

Minimum Technical Guidelines for Household Latrines

Eugene Appiah-Effah

Kwabena Biritwum Nyarko

Godwin Armstrong Duku

Naziru Yakubu Azangbego

Ransford Aduafo Aggrey

Francis Kofi Nimo Nunoo



© Copyright 2019 UNICEF

Document Prepared by:

Prof. Kwabena Biritwum Nyarko (PhD) -Department of Civil Engineering, KNUST)

Eugene Appiah-Effah (PhD) Department of Civil Engineering, KNUST)

Mr. Godwin Armstrong Duku (Department of Civil Engineering, KNUST)

Mr. Naziru Yakubu Azangbego (Department of Civil Engineering, KNUST)

Mr. Ransford Aduafo Aggrey (Department of Civil Engineering, KNUST)

Mr. Francis K.N Nunoo (Department of Publishing Studies, KNUST)

To be cited as:

Eugene Appiah-Effah, Kwabena Biritwum Nyarko, Godwin Armstrong Duku, Naziru Yakubu Azangbego, Ransford Aduafo Aggrey and Francis Kofi Nimo Nunoo (2019). *Minimum Guidelines for Household Latrines*. Kumasi, Dept. of Civil Engineering, KNUST

Contents

1	Introduction	1
1.1	Background	1
1.2	Purpose of the Guide	2
1.3	Scope of this Document	2
1.4	Definition of Sanitation	3
2	Minimum Guidelines for Household Latrines	5
2.1	Household Latrine Standard 1: Adequacy and Sustainability	5
2.2	Household Latrine Standard 2: Access and Comfort	6
2.3	Household Latrine Standard 3: Health and Hygiene	6
2.4	Household Latrine Standard 4: Environmental Considerations	7
2.5	Household Latrine Standard 5: Treatment, Re-use and Safe Disposal	8
2.6	Household Latrine Standard 6: Financial Considerations	9
3	Special features for the Vulnerable Group	10
3.1	Access to Latrine	10
4	Design Criteria for Household Latrines	16
4.1	Sizing a Household Latrine Pit	17
4.2	Household Latrine Site Selection	18
4.3	Selection of Household Latrine Option	19
5	Service Levels for Basic Sanitation	21
5.1	Improved Toilets	21
5.2	Disposal of Anal Cleansing Material	21
5.3	Handwashing Facilities	22
6	General Excreta Management Guidelines	23
6.1	Environment free from human faeces	23

6.2	Appropriate and Adequate Toilet Facilities	24
6.3	Management and Maintenance of Excreta Collection, Transport, Disposal and Treatment	24
7	Roles and Responsibilities of Stakeholders	25
7.1	Environmental Health Officers	25
7.2	Works Departments	25
7.3	Private Sector and NGOs	26
8	References	27

List of Figures

Figure 1: Faecal-Oral Transmission Route	1
Figure 2: Latrine location plan	19

1 Introduction

1.1 Background

Safe disposal of human excreta is essential for ensuring a healthy environment and for protecting personal health. It creates the first barrier to excreta related disease, helping to reduce transmission through direct and indirect routes. Safe excreta disposal is therefore a major priority and should be addressed with a sense of urgency as the provision of safe water supply. The provision of appropriate facilities for defaecation is essential for people's dignity, safety, health and well-being.

There are several transmission routes by which faecal-oral pathogens can cause infection and illness including diarrhoea (See Figure 1). The number of sanitation related diseases is largely due to the complex and often inter-related nature of the transmission pathway. The use of an improved latrine and practise of good hygiene creates an effective barrier to faecal-oral transmission of pathogens as shown in Figure 1. A latrine is a safe and private place to be used for defecation.

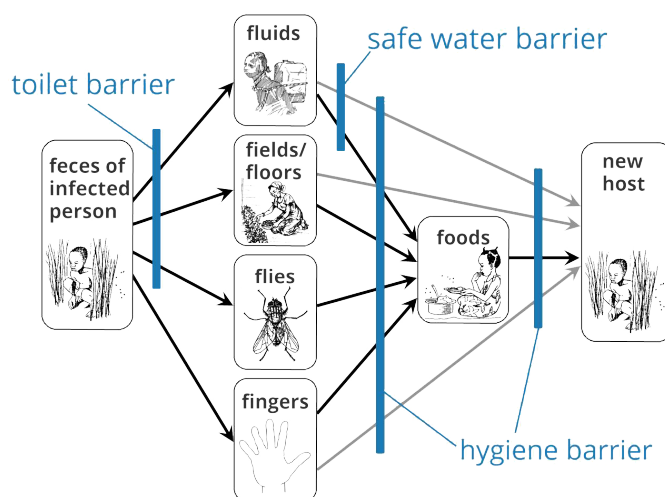


Figure 1: Faecal-Oral Transmission Route

Source: Water 1st International, 2015<?>

Bottlenecks to the attainment of sustainable access to improved sanitation are financial constraints, problematic terrain, inappropriate design standards and guidelines and socio-cultural setbacks etc. Latrine assessment for basic sanitation delivery under the UNICEF sanitation knowledge management initiative (SKMI) project revealed some technical challenges encountered by household during latrine construction. Some of the challenges included high water table, loose soils, rocky terrains and structural issues. The provision of an acceptable latrine construction guidelines and minimum standards for household latrine construction seem to be a major step to minimizing some of these challenges that households face (UNICEF Ghana, 2015)^{<?>}. This guide addresses these constraints and contribute to the construction of a standard improved latrine and ultimately in improving the sanitation coverage in the shortest possible time.

1.2 Purpose of the Guide

This document presents minimum technical guidelines for various latrine technologies accustomed to the Ghanaian situation with respect to addressing issues of hydro-geographical challenges (flood area; rocky soils; high groundwater tables), socio-cultural acceptance; and the existing local materials. The guidelines are therefore intended for practitioners, academicians, artisans, engineers, environmental health officers, water and sanitation planning units of district, municipal and metropolitan assemblies, households etc.

1.3 Scope of this Document

This document contains general minimum technical guidelines which will be applicable for household toilets in urban and rural areas in Ghana. The focus is on basic sanitation service delivery. The following are the key considerations in the determination of minimum standards and service levels: Adequacy and sustainability, Health and hygiene, Access and comfort, Environmental considerations, Treatment and Safe disposal and Financial considerations. The document also throws more light on design criteria for household latrines, service levels for basic sanitation, general excreta management guidelines and roles and responsibilities of WASH sector stakeholders. Service levels covers the key considerations in ensuring household toilets meet the required service delivery which are Improved toilets, Disposal of anal cleansing material, Handwashing with soap.

<?> UNICEFSKMI, Latrine Assessment for Basic Sanitation Delivery, Technology Assessment Report, 2015

1.4 Definition of Sanitation

Sanitation is defined as the provision of facilities and services for safe management and disposal of human urine and faeces.

The global definition based on the goals set requires that the following should form key components of sanitation:

- **Access:** Facilities should be close to home and can be easily reached and used when the need arises by all at all times.
- **Adequate:** A system which hygienically separates excreta from human contact as well as safe disposal of excreta in situ, or transport to a treatment plant
- **Equitable:** Implies progressive reduction and elimination of inequalities between population sub-groups
- **Hygiene:** The conditions and practices that help maintain health and prevent spread of diseases including hand washing, menstrual hygiene management and food hygiene
- **For All:** Suitable for use by men, women, girls and boys of all ages including people living with disabilities
- **Open Defecation:** Excreta of adults or children are: deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded
- **Needs of women and girls:** reducing the burden of water collection and enabling women and girls to manage sanitation and hygiene needs with dignity. Special attention should be given to the needs of women and girls in 'high use' settings such as schools and workplaces, and 'high risk' settings such as health care facilities and detention centres.
- **Those in vulnerable situations:** Implies attention to specific WASH needs found in 'special cases' including refugee camps, detention centres, mass gatherings and pilgrimages.

Available Latrine Technology Options

On-site sanitation can be defined as a system where human excreta are retained and treated on the site of defecation in a way that is hygienic and does not adversely affect the environment. Globally, about 2.7 billion people rely on onsite sanitation technologies. This number is expected to grow to 5 billion by 2030. Literature report a 65-100% access to onsite sanitation technologies in Sub-Saharan Africa, 65-100%. In Ghana, On-

Introduction

site sanitation systems are the predominant form of excreta disposal installations. This coverage far exceeds that connected by sewer systems. This is because these onsite technologies fulfill sanitation needs for both rural and urban areas,

These latrines are generally safe and provides a private place to be used for defecation. Dry pit latrines, ventilated improved pit latrines (VIP), Kumasi ventilated improved pit latrines (KVIP), urine diverting dry toilets, composting latrines, other eco-san latrines, pour-flush latrines (with single or twin pits), aqua privies, borehole latrines and water closet connected to septic tanks fall under on-site sanitation systems. Appropriate low cost on-site sanitation technologies which are affordable, hygienic, culturally acceptable, environmentally friendly and sustainable are the best option for rural areas in developing countries like Ghana.

2 Minimum Guidelines for Household Latrines

The basic minimum standards for the provision of household latrines is to ensure the **safe separation** of faeces from **human contact** and meet the six (6) key requirements;

- Adequacy and sustainability
- Access and comfort
- Health and hygiene
- Environmental considerations
- Treatment and Safe disposal.
- Financial considerations

2.1 Household Latrine Standard 1: Adequacy and Sustainability

To ensure adequate access and sustainable household toilet facilities, the following are required;

- Every household must have a toilet facility
- Household toilet should be designed for a maximum of ten (10) users per facility.
- There should be no queuing at the toilet, especially in the morning, when majority of household inhabitants want to use the facility.
- A minimum life of three (3) years should be used for the design of toilet facility.
- Household toilet facilities should have permanent superstructures, however where households cannot afford a complete structure, a safe structure that provides adequate privacy must be provided.

- Identify and plan for maintenance and replacement of latrines at the planning and construction stage since it is a critical factor for the sustainability of the facility.
- Monitoring should be continued after the latrines are in place.
- Users of latrines should be educated on the use, maintenance and hygiene practices

2.2 Household Latrine Standard 2: Access and Comfort

- Toilets must be located such that there is easy and safe access to the facility regardless of the period of the day (night and day) all year round.
- The maximum distance a toilet should be located from a household should not exceed 30 meters. This is to ensure that as much as possible all users can have access especially at night.
- The toilet facility must provide the following:
 - o Ensure privacy for all categories of users
 - o Ensure safety and security of users
 - o Provide shelter from the elements (sun, rain and strong wind)
 - o Clear access all year round (clear weeds and shrubs regularly to minimize hazards and dangers such as snake bites, sexual assaults etc.)
- Each toilet must be adapted to the needs of each of the specific users. In the situation where there are people living with disabilities, provision shall be made in the design and construction of the toilet to meet their specific needs. Guard rails, sitting units and doors which open outwards are some key features that must be considered for the toilet to ensure inclusive access.

2.3 Household Latrine Standard 3: Health and Hygiene

- The basic requirement of a toilet is to prevent access by all vectors, especially flies to faeces. Every toilet must satisfy this key provision to qualify for a safe toilet. This is key in ensuring the expected health benefits of improved sanitation. Various measures that prevent access by flies and other vectors include the following among others:
 - o A water-seal
 - o Vent pipes

- o Covering of squat hole.
- Additionally, the floor of the privy room must be impervious. The floor must be such that it can be easily cleaned with water and soap. This is important for the management of soil transmitted helminths.
- All toilets must be equipped with a handwashing facility. An acceptable handwashing facility is defined as *“a fixed or movable device to contain, transport or regulate the flow of water, with soap and water near the sanitation facility.”*

2.4 Household Latrine Standard 4: Environmental Considerations

Latrines must be located and constructed such that the toilet does not impact negatively on the environment. The following must therefore be considered

- Soil conditions
 - o The soil should act both as a seepage system for the liquid and also as a filtering media for the removal of pathogens.
 - o The soil absorption system should also allow for minimum liquid residence time before it reaches a water source. In well consolidated and aggregated fine sand and clay, a vertical layer of about 0.7m would trap most pathogenic microorganisms.
 - o If there is doubt of the possibility of pollution of the ground water, the pits must be made water tight.
 - o A minimum 0.7m vertical layer should be secured between the bottom of the pit and ground water level in these types of soils.
- Contamination of ground water:
 - o Where there is an on-site water source such as a hand dug well or borehole, the toilet should be located downstream of the water source.
 - o On-site toilet facilities like pit latrines (simple pit latrine, VIP, Pour-flush) should be located at a minimum distance of at least 30m downstream of a hand dug well so that the pathogens are not able to travel to the water source and contaminate it
 - o Where the land area is limited and there is an existing water source, toilet options selected should be such that there is no leaching of wastewater into underground water.

- o In areas where the water table is high, the bottom of pits must be at least 2m above the water table. This is however dependent on the type of soil.
- o Where alternating pits or composting toilets are provided, the faeces must have human contact only when it is appropriately treated.
- o If soil strata is rocky but fissured or the soil is porous (coarse sand), a sand envelope should be provided around the pit. Otherwise faeces need to be composted in water tight sealed compartments.
- Flooding of latrines:
 - o Where the area gets water logged the platform and pits should be constructed slightly above the ground to create a mound around them.
- Emptying of pits
 - o Where vacuum trucks are to be used for emptying, the trucks should be appropriately registered by the local government body responsible for sanitation within the district or region and should be in good condition to prevent spillages. Regular training and medical check-ups must be provided for personnel operating such equipment as recommended in the National Environmental Sanitation Policy.

2.5 Household Latrine Standard 5: Treatment, Re-use and Safe Disposal

It is essential that excreta/faecal sludge are safely disposed or treated after emptying from toilet pits. The excreta/sludge can be transported to a central point for disposal/treatment or safely disposed onsite.

- Where tanks and pits have to be emptied, vacuum trucks should be available for emptying and transporting sludge to the designated treatment facility.
- Where excreta /sludge are disposed on-site, the pits must be securely covered when full.
- In highly dense areas, consideration should be given to Condominium sewerage systems. This must be based on water-based technologies like the water closet or pour flush and the following should be considered;
 - o Shallow sewer lines should be constructed to serve a cluster of houses of between 15 and 100. These houses should be connected to a central septic tank or small treatment unit.

- o Where toilets would require emptying, professionally trained personnel with the appropriate equipment for emptying a particular kind of toilet should be engaged. Where vacuum trucks are needed, they will be provided by the private sector for sludge disposal.
- o Each jurisdiction must have in place a treatment or disposal point. The treatment must meet international and/or national standards for disposal of excreta.
- o Where treatment does not meet the required standards, the district must put in measures to ensure that secondary treatment systems are put in place.
- o Districts that are close to each may collaborate to have a common treatment/disposal system.
- o Reuse options should be considered to gain the benefits of the resources from the waste. Re-use options for waste shall include co-composting with organic material, and making fuel, briquettes among others.

2.6 Household Latrine Standard 6: Financial Considerations

- Financial considerations are important in determining any technological solution for any intervention. All technological interventions have financial implications which become even more critical especially for low income households.
- Without compromising the basic and minimum requirement of health and environmental protection, and the engineering aspect, affordability of the system should be a priority for the school.
- The health and environmental considerations must be affordable for households to enable them construct the toilet facilities.
- The operation and maintenance requirements and its attendant costs for different toilet options should be available when choices are to be made.

3

Special features for the Vulnerable Group

With quite simple modifications, latrines can be made user-friendly for physically vulnerable people. These modifications can be made in

- Access to the latrine
- Internal support features

3.1 Access to Latrine

Accessible latrines should include the following features:

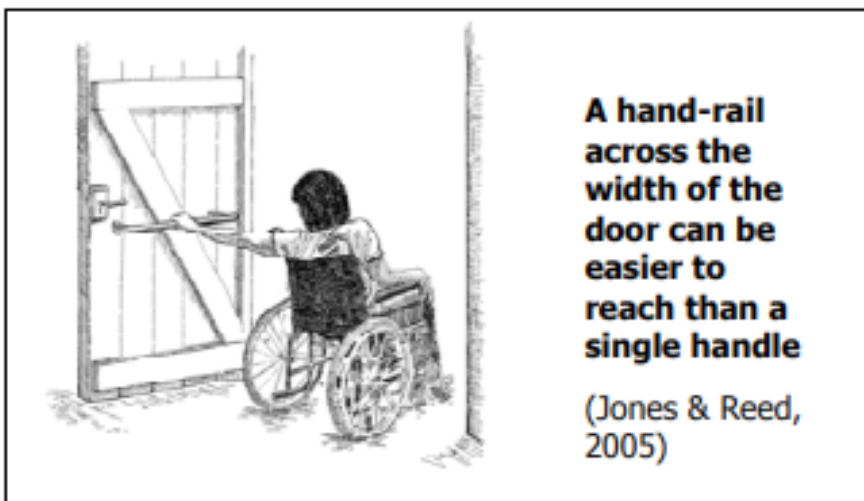
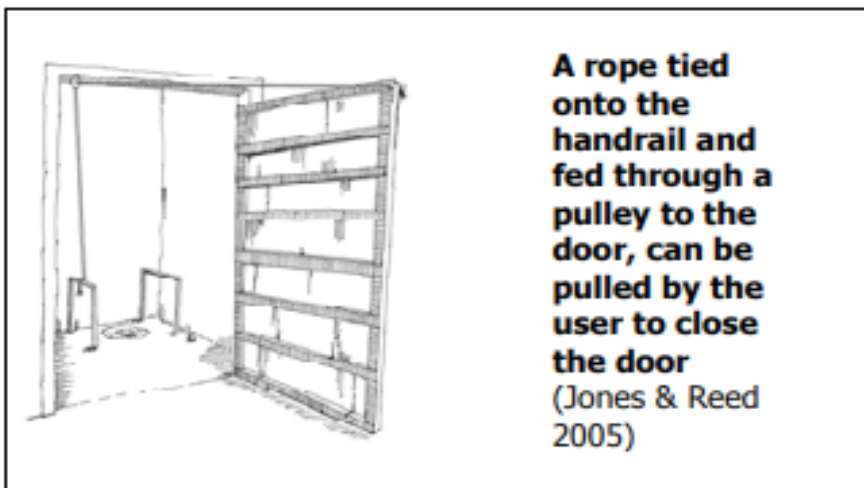
- Distances to facilities from the home or shelter of physically vulnerable persons should be minimized.
- Easy access to the latrine should be ensured via ramp which should ideally be <1 in 15 gradient and a minimum of 1.5m wide for a communal ramp.
- The entrance area to the latrine should be large enough to allow a wheelchair user to maneuver.
- Ensure that the door can be opened and closed by the user when the user is inside the latrine
- Additional space should be provided inside to maneuver a wheelchair or for a carer to stand.
- Some form of handrail or rope for support when moving to and from the seat.

Ramps



Door

- The door should be a minimum of 80cm wide to provide clear space for wheelchair access
- The door should open from both ends
- Rails should be installed to make opening and closing easy



Size of the Privy Room

The more space that can be provided inside the unit the better. There should be enough space;

- To be able to shut the door when the user is inside.
- To manoeuvre a wheelchair and for the user to move from the wheelchair to the latrine hole or seat.
- For the carer to be able to assist where required.

- The exact internal dimensions required will depend on:
- The layout of the unit
- The position of the toilet pan in relation to the entrance,
- The functions of the privy room (those the privy room include a bath)

Internal support

There are two main forms of support that can be provided in the privy room for the physically challenged persons:

- By providing something to sit on
- By providing something to hold

Seats can either be fixed or moveable, and can be made from wood, metal, concrete and bamboo. Things to consider when designing a seat are outline below:

- It should be strong enough to support the person's weight.
- It should not be porous and should be easy to clean.
- It should not slip
- It should be positioned so that there is enough space for the user to manoeuvre from either standing position, or from sitting in a wheelchair onto the seat.
- The hole should be large enough to avoid soiling



Special features for the vulnerable group



- Handrails are used to help the user:
- move towards the entrance to the latrine
- enter the latrine
- move from the standing to squatting position (and vice versa),
- for added stability when squatting or sitting.
- Alternatives to handrails include:
- vertical poles
- rope suspended from a strong beam





4 Design Criteria for Household Latrines

When designing a latrine, it is recommended that local sludge accumulation rates as given in the table below are used. Where excrete are stored for short periods only, such as in double pit latrines or composting toilets, the reduction process may not be complete before the sludge is removed. In such cases it will be necessary to use higher sludge accumulation rates than indicated above. A 50% increase is tentatively suggested. The table below presents basic design criteria for design and construction of on-site household latrine.

Latrine Types	Latrine Technologies	Number of Users	Design Parameters	Standards
Household latrine	KVIP	10 persons per drop hole	Sludge Accumulation Rate	0.06m ³ /person/year (dry latrines)
	VIP			0.04m ³ /person/year (wet latrines)
	Pour-flush latrines		Desludging Frequency (T)	2 years
	UDDT		Depth of Pit (d)	2-3 m
	Composting Toilets		Free board	0.5m
	WC with Septic Tanks		Siting Distance from water sources	at least 30m down stream
	Biofil Toilet			at least 2m above water table
Institutional Latrines:		50 persons per drop hole		

Sources (CWSA, 2010)(WEDC, 2014)(Sphere Association, 2018).

(?) Ghana community Water and Sanitation Agency (2010). Sector Guidelines-General (Rural Community and Small Towns) Volume III

4.1 Sizing a Household Latrine Pit

To determine the depth of pit required, the total number of people who will use the facility and the desired operation period is needed. Table 1 below indicates various household sizes and based on the desired operation period presents minimum required depths. Pit volumes calculation presented in this manual/handbook is based on a household size of 6 people and design life of 5 years

Box 1. Calculating the depth of the pit

Sample Calculation for Sizing of latrine Pits

Solids accumulation

For a household of 6 persons, in one year, the volume of accumulated sludge (using sludge accumulation rate of 60litres /capita/year) = $6 \times 60 \text{ litres} = 360\text{litres} = 0.36 \text{ m}^3$

(This allows for materials used for anal cleansing; reduced aerobic and decomposition over the chosen 5-year operational period).

Using a basic internal pit area of 1.2 m wide x 2.15 m long = 2.58 m^2

Resulting depth of sludge = $(0.36 * 5) / 0.28 = 0.814 \text{ m}$

Free board

Additional safe space above solid and liquid below the slab; minimum free board = 0.3m

Total depth of pit = $0.814 + 0.3 = 1.1 \text{ m}$

Table 1: Various depths of latrine pit and corresponding Household sizes and operational periods

Number of Persons in Household	Operational Period (years)									
	1	2	3	4	5	6	7	8	9	10
4	0.4	0.5	0.6	0.7	0.8	1	1.1	1.2	1.3	1.4
5	0.4	0.6	0.7	0.8	1	1.1	1.2	1.4	1.5	1.7
6	0.5	0.6	0.8	1	1.1	1.3	1.4	1.6	1.8	2
7	0.5	0.7	0.9	1.1	1.2	1.4	1.6	1.8	2	2.2
8	0.5	0.7	1	1.2	1.4	1.6	1.8	2	2.3	2.5
9	0.5	0.8	1	1.3	1.5	1.8	2	2.3	2.5	2.8
10	0.6	0.8	1.1	1.4	1.7	1.9	2.2	2.5	2.7	3.1
11	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3	3.4
12	0.6	1	1.3	1.6	1.9	2.3	2.6	2.9	3.2	3.6
13-20	0.73 - 0.96	1.1 - 1.5	1.4 - 2.1	1.8 - 2.6	2.2 - 3.1	2.1 - 3.7	2.9 - 4.2	3.2 - 4.8	3.6 - 5.3	3.9 - 5.9
21-30	1.0 - 1.3	1.6 - 2.1	2.1 - 2.9	2.7 - 3.7	3.3 - 4.6	3.8 - 5.4	4.4 - 6.2	5.0 - 7.0	5.6 - 7.8	6.1 - 8.6

Depth of latrine pit has been calculated based on an area of 2.58 m². All dimensions are in metres(Source; Latrine Technology Manual, 2016)

4.2 Household Latrine Site Selection

Getting the location right is very important in ensuring the use of the facility, reducing risk to public health and nuisance to the environment. Right positioning of the facility away from adverse environmental conditions can enhance the operational life, e.g. positioning the toilet system outside the course of run-off can help prevent the effects of erosion that have been witnessed in some parts of Northern Ghana. In selecting a site for a latrine, the location of wells and surface water sources, for example ponds, swamps, creeks, rivers etc. must be clearly established. The location of food markets, kitchen, cook shops and restaurants must be clearly identified. The following guidelines as simplified in figure 2 below shall be used for the siting of latrines:

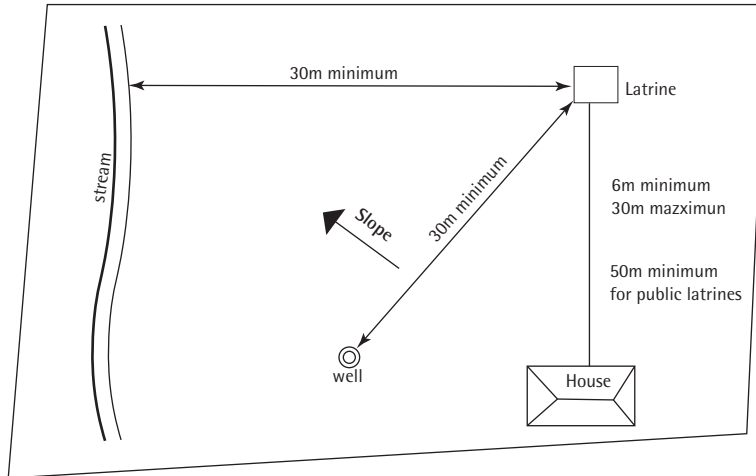


Figure 2: Latrine location plan

For wet latrines, hydrological expertise should be sought; and the following factors should be considered: -

- A latrine must not be located over a surface water body and should be at least 100 feet (30 m) from the edge of the flood plain of a surface water body.
- Public latrines shall be at least 50 meters from nearest residence or as far as practicable.
- Latrines shall be sited away from trees to prevent obstruction of vent pipes.
- Latrines shall be constructed with enough space for vehicle access and movement during desludging.
- In the selection of soil conditions on which to construct the latrines, avoid (if possible) rocky terrain, unstable ground conditions and depressions with shallow water table.
- Latrines shall be constructed with adequate drainage to ensure that rain water does not flood the pit.

4.3 Selection of Household Latrine Option

In selecting a household latrine, households should mainly look out for availability of water and a proper method of disposal of faecal matter. Basic indicators for assessing the performance of the latrine such as reduction of smells and flies, requirement of water for flushing, appropriateness for various methods of anal cleansing, affordability and the

possibility of converting human excreta into organic fertilizer for small scale agricultural should be considered. A household latrine to be selected for implementation should therefore be checked against the following basic requirements;

- It should be simple in design, construction, operation and maintenance.
- Local and semi-skilled persons should be able to construct it.
- It should be affordable by the household
- It should allow as much as possible the use of locally available materials that will not negatively impact the environment.
- It should be hygienic (free from bad smell, inaccessible to insects, flies and animals) and should not contaminate ground water.
- It should ensure safe disposal of excreta.
- It should be culturally acceptable to the users and allow regular service without interruption.
- It should not deprive minimum safety and privacy to the users, and it should have the following basic components:
 - o A platform in which the user can defecate easily and safely. The platform may have a squatting pan or a simple drop hole or a straight pipe.
 - o A superstructure to provide privacy and protection against rain, wind and sun.
 - o A substructure for storage and disposal of excreta, and
 - o An arrangement for prevention of odour like water seal and vent pipe.
 - o The latrine slab should have a handle to facilitate lifting for emptying the latrine pit or for relocation.
- It should be close to a hand washing facility for hygiene promotion

5 Service Levels for Basic Sanitation

Basic sanitation is the lowest-cost technology ensuring hygienic excreta and sullage disposal and a clean and healthy living environment both at home and in the neighborhood of users. It involves the use of improved facilities that are not shared with other households. Access to basic sanitation includes safety and privacy in the use of facility.

5.1 Improved Toilets

The service levels for household toilets are inextricably linked with the toilet technology. The basic service level is to ensure separation of faeces from human contact. Therefore, an improved sanitation facility should hygienically separate excreta from human contact. Technology must ensure that flies and other animals can also not get in contact with faeces.

Each household should have a toilet for the use of members of the household only. To prevent the incidence of odours in privy rooms and the surroundings, vent pipes should be provided where necessary to take smell and gases away. The choice of squatting or sitting arrangements for a toilet should be available to suit the preferences of the users of the facility.

5.2 Disposal of Anal Cleansing Material

- The technology must be selected taking into consideration the type of anal cleansing materials used by the household. All technology choices must allow for anal cleansing material. The provision of containers for storage of used anal cleansing material should be avoided.
- For all technological options, it is essential that anal cleansing material is not exposed after use. Exposing anal cleansing material means houseflies can get in contact with excreta. The smell created by keeping anal cleansing material in a container in the cubicle can also make the toilets unattractive.

- Final disposal of the anal cleansing material poses a challenge since it will have to be burnt or buried, processes that create the possibility of contact with flies and vermin if not handled properly.

5.3 Handwashing Facilities

All toilets must have handwashing facilities. Each hand washing facility must be equipped with soap. Handwashing with soap is critical, especially after visiting a toilet. It is one of the most important actions that help achieve the health benefits of sanitation interventions by helping break the faecal-oral chain.

There are many reasons and opportunities for frequent hand washing:

- Handwashing directly after contact with faecal matter is most effective in reducing the faecal load in the domestic environment. This is best done inside the latrine before touching for example the door handle.
- Handwashing before preparing food is a good way of protecting your family.
- Handwashing before eating is a good way of protecting yourself, especially of not using cutlery. (Using clean cutlery and plates is obviously good.)
- Children's and especially babies' faeces are especially contagious, since their immunity system not yet is fully developed.
- Finger washing is more important than palms and backsides.
- Nails should be kept clean. (Short nails are easier to keep clean.)
- Breastfeeding is good, especially with clean hands and breast nipples.

6 General Excreta Management Guidelines

Safe excreta disposal is a major priority in protecting the health of the general public and should be addressed with as much speed and effort as the provision of a safe water supply. As earlier discussed, safe disposal of human excreta creates the first barrier to excreta-related disease, helping to reduce disease transmission through direct and indirect routes. Therefore, the provision of appropriate toilet facilities for defecation is and safe disposal of human excreta is essential for people's dignity, safety, health and well-being.

6.1 Environment free from human faeces

- The environment in general and specifically the habitat, food production areas, public centres and surroundings of drinking water sources should be free from human faecal contamination. All excreta should be safely contained onsite to avoid contamination of the natural, living, learning, working and communal environments
- All excreta containment systems, i.e. trench latrines, pit latrines and soakaway pits, should be at least 30 metres away from any groundwater source. The bottom of any latrine or soak-away pit should be at least 2metres above the water table.
- In flood or high-water table areas, appropriate measures should be taken to prevent the problem of faecal contamination of groundwater sources. It may be necessary to build elevated toilets or septic tanks to contain excreta and prevent it from contaminating the environment. It is also imperative that drainage or spillage from septic tanks does not contaminate surface water and/or groundwater sources.
- Toilets should be used in the most hygienic way possible and children's faeces should be disposed of immediately and hygienically as they are commonly more dangerous than those of adults. Parents and caregivers should be provided with information about safe disposal of infants' faeces, laundering practices and the use of nappies (diapers), potties or scoops for effectively managing safe disposal.

6.2 Appropriate and Adequate Toilet Facilities

People must have adequate, appropriate and acceptable toilet facilities, sufficiently close to their dwellings, to allow rapid, safe and secure access at all times, day and night.

Generally, toilets are adequate, appropriate and acceptable if they:

- are safe to use for all of the population, including children, older people, pregnant women and persons with disabilities;
- are located to minimize security threats to users, especially to women and girls and people with other specific protection concerns;
- are no more than 50 metres from dwellings;
- provide privacy in line with users' expectations;
- are easy to use and keep clean (generally, clean toilets are used more frequently);
- do not present a hazard to the environment;
- have adequate space for different users;
- have inside locks;
- are provided with easy access to water for handwashing, anal cleansing and flushing;
- allow for the dignified cleaning, drying and disposal of women's menstrual hygiene materials, and child and adult incontinence materials;
- minimize fly and mosquito breeding; and
- minimize smell.
- are provided with mechanisms for desludging, transport and appropriate disposal in the event that the toilets are full.

6.3 Management and Maintenance of Excreta Collection, Transport, Disposal and Treatment

Excreta management facilities, infrastructure and systems are safely managed and maintained to ensure service provision and minimum impact on the surrounding environment. Therefore, all human excreta should be disposed of in a manner safe to public health and the environment

7 Roles and Responsibilities of Stakeholders

Health and environmental considerations are key to ensure the overall health of households and communities at large and ensuring the environment is not contaminated by the toilets provided on-site and off-site if treatment systems are required. All sector stakeholders must play the relevant roles assigned to them to ensure the health benefits are maximised.

The relevant municipal and district roles and responsibilities need to be clearly defined to ensure disposal sites are well managed and there is regular monitoring of households to ensure the minimum guidelines are enforced for the health and well-being of the community and to ensure the environment is not polluted.

The municipal and district assemblies are also to ensure that appropriate technologies are available which potential households can aspire to build. The technical details, costs and O&M requirements should be available. Where possible models of toilet options should be available. The construction and O&M information and costs should be available to enable potential households to make a choice. The relevant personnel at the assembly from the works, environmental health, waste management etc. departments, should have adequate information and data for potential toilet owners.

7.1 Environmental Health Officers

Environmental Health Officers have the responsibility of ensuring households in their areas of jurisdiction have the appropriate health, hygiene and sanitation practices. The EHOs will be expected to inspect houses, provide advice on good sanitation and handwashing options. Where the need arises, EHOs will be required to ensure enforcement of sanitation laws, especially when it comes to constructing household toilets for each house.

7.2 Works Departments

Technical personnel in works departments are responsible for ensuring all structures constructed in their area of jurisdiction meet the basic construction and engineering requirements. The personnel have the duty to ensure toilets constructed are safe and meet the basic requirements.

7.3 Private Sector and NGOs

Private sector entities provide various services including construction of toilets. Trained artisans can provide the necessary support to households in the construction of toilets. Other private sector entities sell various components for different types of toilets. These include toilet slabs, toilet bowls, vent pipes, roofing materials, cement and other construction materials.

The private sector also has the responsibility for operating vacuum trucks which are used in desludging permanent pits and septic tanks when these get full. The vacuum trucks transport the sludge to the designated disposal or treatment points.

NGOs involved in WASH activities provide training and promotion for the delivery of household toilets. The NGOs can support with CLTS and with other activities in the promotion of WASH.

8 References

- EHSD (2010), National Environmental Sanitation Strategy and Action Plan (NESSAP) 2010-2015
- Community Water and Sanitation Agency (2010). Sector Guidelines-General (Rural Community and Small Towns) Volume III, Ghana
- MLGRD (2010), Environmental Sanitation Policy, Revised 2010
- MWRWH (2014)., Water Sector Strategic Development Plan 2012-2015, Sustainable Water and Basic Sanitation for All by 2025, Ministry of Water Resource Works and Housing March 2014
- Rebecca Scott and Brian Reed (2006). WELL Fact Sheet, Emptying Pit Latrines
- UNICEF SKMI, Latrine Assessment for Basic Sanitation Delivery, Technology Assessment Report, 2015
- Water 1st International, 2015 (Paths of disease Transmission)
- WHO/UNICEF (2017). Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines - Launch version. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), 2017. Retrieved from <https://washdata.org/report/jmp-2017-report-launch-version>
- Harvey, P (2007), Excreta Disposal in Emergency, An inter-agency manual.WEDC, Loughborough University, UK. <http://wedc.lboro.ac.uk/>
- Sphere Association (2018). The Sphere Handbook: Humanitarian Charter and MinimumStandards in Humanitarian Response, fourth edition, Geneva, Switzerland. <https://spherestandards.org/wp-content/uploads/Sphere-Handbook-2018-EN.pdf>
- The Sphere Project (2011). The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response, Third edition, Geneva, Switzerland. https://spherestandards.org/wpcontent/uploads/2018/06/Sphere_Handbook_2011_English.pdf
- Community Water and Sanitation Agency. (2010). *Small Towns Sector Guidelines* (Vol. III). Accra, Ghana.

References

WEDC. (2014). *Septic Tank and Aqua Privy Design*. (B. Reed, L. Medland, B. Reed, R. Shaw, & M. Smith, Eds.). Leicestershire, UK: WEDC, Loughborough University.