



Water Sector Trust Fund

Up-scaling Basic Sanitation for the Urban Poor (UBSUP)

Study Report on the SafiSan Prototype Toilets Constructed with the Oololaiser Water and Sewerage Company



Prepared by the UBSUP Technical Team

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1.0 Findings on training of the beneficiaries and proper use of toilets

The user of the toilets was observed to be about 50% men and 50% women with children constituting only 25% of the observed users. 80% of the users are those residing on the plots and therefore could be reached directly by the trainings. About 60% of the use is short calls and 40% are long calls.

About 90% of the beneficiaries confirmed that they had been trained adequately on use and maintenance of the SafiSan UDDT toilet facilities. 100% confirmed that they are using ash as a drying material after every use of the toilet. All the observed toilets had instruction posters and a container with ash as per instruction given during the training. Training on proper sludge disposal and use was also confirmed by the users. 55% do not wash their hands after the toilet use and only 20% use soap while washing their hands.

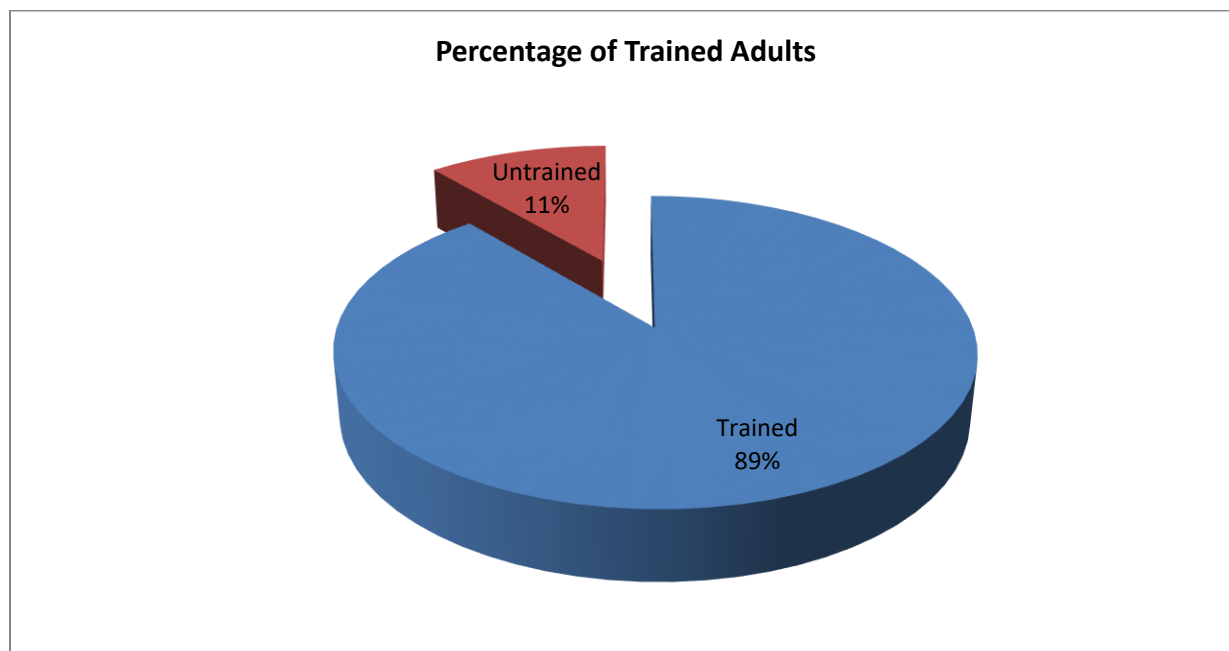


Figure 1: Percentage of trained adults

Hygiene training will be crucial in the implementation of UBSUP in order to achieve the attitude change with regard to hand washing and other hygiene practices. Basic things like use of soap for hand washing need to be emphasized and explained. This will need a stronger cooperation with the local public health officers on the ground.

Over 90% of those interviewed confirmed that they were trained adequately on disposal of sludge from the toilets. However, more training follow ups are required in this area as shown in section 3. Many users have not fully made a decision on how they will use the compost from the toilets. The undecided group is still quite many amounting to over 40%. This should be improved by establishment of on-site treatment sludge facilities with accompanying training measures for all stakeholders. These trainings are

essential for the success of the toilets since they will influence the demand and acceptability. Any problem pertaining to sludge management may cause negative impacts on demand creation and acceptability as shown in the ROSA project in Nakuru.

However, the training on sludge management has also had some good positive impact particularly when it came to solid waste management (SWM)

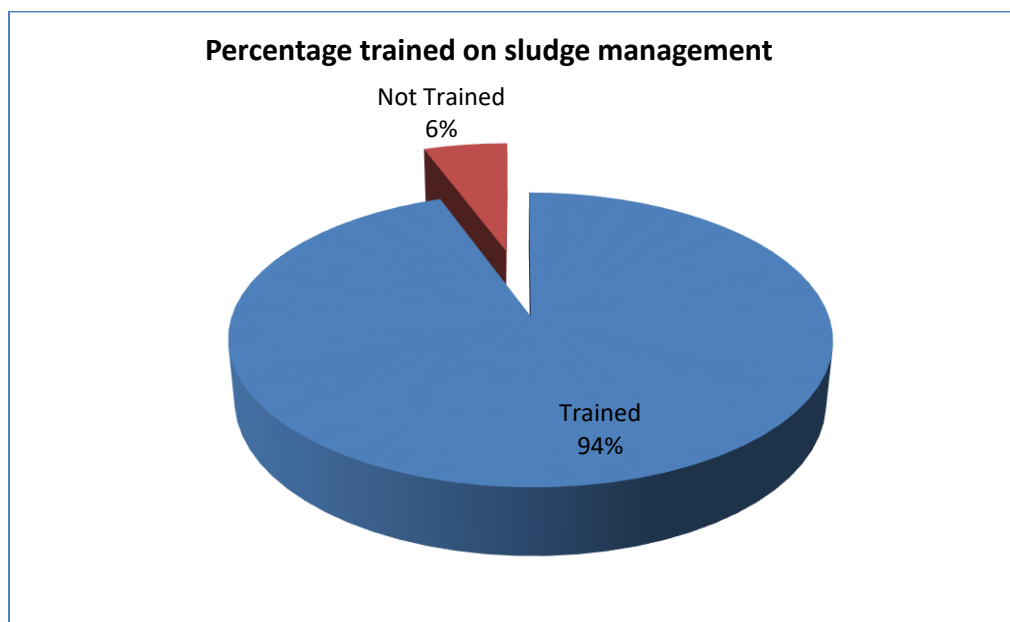


Figure 2: Percentage trained on sludge management

This was confirmed by the observations of solid waste dumped in the vaults. More than 70% newspapers are used as toilet paper. The observed toilet vaults did not have any solid wastes dumped inside. Only about 10% showed some traces of sanitary pads in the vaults. Further training should be done on Menstrual Hygiene Management (MHM) and Solid Waste Management (SWM) to eliminate this problem. The types of solid wastes observed in the vaults of the toilets are shown in figure 2 and are quite minimal. Sanitary pads and plastics are strictly not to be disposed in these toilets since they are not bio-degradable.

Households can be trained to solve this problem. The manual emptiers should also be trained to charge more for emptying sludge with a lot of inorganic materials which are not bio-degradable into usable compost.

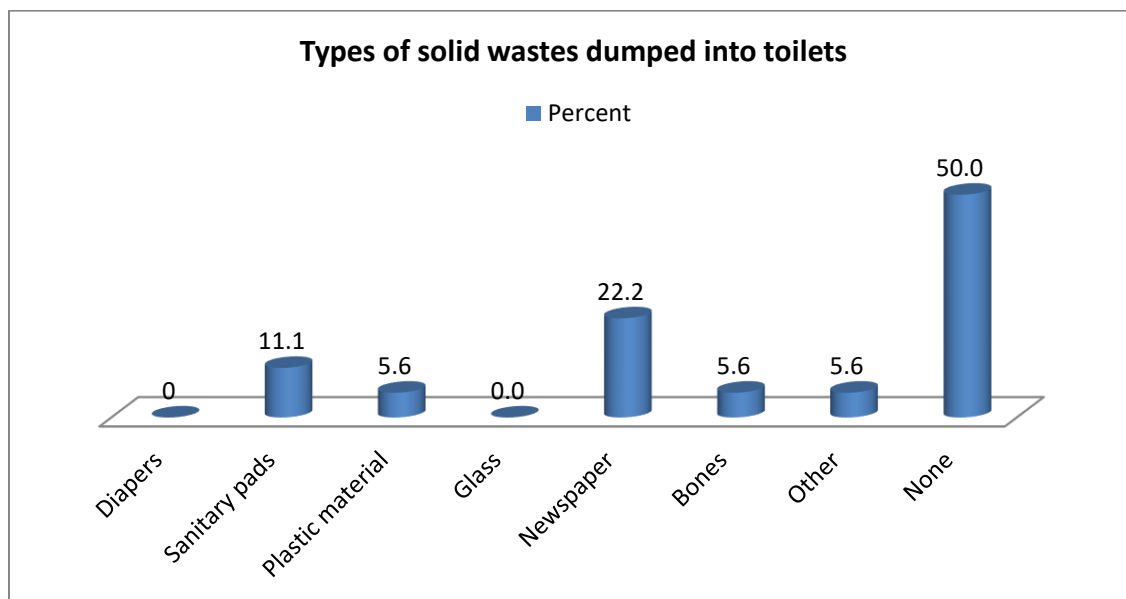


Figure 3: Types of solid waste dumped into toilets

Most of the households had a solid waste management system on which UBSUP could build on as shown below. There is therefore a possibility of training the users not to dispose solid waste in SafiSan toilets.

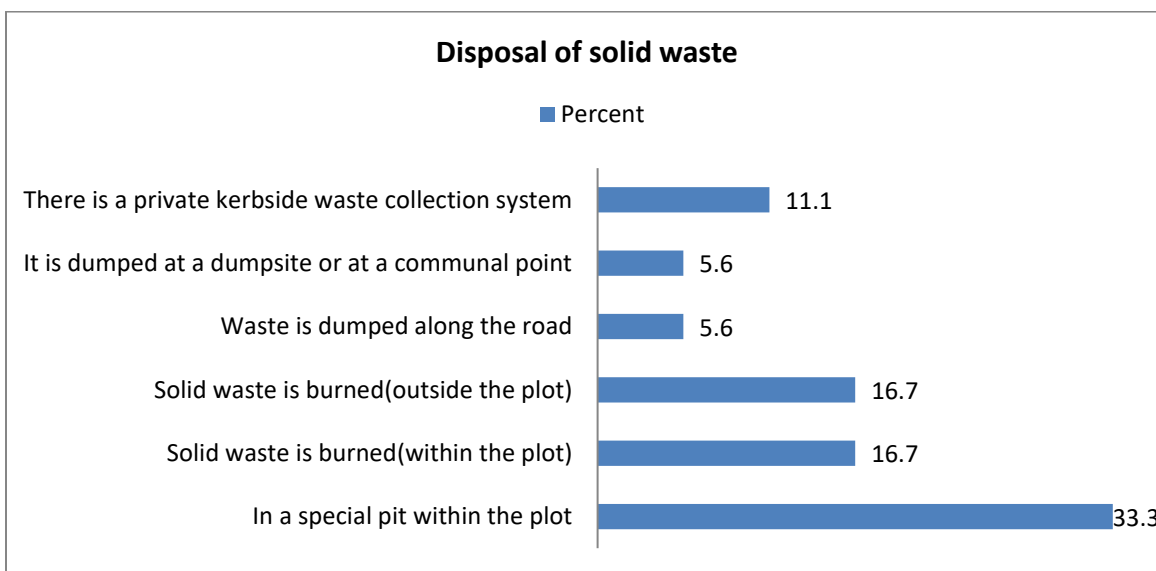


Figure 4: Disposal of solid waste

The study also looked into the proper use the toilets as per the given training posters. Most users as shown in figure 5 were using the toilets comfortably without problems. About 80% confirmed that they could use the toilet comfortably. Squatting may also be difficult for the physically challenged, sick and old people as shown in figure 6.



Figure 5: Comfort of the toilets

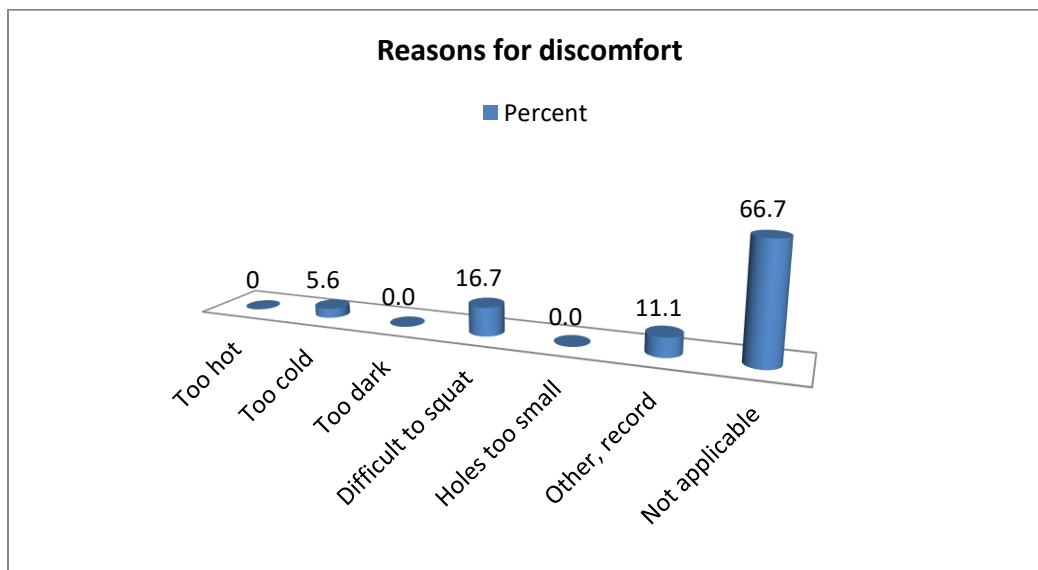


Figure 6: Reasons for discomfort

The need for more training and adjusting the design to fit dealing with the needs of some special groups was shown by the perception of the users with regard to the squatting pan. Only about 40% of those interviewed confirmed that it was easy to use. However, 100% of those interviewed did not experience blocking of the urine pipe. They are therefore using the ash and toilet paper properly thus avoiding the any urine pipe blockages.

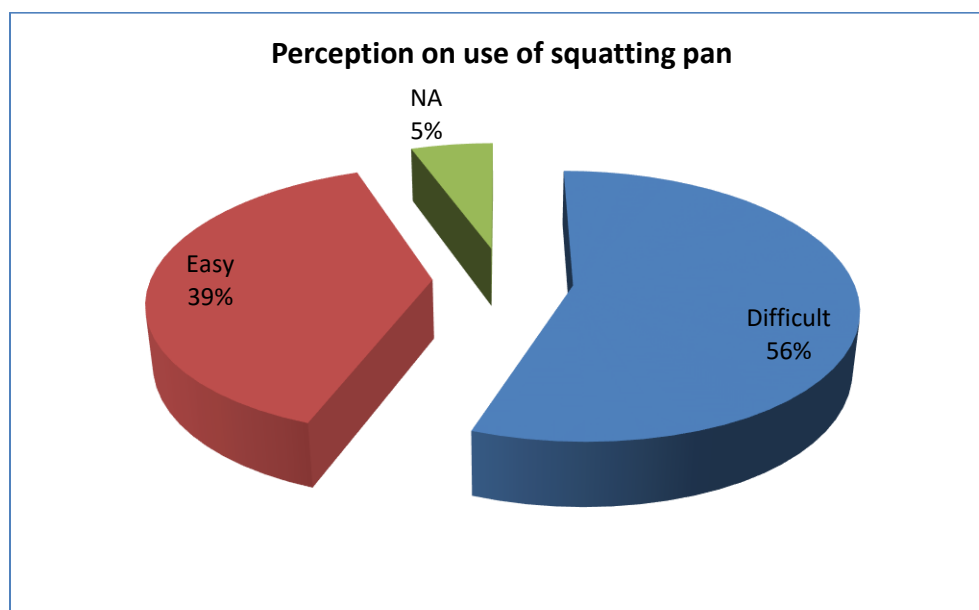


Figure 7: Perception on the use of the squatting pan

80% of the observed toilets were used properly (no splashing of urine, no ashes in urine hole, clean squatting pan, etc.). Over 40% used toilet papers for anal cleansing. Only about 5% used newspapers

Further evidence of effectiveness of the trainings in the toilet use was shown by the proper management of the vaults and very limited odour from the toilets. Over 60% of the observed toilets were drying faeces properly in the vaults and were odourless. For those that had some slight odour, the ventilation system was improved to increase the air circulation in the vaults which then made them odourless. Over 80% of observed toilets had no problems with flies and insects.

2.0 Drying materials used and their availability

2.1 Wood Ash

100 % of the users use wood/charcoal ash as a drying material as it abundantly available. 90% of the users produce their own ash. Only a handful (about 200 ml) is required for every toilet use. Research has confirmed that wood ash has the best effect in reducing the pathogen level to a minimal in dehydrated faeces within the vaults. The ash achieves this by increasing the pH within the dehydrating faeces. Most pathogens cannot survive under the dry environment with a high pH.

2.2 Wood Shavings

Only about 30% of the interviewed users confirmed the availability of wood shavings. It is not used as a drying agent as it has to be purchased mostly from carpenters.



Figure 8: Availability of wood shavings

3.0 Compost disposal and reuse

As mentioned above, the users were trained on possible use and disposal methods. However, the knowledge seems not to be high and more awareness and capacity building needs to be undertaken among all stakeholders (WSPs, landlords, public health officers and toilet users). The potential of using the treated compost directly by the toilet users in their plots exists is shown in figure 8. However, good training using possible demonstration sites should be developed. This could be built with youth groups practicing ornamental farming or engaged in seedling production.

Users could also be trained on the use of compost on trees or flowers in their compounds. Landfill as a means of disposal can also be encouraged within the plots especially those with live fences or shrubs/trees. Kitchen gardening can be done with the compost and urine under strict instruction and observation of certain public health rules. The social animators should be trained on disposal and reuse and should have good knowledge during the social marketing.

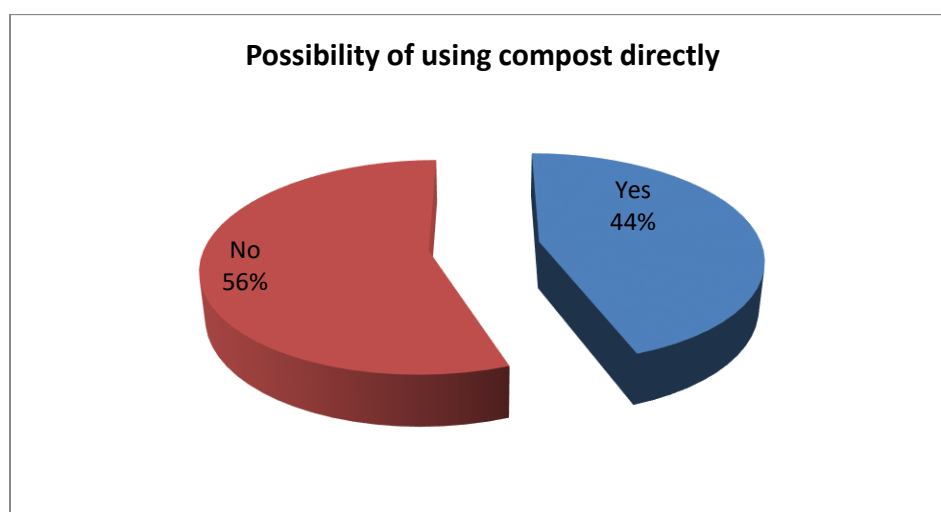


Figure 9: Possibility of using compost directly

The chart below shows the perception of the users on possible usage of the toilet compost. More awareness should be created on disposal through landfill and reuse in agriculture.

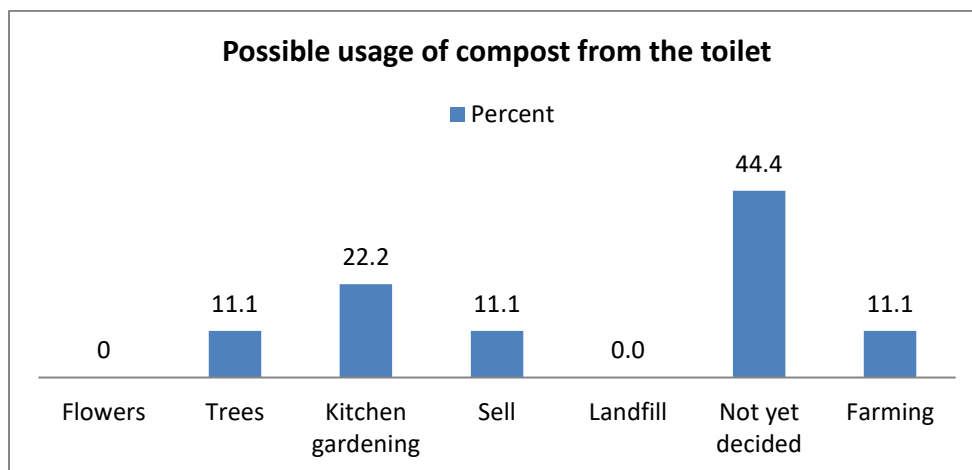


Figure 10: Possible usage of compost from the toilet

4.0 Available services in the sanitation chain

This sanitation chain service delivery has not been tested adequately by UBSUP during this testing. Over 80% of the users have no knowledge of the existing sanitation chain delivery services.

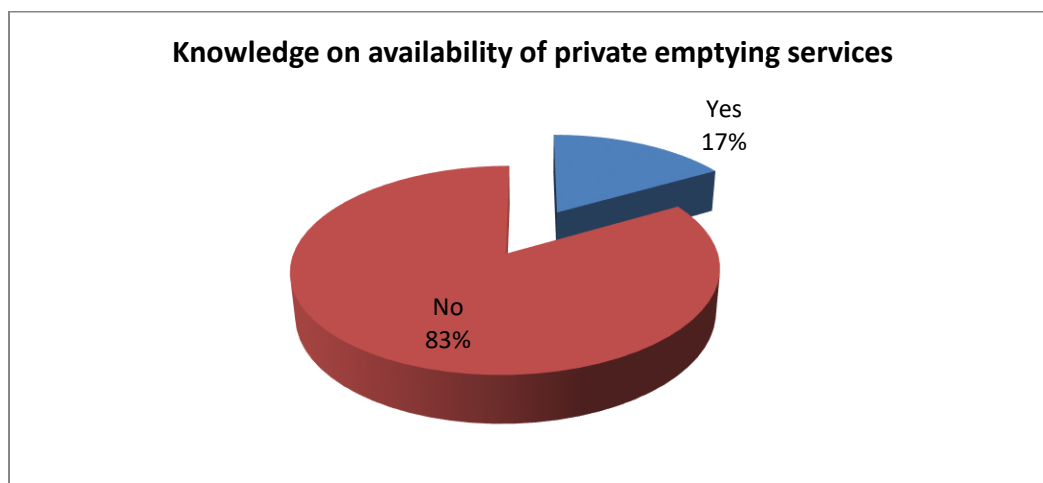


Figure 11: Knowledge on availability of private emptying services

Most people do not empty their toilets. Only about 17% are using some type of emptying services.

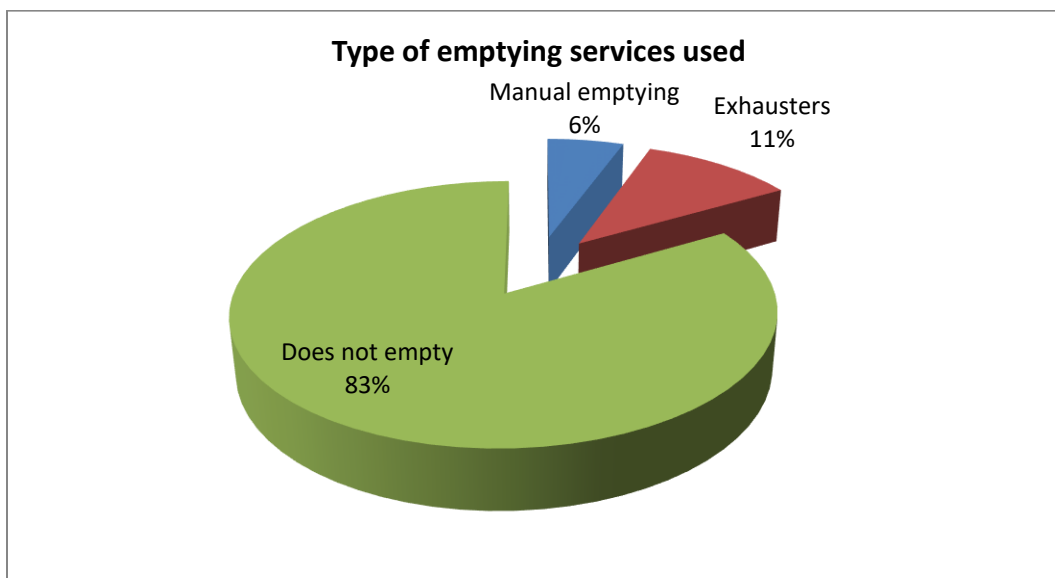


Figure 12: Types of emptying services used

There private sector service providers for both sludge and solid waste management in the testing area. However, majority are not aware and do not use the services except in solid waste management. This is one area the UBSUP still has to do more work.
