

Case Study:

Optimised Household Toilet Construction Process

Tongogara - Zimbabwe

Context

Increasing the number of household toilets is a challenge in Tongogara Refugee Camp (TRC) in Zimbabwe. Established in 1984, TRC is hosting approximately 15'000 refugees as of October 2022. According to a 2022 WASH facilities inventory survey, the family toilet coverage is around 77%. The cost per toilet is high and the budget allows the construction of a maximum 200 toilets per year.

In parallel, a variable number of existing toilets need to be decommissioned every year, for several reasons:

- some toilets got full, and there is no means to empty them;
- cyclone Idai led to severe damage to a number of toilets;
- some toilets were poorly constructed, leading to rapid damage - in particular, the lack of footing and proper sand compaction led to instability of the structure and cracks.



In the emergency phases and subsequent work over the years, humanitarian actors have taken the lead in constructing facilities, including toilets, in order to deliver them rapidly. Unfortunately, refugee communities were not adequately engaged in the process to understand which families might have the means to contribute to toilet construction, thus creating a culture of delivery and dependency and missed opportunities for collaboration. Although many refugees live in the hope of resettlement and are reluctant to invest, some families involved in trade and other small businesses do have the means and willingness to make contributions towards having their own family toilet. Beneficiary engagement is thus a key topic to address.

Actions

In this context, UNHCR and the implementing partner World Vision International (WVI) worked to reduce the cost of toilets while increasing quality and fostering the involvement of refugees. The Zimbabwean national standards, which adopted the Blair toilet design

(VIP toilet), remained the overarching framework. WVI implemented the following measures:

1. **Training of masons from the refugee community:** it had been observed that the contractors and masons from the host communities were expensive and did not deliver the desired quality. This measure allowed to increase the accountability and quality of work, while reducing the costs.
2. Use of **local fire-cooked sand bricks:** in 2022, fire burnt bricks cost 7 USD for 100 bricks, whereas cement bricks cost 16 USD for 100 bricks. Access to local river sand is key for the fabrication of cost-effective fire burnt bricks.
3. Encourage the **reuse of bricks** from decommissioned toilets
4. **Increase the involvement and contribution of households**

The cost of toilets used to span from 225 USD/unit, peaking at more than 300 USD when cement bricks were used. The measures taken allowed to reduce the cost down to 200 USD/unit, before inflation brought it up again to 266 USD/unit at the end of 2022 (see bill of quantities in Table 1). The major improvement in both price and quality resulted of training masons from the PoC community, who did the job for 50 USD instead of 80-100 USD for external contractors. It has to be noted that WVI added a footing to the toilet design, to add stability (additional cost: 15 USD).

WVI proposed several approaches to increase the contribution of households:

1. **CLTS:** household are pushed to invest in a toilet through psychological triggering (behaviour change).
2. **Upgradeable Blair (UBVIP) toilet subsidy model:** in this approach, the organisation pays for the pit and the slab, and the household has to build the rest at own cost. The UBVIP is an approach validated by the government of Zimbabwe.
3. **New subsidy model tested by WVI:** a derivative of the uBVIP approach promoted by the government, developed in consultation with the refugees. In this model, the organisation pays for the cement, the mason, the wire for the slab and the mesh against flies. The household buys the sand, the bricks and digs the pit. This is equivalent to about 2/3 of the cost for the organisation and 1/3 for the household. The household contribution in this model is highlighted in green colour in Table 1.

Lessons learnt and way forward

The subsidy model proposed by World Vision is a sound hybrid solution that combines household contribution, fosters construction quality through a cadre of well-trained local masons and provides incentives to complete toilet construction. However, it cannot be generalised to everyone because many households hardly have any money to spend. Many households cannot afford bricks, and not all of them have the ability to produce bricks themselves. This means that the subsidy model should be further used, but cannot be the only option.

It is thus worth proposing two different models: 1. The new subsidy model, which would guarantee “fast-track” priority construction; 2. The model without household financial contribution, which would mean being on a waiting list, with waiting time of several months or even more than a year. Exception should be made for vulnerable persons, like single mothers, people with disabilities or aged. This is reflected in TRC: 161 toilets were built 2022. 68 household toilets were built under the new model while 93 were fully subsidized, out of which 11 were disability-friendly.

Table 1: Bill of quantities for single household Blair ventilated improved pit (BVIP) toilets, as shared by World Vision in January 2022. In green colour, the contribution of households in the subsidy model.

HOUSEHOLD BLAIR VENTILATED IMPROVED PIT TOILET - BoQ				
SUBSTRUCTURE				
Description	Unit	Qty	Rate \$	Amount \$
Digging pit 1.4m diameter x 3.0m depth	m ³	1	15.00	15.00
Bricks (fire burnt)	pcs	600	0.07	42.00
River sand with transport	m ³	1	12.00	12.00
Construction of substructure (labour)	unit	1	10.00	10.00
Casting of cover slab (labour)	unit	1	10.00	10.00
Cement 42.5 gauge	bag	2	13.00	26.00
Welded Mesh (1.5m x 1.5m)	pcs	1	6.00	6.00
Sub-total 1				121.00
SUPERSTRUCTURE				
Description	Unit	Qty	Rate \$	Amount \$
Cement 42.5 gauge	bag	2	13.00	26.00
Chicken wire for roof slab (1.8m x 2m)	pcs	1	7.00	7.00
Labour charge for superstructure construction & plastering	unit	1	25.00	25.00
River sand with transport	m ³	1	12.00	12.00
Bricks (fire burnt)	pcs	600	0.07	42.00
Flyscreen/ Gauze Wire (30cm x 30cm)	1	1	5.00	5.00
Sub-total 2				117.00
FINISHING				
Description	Unit	Qty	Rate \$	Amount \$
Cement 42.5 gauge	bag	1	13	13.00
Labour charge for flooring and finishing touch ups & plastering	unit	1	15	15.00
Sub-total 3				28.00
GRAND TOTAL				266.00
World Vision contribution in subsidy model				143.00
Household contribution in subsidy model				123.00

Key take-aways:

- The number of toilets built each year does not meet the needs and only a minority of households have money to contribute to toilet construction.
- Training masons from the PoC community is a best practice to replicate
- It would be worth proposing two different models: 1. The subsidy model proposed by WVI, which would guarantee “fast-track” priority construction; 2. The model without household financial contribution, which would mean being on a waiting list, with waiting time of several months or even more than a year.

Main author: Philippe Reymond, Geneva Technical Hub, UNHCR-SDC – reymond@unhcr.org

Contact at DRS-Technical Support Section (TSS): hqsl00@unhcr.org

Geneva Technical Hub, June 2023