# Comparative Expenses of Sanitation Options in Rapid onset Emergencies

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## Executive Summary:

Several major donors are now looking for **"value for money"** in all WASH emergency programmes. Therefore in order to justify the cost of Oxfam's selected latrine design; following considerations have been taken into account to ensure that we are providing "value for money" in phase of emergency and the long run:

- Considerations are: -
- Total five countries have been selected in Asia, Africa and Latin America regions based on strategic locations where natural disaster and conflicts are continuing last several years and become a regular phenomenon; the selected countries are Philippines, Ethiopia, South Sudan, Kenya and Haiti.
- Availability and access to materials are also taken into the account as there are huge variations of unit prices of the required items country to country due to lack of availability of materials in local markets &

sometimes in country and also high transportation cost due to bad road communications and in security environments.

- Also considered local context, environmental factors; such as flood prone area, high water table, soil conditions.
- Cultural & social issues, local practices, gender sensitiveness and protections issues also a key factors of consideration of appropriate design or options.
- Duration of responses and camp settlements are also considered as key factors of selection of options.
- Users ratio is also one key area which has been considered in selection of options, at the initial stage of response (1st 3 to 6 months) our consideration is 50 users/cubicles and after the initial stage or during this initial phase users ratio should be reduced to 20 users/ cubicles as users may not be willing or interested to use it for long term
- We have only considered the initial construction cost and re-currents costs for the period up to 2 years, so selection of options are based on time frame or the facilities needed or to be used by maintaining hygienic conditions and ensuring ownership by the users

Below is the summary of the country wise details cost analysis of different design and options based on the above considerations:

| **Options/types of Latrines** | **Suitability of options in different phase considering the cost effectiveness (for details please see Table 3)** | **Construction + Recurrent Cost per cubicle – 50 to 20 users/cubicles** | | | | |
|---|---|---|---|---|---|---|
| | | **Philippines (US $)** | **Ethiopia (US $)** | **South Sudan (US $)** | **Kenya (US $)** | **Haiti (US $)** |
| | | **Total cost** | **Total cost** | **Total cost** | **Total cost** | **Total cost** |
| Peepoo/bag toilet | Within the 1st 4 weeks. Only suitable in this initial stage | **726** | **726** | **726** | **716** | **726** |
| Shallow trench latrines | Within the 1st 4 weeks Only suitable in this initial stage | **174** | **251** | **693** | **419** | **386** |
| Simple Communal Pit latrine - unlined | Week 1 to months 24. Suitable for maximum 6 months period | **1062** | **844** | **2031** | **781** | **1408** |
| Simple Communal Pit Latrine - Lined | Week 4 to months 24. Suitable up to 1 year, however could be used up to 2 years if users are agreed, needs additional cubicles to reduced users ratio. | **860** | **819** | **1295** | **753** | **1128** |
| Communal lined pit Latrine with Vent Pipe | Week 4 to months 24. Suitable for >1 year as pit volume is bigger & could be used up to 2 years if users are agreed and needs additional cubicles to reduced user ratio. | **967** | **1593** | **2199** | **1785** | **1683** |
| Pour Flush latrine in flood condition | Week 4 to months 24. if flooding is an issue suitable for >2 years & if is there are any safe de-sludging & disposal system developed. Needs additional cubicles after 6 months | **793** | **1187** | **1957** | **958** | **1181** |
| Raised Latrine – brick/CHB masonry work in high water table area | Week 4 to months 24. Suitable for >2 years if water table is high & threat to ground water contamination, needs additional cubicles to reduce users ratio | **590** | **1036** | **2128** | **1044** | **795** |
| UDDT (Urine Diversion Dry Toilet) | Week 6 - 8 to months 24. Suitable for long terms if rocky/hard soil difficult to dig pit & water table is high & threat to ground water contamination | **358** | **478** | **982** | **582** | **399** |
| EcoSan Toilet | Month 3 to months 24. Suitable for long term terms if communities are sensitized | **350** | **614** | **973** | **640** | **437** |
| Household/family shared Latrine - offset | Months 6 to months 24 users choice/preference and if cultural sensitivity is an issue. Suitable for long terms. | **250** | **399** | **362** | **311** | **302** |
| Household/family shared Latrine – direct pit | Months 6 to months 24 users choice/preference and if cultural sensitivity is an issue. Suitable for long terms. | **0** | **339** | **465** | **276** | **382** |

The above explanation and considerations are in general selection criteria, however based on the field scenarios there is need to apply strong situation & contextual analysis to select appropriate options which Oxfam is practicing and as a result sometimes questions are arising on **"value for money"** by the donors in different countries. Please see below are the examples how Oxfam is considering and selecting options in different phase of emergencies to ensure the cost effectiveness and.

**In Philippines**, the first option would be peepoo for 4 weeks then straight onto Raised Latrines – total cost would be 1316. The second option for the Philippines would cost 1447 (UDDT plus 6 weeks of peepoo) – people in the Philippines would not use trench latrines and most emergencies in the Philippines are in short lived in the "communal shelter/evacuation centres" where it is really difficult to construct any toilets and people affected tend to be in low lying coastal areas so makes more sense to go for the Raised latrines and household ones when they return.

**Bring in a lot of cultural issues – like in Ethiopia** the people are anal washers therefore the unlined pits could only be used for short periods – they are not really use to trench latrines (as they tend to be used to privacy etc etc, most of the time the emergencies in Ethiopia do not cause displacement on a large scale – they tend to be home based therefore a short spell of communal then move onto household latrines)

**In South Sudan** – most emergencies cause protracted displacement in "camps", they will use trench then move on to household – this means the general cleanliness and maintenance is put onto the family and cuts down on other NGO costs such as latrine attendants and so on – there is not normally an issue of high water table – even if there is the offset pit can be designed to combat this issue – people are anal washers etc.

All above are practical examples that we have practiced in our different phase emergencies in different countries, however there is another important factor which needs to be considered very carefully when we are questioning on **"value for money"**. All the above costs are exclusively the programme support cost, if the programme/response is funded by one donor then all above costs are increasing as all are charging to that particular donors funding, if it is several donors then costs are less as programme support costs are sharing among the different donors. For an example, in 2012 there was a question raised by one donor in our Dadaab programme in Kenya mentioned that, Oxfam's response is very expensive than the other Implementing partner and that has been raised because we have funding from only that particular donor and charged all programme & support cost to their fund; where as other implementing partners have multi donors and they shared programme support cost equally. So, before raising any questions donors should this factor.

In conclusion, although initially the cheapest options are not always the best due various factors such as re-current cost, long term use are not that type of latrine is suitable for all emergences, that the selection options for emergency latrines do 100% depend on the actual situation on the ground, the cultural aspects of the affected population and the end users preferences.

## Introduction

Several major donors are now looking for "value for money" in all WaSH emergency programmes. Therefore in order to justify the cost of Oxfam's selected latrine design not only should initial construction cost be considered but also the on- going operation & maintenance costs to ensure that we are providing "value for money" in phase of emergency and the long run.

In saying this, value for money should not only look at construction, operation and maintenance costs as many other aspects such as suitability of design for each phase of an emergency, soil conditions, environmental factors and acceptability of design must also be a major factor.

This document hopes to outline various basic costs of a selection of design options as well as calculate operation and maintenance costs over a period of 2 years. In addition to this the document will also look at the suitability of those selected designs during the same time frame.

# A. Sanitary Design options including costs analysis:

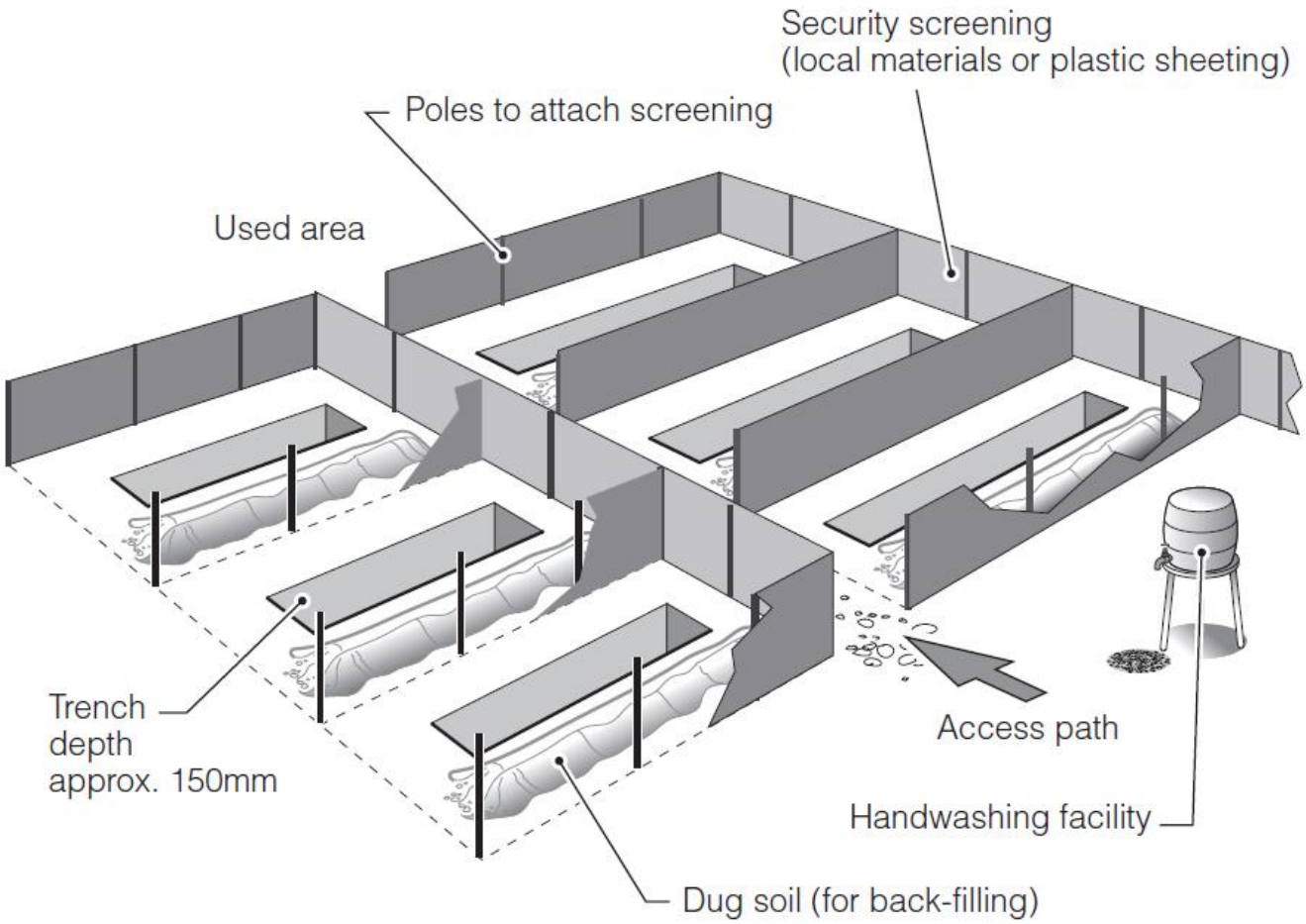
It must be noted that the following designs and bills of quantities are based on provision of sanitary facilities for up to a maximum of 50 people.

### a. Peepoo/bag toilets

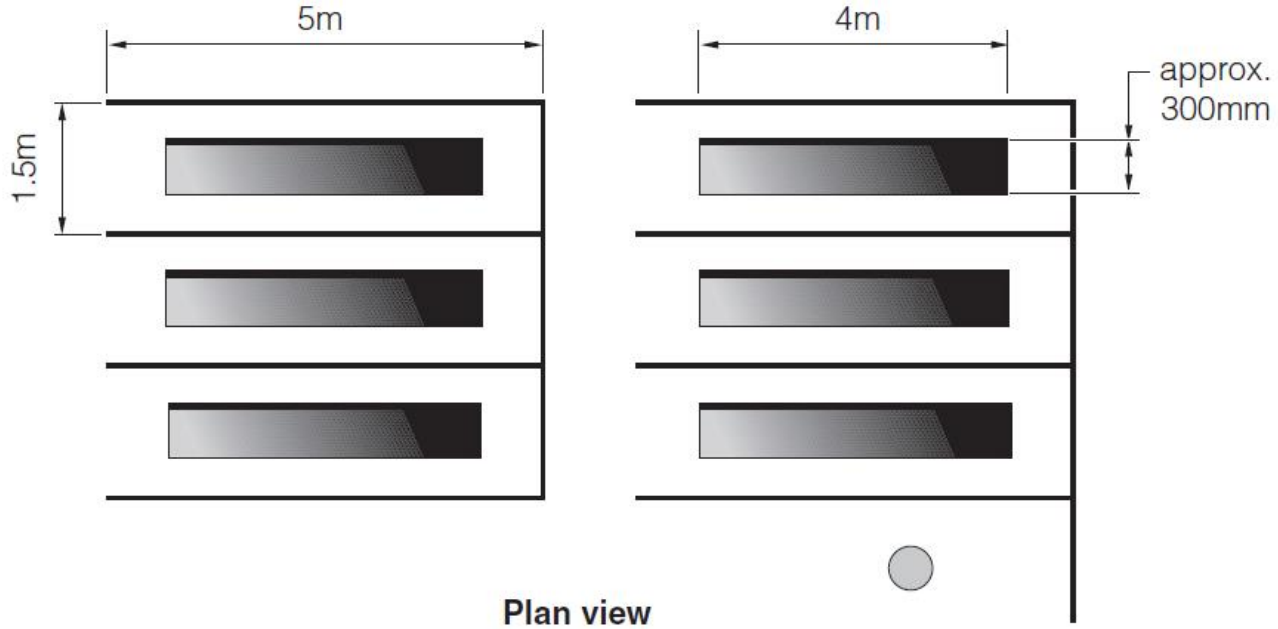
It must be noted that the prices listed below are in theory and not from an actual programme.

| Item | Unit Cost (US$) | Cost for 50 people for 1st month | Cost for 50 people for consecutive 2nd month | Cost for 50 people for 3rd consecutive month |
|---|---|---|---|---|
| Monthly Personal packs (28 bags per person per month) | 3.07 | **153.50** | **153.50** | **153.50** |
| Kiti (peepoo seat) 1 for every 4 people (family) | 2.46 | **29.52** | **0** | **0** |
| Privacy tent – 1 for every 4 people (family) @ US$ 5/tent | 5 | **62.5** | **0** | **0** |
| Communal collection containers (for full bags) – 1 x200L drum with lid for every 20 people (5 families sharing) | 50 | **125** | **0** | **0** |
| Daily pick up/removal of the used bags – for 3 x 200L drums | 50 | **50** | **50** | **50** |
| PPEs for disposal & pick up/cleaning of communal collection containers (for 1 people per 2no 200L drum) 2 people daily basis | 7.5 | **225** | **225** | **225** |
| Monthly cleaning materials for each communal collection drum | 20 | **80** | **80** | **80** |
| **Total cost US $ per month** | | **725.52** | **508.5** | **508.5** |
| **Total cost US $ for 3 months** | | | | **726 + 509 + 509 = 1744** |
| **Average cost per/person/month US $** | | | | **11.63** |

b. **Shallow Trench Latrines**:




**Superstructure**



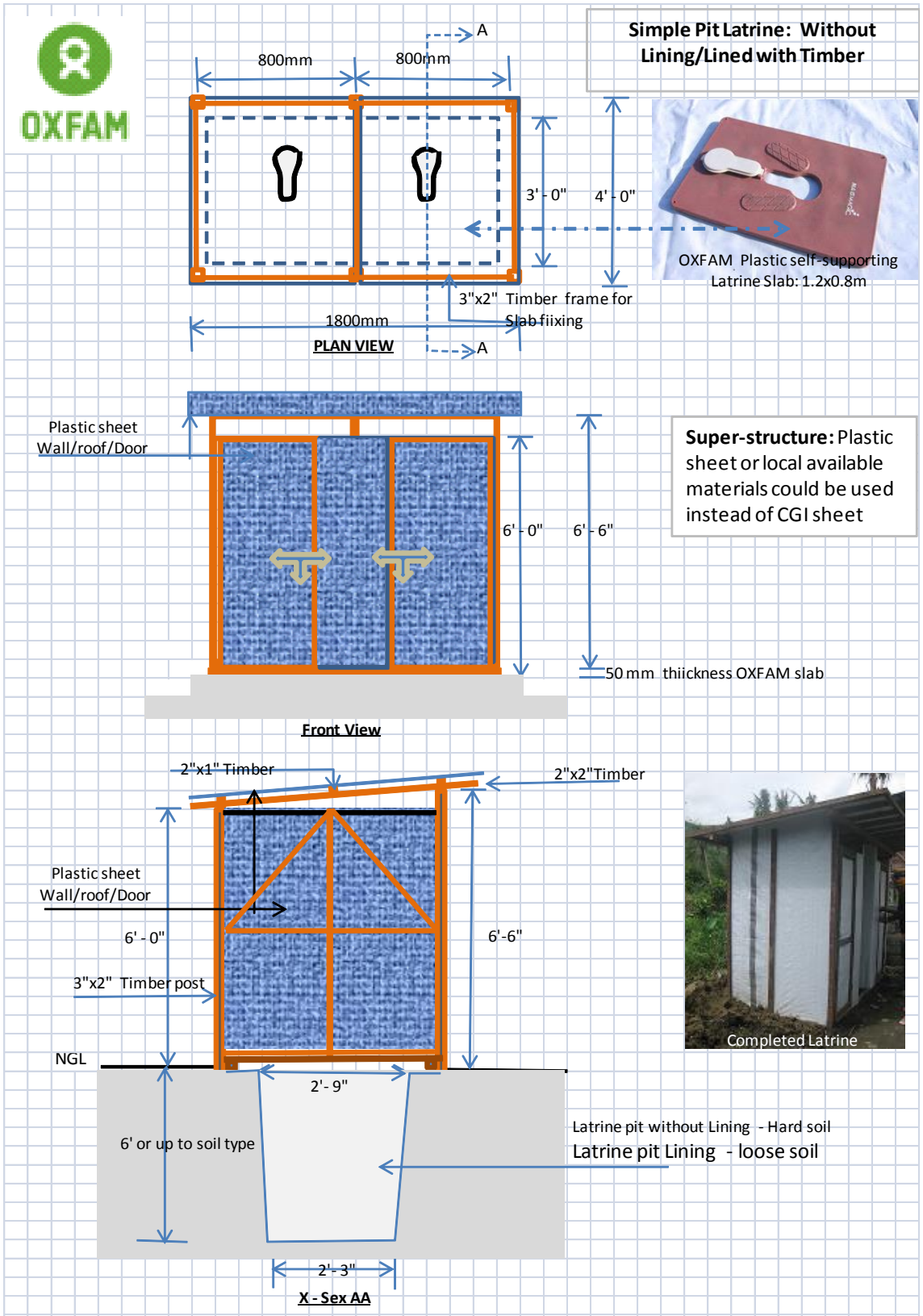

**Plan view**

**BOQ including cost of Shallow Trench Latrine:**

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Pit Digging | m3 | 2.40 | 150 | 360 | 70 | 168 | 45 | 108 | 800 | 1920 | 472 | 472 |
| Timber Post 3"x2"x8' | pcs | 22.00 | 60 | 1320 | 45 | 990 | 45 | 990 | 480 | 10560 | 250 | 250 |
| Timber 2"x1"x10' | pcs | 24.00 | 20 | 480 | 40 | 960 | 20 | 480 | 200 | 4800 | 160 | 160 |
| Timber 2"x2"x8' hand washing stand | pcs | 2.00 | 50 | 100 | 40 | 80 | 35 | 70 | 320 | 640 | 200 | 200 |
| Timber Plank 10”x1”x6’ | pcs | 1.0 | 120 | 120 | 250 | 250 | 75 | 75 | 600 | 600 | 300 | 300 |
| CWN 2" | kg | 1.00 | 60 | 60 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| CWN 3" | kg | 1.00 | 60 | 60 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| Hand washing plastic barrel/bucket with facuet – 20/30 ltrs | pcs | 1 | 220 | 220 | 75 | 75 | 75 | 75 | 600 | 600 | 450 | 450 |
| Tarpaulin 4x60m | roll | .5 | 6000 | 3500 | 3000 | 1500 | 693 | 347 | 12000 | 6000 | 4500 | 4500 |
| Labour cost for construction | | | | 0 | | 0 | | 0 | | 0 | | |
| Skilled | man-days | 1.00 | 200 | 200 | 200 | 200 | 40 | 40 | 1200 | 1200 | 250 | 250 |
| Un- skilled | man-days | 4.00 | 150 | 600 | 70 | 280 | 30 | 120 | 500 | 2000 | 200 | 200 |
| Decommissioning of Trench latrine | | | | 0 | | 0 | | 0 | | 0 | | |
| Hydrated/chlorinated lime | kg | 10 | 50 | 500 | 25 | 250 | 4 | 40 | 600 | 6000 | 75 | 75 |
| Unskilled labour | Man days | 2 | 150 | 300 | 70 | 140 | 30 | 60 | 500 | 1000 | 200 | 200 |
| **Total Cost Per Country (Local Currency):** | | | | **7320** | | **34973** | | **2425** | | **35580** | | **16233** |
| **Total Cost Per Country (US$):** | | | | **174** | | **251** | | **693** | | **419** | | **386** |
| **Total cost per cubicle for 50 persons US $** | | | | | | | | | | | | |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**c. Simple Communal pit latrines (unlined and non-ventilated):**

The design given below is from the Philippines 2007/2014 in Evacuation Centers with limited space. Each unit is a 2 door unit due to this limitation.



**BoQ including Cost of Simple Communal Pit Latrine: Un-Lined**

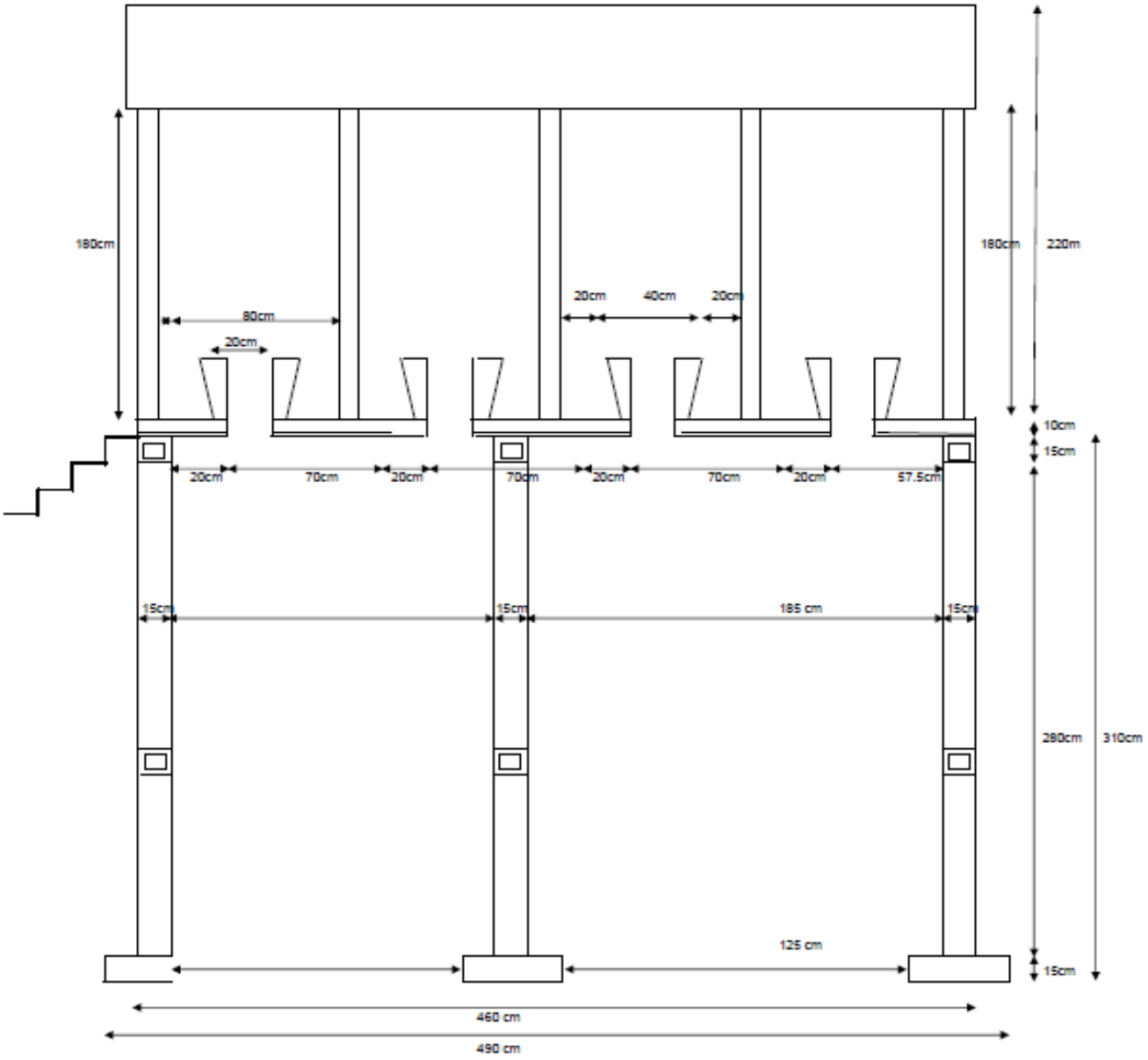
| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Pit Digging | m3 | 2.40 | 150 | 360 | 70 | 168 | 45 | 108 | 800 | 1920 | 472 | 1133 |
| Coco Lumber 1"x2"x8' | pcs | **22.00** | 20 | 440 | 40 | 880 | 20 | 440 | 190 | 4180 | 160 | 3520 |
| Coco Lumber 2"x2"x10' | pcs | **16.00** | 50 | 800 | 40 | 640 | 35 | 560 | 500 | 8000 | 200 | 3200 |
| Coco Lumber 2"x3"x8' | pcs | **6.00** | 60 | 360 | 45 | 270 | 45 | 270 | 570 | 3420 | 250 | 1500 |
| CWN 2" | kg | 2.00 | 60 | 120 | 40 | 80 | 10 | 20 | 130 | 260 | 80 | 160 |
| CWN 3" | kg | 2.00 | 60 | 120 | 40 | 80 | 10 | 20 | 130 | 260 | 80 | 160 |
| CWN 4" | kg | 2.00 | 60 | 120 | 40 | 80 | 10 | 20 | 150 | 300 | 80 | 160 |
| Barrel Bolt (Ordinary) | pcs | 2.00 | 30 | 60 | 40 | 80 | 45 | 90 | 80 | 160 | 100 | 200 |
| Hinges 3"x3" | pair | 4.00 | 40 | 160 | 25 | 100 | 90 | 360 | 230 | 920 | 100 | 400 |
| Door Handle 5" | pcs | 2.00 | 30 | 60 | 40 | 80 | 45 | 90 | 200 | 400 | 100 | 200 |
| PVC Pipe 2" dia.(Sanitary Pipe) | pcs | 1.00 | 250 | 250 | 100 | 100 | 85 | 85 | 250 | 250 | 250 | 250 |
| Latrine Slab w/ P-Trap | set | 2.00 | 2,030 | 4060 | | 0 | 50 | 100 | 4050 | 8100 | 1885 | 3770 |
| Tarpaulin 4x6 | shits | 2.00 | 644 | 1288 | 480 | 960 | 80 | 160 | 1200 | 2400 | 550 | 1100 |
| Labour cost for construction | | | | 0 | | 0 | | 0 | | 0 | | 0 |
| Skilled | Man-days | 2.00 | 200 | 400 | 200 | 400 | 40 | 80 | 1000 | 2000 | 250 | 500 |
| Un- skilled | Man-days | 4.00 | 150 | 600 | 70 | 280 | 30 | 120 | 500 | 2000 | 200 | 800 |
| **Total Cost Per Country (Local Currency):** | | | | 9198 | | 4198 | | 2523 | | 34570 | | 17053 |
| **Total Cost Per Country (US$): 2 cubicles** | | | | **219** | | 212 | | 721 | | **407** | | **437** |
| **Total cost per cubicle for 50 persons US $** | | | | **110** | | 106 | | 361 | | **204** | | **219** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

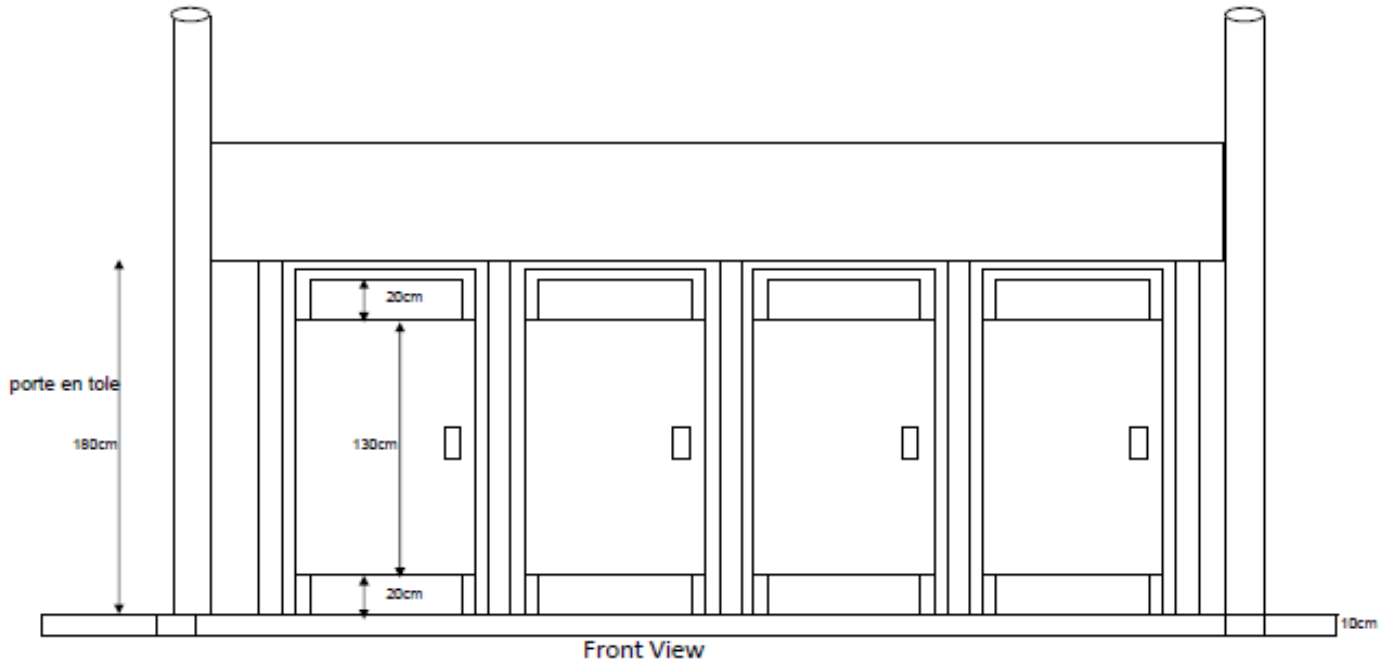
d. **Simple Communal pit latrines (lined Pit and non-ventilated):** As above with the additional cost of the Pit Liner materials

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| 2"x2"x6' Wood baton | pcs | 9 | 50 | 450 | 40 | 360 | 35 | | 400 | 3600 | 200 | 1800 |
| Zinc/iron Sheet G26X 1.8cm, 3mL | pcs | 2 | 325 | 650 | 250 | 500 | 150 | | 850 | 1700 | 300 | 600 |
| CWN 2", 1 1/2" | kg | 0.5 | 60 | 30 | 40 | 20 | 10 | | 130 | 65 | 80 | 40 |
| un- skilled labour | nos | 2 | 150 | 300 | 70 | 140 | 30 | | 500 | 1000 | 200 | 600 |
| **Total cost per Country (Local Currency):** | | | | 1430 | | 1020 | | 680 | | 6365 | | 3040 |
| **Total Cost Per Country (US$):** | | | | **34** | | 52 | | 194 | | 74 | | **78** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

e. **Communal pit (lined) latrines with Vent Pipe**

The example given here is from Internal Displacement Camp, Haiti 2010/1. It is primarily for 80 people being a 4 door communal latrine.




Front View

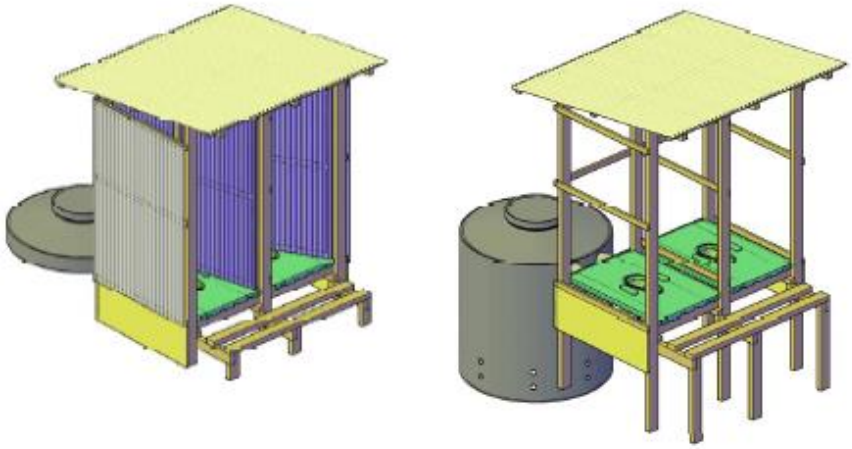
## BOQ including estimated cost of communal pit (lined) latrines with Vent Pipe

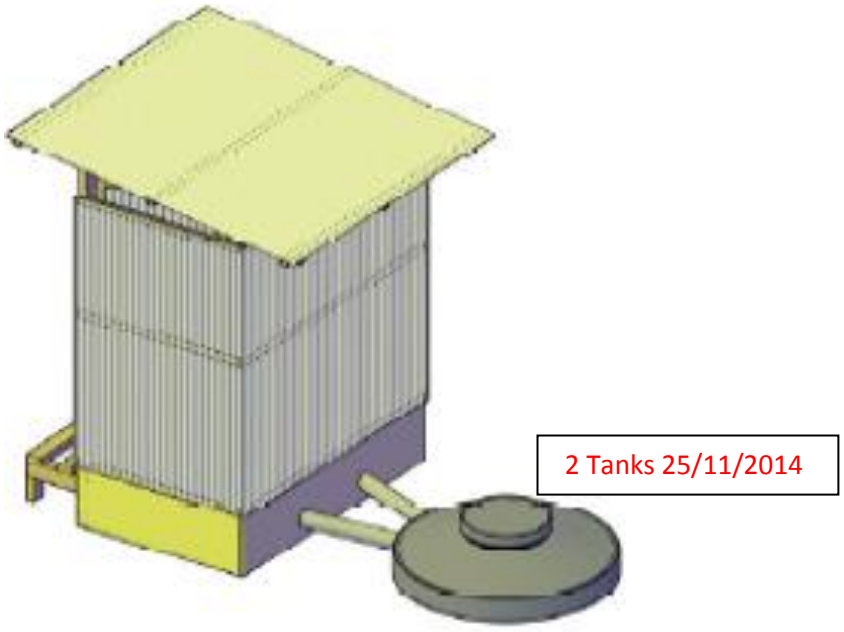
| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Cement block - 40 x 20 x 15 cm | Pcs | 360 | 30 | 10800 | 20 | 7200 | 6 | 2160 | 150 | 54000 | 35 | 12600 |
| Cement block- 40 x 20 x 10 cm | Pcs | 155 | 25 | 3875 | 15 | 2325 | 5 | 775 | 130 | 20150 | 30 | 4650 |
| Cement 42 kg bag | bags | 44.8 | 260 | 11648 | 210 | 9408 | 70 | 3136 | 950 | 42560 | 300 | 13440 |
| Sand Local | $m^3$ | 4.23 | 770 | 3257 | 700 | 2961 | 98 | 415 | 3200 | 13536 | 600 | 2538 |
| Gravel | $m^3$ | 2.35 | 1100 | 2585 | 1100 | 2585 | 80 | 186 | 2185 | 5135 | 1000 | 2350 |
| Rebar- 1/2", 30' L | Bar | 18 | 230 | 4140 | 250 | 4500 | 35 | 630 | 1200 | 21600 | 230 | 4140 |
| Rebar - 3/8", 30@ L | Bar | 13 | 180 | 2340 | 270 | 3510 | 25 | 325 | 1000 | 13000 | 230 | 2990 |
| Rebar - 1/4", 20' L | Bar | 18 | 120 | 2160 | 250 | 4500 | 20 | 360 | 800 | 14400 | 100 | 1800 |
| Binding wire | lb | 12 | 80 | 960 | 40 | 480 | 15 | 180 | 120 | 1440 | 30 | 360 |
| Bois 4" x 2" x 16' (Timber) | pcs | 29.6 | 60 | 1776 | 40 | 1184 | 45 | 1332 | 1000 | 29600 | 500 | 14800 |
| Bois 2" x 2" x 16' (Timber) | pcs | 9 | 50 | 450 | 40 | 360 | 35 | 315 | 400 | 3600 | 320 | 2880 |
| Bois 1" x 2" x 16' (Timber) | pcs | 10 | 20 | 200 | 40 | 400 | 20 | 200 | 150 | 1500 | 320 | 3200 |
| Tole 34 6' x 3' (metal or GI sheet BG 34 for roof) | pcs | 7 | 190 | 1330 | | 0 | 150 | 1050 | 850 | 5950 | 300 | 2100 |
| Clou 3" (nails) | Lb | 9 | 60 | 540 | 40 | 360 | 10 | 90 | 225 | 2025 | 80 | 720 |
| Clou de tole (metal umbrella nails for roof) | Lb | 2 | 80 | 160 | 40 | 80 | 15 | 30 | 335 | 670 | 200 | 400 |
| Siege de latrine (latrine bowls) | Pcs | 4 | 650 | 2600 | | 0 | 15 | 60 | 1400 | 5600 | 2000 | 8000 |
| Vent pipe 4" | Pcs | 1 | 250 | 250 | 100 | 100 | 85 | 85 | 500 | 500 | 300 | 300 |
| Planche de coffrage -wood board | Pcs | 20 | 450 | 9000 | 400 | 8000 | 20 | 400 | 700 | 14000 | 600 | 12000 |
| Contraplaqué 1/2" (plywood) | Pcs | 2 | 500 | 1000 | 160 | 320 | 75 | 150 | 600 | 1200 | 900 | 1800 |
| Charniere (hinges) | pair | 4 | 30 | 120 | 25 | 100 | 90 | 360 | 100 | 400 | 100 | 400 |
| Verrou (bolts) | pce | 2 | 30 | 60 | 40 | 80 | 25 | 50 | 120 | 240 | 100 | 200 |
| Creusage fosse (pit digging) | $m^3$ | 10.6 | 300 | 3180 | 70 | 37 | 45 | 477 | 800 | 8480 | 472 | 5003 |
| Dammage & nivellement fosse (Levelling and tamping) | $m^2$ | 7.1 | | 12500 | 10880 | 10880 | 2100 | 2100 | 31000 | 31000 | 28766 | 28766 |
| Coffrage & decoffrage semelle (Slab framework) | $m^2$ | 1.6 | | | | | | | | | | |
| Coulage semelle (slab casting) | $m^3$ | 0.6 | | | | | | | | | | |
| Ferraillage Poteau (colum reinforcement) | ml | 103.4 | | | | | | | | | | |
| Coffrage & decoffrage Poteau (column frame work) | $m^2$ | 1.9 | | | | | | | | | | |
| Coulage Poteau (column casting) | $m^3$ | 0.3 | | | | | | | | | | |
| Ferraillage ceinture (beam reinforcement) | ml | 70.4 | | | | | | | | | | |
| Coffrage & decoffrage ceinture (beam frame work) | $m^2$ | 2.9 | | | | | | | | | | |
| Coulage ceinture (beam casting) | $m^3$ | 0.22 | | | | | | | | | | |
| Ferraillage pouter (beam reinforcement) | ml | 70.4 | | | | | | | | | | |
| Coffrage & decoffrage pouter (column frame work) | $m^2$ | 2.9 | | | | | | | | | | |
| Coulage pouter (beam casting) | $m^3$ | 0.2 | | | | | | | | | | |
| Ferraillage dale (slab reinforcement) | ml | 104.4 | | | | | | | | | | |
| Coffrage & decoffrage dale 9slab frame work) | $m^2$ | 6.6 | | | | | | | | | | |
| Coulage dale (slab casting) | $m^3$ | 0.56 | | | | | | | | | | |
| Ferraillage couvercle (hole cover reinforcement) | ml | 14.4 | | | | | | | | | | |
| Coffrage & decoffrage couvercle (Hole cover frame work) | $m^2$ | 0.96 | | | | | | | | | | |
| Coulage couvercle (hole cover casting) | $m^3$ | 0.07 | | | | | | | | | | |
| Superstructure bricks | brick | 141 | | | | | | | | | | |
| Fabrication & pose des portes | pcs | 4 | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (door manufacturing and fixing) | | | | | | | | | | | | |
| Charpente (roof frame work) | ml | 32.4 | | | | | | | | | | |
| Pose des toles (fixing roof) | $m^2$ | 6 | | | | | | | | | | |
| **Total cost per Country Local Currency:** | | | | 74931 | | 60075 | | 14865 | | 290586 | | 125437 |
| **Total cost per Country US$:** | | | | **1784** | | **3034** | | 4247 | | **3419** | | **3216** |
| **Total cost per cubicle for 50 persons US $** | | | | **446** | | **759** | | 1062 | | **855** | | **804** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

### f. Containment Pour Flush Latrines in Flood Conditions

The example given here is for a 4 door unit of contained pour flush latrines in a displacement camp, Philippines 2010.

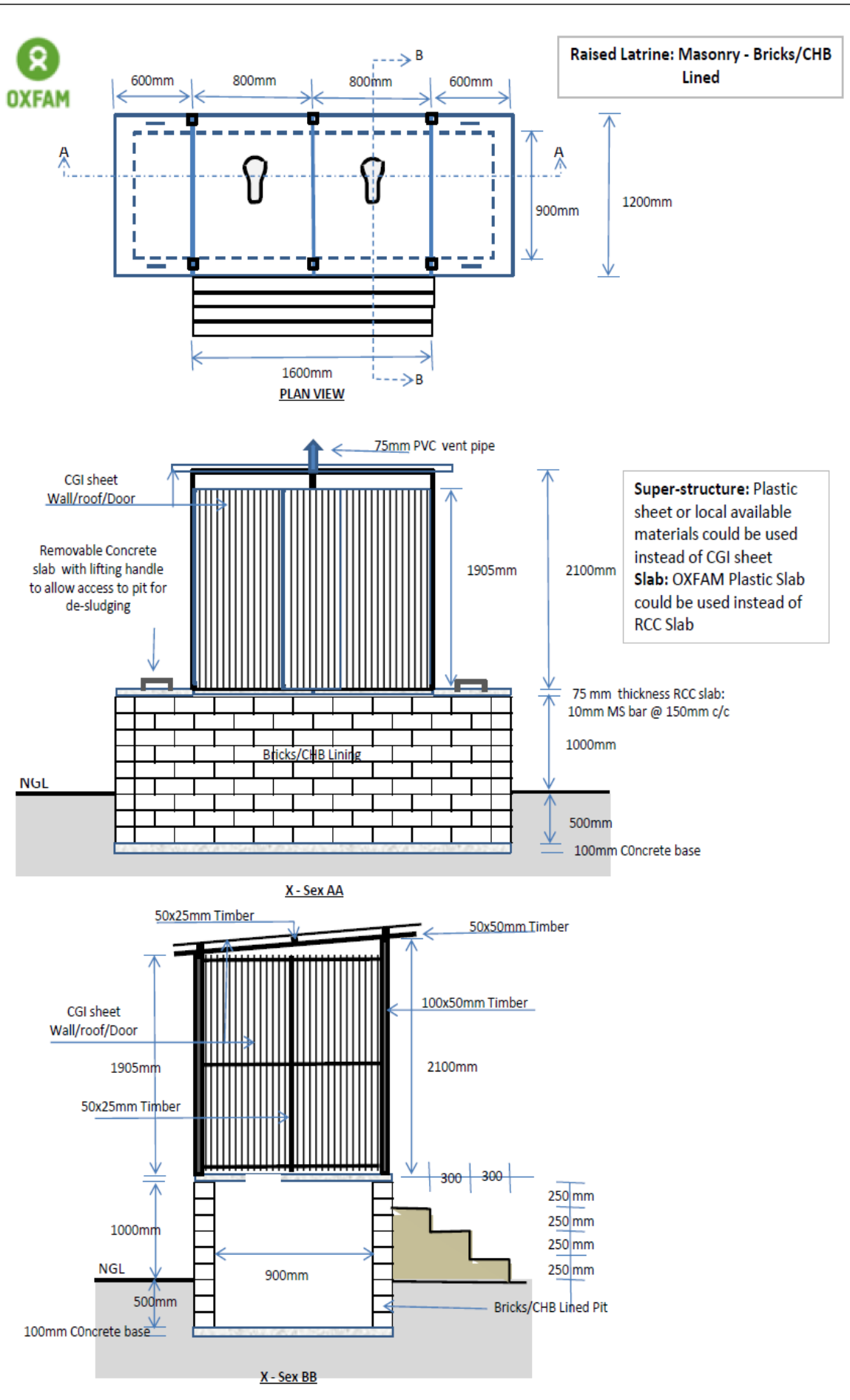




**BOQ including estimated cost of Pour Flush Latrine in Flood Condition**

| Item descriptions | Unit | Total Unit | Construction cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Timber (100x50x3600)L | pcs | 12 | 60 | 720 | 100 | 1200 | 45 | 540 | 700 | 8400 | 500 | 6000 |
| Timber (50x50x2400) | pcs | 11 | 50 | 550 | 40 | 440 | 35 | 385 | 200 | 2200 | 320 | 3520 |
| Timber (50x25x2400) | pcs | 11 | 20 | 220 | 40 | 440 | 20 | 220 | 150 | 1650 | 250 | 2750 |
| Timber Planks (225x20x2400) | pcs | 4 | 160 | 640 | 250 | 1000 | 75 | 300 | 600 | 2400 | 300 | 1200 |
| CGI Sheet (partition) 34G, 6'H | no | 1 | 190 | 190 | 180 | 180 | 140 | 140 | 400 | 400 | 300 | 300 |
| CGI Sheet (door) 32G, 6'H | no | 3 | 190 | 570 | 195 | 585 | 140 | 420 | 450 | 1350 | 300 | 900 |
| CGI Sheet (roof), 32G, 8'H | no | 4 | 220 | 880 | 195 | 780 | 140 | 560 | 500 | 2000 | 500 | 2000 |
| PVC Pipe, 100 mm - T250 | ft | 12 | 30 | 360 | 100 | 1200 | 85 | 1020 | 50 | 600 | 30 | 360 |
| PE Tank 1000L | no | 2 | 7000 | 14000 | 5000 | 10000 | 700 | 1400 | 18000 | 36000 | 6000 | 12000 |
| Squatting slab with bend & pan (Oxfam) | set | 2 | 2030 | 4060 | 1000 | 2000 | 50 | 100 | 4050 | 8100 | 1885 | 3770 |
| Silicon Gel (gum) | set | 1 | 200 | 200 | 110 | 110 | 12 | 12 | 300 | 300 | 155 | 155 |
| Nails 3" | kg | 1 | 60 | 60 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| Nails 2" | kg | 0.50 | 60 | 30 | 40 | 20 | 10 | 5 | 130 | 65 | 80 | 40 |
| Nails 1 ½" | kg | 0.25 | 60 | 15 | 40 | 10 | 10 | 2.5 | 130 | 33 | 80 | 20 |
| Umbrella Nails 1 ½" | kg | 0.50 | 80 | 40 | 60 | 30 | 15 | 7.5 | 170 | 85 | 120 | 60 |
| T-Hinges (150mm) | no | 4 | 30 | 120 | 25 | 100 | 90 | 360 | 120 | 480 | 100 | 400 |
| Door handle (150mm) | no | 2 | 30 | 60 | 25 | 50 | 45 | 90 | 100 | 200 | 100 | 200 |
| Tower Bolt (150mm) | no | 2 | 30 | 60 | 40 | 80 | 45 | 90 | 80 | 160 | 100 | 200 |
| Gate hook (100mm) | no | 2 | 20 | 40 | 40 | 80 | 5 | 10 | 80 | 160 | 35 | 70 |
| Labour: | | | | 0 | | 0 | | 0 | | 0 | | 0 |
| Skilled labourer | man-day | 2 | 200 | 400 | 200 | 400 | 40 | 80 | 800 | 2000 | 250 | 500 |
| Un-skilled labourer | man-day | 4 | 150 | 600 | 70 | 280 | 30 | 120 | 500 | 2000 | 200 | 800 |
| **Total cost per Country Local Currency:** | | | | 23815 | | 19025 | | 5872 | | 68713 | | 35325 |
| **Total cost per Country US$:** | | | | **567** | | 961 | | 1678 | | 808 | | **905** |
| **Total cost per cubicle for 50 persons US $** | | | | **284** | | 481 | | 839 | | 404 | | **453** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**g. Raised Latrine in High water Table area:**

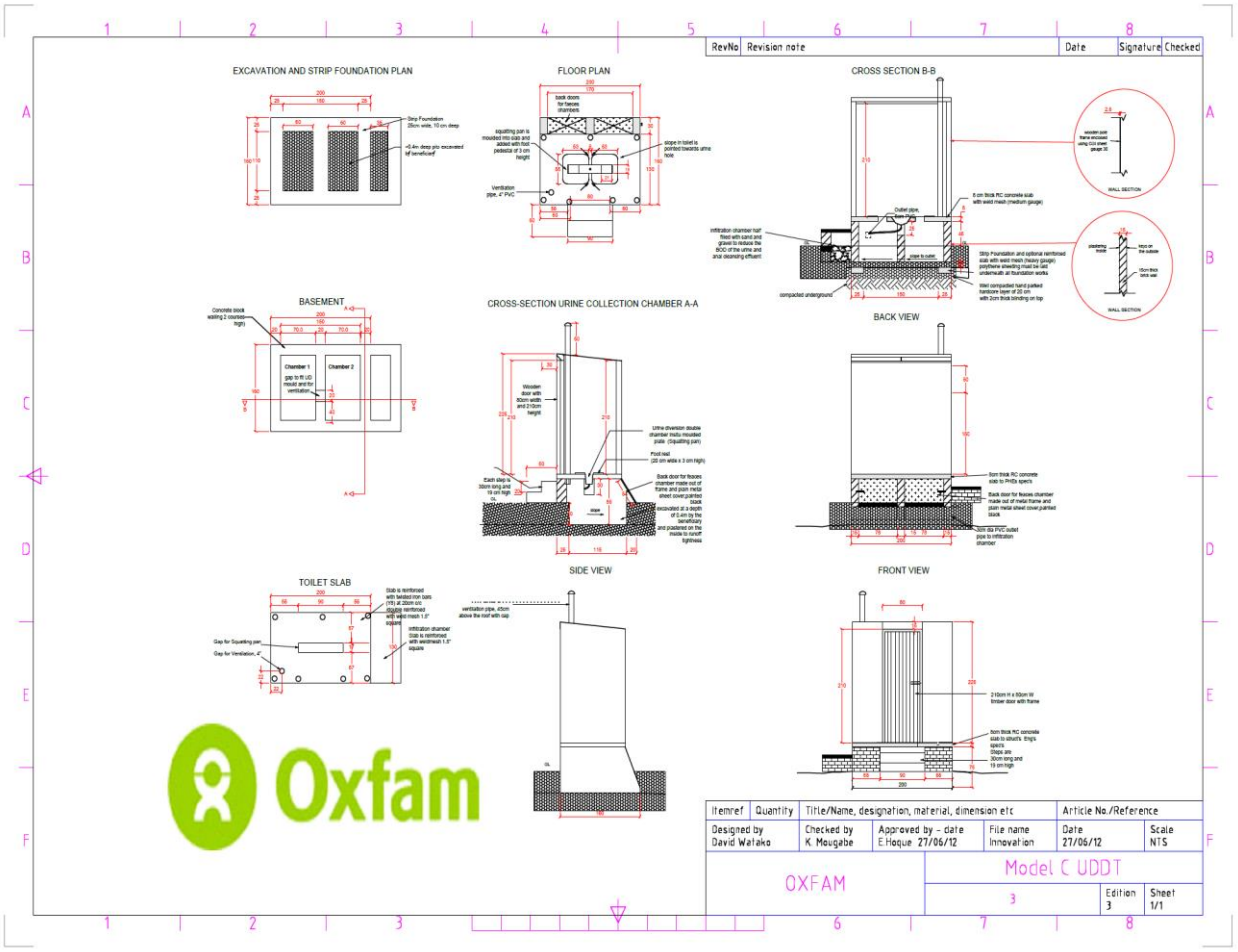


**BOQ including estimated cost of Raised Latrine in High Water table Area:**

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| CHB | pcs | 165 | 30 | 4950 | 15 | 2475 | 6 | 990 | 150 | 21450 | 35 | 5775 |
| Cement Portland 50kg | bags | 6 | 260 | 1560 | 210 | 1260 | 70 | 420 | 950 | 5700 | 300 | 1800 |
| Sand | m3 | 0.4 | 700 | 280 | 700 | 280 | 98 | 39 | 3200 | 1280 | 600 | 240 |
| Gravel | m3 | 0.5 | 1100 | 550 | 1100 | 550 | 80 | 40 | 2185 | 1093 | 1000 | 500 |
| 10mm MS bar 12m length | pcs | 4 | 180 | 720 | 290 | 1160 | 35 | 140 | 800 | 3200 | 230 | 920 |
| Binding wire | kg | 1 | 80 | 80 | 40 | 40 | 15 | 15 | 200 | 200 | 70 | 70 |
| Wooden pole for formwork | pcs | 2 | 80 | 160 | 90 | 180 | 45 | 90 | 150 | 300 | 500 | 1000 |
| Timber 200x25mm for formwork | m | 12 | 85 | 1020 | 240 | 2880 | 35 | 420 | 60 | 720 | 50 | 600 |
| CGI sheet 2m length | pcs | 10 | 190 | 1900 | 195 | 1950 | 140 | 1400 | 1350 | 13500 | 300 | 3000 |
| Timber 100x50mm | m | 16 | 60 | 960 | 100 | 1600 | 45 | 720 | 500 | 8000 | 120 | 1920 |
| Timber 50x50mm | m | 8 | 50 | 400 | 40 | 320 | 35 | 280 | 190 | 1520 | 100 | 800 |
| Timber 50x25mm | m | 36 | 20 | 720 | 40 | 1440 | 20 | 720 | 150 | 5400 | 80 | 2880 |
| 75mm pvc vent pipe | m | 3 | 85 | 255 | 90 | 270 | 75 | 225 | 300 | 900 | 300 | 900 |
| Nails (assorted 3" and 4") | kg | 6 | 60 | 360 | 40 | 240 | 10 | 60 | 130 | 780 | 80 | 480 |
| Roofing nails | kg | 3 | 80 | 240 | 60 | 180 | 15 | 45 | 150 | 450 | 120 | 360 |
| Hinges | pcs | 4 | 60 | 240 | 25 | 100 | 90 | 360 | 230 | 920 | 100 | 400 |
| Door lock (inner) | pcs | 2 | 50 | 100 | 40 | 80 | 45 | 90 | 200 | 400 | 100 | 200 |
| Door lock (outer) | pcs | 2 | 50 | 100 | 40 | 80 | 45 | 90 | 200 | 400 | 100 | 200 |
| Labour skilled | Man days | 6 | 200 | 1200 | 200 | 1200 | 40 | 240 | 1200 | 7200 | 250 | 1500 |
| Labour unskilled | Man days | 18 | 150 | 2700 | 70 | 1260 | 30 | 540 | 500 | 9000 | 200 | 3600 |
| **Total cost per Country Local Currency:** | | | | 18495 | | 17545 | | 6924 | | 82413 | | 27145 |
| **Total cost per Country US$:** | | | | **440** | | **886** | | **1978** | | **970** | | **646** |
| **Total cost per cubicle for 50 persons US $** | | | | **220** | | **443** | | **989** | | **485** | | **323** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

h. **Urine Diversion Dry Toilet (UDDT):**

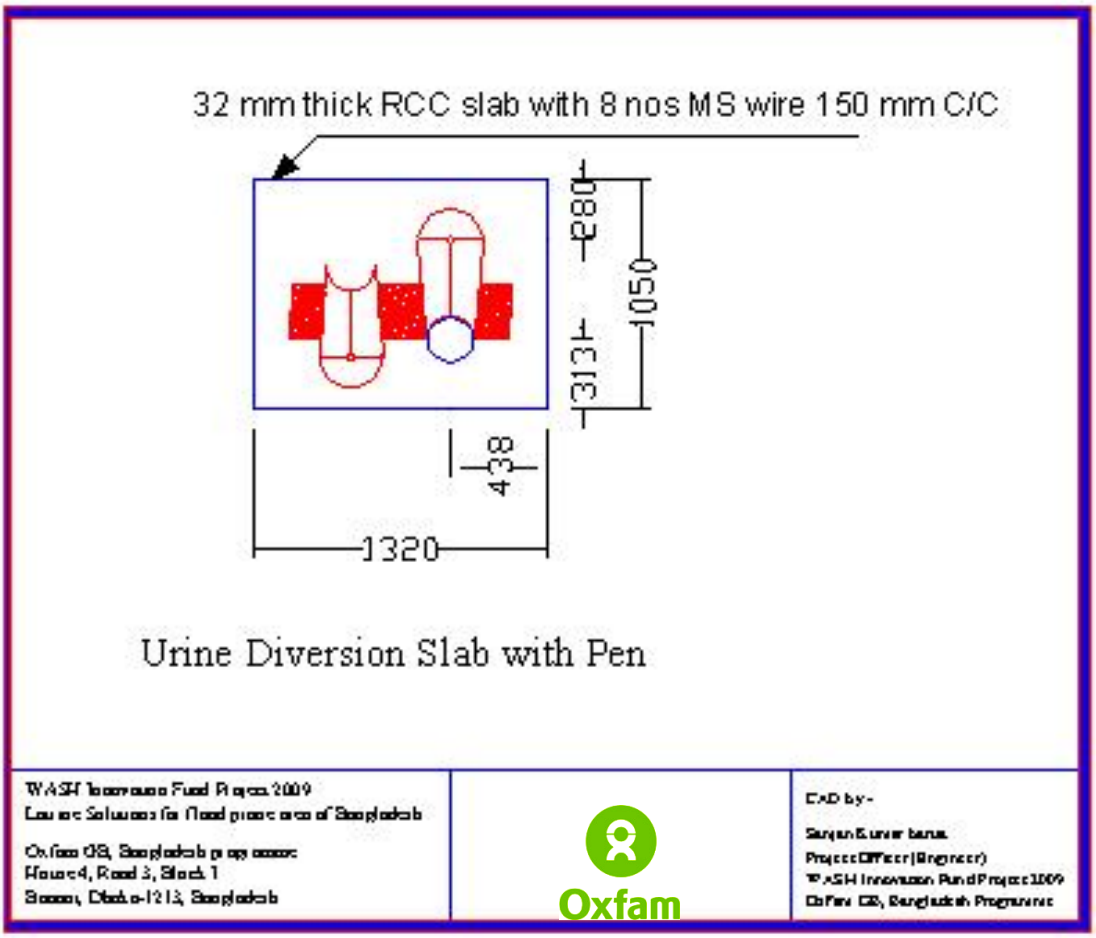
The example given here is from a Refugee Camp, Ethiopia 2012. It is primarily for 20 people being a single door communal latrine. Please note that the design below can also be used for household latrines in a camp setting.

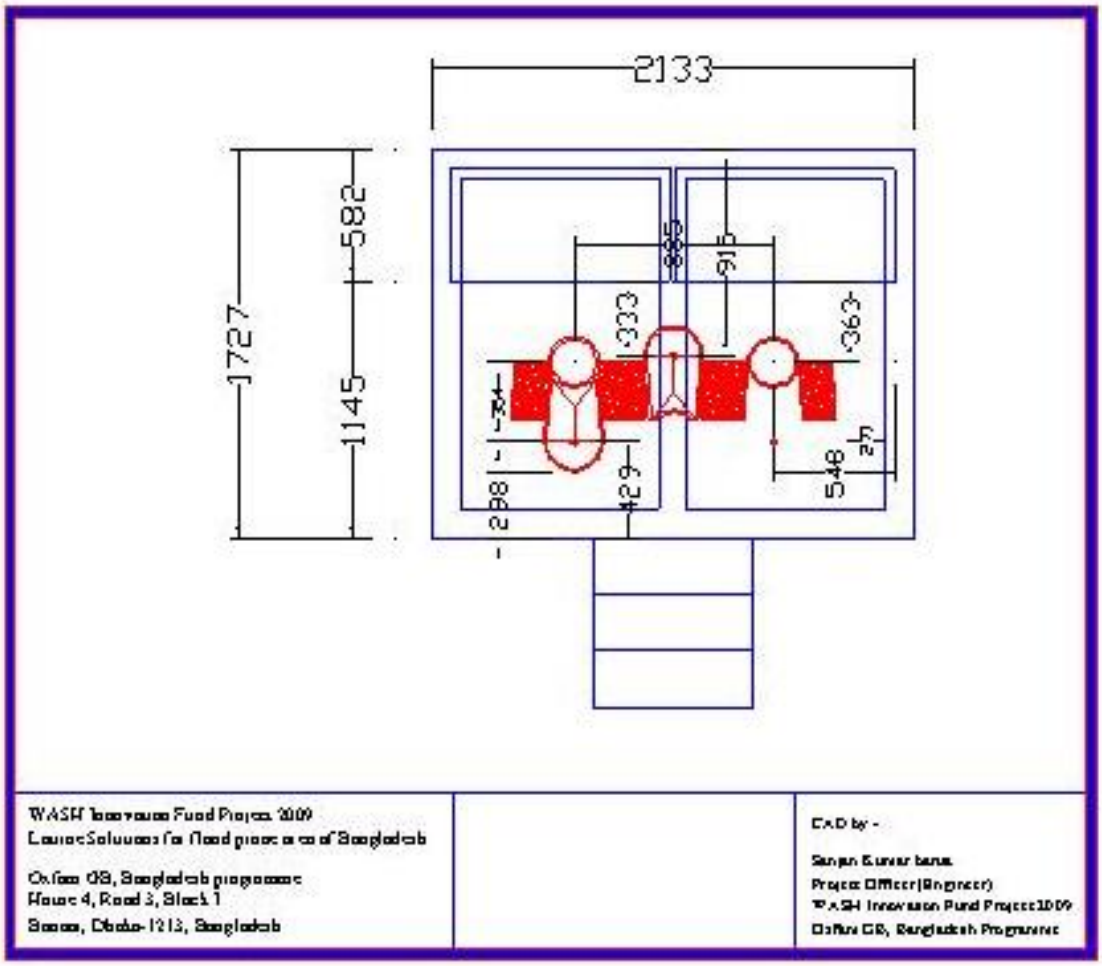


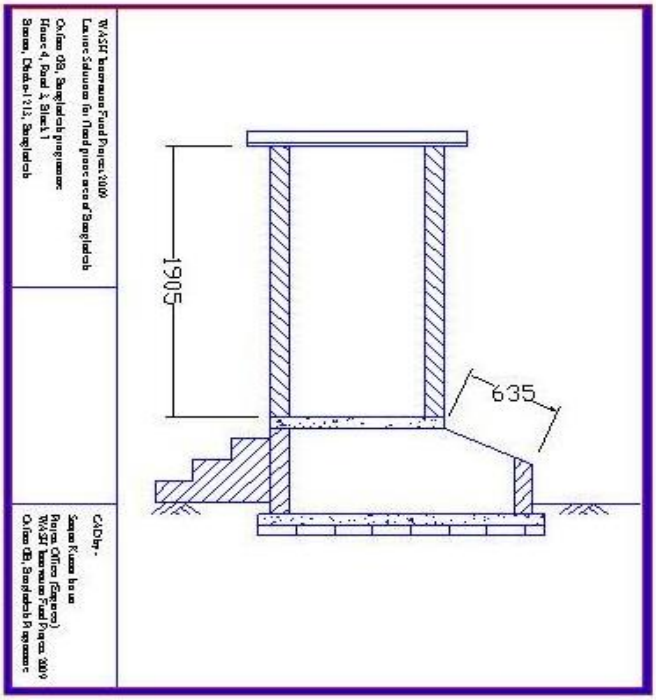
**BOQ including estimated cost of Urine Diversion Dry Toilet (UDDT):**

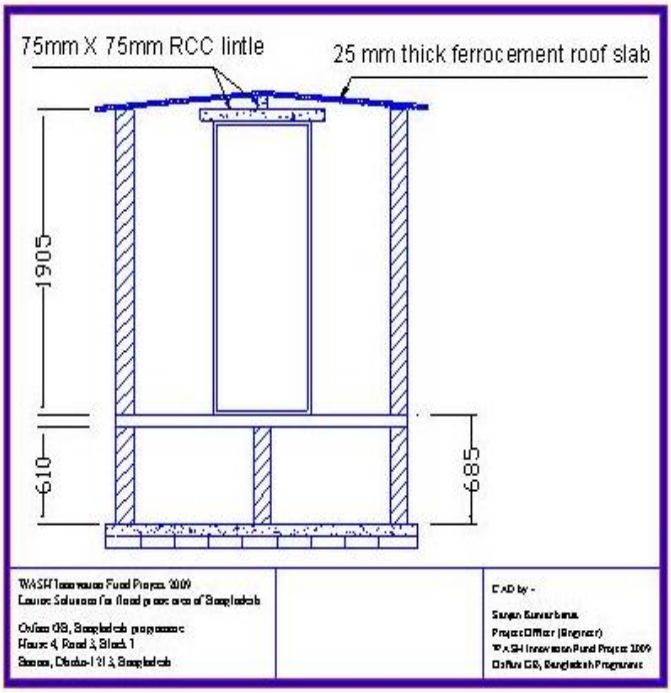
| Item descriptions | Unit | Total Unit | Construction cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| **CONCRETE WORKS** | | | | | | | | | | | | |
| Portland Cement 50kg | bags | 4 | 260 | 1040 | 260 | 1040 | 70 | 280 | 950 | 950 | 300 | 1200 |
| Building sand/ fine aggregate | $m^3$ | 0.4 | 700 | 280 | 1100 | 440 | 98 | 39 | 3200 | 3200 | 600 | 240 |
| Ballast/gravel/ coarse aggregate1/4" | $m^3$ | 0.3 | 1100 | 330 | 1100 | 330 | 80 | 24 | 2185 | 2185 | 1000 | 300 |
| Cement block - 40 x 20 x 15 cm | pcs | 60 | 30 | 1800 | 20 | 1200 | 6 | 360 | 130 | 130 | 35 | 2100 |
| Twisted Iron bars/weld mesh Y8 | pcs | 2 | 350 | 700 | 230 | 460 | 35 | 70 | 800 | 800 | 250 | 500 |
| Binding Wire | kg | 0.5 | 80 | 40 | 40 | 20 | 15 | 8 | 200 | 200 | 80 | 40 |
| **SANITATION WARE** | | | | 0 | | 0 | | 0 | | | | 0 |
| Transparent hose pipe for Squatting Pan 1 ½" | ft | 6 | 12 | 72 | 5 | 30 | 6 | 36 | 50 | 50 | 20 | 120 |
| **VENTILATION** | | | | 0 | | 0 | | 0 | | | | 0 |
| PVC Vent pipe Class B 4"x10' | pcs | 1 | 250 | 250 | 300 | 300 | 85 | 85 | 500 | 500 | 300 | 300 |
| **DOORS** | | | | 0 | | 0 | | 0 | | | | 0 |
| Door with frame 2,10m x 0.8m | pcs | 1 | 500 | 500 | 150 | 150 | 125 | 125 | 800 | 800 | 600 | 600 |
| Door hinges 4" | pcs | 3 | 45 | 135 | 20 | 60 | 90 | 270 | 230 | 230 | 100 | 300 |
| Tower bolt 4" | pcs | 1 | 60 | 60 | 40 | 40 | 25 | 25 | 80 | 80 | 100 | 100 |
| Tower bolt 2" | pcs | 1 | 45 | 45 | 20 | 20 | 20 | 20 | 60 | 60 | 100 | 100 |
| Back door steel panels and wooden frame 50x50cm | pcs | 2 | 650 | 1300 | 300 | 600 | 75 | 150 | 425 | 425 | 350 | 700 |
| **WALLING** | | | | 0 | | 0 | | 0 | | | | 0 |
| Corrugated Iron Sheets with nails, 30G, 2m L | pcs | 7 | 190 | 1330 | 110 | 770 | 140 | 980 | 1350 | 1350 | 300 | 2100 |
| **PAINTING** | | | | 0 | | 0 | | 0 | | | | 0 |
| Turpentine | ltr | 0.5 | 150 | 75 | 50 | 25 | 15 | 8 | 200 | 200 | 70 | 35 |
| Gloss Black | ltr | 0.5 | 100 | 50 | 50 | 25 | 10 | 5 | 80 | 80 | 60 | 30 |
| **GENERAL** | | | | 0 | | 0 | | 0 | | | | 0 |
| Wire nails 4" | kg | 1 | 60 | 60 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| Wire nails 2" | kg | 1 | 60 | 60 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| capped nails 4" | kg | 1 | 80 | 80 | 40 | 40 | 15 | 15 | 150 | 150 | 120 | 120 |
| hexagonal nipple1.5"/adhesive | tube | 1 | 35 | 35 | 20 | 20 | 4 | 4 | 125 | 125 | 25 | 25 |
| **Sub Total (material)** | | | | 0 | | 0 | | 0 | | | | 0 |
| Skilled Labour/artisan | Man days | 6 | 200 | 1200 | 200 | 1200 | 40 | 240 | 1200 | 1200 | 250 | 1500 |
| Unskilled Labour | Man days | 12 | 150 | 1800 | 70 | 840 | 30 | 360 | 500 | 500 | 200 | 2400 |
| **Sub Total (labour)** | | | | | | | | 0 | | 0 | | |
| **Total cost per Country Local Currency:** | | | | **11242** | | **7690** | | **3124** | | **41842** | | **12970** |
| **Total cost per Country US$:** | | | | **268** | | **388** | | **892** | | **492** | | **309** |
| **Total cost per cubicle for 20 persons US $** | | | | **268** | | **388** | | **892** | | **492** | | **309** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**i. EcoSan Toilet:**



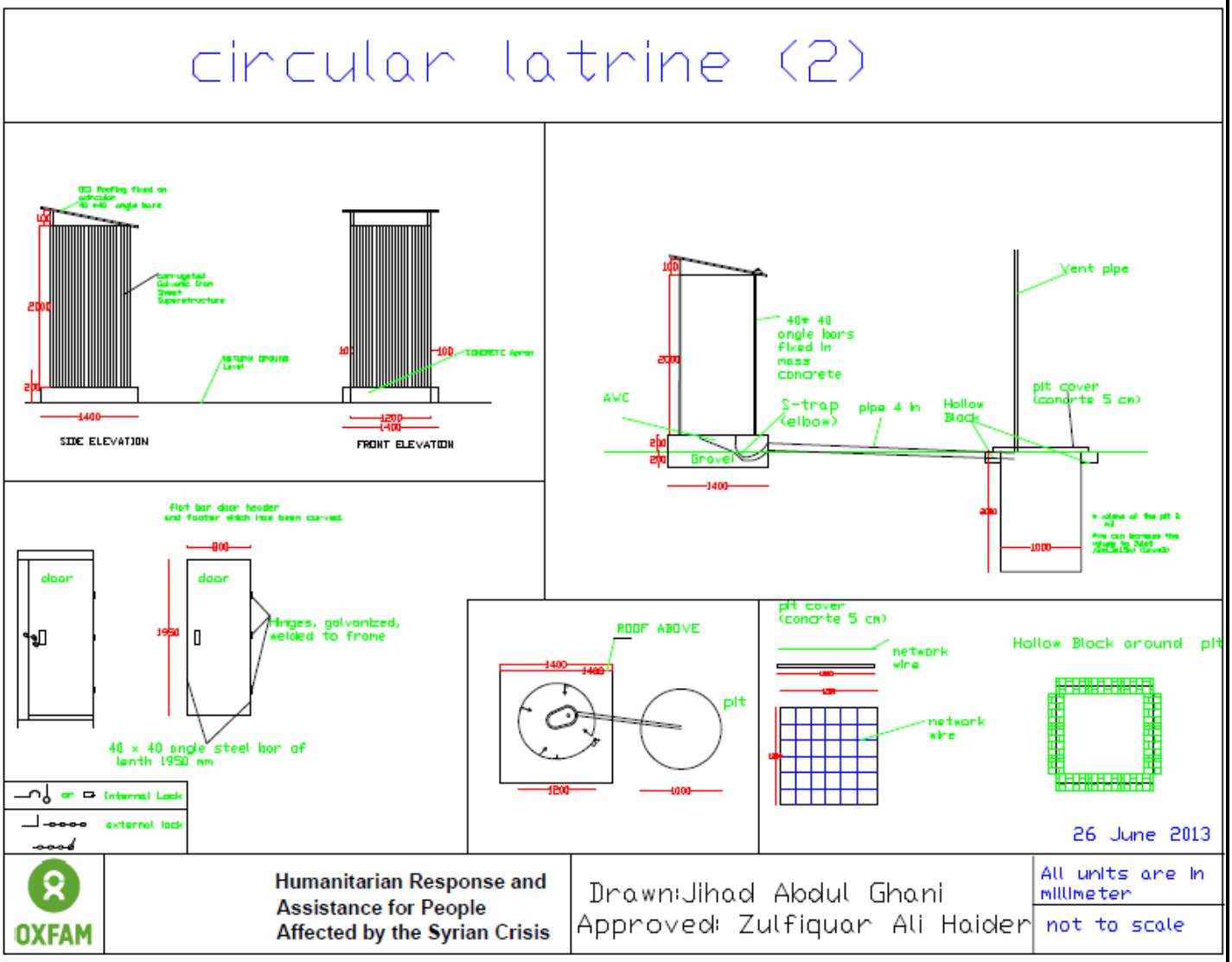

1905
635


75mm X 75mm RCC lintle
25 mm thick ferrocement roof slab
1905
610
685

## BOQ including cost of EcoSan Toilet: One unit double vaults

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Concrete Blocks /CHB | nos | 142 | 20 | 2840 | 20 | 2840 | 6 | 852 | 130 | 18460 | 35 | 4970 |
| Stone/Brick chips & pie gravel/ chips (breaking picked jhama bricks) | m3 | 0.57 | 1100 | 627 | 700 | 399 | 80 | 45.6 | 2185 | 1245 | 1000 | 570 |
| Sand - 1.6 FM | m3 | 0.6 | 700 | 420 | 700 | 420 | 98 | 59 | 3200 | 1920 | 600 | 360 |
| Cement - Portland 50 kg bags | bags | 12.16 | 260 | 3162 | 210 | 2554 | 70 | 851 | 950 | 11552 | 300 | 3648 |
| 10mm MS Rod | kg | 16.45 | 55 | 905 | 29 | 477 | 7 | 115 | 125 | 2056 | 75 | 1234 |
| GI Wire 24 no. | kg | 0.25 | 80 | 20 | 25 | 6.25 | 15 | 3.75 | 200 | 50 | 80 | 20 |
| Polyethylene | m2 | 3.60 | 80 | 288 | 48 | 173 | 80 | 288 | 80 | 288 | 175 | 630 |
| Metal Door: Specifications - 25mm x 25mm x3mm MS Angle, 25mm x 3mm Flat Iron bar, 24 gauge metal sheet | nos | 1 | 850 | 850 | 1050 | 1050 | 165 | 165 | 1500 | 1500 | 775 | 775 |
| 32mm PVC pipe (Class - C) | m | 3.5 | 41 | 144 | 80 | 280 | 15 | 53 | 75 | 263 | 40 | 140 |
| 38mm PVC pipe (Class - C) | nos | 2.14 | 250 | 535 | 90 | 193 | 75 | 161 | 350 | 749 | 225 | 482 |
| 32mm PVC Elbow | nos | 3 | 50 | 150 | 40 | 120 | 12 | 36 | 150 | 450 | 125 | 375 |
| 32mm x 38mm PVC Reducer Elbow | nos | 2 | 60 | 120 | 50 | 100 | 12 | 24 | 150 | 300 | 125 | 250 |
| 38mm PVC Tee | nos | 1 | 60 | 60 | 50 | 50 | 12 | 12 | 150 | 150 | 50 | 50 |
| 32mm PVC Tee | nos | 1 | 50 | 50 | 45 | 45 | 10 | 10 | 125 | 125 | 50 | 50 |
| 32mm PVC Crowell | nos | 1 | 25 | 25 | 45 | 45 | 3 | 3 | 50 | 50 | 20 | 20 |
| MS Wire 10 no | kg | 3.5 | 85 | 298 | 25 | 88 | 15 | 53 | 200 | 700 | 80 | 280 |
| Wiremass | m2 | 4.71 | 60 | 283 | 35 | 165 | 9 | 42 | 250 | 1178 | 50 | 236 |
| Other materials: Nut-bolt, door painting, nails, Jerican etc | LS | 1 | 275 | 275 | 600 | 600 | 80 | 80 | 500 | 500 | 250 | 250 |
| Labour cost for construction as per drawing, design and direction of PHE | | | | 0 | | 0 | | 0 | | 0 | | 0 |
| Skilled Labour - masson/carpenter/Plumber | Man days | 6 | 200 | 1200 | 200 | 1200 | 40 | 240 | 1200 | 7200 | 250 | 1500 |
| Un-skilled labour | Man days | 8 | 150 | 1200 | 70 | 560 | 30 | 240 | 500 | 4000 | 200 | 1600 |
| Messages dissemination: Writing/painting Instruction /designd messages on latrine wall | LS | 1 | 200 | 200 | 500 | 500 | 20 | 20 | 500 | 500 | 300 | 300 |
| **Total cost per Country Local Currency:** | | | | **13650** | | **11864** | | **3352** | | **53236** | | **17740** |
| **Total cost per Country US$:** | | | | **325** | | 599 | | 958 | | 626 | | **422** |
| **Total cost per cubicle for 20 persons US $** | | | | **325** | | 599 | | 958 | | 625 | | **422** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**j. Household/Family Shared latrine:**



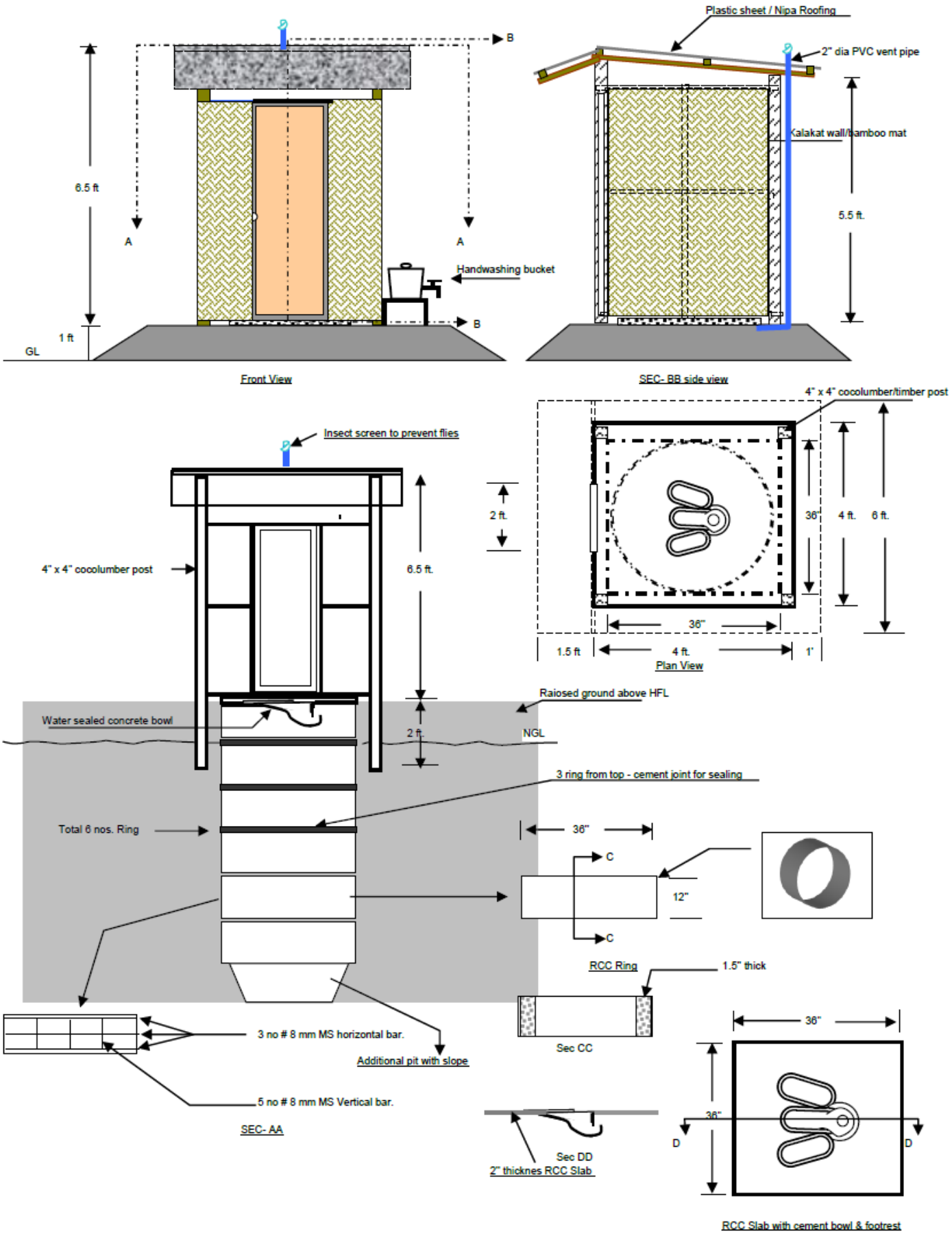

**BOQ including cost of Household/Family Shared Latrine (2): Circular**

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Gravel work ( spread it inside the latrine mold before casting) | $m^3$ | 0.5 | 1100 | 550 | 1100 | 550 | 80 | 40 | 2185 | 1092.5 | 1000 | 500 |
| Concrete work (latrine and pit cover) | $m^3$ | 0.5 | 2400 | 1200 | 2000 | 1000 | 275 | 137 | 2800 | 1400 | 3250 | 1625 |
| **Steel work ( the cost include the execution work )** | item | 1 | 4500 | 4500 | 3100 | 3100 | 450 | 450 | 10500 | 10500 | 4250 | 4250 |
| Top and bottom plate frames | | | | | | | | | | | | |
| 40 x 8 flat bar, 950 mm dia. Butt welded, predrilled to attach iron sheets | item | 2 | | | | | | | | | | |
| Door and Frame | | | | | | | | | | | | |
| 40 x 40 angle-2200 length welded top & bottom | item | 2 | | | | | | | | | | |
| 40 x 40 angle-2100 length welded top & bottom | item | 2 | | | | | | | | | | |
| 40 x 40 angle steel bar of lenth 1950 welded to flat bar door | item | 2 | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| header and footer which has been curved. | | | | | | | | | | | | |
| Handles and lock (inside and out) | item | 2 | | | | | | | | | | |
| Hinges, galvanized, welded to frame | hings | 3 | | | | | | | | | | |
| Cladding | | | | | | | | | | | | |
| Sheets galvanized iron | sheet | 4 | | | | | | | | | | |
| Roof | | | | | | | | | | | | |
| Sheets galvanized iron | sheet | 2 | | | | | | | | | | |
| Pour flush Squat Pan (AWC) | item | 1 | 350 | 350 | 1500 | 1500 | 15 | 15 | 1800 | 1800 | 2000 | 2000 |
| S-trap | item | 1 | 80 | 80 | 100 | 100 | 4 | 4 | 250 | 250 | 85 | 85 |
| PVC pipe 4 in ( waste pipe) (5.5m) | item | 1 | 300 | 300 | 100 | 100 | 75 | 75 | 500 | 500 | 300 | 300 |
| pvc pipe 3 in ( vent pipe)(5.5m) | item | 0.5 | 250 | 125 | 75 | 38 | 85 | 43 | 400 | 200 | 250 | 125 |
| Pit excavation: Excavate a pit of dimension 1000mm*1000mm*2000mm and cover it with concrete reinforced slab having thickness 50mm | pit | 1 | 300 | 300 | 15 | 15 | 60 | 60 | 1000 | 1000 | 708 | 708 |
| Hollow block ( 20 Block 400mm*200mm*150mmaround the pit) | item | 40 | 30 | 1200 | 20 | 800 | 6 | 240 | 130 | 5200 | 35 | 1400 |
| Wood Mold to prepare the cover of the pit ( 1400mm * 1400mm*200mm)+ Wire Network | item | 1 | 200 | 200 | | 0 | 20 | 20 | 500 | 500 | 225 | 225 |
| Plumber | Person | 1 | 200 | 200 | 200 | 200 | 40 | 40 | 1200 | 1200 | 250 | 250 |
| Daily labour for excavation and casting concrete and covering the pit | Person | 3 | 150 | 450 | 70 | 210 | 30 | 90 | 500 | 1500 | 200 | 600 |
| **Total cost per Country Local Currency:** | | | | 9455 | | 7613 | | 1214 | | 25143 | | 12068 |
| **Total cost per Country US$:** | | | | **225** | | **384** | | **347** | | **296** | | **287** |
| **Total cost per cubicle for 20 persons US $** | | | | **225** | | **384** | | **347** | | **296** | | **287** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**k. Household/Family Shared latrine:**

Oxfam - GB, Liberia
Emergency Public Health Programme
Detailed design(typical) & drawing of Water sealed (pour flash) Family Latrine
(Not to scale)



**BOQ including cost of Household/Family Shared Latrine (2): Circular**

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Plastic sheet 6'x6' or (Local leaf for roof – bundle) | pcs | 1 | 644 | 644 | 480 | 480 | 20 | 20 | 600 | 600 | 550 | 550 |
| PVC vent pipe 2'' dia | pc | 0.5 | 250 | 125 | 50 | 25 | 75 | 37.5 | 500 | 250 | 300 | 150 |
| Insect screen | roll | 0.05 | 800 | 40 | 1250 | 63 | 45 | 2 | 1250 | 63 | 650 | 33 |
| Timber post 4''x3''x10' | pcs | 4 | 60 | 240 | 100 | 400 | 45 | 180 | 500 | 2000 | 500 | 2000 |
| Timber 2''x2''x10' | pcs | 8 | 50 | 400 | 40 | 320 | 35 | 280 | 350 | 2800 | 320 | 2560 |
| Timber 2''x1''x10' | pcs | 4 | 20 | 80 | 40 | 160 | 20 | 80 | 260 | 1040 | 250 | 1000 |
| Steel bar 10mm, 6mL | pc | 0.35 | 180 | 63 | 290 | 102 | 25 | 9 | 800 | 280 | 300 | 105 |
| Concrete culvert (6 culvert) | pc | 6 | 220 | 1320 | 100 | 600 | 18 | 108 | 400 | 2400 | 250 | 1500 |
| RCC Slab (with pour flash bowl) | pc | 1 | 500 | 500 | 150 | 150 | 22 | 22 | 500 | 500 | 450 | 450 |
| Round pole | pcs | 15 | 50 | 750 | 90 | 1350 | 12 | 180 | 30 | 450 | 85 | 1275 |
| Rafter | pcs | 4 | 20 | 80 | 100 | 400 | 10 | 40 | 25 | 100 | 150 | 600 |
| Bamboo mat 4'X6'/plastic sheet | pcs | 4 | 275 | 1100 | 170 | 680 | 20 | 80 | 600 | 2400 | 550 | 2200 |
| Hasp and staple | pair | 1 | 30 | 30 | 20 | 20 | 12 | 12 | 250 | 250 | 100 | 100 |
| Hinges | pair | 1 | 40 | 40 | 25 | 25 | 90 | 90 | 230 | 230 | 100 | 100 |
| Wire nails(assorted) | kg | 1 | 70 | 70 | 40 | 40 | 10 | 10 | 130 | 130 | 80 | 80 |
| Portland cement | bags | 1.5 | 260 | 390 | 210 | 315 | 70 | 105 | 950 | 1425 | 300 | 450 |
| Beach sand | m3 | 0.34 | 700 | 272 | 700 | 238 | 98 | 33 | 3200 | 1088 | 600 | 204 |
| crushed rock | m3 | 0.34 | 1100 | 238 | 700 | 238 | 80 | 27.2 | 2185 | 743 | 1000 | 340 |
| Skilled labour | man days | 2 | 200 | 400 | 200 | 400 | 40 | 80 | 1200 | 2400 | 250 | 500 |
| Un-skilled labour (pit digging & installation) | man days | 6 | 150 | 900 | 70 | 420 | 30 | 180 | 500 | 3000 | 200 | 1200 |
| **Total cost per Country Local Currency:** | | | | 7682 | | 6426 | | 1576 | | 22149 | | 15397 |
| **Total cost per Country US$:** | | | | **183** | | **324** | | **450** | | **261** | | **367** |
| **Total cost per cubicle for 20 persons US $** | | | | **183** | | **324** | | **450** | | **261** | | **367** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**Table 1: Country wise cost comparison of all above options – construction cost (excluding maintenance & repair): per Cubicle (door)**

| Description of Types/ Options of Latrine | Users ratio p/cubicle | Philippines (US$) | Ethiopia (US$) | South Sudan (US$) | Kenya (US$) | Haiti (US$) |
|---|---|---|---|---|---|---|
| Peepoo/bag toilet option | 50 | 726 | 726 | 726 | 726 | 726 |
| Shallow trench latrines/defecation field | 50 | 174 | 251 | 693 | 419 | 386 |
| Simple Communal Pit latrine - unlined | 50 | 110 | 106 | 361 | 204 | 219 |
| Simple Communal Pit Latrine - Lined | 50 | 127 | 132 | 458 | 241 | 258 |
| Communal pit (Lined) Latrine with Vent Pipe | 50 | 446 | 759 | 1062 | 855 | 804 |
| Pour Flush latrine in flood condition | 50 | 284 | 481 | 839 | 404 | 453 |
| Raised Latrine – brick/CHB masonry work in high water table area | 50 | 220 | 443 | 989 | 485 | 323 |
| UDDT (Urine Diversion Dry Toilet) in hard/ rocky soil and flood condition | 20 | 268 | 388 | 892 | 492 | 323 |
| EcoSan Toilet | 20 | 325 | 599 | 958 | 625 | 422 |
| Household/family shared Latrine - offset | 20 | 225 | 384 | 347 | 296 | 287 |
| Household/family shared Latrine – direct pit | 20 | 183 | 324 | 450 | 262 | 367 |

**Table 2:** As the latrine pit will be full after 4 to 6 months a new latrine unit would have to replace the full ones. In order to prevent any environmental contamination or create a public health hazard the full pits have to be secured properly. The following costs for decommissioning/closing full pits are given below:

**Latrine closing/decommissioning cost:**

| Item descriptions | Unit | Total Unit | Construction Cost | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Philippines (PHP) | | Ethiopia (ETB) | | South Sudan (SSP) | | Kenya (KSH) | | Haiti (HTG) | |
| | | | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost | Unit cost | Total cost |
| Un-skilled Labour | person | 2 | 150 | 300 | 70 | 140 | 30 | 60 | 500 | 1000 | 200 | 400 |
| Play wood board | pcs | 1 | 200 | 200 | 400 | 400 | 140 | 140 | 600 | 600 | 900 | 900 |
| Chlorinated Lime | kg | 5 | 50 | 250 | 25 | 125 | 7 | 35 | 600 | 3000 | 75 | 375 |
| **Total Cost Per Country (Local Currency):** | | | | 750 | | 665 | | 235 | | 4600 | | 1675 |
| **Total Cost Per Country (US$):** | | | | **18** | | 34 | | 67 | | 54 | | **43** |
| **Currency 1 US $:** | | | **42 PHP** | | **19.80 ETB** | | **3.5 SSP** | | **85 KSH** | | **39 HTG** | |

**Cost comparison based on suitability and durability in different phase of emergency & post emergency: users ration 50 person/cubicle or door**

**Table 3: Comparative sanitation costs – all costs are in US Dollars (US$) – where applicable all costs include construction and pit digging costs**

| Description : Time frame & different phase of emergency & post emergency | Users ratio and cost (US $) per option – per cubicle | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 50 person | 50 person | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 20 person 1 door double vault | 20 person 1 door double vault | 20 person 1 door single pit |
| | Peepoo / bag option | Shallow trench latrines | Simple Communal Pit latrine - unlined | Simple Communal Pit Latrine - Lined | Communal pit (Lined) Latrine with Vent Pipe | Pour Flush latrine in flood condition | Raised Latrine – brick/CHB masonry work in high water table area | UDDT (Urine Diversion Dry Toilet) in hard/ rocky soil and flood condition | EcoSan Toilet | Household/family shared Latrine |
| **Philippines** | | | | | | | | | | |
| within the first 4 weeks | 726 | 174 | 110 | 127 | | | | | | |
| Costs from week 5 to week 12 | No | No | 0 | 0 | 446 | 284 | 220 | 268 | | |
| Continued Costs from month 3 to month 6 | No | NO | 110 +18 = 128 replacement as pit will filled + closing latrine | 75 US$ de-sludging cost as the pit will full due to high users ratio | 0 | 75 de- sludging cost as it may full due to high users ration | 0 | 10 US $/m lumpsum (cleaning materials & disposal cost, if community does not have capacity) | 325 + 5 US$/m cleaning materials | 225 + 5 US$/m cleaning materials |
| Total Costs for first 6 months | | | **238** | 202 | 446 | 359 | 220 | 298 | 350 | 250 |
| Continued Costs from month 6 to 1 year | 0 | 0 | 110 x 2.5 = 275 Construction of 2 new latrine (cubicles) as needs to reduced users ration 50 to 20p/cubicle. | 202 + 127 x 1.5 = 393 for de-sludging & replacement of super – structure & const additional cubicles to reduce the users ratio from 50 to 20p/cubicle | 0 | 284 + 75 = 359, new cubicle to reduce users ratio 50 to 20p/cubicle + de- sludging cost | 220 + 75 = 295, new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 10 US$/m lumpsum (cleaning materials & disposal cost, if community does not have capacity. Needs to start process to organise community to take cleaning & disposal by their own | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 1 year | 0 | 0 | **513** | 595 | 446 | 718 | 515 | 358 | 350 | 250 |
| Continued Costs from 1 year to 2nd year | 0 | 0 | 513 + 18 = 531 replace & close latrine | 127 + 75 = 202 for de-sludging & replacement of super – structure + closing cost | 446 + 75 = 521 for new cubicle to reduce the users ratio from 50 to 20p/cubicle & de-sludging cost. After 1 year people could complain about smell and may ask for replacement or HH latrine. | 75 de- sludging cost. Could be used 3 - 4 years by continuing de-sludging | 75 de- sludging cost. Could be used several years as the super – structure materials are durable also pit lining by CHB | 0 Community will be responsible for all supply and maintenance | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total costs for 2 years | 0 | 0 | **1062** | **860** | 967 | 793 | 590 | 358 | 350 | 250 |
| **Ethiopia** | | | | | | | | | | |
| within the first 4 weeks | **726** | **251** | 106 | 132 | | | | | | |
| Costs from week 5 to week 12 | 0 | 0 | 0 | 0 | 759 | 481 | 443 | 388 | | |
| Continued Costs from month 3 to month 6 | No | NO | 140 includes closing latrine | 75 US$ de-sludging cost as the pit will full due to high users ratio | 0 | 75 de- sludging cost as it may full due to high users ration | 0 | 10 US $/m lumpsum (cleaning materials & disposal cost, if community does not have capacity) | 599 + 5 US$/m = cleaning materials | 384 + 5 US$/m cleaning materials |
| Total Costs for first 6 months | | | 140 | 207 | 759 | 556 | 443 | 418 | 614 | 399 |
| Continued Costs from month 6 to 1 year | 0 | 0 | 106 x 2.5 = 265 Construction of 2 new latrine (cubicles) as needs to reduced users ration 50 to 20p/cubicle. | 207 + 132 x 1.5 = 405 for de-sludging & replacement of super – structure & const additional cubicles to reduce the users ratio from 50 to 20p/cubicle | 0 | 481 + 75 = 556 , new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 443 + 75 = 518, new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 10 US$/m lumpsum (cleaning materials & disposal cost, if community does not have capacity. Needs to start process to organise community to take cleaning & disposal by their own | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 1 year | | | 405 | 612 | 759 | 1112 | 961 | 478 | 614 | 399 |
| Continued Costs from 1 year to 2nd year | 0 | 0 | 405 + 34 = 439 replace & close latrine | 132 + 75 = 207 for de-sludging & replacement of super – structure + closing cost | 759 + 75 = 834 for new cubicle to reduce the users ratio from 50 to 20p/cubicle & de-sludging cost. After 1 year people could complain about smell and may ask for replacement or HH latrine. | 75 de- sludging cost. Could be used 3 - 4 years by continuing de-sludging | 75 de- sludging cost. Could be used several years as the super – structure materials are durable also pit lining by CHB | 0 Community will be responsible for all supply and maintenance | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 2 years | | | 844 | 819 | 1593 | 1187 | 1036 | 478 | 614 | 399 |
| **South Sudan** | | | | | | | | | | |
| within the first 4 weeks | 726 | 693 | 361 | 458 | | | | | | |
| Costs from week 5 to week 12 | 0 | 0 | 0 | 0 | 1062 | 839 | 989 | 892 | | |
| Continued Costs from month 3 to month 6 | No | NO | 361 + 67 = 428 includes closing latrine | 75 US$ de-sludging cost as the pit will full due to high users ratio | 0 | 75 de- sludging cost as it may full due to high users ration | 0 | 10 US $/m lumpsum (cleaning materials & disposal cost, if community does not have capacity) | 958 + 5 US$/m = cleaning materials | 347 + 5 US$/m cleaning materials |
| Total Costs for | | | 428 | 533 | 1062 | 914 | 989 | 922 | 973 | 362 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| first 6 months | | | | | | | | | | |
| Continued Costs from month 6 to 1 year | 0 | 0 | 361 x 2.5 = 903 Construction of 2 new latrine (cubicles) as needs to reduced users ration 50 to 20p/cubicle. | 75 + 458 x 1.5 = for de-sludging & replacement of super – structure & const additional cubicles to reduce the users ratio from 50 to 20p/cubicle | 0 | 839 + 75 = 914 , new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 989 + 75 = 1064, new cubicle to reduce users ratio 50 to 20p/cubicle + de- sludging cost | 10 US$/m lumpsum (cleaning materials & disposal cost, if community does not have capacity. Needs to start process to organise community to take cleaning & disposal by their own | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 1 year | | | 1331 | 762 | 1062 | 1828 | 2053 | 982 | 973 | 362 |
| Continued Costs from 1 year to 2nd year | 0 | 0 | 361 x 2.5 + 67 = 970 replace & close latrine | 458 + 75 = 533 for de-sludging & replacement of super – structure + closing cost | 1062 + 75 = 1137 for new cubicle to reduce the users ratio from 50 to 20p/cubicle & de-sludging cost. After 1 year people could complain about smell and may ask for replacement or HH latrine. | 75 de- sludging cost. Could be used 3 - 4 years by continuing de-sludging | 75 de- sludging cost. Could be used several years as the super – structure materials are durable also pit lining by CHB | 0 Community will be responsible for all supply and maintenance | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 2 years | | | 2301 | 1295 | 2199 | 1957 | 2128 | 982 | 973 | 362 |
| **Kenya** | | | | | | | | | | |
| within the first 4 weeks | 726 | 419 | 204 | 241 | | | | | | |
| Costs from week 5 to week 12 | No | No | 0 | 0 | 855 | 404 | 485 | 492 | | |
| Continued Costs from month 3 to month 6 | No | No | 204 + 67 = 271 includes closing latrine | 75 US$ de-sludging cost as the pit will full due to high users ratio | 0 | 75 de- sludging cost as it may full due to high users ration | 0 | 10 US $/m lumpsum (cleaning materials & disposal cost, if community does not have capacity) | 625 + 5 US$/m = cleaning materials | 296 + 5 US$/m cleaning materials |
| Total Costs for first 6 months | | | 271 | 316 | 855 | 479 | 485 | 522 | 640 | 311 |
| Continued Costs from month 6 to 1 year | 0 | 0 | 204 x 2.5 = 510 Construction of 2 new latrine (cubicles) as needs to reduced users ration 50 to 20p/cubicle. | 75 + 241 x 1.5 = 437 for de-sludging & replacement of super – structure & const additional cubicles to reduce the users ratio from 50 to 20p/cubicle | 0 | 404 + 75 = 479 , new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 485 + 75 = 559, new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 10 US$/m lumpsum (cleaning materials & disposal cost, if community does not have capacity. Needs to start process to organise community to take cleaning & disposal by their own | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 1 year | | | 781 | 753 | 855 | 958 | 1044 | 582 | 640 | 311 |
| Continued Costs | 0 | 0 | 204 x 2.5 + 54 = | 75 + 241 = 316 for de- | 855 + 75 = 930 for new cubicle to | 75 | 75 de- sludging cost. | 0 | 0 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| from 1 year to 2nd year | | | 564 replace & close latrine | sludging & replacement of super – structure + closing cost | reduce the users ratio from 50 to 20p/cubicle & de-sludging cost. After 1 year people could complain about smell and may ask for replacement or HH latrine. | de- sludging cost. Could be used 3 - 4 years by continuing de-sludging | Could be used several years as the super – structure materials are durable also pit lining by CHB | Community will be responsible for all supply and maintenance | Communities responsibility to manage cleaning materials | Communities responsibility to manage cleaning materials |
| Total costs for 2 years | | | 1345 | 1069 | 1785 | 1033 | 1119 | 582 | 640 | 311 |
| **Haiti** | | | | | | | | | | |
| within the first 4 weeks | 726 | 386 | 219 | | | | | | | |
| Costs from week 5 to week 12 | No | No | 0 | 258 | 804 | 453 | 323 | 309 | | |
| Continued Costs from month 3 to month 6 | No | No | 219 + 43 = 262 includes closing latrine | 75 US$ de-sludging cost as the pit will full due to high users ratio | 0 | 75 de- sludging cost as it may full due to high users ration | 0 | 10 US $/m lumpsum (cleaning materials & disposal cost, if community does not have capacity) | 422 + 5 US$/m = cleaning materials | 287 + 5 US$/m cleaning materials |
| Total Costs for first 6 months | | | 262 | 333 | 804 | 528 | 323 | 339 | 437 | 302 |
| Continued Costs from month 6 to 1 year | 0 | 0 | 219 x 2.5 = 548 Construction of 2 new latrine (cubicles) as needs to reduced users ration 50 to 20p/cubicle. | 75 + 258 x 1.5 = 462 for de-sludging & replacement of super – structure & const additional cubicles to reduce the users ratio from 50 to 20p/cubicle | 0 | 453 + 75 = 528 , new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 323 + 75 =398, new cubicle to reduce users ratio 50 to 20p/cubicle + de-sludging cost | 10 US$/m lumpsum (cleaning materials & disposal cost, if community does not have capacity. Needs to start process to organise community to take cleaning & disposal by their own | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 1 year | | | 810 | 795 | 804 | 1056 | 721 | 399 | 437 | 302 |
| Continued Costs from 1 year to 2nd year | 0 | 0 | 219 x 2.5 + 43 = 591 replace & close latrine | 75 + 258 = 333 for de-sludging & replacement of super – structure + closing cost | 804+ 75 = 879 for new cubicle to reduce the users ratio from 50 to 20p/cubicle & de-sludging cost. After 1 year people could complain about smell and may ask for replacement or HH latrine. | 75 de- sludging cost. Could be used 3 - 4 years by continuing de-sludging | 75 de- sludging cost. Could be used several years as the super – structure materials are durable also pit lining by CHB | 0 Community will be responsible for all supply and maintenance | 0 Communities responsibility to manage cleaning materials | 0 Communities responsibility to manage cleaning materials |
| Total costs for 2 years | | | 1401 | 1128 | 1683 | 1131 | 795 | 399 | 437 | 302 |

**Table 4: Suitability of design options in a phased emergency context**

| Description : Time frame & different phase of emergency & post emergency | Users ratio per option and Suitability | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 50 person | 50 person | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 50 person / door or cubicle | 20 person 1 door double vault | 20 person 1 door double vault | 20 person 1 door single pit |
| | Peepoo / bag option | Shallow trench latrines | Simple Communal Pit latrine - unlined | Simple Communal Pit Latrine – Lined | Communal pit (Lined) Latrine with Vent Pipe | Pour Flush latrine in flood condition | Raised Latrine – brick/CHB masonry work in high water table area | UDDT (Urine Diversion Dry Toilet) in hard/ rocky soil and flood condition: single door double vault | EcoSan Toilet | Household/family shared Latrine: 1 door |
| within the first 4 weeks (initial stage) | Yes, in floods, difficult situation, no space to dig pit and if user agree to use | Yes if accepted by user and Gov. | Yes If hard or stable soil | Yes If loose soil | No | No | No | No If users do no know or sensitised how to use and maintained | No If users do no know or sensitised how to use and maintained | No due to slow speed of coverage for larger target population |
| week 5 to week 12 | No, difficult to manages long term | No, difficult to manage long term | Yes | Yes | Yes, if materials are available locally | Yes If flooding is an issue and possibilities of ground water contamination | Yes If the options 3,4,5,6 are not suitable as the cost will be higher that these four options | Yes After 6 – 8 weeks once created awareness' on how to use and maintained | Yes After 6 – 8 weeks once created awareness' on how to use and maintained | No But ii depends up to cultural practice and sensitivity and could be considered after 6 week |
| month 3 to month 6 | No | No | Yes But may need to replace around 4 months as the pit will full. Additional cost will be required | Yes Should develop de-sludging facilities and continue to use, if no then needs to replace within 4 months time as pit will full | Yes | Yes Should develop de-sludging facilities and continue to use, if no de-sluding facilities then add one additional tank and wait to de-sludge. | Yes | Yes | Yes | Yes If peoples are not interested to continue to use communal latrines due to lack of maintenance and other social/cultural issues then |
| month 6 to 1 year | No | No | No Users may look for HH latrine option also space could be an issue | Yes, De-sludging & continue to use, needs to replace super-structure after | Yes | Yes | Yes | Yes | Yes | Yes |
| 1 year to 2nd year | No | No | No | No difficult to maintain hygienic conditions | No difficult to maintain hygienic conditions | Yes | Yes | Yes | Yes | yes |

**Table 5: Cost Vs Suitability of the Types/options in different stages of Response.**

| Options/Types of Latrine | Suitability of options in different phase considering the cost effectiveness (for details please see Table 3) | Actual Construction Cost + Recurrent Cost per cubicle – 50 to 20 users/cubicles | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Philippines (US $) | | | Ethiopia (US $) | | | South Sudan (US $) | | | Kenya (US $) | | | Haiti (US $) | | |
| | | Actual cost | Recurrent cost | Total cost | Actual cost | Recurrent cost | Total cost | Actual cost | Recurrent cost | Total cost | Actual cost | Recurrent cost | Total cost | Actual cost | Recurrent cost | Total cost |
| Peepoo/bag toilet | Within the 1st 4 weeks. Only suitable in this initial stage | 726 | 0 | 726 | 726 | 0 | 726 | 726 | 0 | 726 | 726 | 0 | 716 | 726 | 0 | 726 |
| Shallow trench latrines | Within the 1st 4 weeks Only suitable in this initial stage | 174 | 0 | 174 | 251 | 0 | 251 | 693 | 0 | 693 | 419 | 0 | 419 | 386 | 0 | 386 |
| Simple Communal Pit latrine - unlined | Week 1 to months 24. Suitable for maximum 6 months period | 110 | 952 | 1062 | 106 | 738 | 844 | 361 | 1670 | 2031 | 204 | 577 | 781 | 219 | 1189 | 1408 |
| Simple Communal Pit Latrine - Lined | Week 4 to months 24. Suitable up to 1 year, however could be used up to 2 years if users are agreed, needs additional cubicles to reduced users ratio. | 127 | 733 | 860 | 132 | 687 | 819 | 458 | 837 | 1295 | 241 | 522 | 753 | 258 | 870 | 1128 |
| Communal lined pit Latrine with Vent Pipe | Week 4 to months 24. Suitable for >1 year as pit volume is bigger & could be used up to 2 years if users are agreed and needs additional cubicles to reduced user ratio. | 446 | 521 | 967 | 759 | 834 | 1593 | 1062 | 1137 | 2199 | 855 | 930 | 1785 | 804 | 879 | 1683 |
| Pour Flush latrine | Week 4 to | 284 | 509 | 793 | 481 | 706 | 1187 | 839 | 1118 | 1957 | 404 | 554 | 958 | 453 | 728 | 1181 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in flood condition | months 24. if flooding is an issue suitable for >2 years & if is there are any safe de-sludging & disposal system developed. Needs additional cubicles after 6 months | | | | | | | | | | | | | | | |
| Raised Latrine – brick/CHB masonry work in high water table area | Week 4 to months 24. Suitable for >2 years if water table is high & threat to ground water contamination, needs additional cubicles to reduce users ratio | 220 | 370 | 590 | 443 | 863 | 1036 | 989 | 1139 | 2128 | 485 | 559 | 1044 | 323 | 472 | 795 |
| UDDT (Urine Diversion Dry Toilet) | Week 6 - 8 to months 24. Suitable for long terms if rocky/hard soil difficult to dig pit & water table is high & threat to ground water contamination | 268 | 90 | 358 | 388 | 90 | 478 | 892 | 90 | 982 | 492 | 90 | 582 | 309 | 90 | 399 |
| EcoSan Toilet | Month 3 to months 24. Suitable for long term terms if communities are sensitized | 325 | 25 | 350 | 599 | 15 | 614 | 958 | 15 | 973 | 625 | 15 | 640 | 422 | 15 | 437 |
| Household/family shared Latrine - offset | Months 6 to months 24 users choice/preference and if cultural sensitivity is an issue. Suitable for long terms. | 225 | 25 | 250 | 384 | 15 | 399 | 347 | 15 | 362 | 296 | 15 | 311 | 287 | 15 | 302 |
| Household/family | Months 6 to | 183 | | | 324 | 15 | 339 | 450 | 15 | 465 | 261 | 15 | 276 | 367 | 15 | 382 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| shared Latrine – direct pit | months 24 users choice/preference and if cultural sensitivity is an issue. Suitable for long terms. | | | | | | | | | | | | | | | |