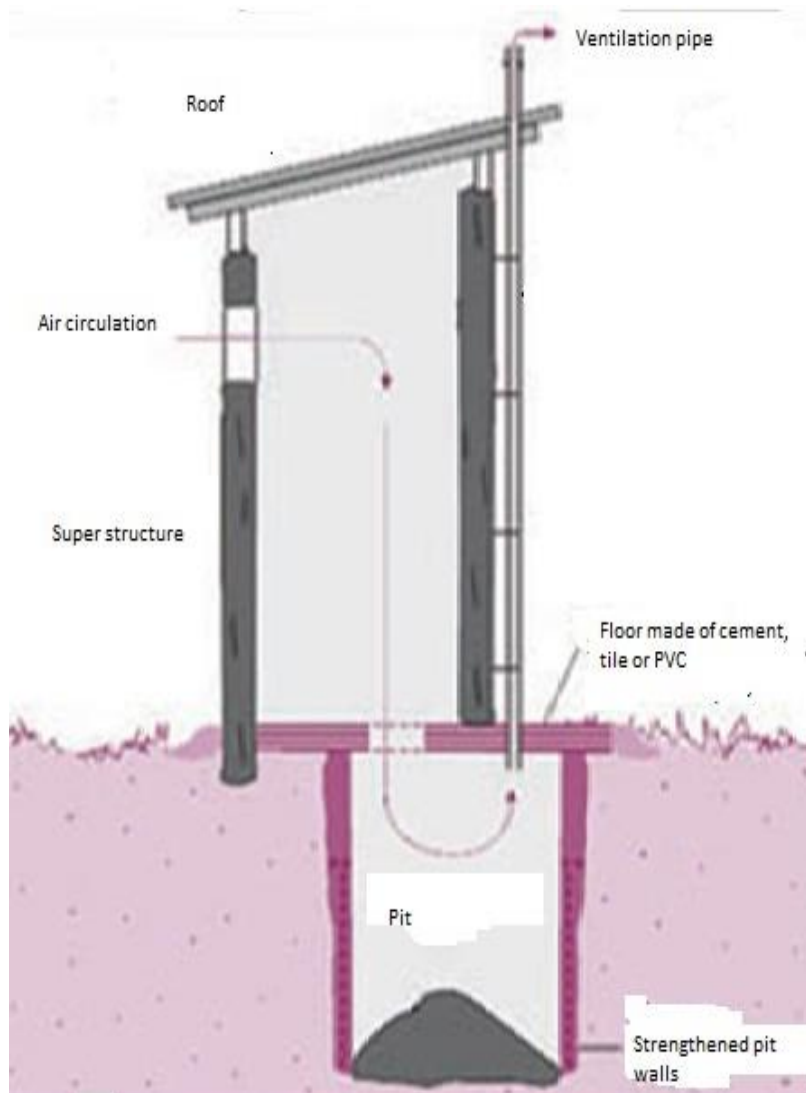


Figure 18: A ventilated improved latrine without a vent pipe

- iv. **Pour flush-direct to pit (PFDP):** Waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc), has a drop hole which is properly covered, it has a vent pipe, the pit is located directly below the pan, the super structure can be made of grass, stalks of maize, plastic tarp or bricks.

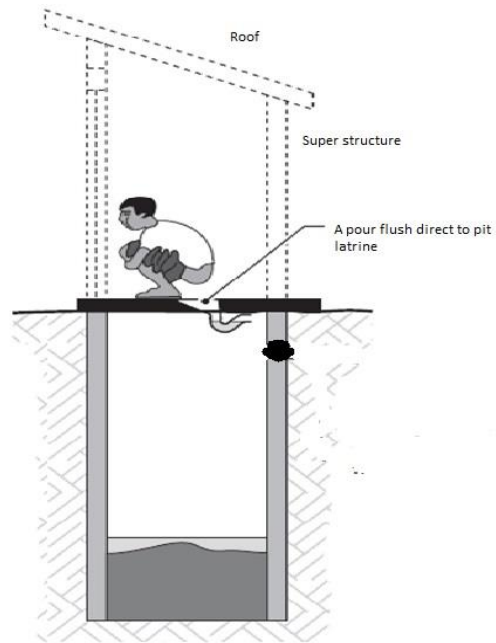


Figure 19: A pour flush-direct to pit latrine (PFDP)

- v. **Pour flush-offset pit (PFOP):** Waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc), has a drop hole which is properly covered, it has a vent pipe, the pit is located offsite, the super structure can be made of grass, stalks of maize, plastic tarp or bricks

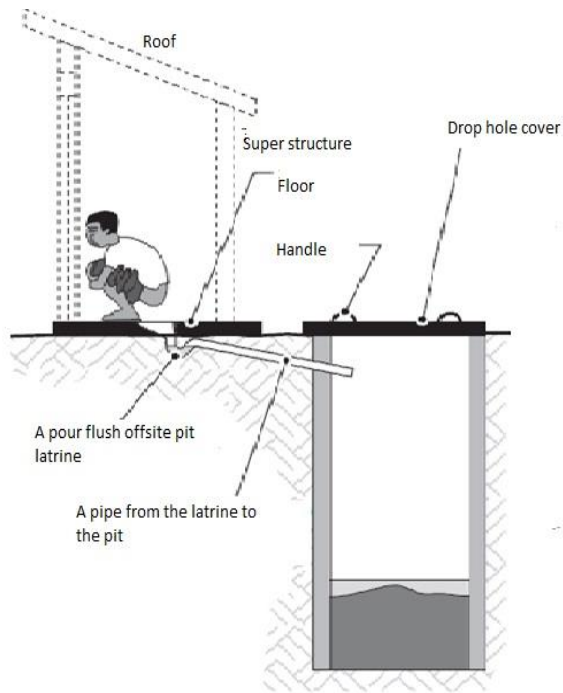


Figure 20: A pour flush-offsite pit latrine (PFOP)

- vi. **Water Closet (WC):** With a seat or squat plate, waterproof floor which can be cleaned using water and soap (floor made of cement/tiles/pvc), has a drop hole which is properly covered, it has a vent pipe, the pit is located offsite, the super structure can be made of grass, stalks of maize, plastic tarp or bricks.

#### 4.3.2 Construction of improved latrines

##### Types of floor slabs



Sungura slab



Msumbiji slab



*Figure 21: Katoma slab (innovated by NIMR in collaboration with artisan Trainer of Trainers and Katoma village artisans) contains urine within a small range and the urine drains back to the drop hole hence less smell and easy cleaning of the latrine. Photo credit: Yolanda Mbatia*

## Pit lining for stable pit walls

*Figure 22: The 3 ways of pit lining for stable pit walls*



Wattle cage with cement lining



Stabilized cement blocks  
Photo's credit: Sue Cavill



Trapezoidal bricks with dry bonding agent

## Qualities of the super structure of an improved latrine





*Figure 23: A permanent and durable super structure for privacy and protection from rain, sun, wind etc.  
Photo's credit: WaterAid*

# MODULE FIVE

## 5. HAND WASHING PRACTICES AND FACILITIES

The module addresses hand washing practices and facilities.



	<b>Total Duration: 60 minutes</b>
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	<b>Facilitator activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the module and explains the objectives</li></ul>	

### Materials

Picture/ drawings

Slides or flip chart

	
<b>Learning objectives</b>	
Upon completion of this module, participants should be able to:	
<ul style="list-style-type: none"><li>• state the importance of hand washing</li><li>• explain the steps involved in proper hand washing</li><li>• identify factors that impede proper hand washing</li></ul>	
	<b>Facilitator /Learner activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the topic and explains the objectives</li></ul>	

- Facilitator will discuss with participants when to wash hands (critical times to wash hands)
- Facilitator will discuss with participants the items needed for proper hand washing
- Facilitator will demonstrate how to wash hands properly with soap and water

## **5. HAND WASHING FACILITIES**

Hand washing facilities are very important in facilitating hygiene in the community.

- The hand washing facility should be near the latrine
- The size and ease of use of the facility should facilitate easy use by younger children
- Recontamination of fingers/hand may take place by retouching the tap with the fingers. Teach children to close the tap in a different way (e.g. using the back of the hand or the elbow), or by the use of alternative designs (automatically closing taps, constant flow, taps that can be manipulated by elbow).

### ***5.1 Advantages of proper hand washing***

- i. Participants should discuss the importance of proper hand washing with soap and water before meals, after visiting the toilet, before preparing food, after cleaning the babies' buttocks, after attending to a sick person etc, after handling dirt. Participants should be aware that dirty hands are one of the routes of disease transmission.
- ii. Participants' should discuss and be aware of the diseases transmitted through dirty hands (diarrhea, dysentery, typhoid, amoeba, intestinal worms, cholera, ulcers, etc)



- iii. Participants should discuss and be aware of the advantages of proper hand washing with soap and water. Protection against diseases like diarrhea, dysentery, typhoid, amoeba, intestinal worms, cholera, ulcers, etc.



*Figure 24: Latrines fitted with hand washing facility stands. Photo's credit: Yolanda Mbatia*




*Figure 25: A hand washing facility stand that has a bucket full of water and soap.*


*Photo credit: Hamisi Malebo*

# MODULE SIX

## 6. PUBLIC HEALTH EDUCATION

The module is about public health education.

	<b>Total Duration: 60 minutes</b>
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	<b>Facilitator activities</b>
<ul style="list-style-type: none"><li>• Facilitator introduces the module and explains the objectives</li></ul>	


### Materials

Picture/ drawings

Slides or flip chart

Visit water sources

Visit latrines within the community

	<b>Learning objectives</b>
<p>Upon completion of this module, participants should be able to:</p> <ul style="list-style-type: none"><li>• explain the relationship between the environment and water, sanitation and hygiene related diseases</li></ul>	

- identify challenges of ensuring a clean environment, safe drinking water, proper sanitation and hygiene within their community



### **Facilitator /Learner activities**

- Facilitator will discuss hygiene promotion messages and activities that address behaviours and misconceptions

## **6.1 GUIDELINES AND INSTRUCTIONS FOR HOUSEHOLDS**

1. Greetings
2. Introduce yourself and what will be discussed
3. Invite anyone from the Household (HH) who is interested in learning about drinking water and health to come have a discussion with you. Request to write down the names of all of the people who attend your discussion on your “HWTS Intro” sheet.
4. If they no longer wish to participate in the study, mark that on the sheet, thank them for their time and leave.
5. Discuss diarrhea and stomach problems
  - a. Interaction with HH
    - i. What is their experience? Their neighbours?
    - ii. What do they think is the cause?
6. What are the water sources?
  - a. Discuss source contamination, explain how contamination occurs.
    - i. Open source
    - ii. Open well
    - iii. Protected well
    - iv. borehole
7. Types of treatment available
  - a. PUR
  - b. Waterguard (liquid/tablets)

- c. Filter
  - d. Boiling
8. Discuss the ways of handling feces and wastes that could lead to disease transmission (human and animal feces, solid and liquid wastes)
9. Discuss the ill effects of surrounding environment being soiled with excreta due to the following practices.
- i. Open defecation within the community
  - ii. Inadequate latrine
  - iii. Improper disposal of children's feces
10. Discuss the types of improved latrines
- i. Improved pit latrine
  - ii. Ventilated improved pit latrine
  - iii. Pour flush-direct to pit
  - iv. Pour flush-offset pit
  - v. Water closet (W.C)

11. Safe storage of drinking water

Give an explanation of the importance of safe storage of drinking water and ways of storing water safely at household level (take into consideration the method used).

**“Store water safely in a clean environment”**

12. Personal and environmental hygiene when;

- a. Fetching water for domestic purposes
- b. Washing hands with soap and water
- c. Proper use of improved latrines and proper disposal of feces

**“Safe storage of drinking water for health”**

## REFERENCES

1. A CAWST Training Manual, March 2009 Edition
2. Behaviour Change Communication in Emergences: A Tool Kit
3. Preventing Child Diarrhoea Disease Options for Action, Environmental Health Project 1999