

Low-cost techniques for improving latrines in a demonstration village in Uganda

by Helen Causer

A programme to improve water and sanitation services in south-eastern Uganda rehabilitates existing latrines and encourages villagers to build new ones by providing three technical options for better latrines.

WATERAID HAS BEEN working in Uganda since 1983. Initially we concentrated mainly on water supply but, recognizing that the provision of clean water alone produces few health benefits, we have begun to devote more resources to the promotion of sanitation and to hygiene education. Uganda had a fairly high coverage of latrines in the 1960s, partly because by-laws were passed to make householders construct pit latrines. When these laws ceased to be enforced, latrines which had been constructed solely to comply with the law soon fell into disuse, although knowledge about latrines remains widespread. Access to safe excreta disposal systems had fallen to 30 per cent in 1987.¹

In present-day Uganda, the pits of typical rural latrines are normally 0.6m wide, 1.2m long, and 4 to 10m deep, and they are dug, unsupported, in stable laterite soil. A householder will usually pay a skilled professional digger to excavate the pit, and will build the floor and the superstructure of the latrine himself. A low-cost latrine will have a floor of rammed-earth on top of logs, and a superstructure made of mud and wattle. Latrines are roofed with thatch, banana leaves, or bits of tin.

Planning for sanitation

As part of an ODA-funded borehole rehabilitation project in south-eastern Uganda, WaterAid had some funds available for sanitation in Jinja District. After discussion of the various options, the Jinja District Medical Office (DMO) chose to use our help to promote sanitation by establishing a demonstration village. Using an existing village, various low-cost techniques for improving sanitation would be introduced. The aim would be to

get a very high coverage of latrines, as health benefits are not realized if only a few people have latrines. The technologies used had to be simple, affordable, and replicable, so that people visiting the demonstration village could duplicate them in their own villages. Two people from the village were to be trained to make slabs and to upgrade latrines. The health assistant would encourage people to build or improve their latrines if necessary.

After various meetings of local councillors and officials, Kamira Village in Butagaya Sub-county was selected. It was felt that this would be a good village to use as a model because although it was in a rural area, it was quite close to the sub-county headquarters, and thus had many visitors. Only Kamira was targeted for the hygiene awareness campaign, but anybody from the district could come to the village to buy latrine slabs. As the

Jinja District Administration was running its own environmental health campaign, many people from outside Kamira were also interested in building or improving latrines.

At a village meeting in Kamira two people, Mrs Edith Kiseru and Mr Sanoni Kibangulo, were chosen to be trained as *fundis* (masons) to construct the latrine slabs. The sub-county health assistant also participated in this training to refresh his skills. They were trained in three methods of constructing latrine floors. These varied in cost, and householders wishing to improve or construct latrines could choose which option best suited their circumstances. After the *fundis* had completed their training, WaterAid helped them to set up a small casting yard in Kamira, where they could build and sell slabs.

Technical options

Full-sized latrine slab The most expensive option was a 1m² reinforced-concrete slab with a keyhole-shaped drop hole and foot rests. The slab can be fitted directly onto the foundation of the pit. It can be used either with a close-fitting lid in the drop hole or with a vent slab as a VIP latrine. These slabs



Mrs Edith Kiseru, a fundi from Kamira, outside her new latrine.

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These children in Kamira village will benefit from improved health because their parents are installing latrines.

cost £5 each, and were considered too expensive by most people. They tended to be bought by richer households in trading centres. As they were heavy, they could also only be bought by people with access to a vehicle to transport the slabs.

The sanplat The second option was a smaller, 50mm-thick, 0.60m² concrete slab called a 'sanplat', or sanitation platform. It had a little bit of reinforcement to prevent breakage during transport. These were used in Uganda in the 1960s and at least one household in Kamira still has one of these old sanplats. The reinvented sanplat system was developed by Bjorn Brandberg in Malawi.

The sanplat is designed to be fitted on to the existing log and rammed-earth floor of a traditional latrine. It is not a structural part of the floor, but it does provide an area around the drop hole which is easy to wash and to keep clean. Like the full-sized slab, it has a keyhole-shaped drop hole, with lid and foot-rests to help position the user.

A sanplat can also be used without the lid if the latrine is fitted with a vent-pipe. Some latrines are turned into VIP latrines in this way, but as most of the latrines are surrounded by trees and banana plants there is little circulation of air and the vents are not

very effective. Most people used lids, and often asked the *fundis* to write reminders on them, while the cement was wet, to replace the lid or wash hands after use.

The floor of a latrine fitted with a sanplat is much easier to keep clean than a mud floor, and the use of either a fitted lid or a vent-pipe reduces both odours and flies. The sanplat, at £1.75, is cheaper than a full-sized slab. It weighs about 30 to 35kg and thus can be carried by hand or on a bicycle by people who do not have vehicles.

Plastered floors The cheapest option offered was the simple cement plastering of the existing mud floor. This improves the floor in two ways: it makes the floor more durable and easier to wash, and it means that a lid can be fitted to the drop hole.

The latrine floor was first covered with a fresh layer of rammed-earth embedded with stones. The stones were used to make the base firm for the cement layer, and the mud was used to fill in most of the interstices so that a minimum of cement could be used to plaster the top. This layer was sloped from the walls down to the drop hole so that when the floor was complete, liquids would tend to run towards the hole. The mud/stone mix was left to dry for a week and then

plastered with a 1:2 cement:sand mortar about 1 to 2cm thick. The cement mortar was plastered up the sides of the walls by 10cm to prevent erosion, and around the edges of the drop hole to make a smooth, rounded surface which was easy to wash. While the mortar was still wet the latrine lid was moulded to it, ensuring that the lid would fit closely when the mortar set. The lids were often made out of bits of tin or pieces of wood with a handle nailed on to them. The cement for plastering the floors was measured out and sold by the cooking-oil tinful, as this provided an easy way of measuring the cement accurately. One tin contained about 4.5kg of cement and was sufficient to plaster one or two latrine floors depending on the area. One tin of cement cost £0.45, and sand was provided by the householder. This was considered affordable by most people. This sum, £0.45 or 850 Uganda shillings, was equivalent to the daily wage of an unskilled labourer.

Obviously this technique is not ideal, as it is not as durable as fitting a slab or sanplat. It is a very cheap way of improving a latrine however, as it does make the floor easier to clean, and the flies and odours are reduced if the lid is fitted. As the improvement is quite noticeable, the latrine-owner often takes more pride in the rest of the

latrine, investing time in re-plastering, re-thatching, and painting it.

Value for money?

The costs given so far are the unsubsidized cost of the items. When the *fundis* first began producing slabs in Kamira, these were the prices that were charged. Although materials were being supplied free to the yard at this time, it was felt that the true costs should be charged so that eventually the yard could become a self-sustaining venture. When the prices were set at £5.00 for a 1m² slab, £1.75 for a sanplat, and £0.45 for plastering, greater interest was expressed in the full-sized slab or the plastering technique. Many people said that the sanplat was too expensive, and that if they were going to spend a lot of money, they would prefer to pay more to buy a full-sized slab.

The Uganda Government's RUWASA project, funded by Danida, is a large water and sanitation project operating in eight districts of south-eastern Uganda. RUWASA was often working in the same area as we were, and we usually co-ordinated our work to prevent the duplication of effort. RUWASA was also promoting improved sanitation using sanplats. Initially their sanplats were the same price as those produced in Kamira, but a subsidy was later introduced to boost

interest in the item. As it would not have been possible to sell sanplats from Kamira at the higher price, it was agreed to subsidize these sanplats as well.

At the lower price of £0.40, sanplats proved very popular, and demand shot up. The Kamira *fundis* had to buy extra equipment of their own to keep up with the demand, and they are now capable of producing 200 sanplats each month. WaterAid is also using Kamira's sanplats in other parts of Uganda, so the demand is likely to remain high. Under these circumstances, however, Kamira can only produce sanplats as long as a donor agency is prepared to subsidize the costs, and the ideas cannot be transferred to another area where no external funding is available. RUWASA is likely to be operating in the area for the next 10 years. It is understood that the subsidy on sanplats may be gradually phased out over the 10 years as demand for the product increases. If the subsidy is successfully removed then the Kamira casting unit may be sustainable after the donor agencies leave.

The plastering of latrine floors was considered affordable in Kamira even without a subsidy. This technique may prove to be sustainable and replicable in other areas which cannot afford sanplats and which do not benefit from donor-subsidies. Sanplats are better than plastered floors in that they can be re-used on new latrines after the old

one fills, while a plastered floor has to be abandoned when the latrine is full. The plastering of latrine floors is therefore no longer promoted in Kamira. This technique is still being used in other areas, but it has not been used long enough yet to know how long the cement plaster will last.

Kamira, and the villages around it, responded well to their District Administration's environmental health campaign. A survey conducted by the Jinja DMO in 1989 found that the average latrine coverage in Butagaya Sub-county was about 30 per cent. A 1991 survey in Kamira found that out of 151 households, 146 had latrines. With advice from the health assistants most of these are now in good condition. Many of the homeowners in Butagaya Sub-county extended their home improvements beyond the construction of latrines and also built cleverly designed drying-racks, smokeless stoves, granaries and intricately painted houses, kitchens, and creches, all using local materials. Sanoni Kibangulo's brightly painted house is a typical example, and he won a prize in the environmental competition. ●

References

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WaterAid/Nick King

Trainee fundis learning to cast sanplats with keyhole-shaped drop holes.