



ISO 9001:2008 CERTIFIED



## WATER SECTOR TRUST FUND

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### How to empty a Urine Diversion Dehydration Toilet (UDDT)



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## Once the vault is full

- Once the vault that you are currently using becomes full, please cover it with the lid that has been provided to you. The lid is written **DO NOT USE or HAITUMIKI**. This ensures that nobody uses the vault during the treatment period
- Make sure that the lid is tight so that it is not opened by mistake! No one should use the full vault during the treatment period
- Once the vault is full, ensure that it has enough ash for drying and leave it to compost for a minimum period of 6 months. The longer it stays the better and safer the quality will be for reuse
- Ensure that you have locked the vault door so that it is not accessible to children
- You may open the vault from time to time to monitor the process. If you see that some sections require a little bit more ash, please do add some
- You may add more ash and mix it with a spade so that it may dry uniformly.
- **Wash your hands with soap and water after you have handled the contents of the vaults**

**Don't worry! After the 6 months, the faeces are dry and odourless and look like soil. If it smells and there are flies and maggots, this means that the toilet has not been used appropriately.**



The left vault is full and needs emptying.

## Any risks faced during the emptying of the vaults?

- The main danger from the dehydrated faeces would be the possibility of helminth eggs (worms) transmission since they take a longer time to die off even in hot tropical climates
- Ensure that you have protective equipment like gloves and **wash your hands with soap and water** after emptying the faeces chamber
- Use a shovel, wheelbarrow and drums or any other equipment that can be used for transporting the dehydrated faeces. Clean the equipment after use and store them well
- Ensure that no spilling occurs anywhere. Please note that good practice is achieved when emptying is done during the day time

- The dehydrated faeces can be used as a soil conditioner in tree crops, agroforestry or ornamentals. If this is not possible, it should be buried under at least **25 cm of soil**.<sup>1</sup>
- If it is removed before a minimum of 6 months, the Sanitation Team should empty the faeces chambers and transport it to the designated Decentralised Treatment Facilities. If it is still moist, then please add more ash

### What are the risks during disposal?

- Risks are there if it is removed before the six month period (physical observation: before complete decomposition has taken place). The emptiers who will therefore be employed to empty the faeces chamber before the six months should always wear protective equipment such as gloves and boots to empty the vaults. **The dehydrated faeces should be taken to the DTF and not reused.**
- There are risks in handling urine particularly when urine has not been contaminated with faeces. Cross contaminated urine contains faecal matter that has pathogens therefore cannot be used in agriculture
- Always wash your **hands with soap and water** after emptying the toilet.

### What are the risks during potential reuse?

- The risks involve how the faeces and or urine is applied on the crop. (Trees that grow high up are more secure such bananas, oranges and mangoes, maize, millet)
- The dehydrated faeces should be worked into the soil rather than distributed into the surface  
It is safest when applied to fruit trees, agroforestry, or crops that are processed further such as coffee and cotton rather than vegetables such as sukumawiki
- The danger comes from the transmission of helminth eggs (worm infestation) if the faeces is used before the 6 month period
- Application of treated faeces is safest when applied to fruit trees rather than vegetables or root crops.
- If non-biodegradable materials such as sanitary pads have been discarded in the faeces vaults, the treated vault contents need to be sieved or screened prior to agricultural reuse.

\*Faeces is a resource! **Treated faeces have a high content of organic matter which acts as a good conditioner. It also contains considerable amounts of the nutrients nitrogen, potassium, and phosphorous as well as other micronutrients. If ash has been used, it provides an additional source of potassium!**

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<sup>1</sup> To be demonstrated during on-job training



Treated faeces used as conditioner in the maize plants on the right

### Potential use of urine and disposal

- Urine is a good fertiliser containing 97% nitrogen which is required by plants. It should therefore be separated at the source so as to be reused. This is possible with a UDDT
- If urine is to be used in plants, the urine should be diluted with water so as not to burn the plants. The ratio depends on the type of plants that are being fertilised. Average ratio is 1:1 or 1:2. 1:2 means that in 20 litres of urine, you add 40 litres of water.
- Urine can be used to grow tree crops or for seedlings production and ornamental farming
- Some faeces may accidentally fall into the urine section. **Unfortunately this urine is already contaminated and should not be reused!** It is therefore important to stress the need to use the toilet well so that no cross contamination occurs
- Do not mix the urine water with the anal cleansing water. The anal cleansing water is contaminated and should be directed to a soak pit.
- Urine should be stored in closed containers/ jerry cans for further treatment
- Fresh unsorted urine should not be immediately used as fertiliser
- If urine cannot be reused, then it will be directed to a soak pit.
- **Wash your hands with soap and running water after handling or storing urine**



Trees on the right were fertilised with urine

## Your protection

Emptiers are vital in the community and make very positive contributions to the society. They improve the public health of the residents and it is a job opportunity for many youths in slum areas. If approached as a business and is institutionalised well, it could be integrated in a sanitation business model.

Note:

- Your protective clothes should include well-fitting overalls, gloves, gumboots and nose masks. Regularly clean your protective equipment
- Proper cleaning of your waste collection equipment (wheelbarrow, containers) after every use
- It is recommended to take deworming tablets
- There should be no drinking, smoking, eating during emptying and operation. This should strictly be adhered to, to avoid contamination. **Hands should be washed on a regular basis**
- At the end, it all resonates down to personal hygiene. According to the Ministry of Public Health and Sanitation, approximately 80% of hospital attendance in Kenya is due to preventable diseases (MOPH,) therefore proper hand washing with soap and water should also be ensured to kill off any pathogens that might have come into contact with the hands

## Cleaning of the tools

- The tools and equipment should be cleaned and disinfected with Jik, dried in sun and stored. There should be no storage when they are still wet. Area of storage should be designated. In addition, they should restrictively be used for the purpose of waste collection and emptying. This is important to avoid contamination.

## Further Information

- Urine diversion means that there is a separation of urine and faeces
- Urine diversion dehydration toilet strictly refers to double vault toilets i.e. toilets with two vaults
- The faeces vault is also referred to as the faeces chamber
- Urine diversion seats are appropriate for people who have difficulties squatting. Urine diversion pans require that the user squats
- If used appropriately, UDDTs are odourless and have no flies
- A sanitary bin should be put inside the toilet to deposit solid waste such sanitary towels, condoms and diapers
- Posters are placed in each of the toilets that give instructions on how to use the toilets
- Urine and faeces are both resources and can be reused. In addition, the toilets are durable and do not require expensive exhauster services or pollute the ground water or environment! Ensure that the beneficiaries know this so that they can understand the value of their new toilet!

## Legal requirements

- Registration as a group
- Registration with the WSP
- Registration with National Environment Management Authority- NEMA for a permit to operate (NEMA Regional Office)
- Authorisation from County Public Health Department