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Provision of Consultancy Services for Sanitation and Hygiene Promotion in Zambia

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SANITATION AND HYGIENE TECHNOLOGIES MASON & STAKEHOLDER TRAINING MANUAL (for District Workshops)



VOLUME 1. TRAINING MANUAL

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**Provision of Consultancy Services for
Sanitation and Hygiene Promotion in
Zambia**

Sanitation and Handwashing Technologies

Mason and Stakeholder Training Manual (for District Workshops)

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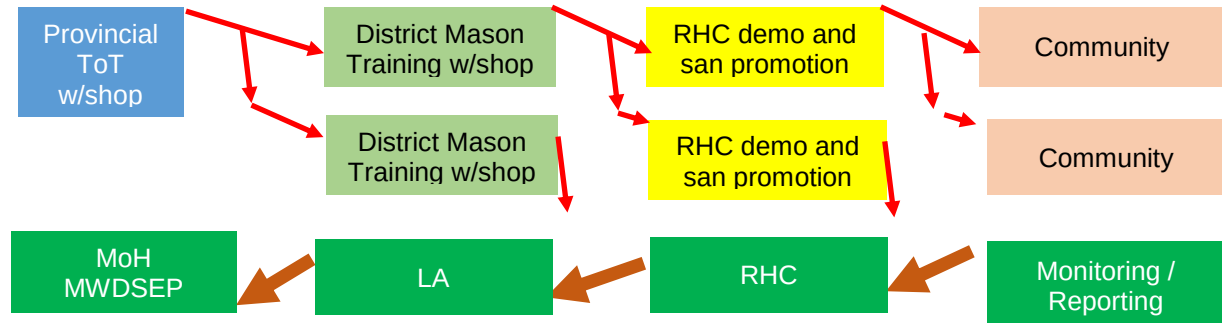
APM	Area Pump Minder
CC	Community Champion
CHA	Community Health Assistant (under RHC)
CHW	Community Health Worker (under RHC)
CLTS	Community Led Total Sanitation
cm	Centimeter (= 10mm or 0.01m)
CP	Cooperating Partner
DHO	District Health Office / Officer
DWA	Department of Water Affairs
D-WASHE	District Water Sanitation and Health Education (advisory action group)
EHT	Environmental Health Technician
NGO	Faith-Based Organisation
GRZ	Government of Republic of Zambia
HWF	Hand Washing Facility
IC	Implementing Consultant
IGA	Income Generating Activity
m	meter
MoE	Ministry of Education
MoH	Ministry of Health
MHM	Menstrual Hygiene Management
mm	millimeter
MCDSS	Ministry of Community Development and Social Services
MWDSEP	Ministry of Water Development Sanitation and Environmental Protection
NHC	Neighbourhood Health Committee (under RHC)
NGO	Non-Governmental Organisation
ODF	Open Defecation Free
O&M	Operation and Maintenance
OPM	Oxford Policy Management (SanMark Consultant, UK)
PIA	Project Implementing Agency
PIC	Project Implementing Consultant
PPE	Personal Protection Equipment
RHC	Rural Health Center (under MoH)
SAG	Sanitation Action Group (community level)
SLTS	School Led Total Sanitation
ToT	Trainer of Trainers
UNICEF	United Nations International Child Emergency Fund
VIP	Ventilated Improved Pit Latrine
VVL	Vented Vault Latrine
WASH	Water Sanitation and Health
WDC	Ward Development Committee
ZSHP	Zambia Sanitation and Hygiene Programme
ZMW	Zambia Kwacha (re-based)

TRAINING AND SANITATION PROMOTION CONCEPT GUIDELINES

The Cooperating Partners (CPs) will use this Manual to organise materials and train village builders and other stakeholders on the construction of 5 or so different toilet designs. A 6-day Training Workshop will be convened at a district RHC to train carefully selected trainees, “hands-on” the skills of toilet construction. With CP support, the graduating Masons will use the skills learnt to repeat at “demos” back in home territory in visible locations such as home RHC or, where agreed, at vulnerable community households within the RHC catchment. Visitors to the RHC will witness the designs when built or inspect them thereafter, suitably explained by RHC staff. The District Workshop will be repeated in all UNICEF focal districts.

The different designs use available local materials and are therefore low-cost and village-affordable. All give particular attention to sub-structure linings. Due to the lining, these toilets will last for 5-years or more and remove the need for annual toilet construction other than simple super-structure maintenance. Lined toilet designs are ideal for those rural communities which are plagued by difficult soil conditions, i.e. loose / collapsing, water-logged or rocky soils. All districts in Zambia have villages with these soil types which promulgate premature toilet collapse (some areas more than others) and it is these which have to be focused and targeted in particular. The CP needs to research the district soil conditions prior to the workshop such that participant builders are sourced from the problematic areas. Staff from DWA or DHO are useful informants on soil conditions as well as traditional leaders and ward stakeholders.

Support in correctly building the designs can be found in this manual and the construction guides – which are available from the Implementing Consultant (IC) in 7 local languages. The IC can also participate in the Workshops via specific request through UNICEF. To kick-start the programme UNICEF are proposing to hold ToT Workshops at Provincial level, during which the CP will coordinate input of village builders, local stakeholders (RCH and traditional leaders) and practical people to be trained as ToTs. These ToTs will then help spearhead the subsequent district and sub-district workshops and thereafter the demo events. The IC will be available for all such Provincial ToT workshops.



When the graduate Masons are building demos back at their local RHC there will be a parallel mini-workshop organized by the CP which brings together the local stakeholders to orientate “Agents” in sanitation promotion and marketing activities. The local stakeholders will be RHC staff, Chiefs representatives and other proactive ward stakeholders. The marketing agents will be CHAs, CHWs, NHCs, CCs, SAGs and Masons. All stakeholders and Agents will aim to support Mason activity

Community mobilisation on sanitation is more cost-effective than individual household efforts and in areas prone to collapsing toilets it is a recommended approach. This might consist of community brick manufacture, mass pole and grass sourcing, pit-digging, etc. It is essential that traditional leadership fully engage and encourage these communities, linking in the Masons in intensive lined-toilet construction.

As can be seen, the RHC and Traditional Leadership role in community health, hygiene and sanitation is pivotal. For this reason some representatives from targeted RHCs (that report problem soils) are selected to participate at the principal district Mason Training Workshop.

Reporting the productivity of the Masons also has to be overseen / initiated by the CP using existing district and sub-district reporting channels. SAGs and CCs already report CLTS activity to the RHCs and the procedure and formwork should be adapted to also report Mason activity.

1 INTRODUCTION

The Zambian Government through MWDSEP and Cooperating Partners has been implementing the ZHSP with the aim of making Zambia ODF (Open Defecation Free) by 2030. Using multiple approaches (CLTS, SLTS and Legal Enforcement) much success has been scored with thousands of villages, within multiple chiefdoms plus some entire districts becoming ODF. Since ODF achievement, slippage has occurred in many villages where the traditional, unlined toilet design has tended to collapse where soils are unstable and eroded by rainfall, flood run-off or seasonal water table rise. Failure of toilet platform logs due to rot or insect activity also contributes. Non-availability of more durable, low-cost designs and skilled builders are seen as the main challenges faced by the rural people in their attempts to provide a sustainable household sanitation solution.

Oxford Policy Management (OPM) was contracted by UNICEF Zambia to conduct an assessment on sanitation and handwashing technologies in rural Zambia. Based on evidence of successes and lessons learnt from previous initiatives for active masons, as well as other stakeholders, this information has been used to develop practical guidance on sanitation marketing strategies to be further outlaid from 2021 onward (UNICEF, June 2021).

This production is the Workshop Mason and Stakeholder Training Manual to be used by the Cooperating Partners of UNICEF and MWDSEP at district-level as village builders are trained to build stronger, longer lasting and affordable toilets at homes in the rural districts. All trainings and outlays should be focused on those areas of the district where toilets have been collapsing prematurely due to poor soil stability, high water table and other factors. Some consideration can be given to areas where soils are generally stable but it will be beneficial to promote and build designs that combat issues such as insect activity or scarcity of local building materials.

To ensure maximum uptake, the designs are all affordable and built in the main with locally available materials. Most of the designs have already been piloted and fine-tuned whereas others, particularly for sandy, high water table areas need to be developed during the course of the planned district workshops.

The UNICEF supported focal districts are shown in Table 1.1. This manual is developed for these districts but remains valid for any other district under parallel sanitation marketing programs. For the UNICEF-supported program 22 workshops are planned (1 per district).

Table 1.1: UNICEF/GRZ Supported Districts (2020 – 2022)

No	Provinces	Districts
1	Eastern	Chipata, Lundazi
2	Luapula	Chiengi, Chifunbuli, Kawambwa, Lunga, Mwansabombwe, Mwense
3	Lusaka	Chongwe, Lusaka
4	Muchinga	Chinsali, Isoka, Mpika
5	Northwestern	Mwinilunga, Solwezi, Zambezi
6	Southern	Choma, Monze
7	Western	Kalabo, Kaoma, Mongu, Shangombo

The conducted workshop combines 1-day or classroom work and discussion with 4 ½ days of practical building of the recommended designs. The final half day is a wrap-up session, particularly to prepare after-training action-plans of the graduating Masons but also how they will be supported in marketing and building toilets in the district by key district stakeholders.

The suggested workshop itinerary is given in Annex A1. The developed designs are presented in the text below together with illustrating photo sets. More detailed construction guides are found in Volume 2. These guides also include some ideas on construction of low cost Hand Washing Facilities. The final two sections of this Manual cover Key Messaging and Sanitation Marketing.

Annex A2 suggests a topic list for mini-workshop briefing of local RHC level stakeholders and Agents regarding sanitation promotion and marketing – these being support for the trained Masons and aimed at creating sales.

Annex A3 presents a suggested format for graduate Masons to periodically report their activity in terms of sanitation promotion and toilets built.

To kick start the program a Provincial ToT workshop will be convened by UNICEF (refer to the Training and Sanitation Promotion Concept Guidelines provided on page iv). During this workshop the Cooperating Partner will be supported by a Facilitator and experienced supervisors (provided and resourced by the IC) as well as inputs from relevant provincial and district stakeholders.

Annex 4 provides some guidelines on assessing vulnerable persons in the rural context.

2 PARTICIPANT SELECTION BY THE STAKEHOLDERS

This time around, sanitation marketing is to be outlaid at RHC catchment level with strong support by the RHC (i.e. those embraced by the RHC: EHTs, CHAs, NHCs, CCs and others) as well as inputs from the traditional leadership and development committees.

Where possible, these stakeholders (RHCs, traditional leadership, WDCs) should be jointly involved in the selection process for participants of the district-level Mason training workshops, with aim to identify only motivated builder participants and to reduce the possibility of nepotism (which has a stagnating impact on outlay after the workshop). It lies with the Cooperating Partner to ensure that participant selection is well planned and delivered and this is only done when these stakeholders are engaged in good time and precisely briefed on criteria as outlined below.

The selection of suitable participants for these training workshops is important and previous experience has taught that those selected should already have good experience as local builders. This will ensure, with strong probability that they will continue to earn a living from construction of (better) toilets after the workshop.

For builders that already have experience in sanitation promotion, as a Community Champion for example, then this is seen as a bonus but equally a Community Champion who has no track record as a builder may not perform. Selection may also consider existing service providers such as Area Pump Minders as adding sanitation to their services would widen their income base. Again they should have building experience or be highly motivated in such a direction.

As well as building skills at least one participant should have strong thatching skills. Toilets durability is also linked to how well the toilet has been thatched and protected from rainfall. This can only be addressed properly at the training workshop if there is a builder-thatcher present.

Other than an existing track record of toilet building, the participants should also have strong communication skills and be able to influence customers in their decision making (i.e. innate marketing skills). They should also all have a respected standing in their community.

At least two local builder participants per targeted RHC are recommended, but this may vary according to need and available resources. As can be surmised there is one workshop per district planned and the number of potential participants will usually be far greater than the places available. In such instance it is extremely important that participants are targeted from areas where toilet construction is known to be plagued by issues such as annually collapsing toilets, loose / difficult soils, high water table, etc. This program specifically targets these problem areas with the prime objective to motivate communities therein to acquire a sustaining ODF status through building of better toilets.

Lastly, as food-for-thought, these targeted areas often have householders experiencing the same problem with their toilets, i.e rainy season collapse. The opportunity therefore exists for the stakeholders to mobilize pooled community responses (labour, skills, brick-making and other material gathering). This makes sense as the cost of materials falls considerably and work for Mason or Mason teams increases and becomes more attractive. An example from Chembe District is on record where the traditional leadership linked masons and communities for a mass toilet construction exercise across several large villages (>1,000 toilets). The Masons received pooled community assistance and were paid in-kind with maize and cassava.

3 SELECTION OF WORKSHOP LOCATION

Previous sanitation promotion initiatives have built demo at ceremonial sites and/or within the district town. Whilst these sites have some advantages they had a distinct disadvantage in that deep district communities where the toilets are needed don't have much chance of viewing them.

The RHC is seen as a good place for construction of demo toilets because it is frequently daily by people from all corners of its catchment. Therefore, this time around the training workshop will be conducted and demo toilets built at RHCs. For the main district workshop, the RHC should be chosen based on known soil challenges and collapsing toilet track record within the catchment of the RHC. The RHC should not be in the district town but rather out in the rural areas.

The participants will be programmed to go back to their respective communities and using their newly acquired skills build their own demos, at their local RHC or other suitably selected sites (vulnerable households where agreed).

4 SOIL MAPPING

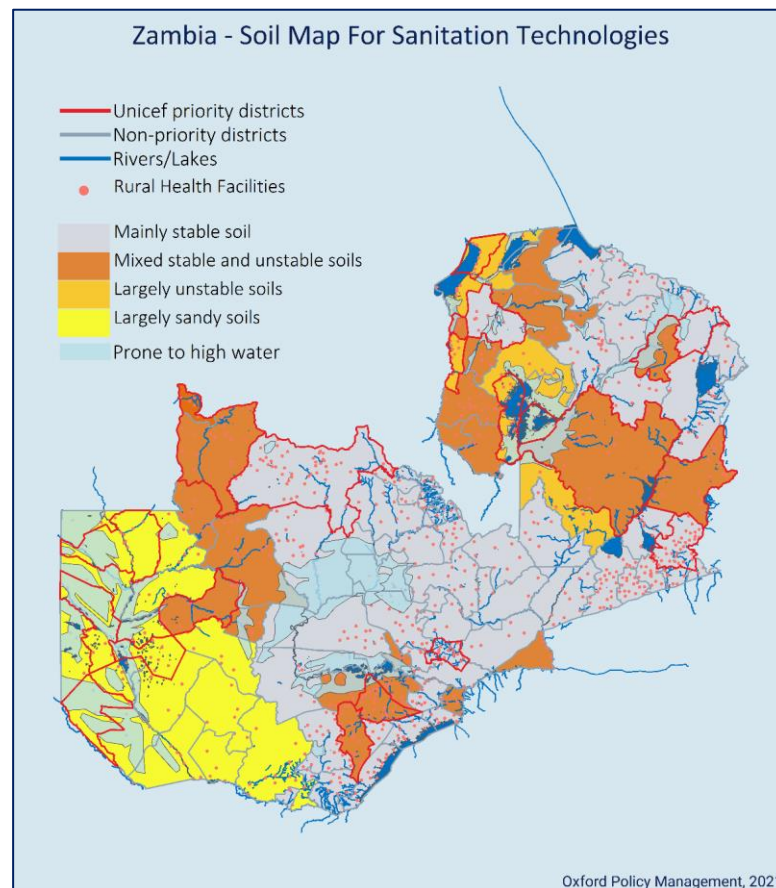
4.1 INTRODUCTION

Before describing and illustrating the various toilet designs it is necessary to introduce soil variability and how to map this in a way which is useful for the toilet builder. The builder can then make an informed decision on which toilet design to build. Figure 2.1 presents a generalized soil map of Zambia with the soils divided into

- Mainly stable soils – where unlined toilets or upper lined toilets suffice
- Mixed stable and unstable soils – where lined toilets are often applicable
- Largely unstable soils - where lined toilets are essential and recommended
- Largely sandy soils – again where lined toilets are essential and recommended
- Prone to high water table – where special lined and raised toilets are needed

The UNICEF districts are also highlighted (thick red line)

Figure 2.1: Soil map for Sanitation Technologies



This map is generalized and shows that, for example, sandy soil conditions can be expected in Western Province which tend to be waterlogged west of the Zambezi River. However, on the ground, in a village, soil conditions can be more variable than this map indicates and change from stable to unstable, easily dug to too hard to dig, from dry to wet or from stable to unstable sands and clays in a matter of meters. This is what the rural toilet builder is up against!

4.2 WORKSHOP DISTRICT SOIL MAPPING

To focus the workshop participants on soil variability a class room exercise has been devised to create a rough map of district soil variability. The Cooperating Partner should provide an A2 sized base map showing the district boundaries, roads, rivers, lakes, marshland, Wards and RHCs¹. A suitable example of a base map from the DHO Mansa is shown in Figure 2.2

Figure 2.2: Example District Base Map showing RHCs



The map can be annotated with text or symbols which describe the soil conditions. Such is generated by cross examining the experience and knowledge of the participants within specific RHC catchments or zones. More information can be obtained by visiting and gleaning the knowledge at the district DHO or DWA.

Participants can be silent when asked where the stable soils are in the district but will usually be able to convey areas of poor soil conditions where they have experienced toilet instability and/or collapse. Collectively, where all workshop participants and other knowledgeable district people are consulted the map can be annotated with the main problem areas and by inference the stable areas. The methodology to solicit information is to ask where there are:-

- areas of shallow water logging – where water is found whilst digging or later in wet season
- areas of exposed hard rocks – or where very hard rock is found during digging
- areas of unstable sand or clays – where these soils are found and toilets are collapsing

Participants learn over the course of the workshop which designs are suitable for which soil conditions. A review can be made on the last day of the workshop, during the final wrap, during which each participant can look at and make notes in their notebook. Post workshop the Cooperating Partner can tidy-up the map and share it with an agreed district custodian – most logically the DHO and/or the District Council. The custodian will then be responsible to update it as new information comes to light. A final goal would be to distribute the map to the RHCs for use by the EHTs, CHAs, NHAs, CCs and Masons per catchment. The Cooperating Partner is encouraged to push this process along as they implement sanitation marketing in their focal district.

¹ The Implementing Consultant has various shape files that the Cooperating Partner can request if they want to create a specific base map. This includes the coordinates of the Health Facilities of Zambia.

5 TOILETS DESIGNS FOR DIFFERENT SOILS

Although the workshop toilet sub-structure designs are fairly flexible in terms of the soil conditions a common mistake is to choose and build a design which is not optimized for the soils on which it is built. Another common mistake is to build a super-structure which is much too heavy compared to the bearing capacity of the soils (e.g. a 4 ton brick super-structure built on sandy or clayey soils). To avoid such, it is important to build the design which is best suited to the soil conditions observed. This applies to both sub-structure and super-structure. Table 5.1 presents the soil types and the recommended toilet design for each. It is emphasized that the design should be chosen based on what is experienced in the village and the actual site when excavating a pit rather than pre-determination from soil maps which are for guidance only or from the soils of the training workshop sites (which may be different)

Table 5.2: Recommended Low Cost Toilet Designs for Different Soils

No	Observed soil type / condition	Recommended sub-structure	Recommended super-structure
1	Stable: particularly below -1.0m). Broken bedrock, laterite, compact gravels or clay	Standard, brick corbel - 1.0 to +0.2m, nothing below	Any: Brick; pole and mud wattle; pole with elephant grass thatch or mat (walls) and normal thatch roof
2	Unstable: Clay or silty clay to -2.5m	Standard, brick corbel - 1.0 to +0.2m, ferro-cement or brick cylinder - 2.5 to -1.0m	Any: Brick; pole and mud wattle; pole with elephant grass thatch or mat (walls) and normal thatch roof
3	Unstable: Sand loose becoming compacted to -2.5m	Standard basket -2.5 to 0.0m	Lightweight, poles with elephant grass thatch or mat (walls) and normal thatch roof
4	Stable: Rock / Rocky below -0.5m. Can't be dug deeper with hand tools	Raised brick corbel -0.5 to +1.0m, no excavation below -0.5m	Lightweight, extended poles with elephant grass thatch or mat (walls) and normal thatch roof
5a	Waterlogged below -0.5m (any soil type)	Raised brick corbel -0.5 to +1.0m, no excavation below -0.5m	Depends on soil type but lightweight generally advisable
5b	Waterlogged below -0.0m in wet season* (any soil type)	Raised platform on hardwood poles, with cylinder lining of sand bags. Built in dry season as deep as water table allows	Lightweight, extended poles with elephant grass thatch or mat (walls) and normal thatch roof
*This design is under development for Western Province where sandy and saturated soil conditions are prevalent and bricks are generally not available. Once perfected it can be copied to others areas of Zambia with similar soil conditions			
Note that quoted depths are negative below and positive above ground level			

The trainee Mason and other stakeholders have to fully understand the need to vary the design of both sub and super-structures according to the prevailing site soil conditions. The Mason can recommend the design based on his experience of the area (previous builds) and the observed soil profile at the site. The district soil mapping exercise on day 1 of the training workshop should be presented to focus attention on this subject

Any of the soil conditions shown in Table 5.1 can occur within a district, a ward or indeed even within the confines of a single village. The exception to this are the majority of districts within Western Province where sand soils dominate everywhere. With this in mind Table 5.2 presents a generalized summary of where different soil conditions can be expected.

Table 5.2: Generalized Distribution of Different Soils in Zambia

No	Soil type / condition	Generalized occurrence
1	<u>Stable:</u> particularly below -1.0m). Broken bedrock, laterite, compact gravels or clay	All districts away from the river courses and lake shores, notably on the higher ground and/or in areas with hills and rock outcrops and underlain by meta-sediment. These may have weathered to in-situ, compact reddish soils in the upper 1m but are usually stable. The exception is Western Province with dominant loose sands
2	<u>Unstable: Clay or silty clay</u> to -2.5m	All settlements in districts within the flood plains of larger rivers and lakes, including Kafue (Kafue Flats), Luapula and Luangwa rivers, Lake Bangweulu periphery and other lesser lake shore / wetland environments. Weathered mica schist meta-sediment in districts otherwise dominated by stable soils (observed in Choma district)
3	<u>Unstable: Sand</u> loose becoming compacted to -2.5m	Typically all western province districts although those in the east (e.g. Kaoma, Nkeyema) have mixed stable / unstable soils. Zambezi and Chavuma districts of Northwestern Province, notably west of the Zambezi River. Areas of Luapula and Muchinga Provinces where underlain by weathered, sandy meta-sediment
4	<u>Stable: Rock / Rocky</u> below -0.5m. Can't be dug deeper with hand tools	As with stable soils but more common in areas underlain by shallow limestone such as Lusaka and districts which straddle escarpments (e.g. Sinazongwe, Siavonga, Gwembe, Chirundu; eastern Pemba, Monze, Choma, Chikankata). General areas of shallow laterite / ferricrete which occur along spring lines, lower valley slopes.
5a	<u>Waterlogged</u> below -0.5m (any soil type)	This is common for both clayey and sandy soil types particularly near the river courses and lake shores.
5b	<u>Waterlogged</u> below -0.0m in wet season* (any soil type)	As with 5a. The lowlands of western province coincident with the Zambezi River flood plain may have a water table at 1.5m depth in September which rises to surface by February each year.

5.1 STABLE SOIL: BROKEN ROCK, LATERITE, COMPACT GRAVELS / CLAYS

Large tracts of Zambia are underlain by ancient meta-sediments which offer a stable, formed-in-situ, soil profile suitable for pit toilet construction with a minimal lining which is built only over the uppermost 1m of pit. The standard brick corbel dome is recommended. Places where this corbel can be emplaced include upland or plateau areas away from river courses and lakeshore flood plains and where the groundwater is not found whilst digging to 2.5m depth (and will not rise to this level during the rainy season). The photos below illustrate an example of stable soils which allow this design to be sustainable.

	
<p>Stable soils below 1m depth. Note the gravelly texture. The conditions are dry and a standard corbel brick dome built from the ledge at 1m depth remains in position long-term</p>	<p>Close-up of excavated soil. Note the granular texture. This is from a soil profile in process of transformation to a ferricrete. It is very stable. Likewise broken bedrock and gravels.</p>

Having established that the soil profile can support a standard corbel on a ledge at 1m depth and that there is no need for a lower lining then the corbel can be built. The standard corbel design is best done with strong burnt bricks (not crumbly) but where sunbaked mud bricks (i.e unfired) are the only bricks available or affordable they can also be used. These latter bricks have been used in dry conditions and have been found to sustain perfectly adequately for more than 5-years – even with a mud, rather than a cement, mortar! This is made possible by the way the bricks lock together in the dome. When the periphery is back-filled and compacted the dome is well and truly locked into place and can support substantial weight.

Indeed, these soils support heavier super-structures built of brick or mud and wattle. Of crucial importance is to protect the upper back-filled excavation periphery from water burrowing such as can occur in heavy storms either via direct rainfall or via surface run-off. Water is clever and always knows how to find a path downward so the opportunity for water to drill down through old compacted soils should be removed. This is done with periphery compaction and a broad, raised toilet base and a good roof overhand (whether thatched or tin sheets)

Table 5.3 and 5.4 indicate the cost of the materials needed to build one corbelled, brick toilet with firstly a brick super-structure and secondly a mud and wattle super-structure, both with a thatched grass roof. Bricks vary in both size and cost. Smaller bricks less than 11cm thick are better than the larger varieties (which can be as much as 16cm thick) but the latter can be used where the former is not available. Before purchase bricks (burnt or sundried) should be tested as indicated on the annexed construction guide and the source replaced where failure occurs.

Table 5.5 presents construction pictures whereas the full construction guide is found in Annex A3.1. Material costs can be reduced via self-help initiatives.

Table 5.3: Cost of Materials – Standard Corbel with Brick Super-structure

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	120 - 160	2.0	240 - 320
2	Cement (corbel and floor)	1	160 - 210	160 - 210
3	Bricks (super-structure) – various sizes	400 - 550	1 - 2	400 – 1,100
4	Cement (super-structure) – optional (can use mud)	1	160 - 210	160 - 210
5	Poles (roof) 30mm x 1.5	16	3 - 5	50 - 80
6	Grass bundles (roof)	5	10 - 15	50 - 75
7	Tying fiber (rolls / bundles)	5	5 - 10	25 - 50
	Material costs for sub-structure (range) ZMW			400 – 530
	Material costs for super-structure (range) ZMW			685 – 1,515
	Materials – total cost (range) ZMW			1,085 – 2,045

Table 5.4: Cost of Materials – Standard Corbel with Mud and Wattle Super-structure

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	120 - 160	2.0	240 - 320
2	Cement (corbel and floor)	1	160 - 210	160 - 210
3	Poles (walls) 50mm x 2.5m	14	5 - 10	70 - 140
4	Runners / split sticks (walls) 10 – 15mm x 5m	30	1 - 2	30 - 60
5	Poles (roof) 30mm x 1.5	16	3 - 5	50 - 80
6	Elephant grass bundles / mats (walls)	5	10 - 15	50 - 75
7	Grass bundles (roof)	5	5 - 10	25 - 50
8	Tying fiber (rolls / bundles)	5	5 - 10	25 - 50
	Material costs for sub-structure (range) ZMW			400 – 530
	Material costs for super-structure (range) ZMW			250 - 455
	Materials – total cost (range) ZMW			650 – 985

The total costs indicated in Tables 5.3 and 5.4 do not include the labour charges of the Mason which would add about ZMW 100 – 150 for the corbel and a similar amount for the super-structure. The costs as shown can be used for workshop budgeting purposes. Material costs for the householder can be reduced via self-help initiatives whereas labour costs are usually open to various means of payment (e.g. grain, cassava, livestock, etc.).

Table 5.5: Constructing a Standard Brick Corbel Sub-structure - Photos

	
<p>Upper hole 1.8m diameter, 1.0m deep Lower hole 1.2m diameter, 1.5m deep Total hole depth is 2.5m, circular with vertical sides with the 0.3m wide ledge - being the footing for the corbel</p>	<p>Bricks laid radially, neatly with cement or mud mortar. Sloping very slightly outward, stepped 1-8cm inward on each successive layer. Peripheral gap carefully backfilled and compacted every 3-courses</p>
	
<p>Corbel is now 6 layers and closing. Note the backfilling around the periphery. The Masons are standing on a 200l drum</p>	<p>Corbel is now 12 layers and almost closed at +0.2m. Trialing a stable drop-hole shape using a wooden drop hole template on a string</p>
	
<p>Standard corbel is complete at +0.2m, periphery is backfilled and compacted. Ready for floor.</p>	<p>The floor. Brick footing in rectangular shape topped with compacted mud or smoothed cement screed</p>

5.2 UNSTABLE SOIL: CLAY OR SILTY CLAY

Where the soil profile is silty and/or clayey and damp to 2.5m depth or there is uncertainty that it can support a standard brick corbel and super-structure then the option of extending the standard brick corbel lining with a lower lining is available. This lower lining is available in three styles dependent on the severity of observed or suspected instability and what is available by way of local building materials (Table 5.6).

Table 5.6: Unstable Soil: Lower Lining Options

	Soil profile	Upper lining	Lower lining	Lack of stability
1	Uniform silty clay with or without vertical drying cracks to -2.5m	Std. brick corbel	Basket	Moderate
2	Uniform silty clay with vertical drying cracks and/or termite tubes to -2.5m	Std. brick corbel	Ferro-cement	Moderate
3	Uniform silty clay with vertical drying cracks and/or termite tubes and dampness to -2.5m	Std. brick corbel	Brick cylinder	Severe

The lower lining is applicable in floodplain areas where dry or damp silty clays or clayey sands are found when excavating to 2.5m depth. Villages located in Namwala District or other districts which straddle the Kafue River flood plain or Samfya District peripheral to Lake Bangweulu are good examples. The soils when dug often reveal old or active termite activity by way of tubes and decomposed roots. Within 24 hours of excavation the exposed clay surface shrinks and vertical cracks appear. All such openings present rapid recharge paths for rainwater to enter and destabilize the pit sides. Excavated material can be tested in a bucket of water and where it bubbles, even hisses, and dissolves rapidly then a lower pit lining is certainly indicated

	
<p>Unstable soil below 1m depth. Note the vertical shrinkage cracks which develop as the newly dug pit dries in the sun. These are typical of silty clay soil profiles and need to be lined.</p>	<p>Bucket soil stability test. Dry silty clay from a toilet under construction on the Kafue River flood plain is immersed in water. It bubbles and hisses and dissolves completely within 2 minutes</p>

Tables 5.7 to 5.9 indicate the cost of the materials that are needed to a build standard corbel brick dome lining complete with one of three types of lower lining (basket, ferro-cement or brick cylinder). Table 5.10 presents construction pictures whereas an example full construction guide for one of the linings is found in Annex A3.2.

Table 5.7: Cost of Materials - Standard Corbel with Lower Basket Lining

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	120 - 160	2.0	240 - 320
2	Cement (corbel and floor)	1	160 - 210	160 - 210
3	Basket (1.0m diameter x 1.5m long)	1	40 - 60	40 - 60
4	Black plastic, 2m wide, 5m long	1	20-30	20 - 30
Material costs for sub-structure (range) ZMW				460 – 620

Table 5.8: Cost of Materials - Standard Corbel with lower Ferro-cement Lining

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	120 - 160	2.0	240 - 320
2	Cement (corbel and floor)	0.5	160 - 210	80 - 105
3	Chicken wire (1.5m wide x 4.0m long)	1	80 - 120	80 - 120
4	Cement (plastering of lower hole mesh)	0.5	160 - 210	80 - 105
Material costs for sub-structure (range) ZMW				480 – 650

Table 5.9: Cost of Materials - Standard Corbel with Lower Brick Lining

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	120 - 160	2.0	240 - 320
2	Cement (corbel and floor)	1	160 - 210	160 - 210
3	Bricks – burnt (lower cylinder) – various sizes	130 - 180	2	260 - 360
4	Cement (lower cylinder and footing)	0.5	160 - 210	80 - 105
5	Stones for footing (wheelbarrow)	1	20 - 30	20 - 30
Material costs for sub-structure (range) ZMW				760 – 1,025

The total cost as indicated in Tables 5.7 to 5.9 do not include the super-structure which should be added (this can be extracted from Tables 5.3 and 5.4). Labour charges of the Mason are also not included and will add about ZMW 150 – 200 for the dome and lower lining and ZMW 100 – 150 for the super-structure.

The costs as shown can be used for workshop budgeting purposes. Material costs for the householder can be reduced via self-help initiatives (gathering local materials, making bricks, digging the pit and super-structure), whereas labour costs are usually open to various means of payment (e.g. grain, cassava, livestock, etc.).

Table 5.10: Constructing a Standard Brick Corbel with Lower Lining - Photos

	
<p>Lower brick lining. Using bricks as shuttering a 100mm thick concrete footing is laid in the bottom of the hole which measures 1.5m diameter x 1.5m deep</p>	<p>Lower brick lining. A brick cylinder is built in the lower hole on the footing. The top is flush with the ledge at -1.0m. A standard brick corbel is then built on top</p>
	
<p>Lower ferro-cement lining. Chicken mesh is held in place in the lower hole using springy sticks (1.2m diameter x 1.5m deep)</p>	<p>Lower ferro-cement lining The chicken mesh is plastered with mortar. A standard brick corbel is then built on top using the ledge at -1.0m as the footing</p>
	
<p>Lower basket lining. A basket 1.0m diameter x 1.5m long, wrapped in plastic is placed in the lower hole which is 1.2m diameter x 1.5m deep.</p>	<p>Lower basket lining The basket is backfilled on the outside with wet mud slurry. A standard brick corbel is then built on top using the ledge at -1.0m as the footing</p>

5.3 UNSTABLE SOIL: SAND

The sand that can be encountered when digging a pit toilet can be formed in-situ and derive from underlying quartz-rich rocks or it can be transported through river and/or wind action. The in-situ sand tends to be composed of angular unsorted sand grains which are compact when dug, meaning that it is usually stable enough to accept and support brick built super-structures.

The transported type of sand is quite different in that it is composed of rounded, graded sand grains which “flow” under gravity when disturbed such as happens when a pit toilet is dug. The mobility of the sand increases when exposed to water – such as rainwater influx down the pit margins during rain storms. The transported sand category is hereafter referred to as an unstable soil – sub category: sand. With unstable sand it becomes very important to firstly line the entire toilet pit with a suitable material and secondly to protect the pit periphery from rainwater and/or storm water influx events. The sand will not easily support a heavy super-structure built of bricks or mud and a lightweight super-structure such as poles and thatch grass is logical. The toilet should be sited on raised ground away from storm-water run-off and the super-structure should overlap the pit margins by 50cm with a roof overhang of 15cm.

The full basket lining is an inexpensive technology developed and deployed locally in Western Province. It is ideal for the upland, dry, sandy areas away from the Zambezi River flood plain and its tributaries but it can also be applied in other parts of Zambia where the top 2.5m of the soil profile is unstable and dry. In such areas it is recommended to include it when constructing a household toilet. The design is all the more appropriate in Western Province in the absence of local pan brick manufacture itself caused by lack of clay soils. Baskets can be purchased for less than ZMW 100 in many markets and can also be made by householders with ease.

The full basket lining is not successful where the water table is within the top 2.5m of the sand / soil profile as the sticks of the basket quickly rot and the toilet tends to collapse in its 1st year. In such areas other designs are recommended (Section 5.4). Table 5.11 indicates the cost of the materials that are needed to build one basket lined toilet with a pole and grass super-structure. Table 5.12 presents construction pictures whereas the full construction guide is found in Annex A3.3. Material costs can be reduced via self-help initiatives.

Table 5.11: Cost of Materials – Full Basket Lining

	Item	Quantity	Rate	ZMW
1	Basket (1.0m diameter x 2.5m long)	1	50 - 100	50 - 80
2	Black plastic, 3m wide, 5m long	1	30-40	30-40
3	Platform logs 150mm x 2m	6-8	10 - 15	60 - 120
3	Super-structure poles (walls) 50mm x 3m	10	5 - 10	50 - 100
4	Runners / split sticks (walls) 10 – 15mm x 5m	30	1 - 2	30 - 60
5	Poles (roof) 30mm x 1.5	16	3 - 5	50 - 80
6	Elephant grass bundles / mats (walls)	10	10 - 15	100 - 150
7	Grass bundles (walls / roof)	5	10 - 15	50 - 75
8	Tying fiber (rolls / bundles)	5	5 - 10	25 - 50
	Material costs for sub-structure (range) ZMW			140 – 240
	Material costs for super-structure (range) ZMW			305 - 515
	Materials – total cost (range) ZMW			445 – 755

The costs do not include the labour charges of the Mason which would add about ZMW 200

Table 5.12: Constructing / Installing a Full Basket Lining - Photos

	
<p>Basket lining. Make the basket upright from supple, split sticks or bamboo woven on 9 or 11 uprights. 1m in diameter and 2.5m high.</p>	<p>Basket lining. If surface layer is running sand dig a shallow hole about 4m in diameter. Then mark out the hole for basket (0.1m more than diameter of basket)</p>
	
<p>Basket lining. Dig the hole for the basket to 2.5m depth, keeping the sides vertical (no ledge required)</p>	<p>Basket lining. Wrap in black plastic sheeting – tie securely with traditional fiber. Lower into the hole</p>
	
<p>Basket lining. The basket is backfilled on the outside with a wet mud slurry (poked down with narrow pole – this will dry to a second lining outside the basket)</p>	<p>Basket lining. Logs are laid horizontally over the basket. A key hole is cut. A rectangular mud floor is built over the logs to about +0.2m</p>

5.4 WATERLOGGED SOILS

5.4.1 RAISED CORBEL DOME TOILET

Constructing toilets in areas where the ground water is encountered at shallow depth has always presented problems to villagers. Toilets are very prone to collapse, particularly during the rainy season due to the progressive and erosive action of rising groundwater on the pit walls. Once the walls collapse the superstructure is destabilized and collapses downward. Whole villages can be affected and constant re-building efforts lead to villagers reverting to open defecation.

The raised corbelled, brick dome toilet overcomes the shallow water / collapse scenario by raising the entire vault above the water table and partly above ground level and, in so doing, providing the household with a toilet which will last more than 5 years.

The design needs strong burnt bricks (not crumbly) and these can usually be found in the villages. However in sandy districts, such as those in Western Province, bricks are scarce. Where they are found then the raised dome can be built (an ox-cart can be used to bring bricks to site). Where there are no bricks available another design is required (see 5.4.2)

Table 5.13 indicates the cost of the materials needed to build one raised corbelled, brick toilet with a pole and grass and matting super-structure. Bricks vary in both size and cost. Smaller bricks less than 11cm thick are better than the larger varieties (as much as 16cm thick) but the latter can be used where the former is not available. Before purchase burnt bricks should be tested as indicated on the annexed construction guide and source replaced where failure occurs.

Table 5.14 presents construction pictures whereas the full construction guide is in Annex A3.4.

Table 5.13: Cost of Materials – Raised Corbel Brick Dome

	Item	Quantity	Rate	ZMW
1	Bricks – burnt (sub-structure) – various sizes	300 - 350	2.0	600 - 700
2	Cement (brickwork and plastering)	2.5	160 - 210	400 - 525
3	Poles (walls) 50mm x 3.5m	10	5 - 10	50 - 100
4	Runners / split sticks (walls) 10 – 15mm x 5m	30	1 - 2	30 - 60
5	Poles (roof) 30mm x 1.5	16	3 - 5	50 - 80
6	Elephant grass bundles / mats (walls)	10	10 - 20	100 - 200
7	Grass bundles (roof)	5	10 - 15	50 - 75
8	Tying fiber (rolls / bundles)	5	5 - 10	25 - 50
	Material costs for sub-structure (range) ZMW			1,000 – 1,225
	Material costs for super-structure (range) ZMW			305 - 565
	Materials – total cost (range) ZMW			1,305 – 1,790

The costs indicated in Table 5.13 do not include the labour charges of the Mason which would add ZMW 150 – 200 for the sub-structure and ZMW 100 – 150 for the super-structure. The costs as shown can be used for workshop budgeting purposes. Material costs for the householder can be reduced via self-help initiatives (gathering local materials, making bricks, digging the pit and super-structure) whereas labour costs are usually open to various means of payment (e.g. grain, cassava livestock).

Table 5.14: Constructing a Raised Corbel Brick Dome - Photos

	
<p>Raised dome. Circular hole 2.2m in diameter and Between -0.20 to -0.5m deep (depth is dependent on where the water is encountered – stay above).</p>	<p>Raised dome. Base is lined with compacted stones /rubble. Bricks laid radially, neatly with cement, sloping slight outward, stepped 1-8cm inward each layer.</p>
	
<p>Raised dome. Corbel is now 5 layers and closing. Note the back-filling around the periphery</p>	<p>Raised dome. Dome complete with spiral steps added. The height is 0.8 to 1.0m above ground level</p>
	
<p>Raised dome. The dome is locked with plaster. Holes for super-structure poles are dug with a steel spike tool</p>	<p>Raised dome. The platform and drop hole are neatly finished before the super-structure is built</p>

5.4.2 RAISED MUSUMO POLE / SAND BAG TOILET

The need for a new design of toilet for areas with high ground water conditions coupled with local scarcity of bricks was identified during the assessment and feasibility stage of this project. Large areas of Western Province are affected by such conditions, notably the villages and settlements along the margin and within the Zambezi River flood plain. Similar areas exist in western districts of Northwestern Province and may occur locally in other areas, such as the islands in Lake Mweru and Bangweulu. For Western Province the toilet design options available depend on where the village / houses are situated (highlands or plains) and on the availability or non-availability of bricks (Table 5.15)

Table 5.15: Toilet Options in Sandy Areas with Variable Shallow Water Table

	Toilet options	Highlands (deep water table)	Plains (near surface water table)
1	Toilet sub-structure design where bricks ARE available	Standard brick corbel with lower lining	Raised corbel brick dome
2	Toilet sub-structure design where bricks ARE NOT available	Basket lining	Raised pole and sand bag lining

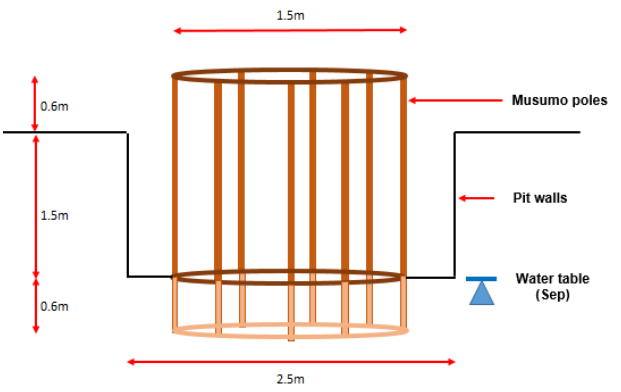
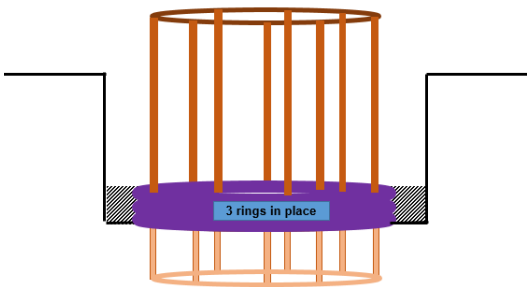
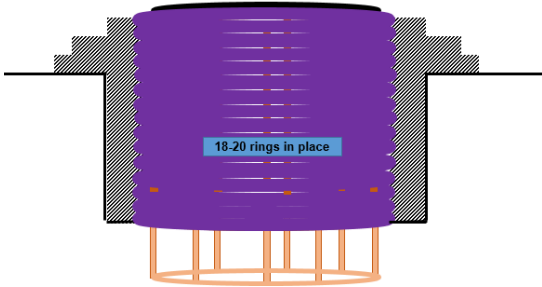
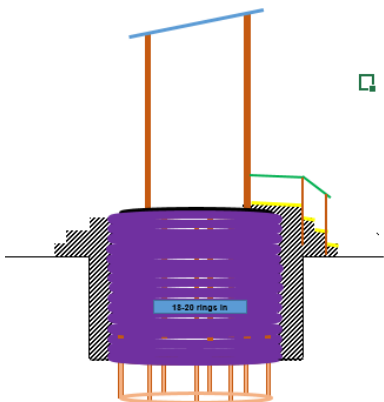
This section deals specifically with the Plains situation the water table is typically around 1.0 to 1.5m depth in the dry season (September) and at ground level in the wet season (February). Bricks are scarce but elephant grass and Musumo poles are available. Maize sacks can be tailored into 1.5m 100-120mm tubes either locally or via a supplier of sacks (UNICEF intervention). The design has already been piloted in Limulunga District but needs to be fine-tuned and standardized. Once done, the vault will be 3m³ and able to sustain family usage for at least 7 years without collapse. The envisaged cost of materials is shown in Table 3.16

Table 5.16: Cost of materials - Raised Musumo Pole / Sand Bag Toilet

	Item	Quantity	Rate	ZMW
1	Maize sacks tailored to 100-120mm diameter x 1.5m tubes	80	5 - 6	400 - 480
2	Musumo poles (walls) 75-100mm x 4.5m	8	20-30	160 - 240
3	Runners / split sticks (walls) 10 – 15mm x 5m	30	1 - 2	30 - 60
4	Poles (roof) 30mm x 1.5	16	3 - 5	48 - 80
5	Elephant grass bundles / mats (walls)	10	10 - 20	100 - 200
6	Grass bundles (roof)	5	10 - 15	50 - 75
7	Tying fiber (rolls / bundles)	5	5 - 10	25 - 50
8	Wire nails 6" 1kg packets	2	30-35	60 - 70
	Material costs for sub-structure (range) ZMW			560 - 720
	Material costs for super-structure (range) ZMW			313 - 535
	Materials – total cost (range) ZMW			873 – 1,255

The costs indicated in Table 5.16 do not include the labour charges of the Mason which would add ZMW 250 – 400 for sub and super-structure. The costs as shown can be used for workshop budgeting purposes. Material costs for the householder can be reduced via self-help initiatives (gathering local materials, making bricks, digging the pit and super-structure) whereas labour costs are usually open to various means of payment (e.g. grain, cassava, livestock etc.).

Table 5.17: Constructing a Raised Musumo Pole / Sand Bag Toilet - Photos

	
<p>Musumo Pole Toilet. Eight Hardwood Musumo poles are required (100mm diameter x 4.5m long)</p>	<p>Musumo Pole Toilet. Dig pit in September as deep as possible and 2.5m in diameter.</p>
	
<p>Musumo Pole Toilet. Arrange 8 Musumo poles around a 1.5m diameter circle at base of excavation, embedding in basal holes 0.6m deep</p>	<p>Musumo Pole Toilet. Fill and spiral in sausage shaped sandbags made from maize sacking (0.1m dia.) 18-20 lines should suffice. Backfill the outer space with sand as the bags are installed</p>
	
<p>Musumo Pole Toilet. Build to 0.6m above ground level. Add strong wooden platform, super-structure, thatched roof, steps and rails. Water level will not rise above ground level.</p>	<p>ILISO Sandbag Toilet. Using maize or bread flour sacks line the pit and back fill the outer space with sand. Super-structure requires a platform to be added – again about 0.5m above ground level</p>

6 SUPER-STRUCTURES

Super-structures on toilets in rural settings in Zambia come in a variety of shapes and styles ranging from circular to square or rectangular and built with a variety of materials ranging from poles with mud, grass or reeds to raw unburnt bricks to kiln fired / burnt bricks. All such materials are completely appropriate and all can produce a durable product at relatively low cost:-

- **Pole and wattle.** Vertical poles are positioned in holes and horizontal runners (split sticks) fastened on the inside and outside with fiber. The cage like structure is then packed by hand with wet mud or clay. The final surface is smoothed and different coloured clays smeared on the outer wall in bands or patterns to give an attractive finish. The roof is made of narrow poles with grass tied or thatched in place. The inner floor is smoothed with mud mixed with cow dung or pulverized plant leaves – which dry to a hard cement-like finish which can be cleaned and polished. The pole and wattle is the commonest rural toilet super-structure.
- **Pole and grass / mats.** Western Province super-structures are usually quite attractive and made from upright poles, horizontal runners with coarse grass (e.g. elephant grass) or reeds tied or stitched tightly in place. The roof is similar but with finer / standard thatching grass. Instead of grass walls, woven reed or elephant grass mats can be used. Both styles are light-weight which is entirely suited to the loose, sandy soil conditions which have limited bearing capacity.
- **Unburnt bricks.** The super-structure is built with pan bricks which have been sundried (rather than burnt in a kiln). The walls are topped with a wooden frame made from narrow sticks onto which grass is tied or thatched. A variant of this is to build the walls with bricks cast in-situ by upending a 5 liter bucket or old paint tin. Both styles are common with the traditional mud brick toilet occurring in deep rural settings and the bucket brick more toward the district town in settlement areas. Another way of putting the roof on is to place poles externally around a circular mud brick structure, this results in less weight on the mud walls
- **Burnt bricks.** The super-structure is built with burnt pan bricks which have been fired in a kiln. The walls are topped with a wooden frame made from narrow sticks onto which grass is tied or thatched. Quite often the toilet is built with bricks left over from house construction. Likewise it is not uncommon to find it with a tin sheet roof made from leftover or recycled roofing sheets. The extra cost of building such a toilet means that it is the least common in the rural setting.

A common toilet superstructure is that of poles fixed with grass, plastic sheet or old maize sacks, without roof. Whilst this is the cheapest to build, costing virtually nothing apart from labour, it is certainly not sustainable and will need re-building annually or more frequently. The main issue is the absence of the roof which makes the toilet floor and pit periphery open to erosive processes during rain storms. For this reason the design is not recommended.

In terms of cost the bucket-brick super-structure is probably the cheapest as the mud is dug and cast in-situ and only the poles and grass of the roof have to be purchased or collected. The pole and wattle and pole and grass super-structures are the next cheapest to build. Those built with bricks or mats tend to be the most expensive in the village environment. Tables 6.1 to 6.2 show the various designs in photographs.

A general construction guide for traditional super-structures is given in Annex A4

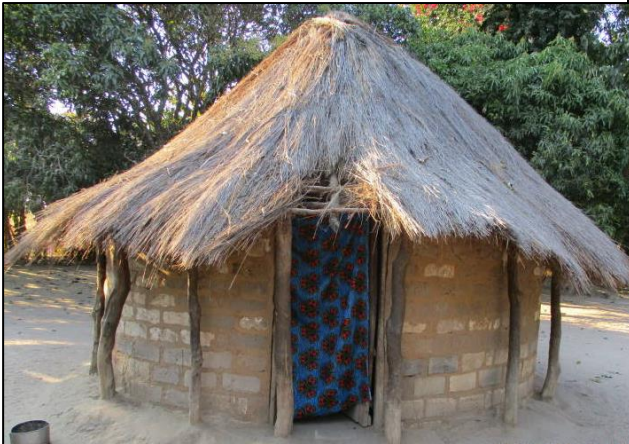
Table 6.1: Non – Brick Super-structures - Photos

	
<p>Mud and Wattle. About 14 uprights are placed in holes dug around the pit. Horizontal runners are tied on inside and outside and the void / wall packed with wet mud</p>	<p>Mud and Wattle. The super-structure can be round or square. A roof and a screen door of grass complete the structure. The floor should be broad and raised up.</p>
	
<p>Pole and Grass. This neat toilet is too small in diameter and is about to collapse as the vertical poles slip inside the pit (rain erosion holes on periphery were observed).</p>	<p>Pole and Grass. Vertical poles with elephant grass held with fiber stitching. Roof of stitched grass. Note the large roof overhang and the 2.5m diameter. This is a sustainable design.</p>
	
<p>Pole and Mat – raised dome. The framework of the super-structure is made from 10 inward sloping uprights held in place by runners, tied with fiber.</p>	<p>Pole and Mat – raised dome. Grass or reed mats are fastened to the uprights. The roof is thatched and a screen door is added. Note the under wall and under roof ventilation</p>

Table 6.2: Mud Brick Super-structures - Photos

	
<p>Bucket mud bricks. Probably the cheapest super-structure to build. Local soil is mixed into a mortar and packed in bucket which is up-ended to form walls</p>	<p>Bucket mud bricks. A thatched roof with overhang and a broad / raised mud floor are added. The buckets should be plastered to lock them in place - unlike photo</p>
	
<p>Mud pan brick. Mud bricks built in a square spiral such that a door isn't required. Roof of poles and grass. Note the raised mud floor with cement finish.</p>	<p>Mud pan brick. Note: the raised floor and the large overhang on the grass thatch - all added to prevent rain or run-off water eroding and burrowing into the pit around the pit margins</p>

Table 6.3: Burnt Brick Super-structures - Photos

	
<p>Burnt-brick Traditional. Circular shape. Note: the large diameter and thatch roof overhang; roof support poles are independent from the walls. These are all good design features which prolong lifespan</p>	<p>Burnt-brick – Traditional. Circular shape. Note: the raised floor; the peripheral plinth; and the large overhang on the grass thatch - these are added to prevent rain and run-off water influx</p>
	
<p>Burnt-brick – Village VIP. Built on a brick corbel. Layout of 1st course of bricks of super-structure. Note the floor slab is cast within brick shutters</p>	<p>Burnt-brick – Village VIP Built on a brick corbel. Complete with air / light vents and a tin roof. Note the peripheral weather strip finished with cement</p>

It should be noted that the Village VIP despite its aspirational appearance has a major drawback in that the average villager cannot afford it. The cement, bricks, wire mesh, vent pipe, rafters, wire and nails add to ZMW 3,000 and the builder will charge an additional amount of at least ZMW 500. At this moment in time and for the foreseeable future it will not be possible to broadside this design in appreciable numbers although, of course, a few will be built where the owner can afford. A construction guide is provided in Annex A3.5

7 HAND WASHING TECHNOLOGIES

Tippy Taps and similar plastic container devices have been promoted in the rural areas for almost 20 years here in Zambia – mostly under CLTS and SLTS campaigns. The advantage of these Hand Washing Facilities (HWFs) is that they are inexpensive and quick to make by householders (2nd hand containers at <ZMW 5 – 10 each) whilst being very effective for hand washing. However when interviewing those that use or should be using these devices they variously report (in approximate order of frequency):- fast deterioration in sunlight; destruction by animals; night time theft and non-availability (notably in fishing and farming communities where preferred use is for net floats and milk containers respectively). The photos below indicate the two main issues. The main types of HWF are listed in Table 7.1 and shown in Tables 7.2 and 7.3

	
<p>Problem. Animal interference (goats, pigs, crows). Night theft by people seeking containers</p>	<p>Problem. Non uPVC plastic bottles degrade and disintegrate rapidly in strong sunlight.</p>

Table 7.1: Low and Medium Cost Hand Washing Devices

	Handwashing options	Materials	Description / Operation
1	Tippy tap	Empty 2.5 or 5 liter plastic container, string, sticks	Hung from a wooden frame with string connected to foot lever positioned / leaning on ground beneath
2	Pressure Bottle	Empty 1 or 2 liter plastic fizzy drink bottle	Turned upside with small hole drilled through cap. Squirts water when squeezed. Hung from a branch
3	Container and stick	Plastic, Clay or Concrete container, string, sharpened stick	Hole in bottom of container with neatly fitting stick plug on a string. Placed on a table or hung from a branch
4	Dip and splash	1 large container and 1 small scooping device, string	Plastic container, clay pot or gourd can be used with a cut fizzy bottle as the dipper. Placed on a table
5	Press bottle	1 or 2 liter plastic fizzy drink bottle	Turned upside and fitted with a press tap operated with back of hand. Hung from a branch
6	Small bucket / tap	5 liter plastic bucket with lid and fitted plastic lever tap	Placed on table or convenient object. Lever operated with back of hand or elbow
7	Large bucket / tap	10 or 20 liter plastic bucket or container, fitted plastic lever tap	Placed on table or steel frame (Kalingalinga). Lever operated with back of hand or elbow

Table 7.2: Low to Cost Hand Washing Facilities under ZMW 80 - Photos

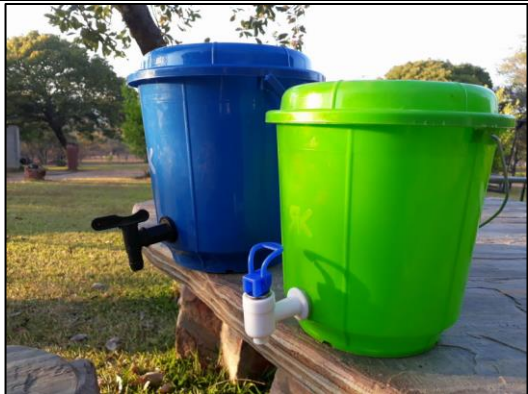
	
<p>Tippy Tap. 5 or 2.5 liter plastic container operated by the foot via a string and lever. Tend to be easily damaged by sunlight and goats</p>	<p>Dip and splash. Using any big and small container water can be scooped and hands washed. Requires 2nd person or branch suspension of small container</p>
	
<p>Pressure bottle. 2 liter soft drink container, suspended on branch (with ash). A small hole in the cap allows water to squirt out when squeezed</p>	<p>Push tap bottle. Soft drink container, suspended upside down with a push tap fitting (operated with back of hand). Tap is ZMW <15 but unavailable!</p>
	
<p>Plastic Taps. Some types available in Lusaka but usually not in rural areas. The lever or press types are best as they are simple to operate and cannot easily be broken by turning in wrong direction</p>	<p>Buckets with Taps. A 5 and 10 liter bucket with tap will cost less than ZMW 40 and 65 respectively but the taps need to be made available in rural areas – at supermarkets and hardware outlets</p>

Table 7.2: Low to Cost Hand Washing Facilities under ZMW 80 – Photos - continued

	
<p>Containers with Taps. Very neat and innovated HWF at a Teachers House. The stand is not difficult to replicate. Can be in or near the kitchen</p>	<p>Containers with Taps. Simple and straight forward.</p>

Longevity of the HWF can be improved by simply putting it under a shady tree and / or within an animal free enclosure. More expensive and durable HWFs are available that deploy uPVC plastic buckets and plastic lever or screw-type taps. These can be purchased or easily made for ZMW 40 – 70 (5 and 10 liter capacity) in Lusaka but there are two added issues that arise in the rural areas. Firstly the rural folk are reluctant to pay the higher price and secondly, whereas the buckets and containers can be found, the plastic taps particularly the better plastic taps (lever type) are not available in the shops.

The plastic lever tap if it can be sourced is more durable than the screw type as the latter are easily broken. Many rural folk turn the screw tap too hard and in the wrong direction causing them to snap or leak profusely.

Higher cost HWFs in the range ZMW 120 to ZMW 1,000 are shown in Table 7.3. A very neat and not too expensive HWF which can be attached to a wall or a tree is made from an offcut of 110mm vent pipe with a glued lower and a detachable upper end cap. Water is added to the top end before placing the end cap / dust cover. The lower cap is fitted with a straight push tap – if it can be sourced (see Table 7.2 photo to middle right). This is very easy to make and materials costs less than ZMW 120.

The graduating masons can also apply themselves to HWFs for public places should customers be found with a bit of marketing. Schools, Health Centers, Markets, Ceremonial sites, Police stations, Agricultural shows are all constantly in need of well-built and durable hand washing stations that can be used by multiple users simultaneously. The 3 – tap version is shown in Table 7.3. The taps are positioned on 20mm CPVC pipe and fittings with CPVC glue. Other design formats can be invented by the Mason once the concept is understood.

Table 7.3: Higher Cost Hand Washing Facilities under ZMW 100 - 500 - Photos

	
<p>Pipe / press tap. A 110mm sewer pipe off-cut fitted with two end caps and a press tap operated with the back of the hand. The brackets are optional. Cost ZMW < 120</p>	<p>“Kalingalinga” Bucket, bowl and stand. Gets its name from the Compound in Lusaka but is widely available in the District towns and markets. Cost ZMW 200 - 300</p>
	
<p>Mass HWF. 60l drum encased in bricks, with steps. Masons can build these as schools, markets, ceremonial sites and other public places</p>	<p>Mass HWF. Complete with drainage, standing block and 3 plastic lever taps. Total cost +/-ZMW 800 for the materials and 200 for the labour</p>

HWFs are easy to make and put in place whether they are simple tippy taps or multiple user stations. The construction guide for simple household HWFs and one type of multiple user HWF for institutional settings is provided in Annex A5

The policy on HWF during the workshop and subsequently at the household sites in villages, is that they are built free of charge. This is to ensure that hand washing practice becomes as ubiquitous as using the toilet itself.

8 KNOWLEDGE TRANSFER

The main knowledge transfer that occurs at the Demo training workshops is the attainment of toilet building skills by the Trainee. It is very important that the skills learnt including the recommended finishing touches are fully understood by the Trainee and taken from the workshop to the villages and the construction sites and also disseminated or transferred to community members. Likewise the stakeholders who supported the workshop and continue to support the graduate Masons must also be cognisant of the techniques and key concepts and, as agents of change, transfer to the communities whenever occasion arises. The schematic below generalizes the envisaged spread of knowledge. Table 8.2 lists key technical construction components to be fully understood / practiced and transferred to communities by knowledgeable stakeholders.

In addition to these there is the subject of periodic toilet O&M. A newly built toilet cannot be expected to remain in pristine condition without O&M and this is a responsibility of the householder to fulfill. The O&M message has to be transferred by the Mason and the district stakeholders to the community and householders. Table 8.1 summarises the O&M requirements

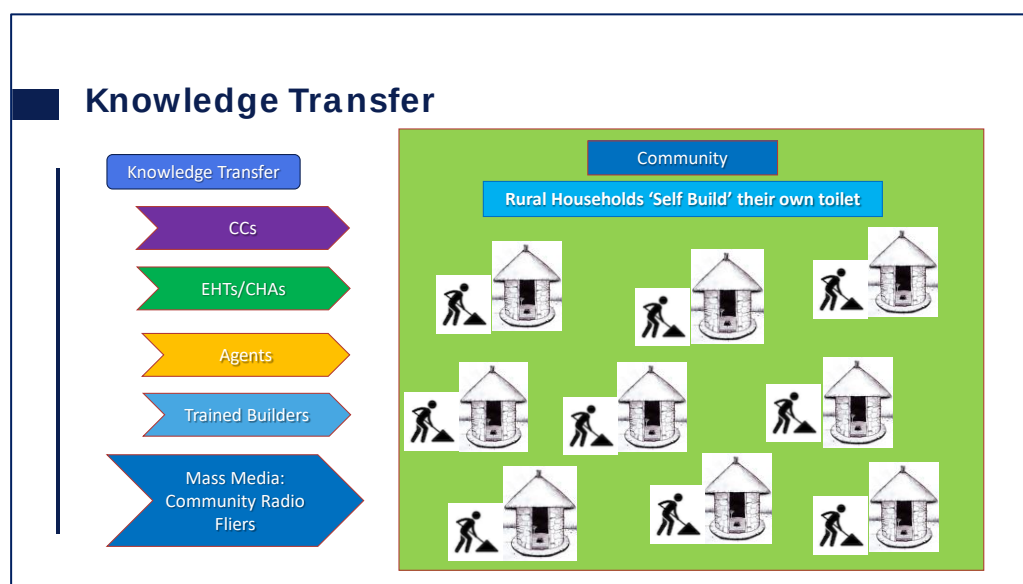


Table 8.3: Rural Toilet - Operation and Maintenance Requirements

1	General	Operation & Maintenance requirement
1.1	Cleanliness	Keep inside / outside of toilet swept and weed-free
1.2	Planning	Before the toilet is full, plan / prepare new toilet accordingly
2	Specific	Essential O&M
2.1	Roof	Maintain neat / tight thatching annually – particularly roof and overhang
2.2	Walls	Maintain the door and walls with thatch or local plaster
2.3	Floor / platform	Maintain the drop-hole and drop-hole cover. Maintain a hard inner floor surface with cement / traditional means. Maintain the outer floor margins
2.4	Hand washing	Maintain / replace the hand washing facility with water and soap

Table 8.2: Low Cost Rural Toilet Construction - Key Concepts to Learn and Transfer

#	Key Subject	Recommendations
1	Standard corbel	
1.1	Circular pit	Dig only circular pits as they are more stable than square pits. Dig as deep as the soil conditions allow but not exceeding 2.5 to 3m depth
1.2	Pit marking	Trace the pit circle with a sharpened stick joined to a peg by a piece of string of recommended length. The peg is hammered at the center point of toilet
1.3	Corbel pit dimensions	The standard corbel is built in a circular pit 1.8m in diameter to -1m depth, below this the pit reduces in size to 1.2m. Where a lower pit lining of bricks is required the lower hole will be 1.5m in diameter. In both instances there is a ledge at -1m
1.4	Pit verticality	A stone suspended on a length of string can be used to check pit wall verticality
1.5	Stepping	A bricks is stepped inward between 1 and 8cm. Never step more than 1/3 rd total brick length. Always fill the joints between bricks with mortar
1.6	Compacting periphery	Take time to fill and compact the space around the edges of the dome with dry excavated material - after every 3-layers have been added
1.7	Dome closure	Build such that the standard corbel closes as near 20cm above ground level as possible – such that toilet floor will be raised by this amount.
1.8	Lower lining	If in doubt over soil stability, then include one or the 3 lower linings.
1.9	Application	Use the standard corbel where the soils are stable below 1m. Use it with a lower lining where the lower hole is dry or damp clay or silty clay or compact dry sand
2	Basket lining	
2.1	Basket pit dimensions	Where the basket is purchased readymade – make the diameter of the pit 10cm larger. To make a basket make the diameter 1m and the hole 1.1m in diameter
2.2	PVC wrapping	The PVC cover is important as it stops fine sand, termites and rodent passing through and disturbing the basket
2.3	Back-filling	Pour we mud in the annulus around the basket and prod compact. This will dry to a shell around the basket and offer stability even after the basket rots away. If available treat the basket with preservative
2.4	Stick type	Flexible, insect resistant. If available treat the basket with preservative
2.5	Application	Dry, sandy conditions
3	High dome	
3.1	Pit depth	Dig the pit to a depth where the soil is still dry or dap but not wet
3.2	Dome height	Close the dome no more than 0.9 to 1.0 m above ground level
3.3	Application	Areas with shallow ground water or shallow hard rocks which cannot be dug
4	Super-structures	
4.1	Weight	Don't build brick super-structures of unstable ground such as soft, loose sand or spongy clay – choose a light weight design such as pole / grass or mud / wattle
4.2	Dimensions	Ensure super-structure poles are placed outside the pit margins and the back-filled and compacted periphery of the brick dome upper hole
4.3	Level	Most areas it is advisable to build the floor 20cm above ground level and to skim with a few shovels of cement powder
4.4	Roof	Always put a roof and ensure that there is at least 15cm of overhang on all sides
4.5	Thatching	Neat, tight thatching lasts much longer than loose thatching. Do it properly
4.6	Hand washing	Always ensure there is a hand washing device at the toilet or the house side

9 SANITATION MARKETING / POST WORKSHOP ACTIVITY

One of the failings of previous sanitation promotion initiatives was that the Masons once trained were unable to solicit sufficient support at district, ward or community levels from the various district stakeholders sufficient to generate community interest and the decision to invest in a new toilet design. Indeed many of these stakeholders were unaware that Masons had been trained and were ready to build. Some Masons managed to find work and are still doing so, particularly those that managed to link into support structures, but many others stagnated.

This time around demo toilets will be constructed at RHCs ensuring that community visibility and interest is advanced. Active support from local leaders and RHC staff engaging with local communities, promoting the designs (and introducing the Masons) will improve demand for toilets. Active compliance measures set by traditional leaders and Village Heads will be pivotal as the communities listen to these leaders more than other stakeholders. The same messaging and advertising will be reinforced in the communities by the extended presence of the RHCs through NHCs, CHAs, CHWs and CCs as well as Community Development workers. Through WDC meetings the schools can be engage similarly as these and their pupils are known agents of change. Table 9.1 summarises the various after-workshop roles and responsibilities of the various stakeholders

Table 9.1: After-Workshop Activity: Roles of Various Stakeholders

	Stakeholder	Roles and responsibilities
1	Cooperating Partner	Coordination and monitoring of stakeholders, ensuring progress is reported
2	Local Authority	Promotion, monitoring, reporting. D-WASHE / Council awareness / integration
3	RHCs	EHT / CHA / NHT and CHW Promoting better sanitation via demo viewing / community engagement, programming and support of CCs, NHCs, SAGs, Sanitation Clubs, Masons. Engaging with traditional leaders, WDCs and other agents of change. Tracking and reporting toilets built, attending WDC meetings.
4	Traditional Leadership	Identifying the problem areas for toilet construction, mobilizing communities, maintaining momentum, briefing the RHC and WDCs
5	Ward Development Committee WDC	As with traditional leadership
6	Schools	Promoting lined toilets during PTAs, Out-reach via pupils / Sanitation Clubs
7	Community agents	Village Heads, CCs, NHCs, SAGs identifying households un need and linking individual customers or communities to Masons. Reporting progress to RHCs
8	Communities	Gathering of local materials, digging of pits, brick production, mason payment mechanism and schedule
9	Masons	Active construction of toilets and hand washing devices, reporting sales and toilets constructed

Before the workshop closes the Masons will make their after-workshop Action Plans, with the express objective of creating demand for toilets. This session will be facilitated by the OPM and CP Facilitators together with those other stakeholders present (RHC and traditional leadership). A suggested list of demand creation actions within the 1st week are as follows:-

- Orientation / Engagement with key stakeholders (for demand creation support) at
 - District level (D-WASHE involving MoH, MoCTA, MoE, MCDSS, NGOs, FBOs, etc.)
 - Sub-district level (WDCs, Traditional leadership, RHCs, Schools)
 - Community level (SAGS, NHCs, CHWs, CHAs, EHTs, CCs)
- Construction of demos in home territory (preferably at or near their RHC)

Thereafter constructing toilets for communities or household customers on demand

The CP should be involved in these early marketing and construction activities, checking that stakeholder engagement does indeed occur and that forward strategies are agreed upon. The CP should steer and support where possible, particularly in the wards, RHCs and community settings. They should also monitor that the demos are built at the RHCs for all the workshop graduating Masons. Once the Masons have customers and are active building toilets the CP can cede these steering role tasks to the various district stakeholders. Reporting structures (toilets built per Mason) should be established.

It is hoped that the initial demo build of each graduate mason will be supported by UNICEF. For each RHC catchment and Mason the 1st demo build will serve two purposes. Firstly it will focus and reinforce the construction training the Mason has just received. It is suggested that the Masons group together in pairs to build 2 demos. Each should be at the home RHCs. Secondly, the demos thus built will immediately attract the interest of all people visiting the RHCs. In fact a task of the community level stakeholders will be to encourage the villages to visit the demo construction sites as they are being built. After this initial build the Masons can extend into the villages and build solo or remain in groups as they desire.

Creating demand for toilets through Sanitation Marketing (SanMark) has many different angles of attack (stakeholder driven) and avenues of outlay (methodologies). The basics presented above are expanded under sub-headings below and the reader can peruse these and see how they can be factored into the overall action planning.

Stakeholder engagement

With key stakeholders at both District (D WASHE) and sub-,district levels draw up action plans strategizing on method of effective SanMark implementation with roles and responsibilities suitably tabulated and agreed. Participants are the Masons, EHTs and Extension staff, WDCs NHCs, CHWs, CCs/ Hygiene Promoters and Traditional Leaders.

The Traditional Leaders and the Ward Development Committees, as well as the RHC and CCs that fall in their areas of influence are all knowledgeable of the communities where there are many instances of prematurely collapsing toilets and can strategise on how to mobilize these same communities in community-wide, self-help initiatives, pooling material resources and labour (brick making, material gathering, hole digging, cement purchase, etc.). Once agreed

with the communities they can introduce the Masons and help negotiate a “contract” between the community and Mason(s) and also monitor and push along the implementation of the same with the Village Head, SAGs, NHCs, CCs and CHAs etc. Assisting the vulnerable can also be included in such community approach i.e. helping female / child headed, overaged or too poor households that simply cannot afford to build their own toilets.

In communities with isolated toilet problems at some households the CCs and CHAs, etc., working with the SAGs and NHCs can introduce the local Mason and similarly assist agreement between householder and Mason.

With both approaches the labour charges of the Mason do not necessarily have to be settled in cash. Payment in kind with local produce is a very viable alternative to cash (goats, chickens, maize, cassava, etc.).

Other Approaches to Demand Creation

To enhance the effective dissemination of better toilet designs and related health and hygiene topics the following activities can be arranged and delivered:-

- Marketing Meetings at selected levels (RHC/ Schools or communities)
- Demo or first toilets to be built at selected households or central places
- One to one toilets promotions (e.g. door to door) by CCs NHCs and CHWs
- On Site Marketing by builders
- Flier development (by Partners) and distributions (by marketing teams)
- SanMark promotion events, displaying / explaining various toilet designs and HWFs
- SanMark Programs on Media, particularly community radio in local vernacular

Other Approaches / Enabling Environments to tackle “Ability to Pay”

Building better toilets in rural communities is underpinned everywhere by the struggle to afford or the “Ability to Pay” the builder for construction. There are many ways to create an enabling environment to overcome this ubiquitous issue.

- Builders accepting payment in-kind – as discussed above
- Establishment of local saving groups particularly for financing for toilets
- Links into funding made available for vulnerable groups by well-wishers / donors
- Passing of local rules – e.g. penalties for household without adequate sanitation
- Knowledge transfer from workshop to mason and from mason to community whereby householders take on the techniques and build for themselves²
- Customers arranging materials and assisting the Mason with free labour

Some of these, such as the first and the last, are already widespread and most effective

² This has been observed in Chifunabuli and Lunga Districts of Luapula Province where Lubwe Mission trained village builders to build basic corbel dome toilets and over the years the villagers learnt to do it themselves.

Masons Networking and other IGAs

It is important that the masons maintain contact and link-up with each other to discuss matters relating to demand creation and sharing of experiences. The means by which this occurs will be formulated by the stakeholders in collaboration with the CP. One way will be to have follow-up refresher / progress meetings with workshop graduates at an agreed date or according to an after-workshop schedule. This could be included in final day workshop action planning.

To be trained as a rural area, toilet Mason is the easy step but to find work and remain in the profession is another subject altogether. The main income for a trained Mason will be building toilets for cash or in-kind payments which have a cash value. A subsidiary source of income would be via other Income Generating Activities (IGAs) which are workable in the rural areas. Some IGAs for rural Masons are suggested and indeed recommended but the list is extendable

- Building work other than toilet construction (houses, institutional hand washing stations etc.)
- Hand pump maintenance (APM can expand their services and become Masons)
- Selling low-cost accessories such as 5 litre buckets with taps or brooms / pans
- Washable sanitary pad packs to rural schools for girl pupil MHM
- Supply toilet construction materials often scarce in rural areas (chicken mesh, sand bags, maize sacks, plastic sheeting, plastic containers, etc.).

Some of these IGAs need central support from donor for example the taps for hand washing buckets and a specialised line of maize sacking to create tubular sand bags for the raised Musumo Pole Toilet (Section 5.4.2) – a design to solve the current toilet crisis facing householders who live in high water table areas such as Western Province.

Further Support, Monitoring and Reporting

- District and sub-district stakeholder teams should conduct occasion field visits to check on progress and input advice where challenges exist. They would also use these visits to capture lessons learnt
- Occasion Meetings (preferably monthly or quarterly) to be done at both District and sub-district level to reflect on achievements, challenges and lesson learnt on both demand creation and construction. These could be attached to existing development meeting structures. Based on these the action plans can be set for next period
- Periodic updates on both Demand Creation and Toilet Construction to be obtained and reported. This would start at Mason level (using the form for the Mason in Annex A2) who would feed the CHAs and/or the CCs and thereby populate databases at sub district (RHC) amalgamated at district (MoH and/or LA). This can run parallel with existing reporting procedures which are already formulated with the Sanitation Action Group (SAG) WASH Data Collection Booklet which links the community with RHC and MoH reporting structures.

Mason Apprenticeships

Where demand for new toilets is good the Masons become active in building. This is particularly the case where traditional leadership manages the community self-help approach as many toilets can be built in a short space of time. Such times present the ideal opportunity for the

Mason to engage some assistants from the community in which they work. Under the mentorship of the Mason the “Apprentice” is trained in the art of better toilet building. It will only take 2 or 3 sites before the Apprentice is experienced enough to build solo and even find their own customers. Such internal development has to be encouraged by the district stakeholders as it represents a fundamental means of creating sustainability and continuity.

10 REFERENCES

OPM, June 2021. Provision of Consultancy Services for Sanitation and Hygiene Promotion in Zambia - Assessment of Rural Sanitation and Handwashing Technologies. UNICEF LRPS-2020-9158516. Three reports in one: Situation assessment of the current approaches and technologies for delivering sanitation and handwashing services in rural Zambia; Feasibility study of sanitation and handwashing technologies for rural Zambia; and Concept note to inform programming of the UNICEF / Government Republic of Zambia (GRZ) implementation in the 22 districts

WaterAid, Feb 2016; Study on Appropriate Low-Cost Sanitation Options for Problematic Soil Conditions. Final Report (Including Output from Seven Sanitation Marketing Workshops). Lead Author: Jim Anscombe. Production commissioned by UNICEF.

ANNEX A1

**MASON AND STAKEHOLDER TRAINING
(at district-level)**

**SUGGESTED WORKSHOP TRAINING
MODULES**

ANNEX A1

MASON AND STAKEHOLDER TRAINING (at district-level)

SUGGESTED WORKSHOP TRAINING MODULES

These training workshop also provide an opportunity to fine tune sanitation and handwashing options and marketing strategies. It is important to include a few previously trained master / grand master builders to share their experience and help supervise the practical construction training. Given the challenging conditions in Western Province, a provincial level workshop should be conducted but with more emphasis on innovation to develop suitable options for the local conditions. A suggested agenda for all workshops is provided below:

Sanitation Promotion & Mason Training Modules
Day 1: Classroom Theory
Introduction and Objectives of training
Overview of rural sanitation and CLTS
Introduction to Sanitation Marketing
Challenges faced and need to promote better designs
Overview of designs available
District soil mapping exercise
Selecting the pit design suited to the local soil conditions
Common construction flaws to avoid and features to include
Assessing the Vulnerable and appropriate design modifications
Day 2 – 6: Hands-on Construction Practical
Toilet transect walk with discussion (local community)
Marking out and constructing the sub-structures (+ team reviews)
Constructing the platforms (+ team reviews)
Constructing the super-structures and finishing off (+ team reviews)
Constructing hand washing devices
Review of achievements and discussions
Day 6: Wrap up session (afternoon)
Associations and Networking
Marketing toilet options
Business do's and don'ts
SanMark Action Plans
Review of Appropriate Designs and Key / Transferable Concepts
Pledges of Support
SanMark IEC materials

ANNEX A2

SANITATION MARKETING AGENT TRAINING (at RHC catchment-level)

SUGGESTED MINI-WORKSHOP TRAINING TOPICS

ANNEX A2

SANITATION MARKETING AGENT TRAINING (at RHC Catchment-level)

SUGGESTED MINI-WORKSHOP TRAINING TOPICS

These mini-workshops will be conducted after the main district Mason Training Workshop at RHC catchment-level and will be facilitated by the CP together with key stakeholders from the RHC catchment. A single morning will be sufficient at the RHC or a school classroom. Key trainers will be the CP, EHT, and Masons and any other that attended at district-level. The Sanitation Promotion “Agents” to be briefed will be drawn from traditional leaders, key community activists such as CHAs, NHCs, SAGs, CC, APMs, CHWs and CDAs. The key objective is for all to understand the new longer-lasting designs and that there are now local Masons who can build them and to market these designs within the local community setting up continuous support linkages between Masons and communities and customers. For the first few sessions it is recommended that the IC gives on-site guidance (contact Alfred Mungamelo – 0972118212).

Sanitation Marketing Agent Training Modules
Introduction and objectives of training
Challenges faced with toilet construction - the need to promote better designs
Sub-structure linings to match soil conditions
Cost-effectiveness – investing in a toilet that last 5* years or re-building after every rainy season
Key stakeholders and their roles (RHC staff, traditional leadership, schools, etc.)
Roles of the Sanitation Marketing “Agent”
Marketing strategies: Various meetings with key stakeholders, posters, community radio, door-to-door, visits to demos or sites, testimonials from early buyers, Mason sales pitch - selling toilets to those that visit active sites, Mason promotions and after sales services, etc.
Listing problem soil areas and agreeing villages suited to community mobilisation approach
Engaging with traditional leadership, Village Heads to trigger community mobilisation
Selection of the Demo site (Masons 1 st build site)
Assessing the Vulnerable and how to include in Sanitation Promotion / Community Mobilisation
Reporting channels and how to ensure progress is captured / transferred from village to RHC
Stakeholder support and progress meetings to air / resolve challenges and bottlenecks

ANNEX A3

BUILDER / MASON ACTIVITY REPORTING FORMAT

BUILDER / MASON ACTIVITY REPORTING FORM

Name of Builder / Mason Phone

RHC District.....

Reporting Period

1. DEMAND CREATION

#	Marketing Activity	Details of activity (select from those at bottom of table)	Numbers reached			Comments
			Female	Male	Interested households	
1						
2						
3						
4						
5						
6						
7						
Totals						

The marketing activity can be: a **Meeting** - detail the type of meeting (e.g. Traditional Leaders, WDC, SAG, Local Authority, RHC staff, or specify if different from these options). Other marketing activities can be: **Door-to-door** (marketing); building **Demos**; distributing **Flyers**; participating in an **Event** – detail the type of event (e.g. shows, ceremonies, media, school open-days, etc.).

2. TOILET CONSTRUCTION

#	Type of toilet built	Number of Toilets built	Location		Comments (number of demos, type of institution: school, clinic, court, etc.)
			Household	Institution	
1	Basket				
2	Standard corbel				
3	Corbel Lined				
4	Raised dome				
5	Musumoj pole				
5	Village VIP				
7	Other (specify)				
Total					
8	Hand Washing				

3 ADDITIONAL INFORMATION

Community response on designs

Preferred designs (provide reasons).....

Best way of marketing (provide reasons)

Average Cost of a) toilet materials..... (b) labour charge.....

Challenges

Lessons Leant

Others particular information specify).....

ANNEX A4

ASSESSING VULNERABLE PERSONS / HOUSEHOLDS (IN RURAL AREAS)

ANNEX A4

ASSESSING VULNERABLE PERSONS / HOUSEHOLDS IN RURAL AREAS

Guidelines criteria for assessing Vulnerable Persons in rural settings is given below. Communities are encouraged at various levels to assist the vulnerable within their communities. Although some communities embrace this most do not. This project tries to promote inclusivity of the vulnerable via two main concepts

- Community Mobilisation approach. By engaging traditional leadership to mobilize via a broadside community approach, gathering materials, manufacturing bricks and providing labour to dig toilet pits with the trained Mason assisting with the sub-structure lining in particular. The vulnerable need not be excluded in this type of approach but the concept needs to be understood by all from the outset.
- Choosing vulnerable households for the purpose of the Masons first demo build. In this case the cost at one location may be subsidized by UNICEF and/or the CP. The customer would be expected to allow interested parties to view the toilet after completion to help with marketing. The location would need to be central to the community. Most demos will probably be at the RHC.

Summary of Criteria for Screening the Vulnerable in Rural Settings		
	Criteria	Qualifiers
1	Rural resident	Preferably Zambian but other African nationalities permitted. They should be permanently residing in this rural location
2	Below the poverty threshold	Registered on Social Cash Transfer or RHC list and/or assessed as poverty stricken by stakeholder assessment team. Church, Ward or correspondence detailing the person or household under assessment
3	Property owner	Should live on their own plot without tenants. Landlords to be avoided on the grounds that they have disposable income that could be applied to toilet application
4	Elderly	Person of 70 years of age or above, living alone or whose spouse is similarly aged and poverty-stricken. May also take care of dependants (grandchildren or incapacitated relatives or dependants). Expected that more will be women
5	Female headed household	Household without income generators due to migration, sickness or death. Lack regular income yet responsible to raise and educate children
6	Inadequate sanitation	The current sanitation situation is highly inadequate. Either no toilet facility or old toilet is overflowing and in need of replacement.
7	Poor health or disability	Blindness, prolonged illness, disability or general age-related body function failure (e.g. legs, arms) further enhance the candidates likelihood of being assessed as a Vulnerable