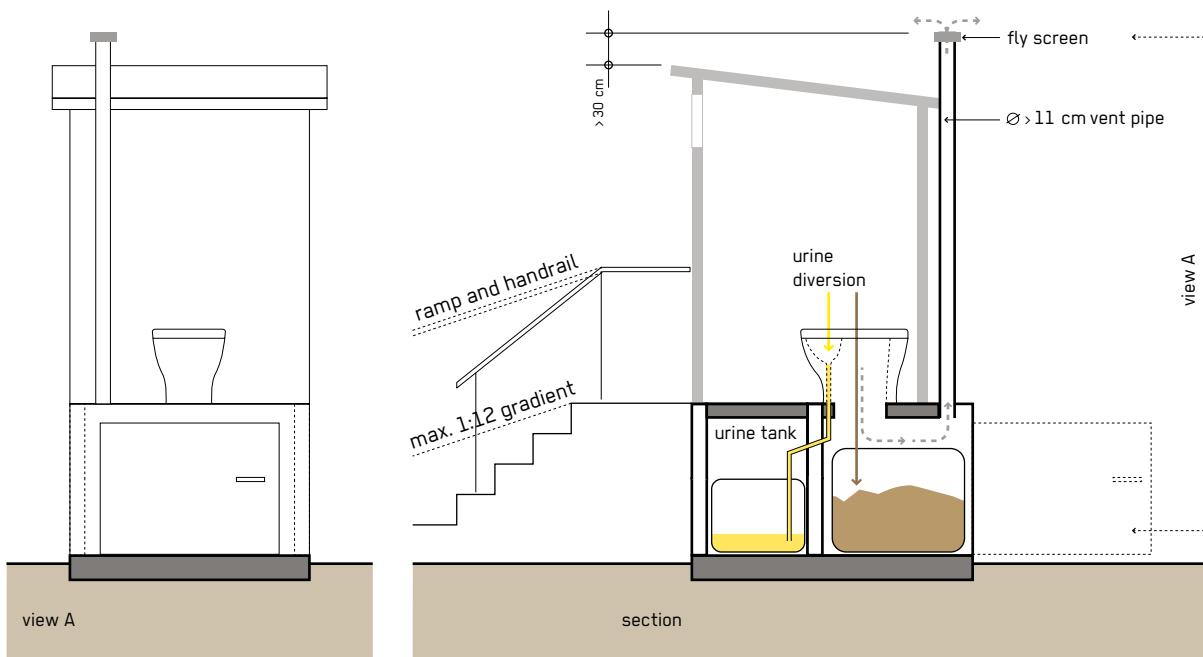


Single Vault UDDT (Urine Diversion Dehydration Toilet)

Phase of Emergency	Application Level / Scale	Management Level	Objectives / Key Features
Acute Response ** Stabilisation ** Recovery	* Household ** Neighbourhood City	* Household ** Shared ** Public	Excreta containment, Alternative for challenging ground conditions, Nutrient recovery
Space Required	Technical Complexity	Inputs	Outputs
* Little	* Low	● Faeces, ● Urine, (● Dry Cleansing Materials), (● Anal Cleansing Water)	● Faeces, ● (Stored) Urine



The Single Vault UDDT is a Container-Based Toilet (S.10) that operates without water. Urine and faeces are collected separately. Unlike the Double Vault UDDT (S.9) it does not offer the possibility of prolonged storage and treatment and needs an appropriate management system for regular emptying, transport, treatment, reuse and/or safe disposal of collected excreta products.

In a Urine Diverting Dry Toilet (U.2), urine does not enter the same container as the faeces and is instead diverted into a separate container. If the urine is not to be reused and if soil conditions allow it can alternatively be directly infiltrated into the soil (D.10) as its pathogen load is considered negligible. Infiltrating urine significantly reduces the overall excreta volume (80–90%) without an increased public health risk. Faeces are collected in a separate collection device and cover materials (e.g. ash, lime or sawdust) are added after each use. The collected urine and faeces must be emptied on a regular basis.

Design Considerations: The size of the faeces collection container should be chosen according to the expected number of users but should not exceed 50–60 L of volume for easy removal. Containers should be sealable and equipped with handles, allowing easy manipulation, intermediate storage for changes in usage, improved perception and reduced risk in storage and transport. A vent pipe is suggested to remove humidity from the vaults and control flies and odours. Water from the handwashing facility and anal cleansing water (if used) must be drained separately. All connection pipes should be as short as possible with no sharp bends and installed with at least a 1% slope. An odour seal should be installed at the urine drain.

Materials: Single Vault UDDTs can be constructed with local materials, e.g. bamboo, wood, corrugated iron, tarpaulin, plastic buckets and jerricans. Depending on local availability potential cover/drying material that can be

used include ash, lime, sawdust, dried soil or dried agricultural waste products. Urine diversion toilet seats or squatting pans can be obtained or produced locally.

Applicability: Single Vault UDDTs are suitable for flood-prone, high water table and rocky areas and can be an appropriate solution for the stabilisation and recovery phase provided the technology is acceptable to the users. They should only be implemented if subsequent management can be guaranteed by a local organisation or service provider. They can be replicated quickly given enough space is available. As no water is needed for operation it is a viable solution for water scarce areas. The design can be adjusted to specific user needs and cultural settings (e.g. smaller for children, sitting/squatting). Depending on local acceptability collected products can be used as fertiliser and soil conditioner in agriculture (after treatment). Even without reuse the UDDT offers a safe, hygienic and odour free excreta containment solution. Single Vault UDDTs can be temporary solutions, making them more attractive in situations with landownership issues that do not permit permanent structures. They are adaptable to anticipated disruptions and hazardous events: toilets can be serviced more frequently prior to anticipated events, or additional collection devices can be provided for times when servicing might be difficult.

Operation and Maintenance: Key operation and maintenance (O & M) tasks include regular emptying and replacing of collection containers, cleaning, checking availability of hygiene items, soap, cover material, dry cleansing materials and water for handwashing and anal cleansing, conducting minor repairs and advising on proper use. Care should be taken to ensure that no water or urine gets into the faeces container. If this happens, extra cover material can be added to help absorb the liquid. Service personnel should wear proper personal protective equipment including a mask, gloves, boots, an apron or protective suit. Division of O & M responsibilities between users and potential service providers need to be clearly defined.

Health and Safety: If used and managed well, Single Vault UDDTs can be a safe excreta containment technology. They need to be equipped with Handwashing Facilities (U.7) and proper handwashing with soap after toilet use needs to be addressed as part of hygiene promotion activities (X.12). Pathogen concentration in faeces is high and there is no significant pathogen reduction during the

short storage time. Thus, it is critical that the faeces-containing vault is handled in such a way that the risk of disease transmission is minimised (i.e. ensure containers are closed and use of personal protective equipment). As faeces are not treated in the vault, there is a need for subsequent treatment. If reuse is not intended the collected faeces can be buried or transported to a final treatment site.

Costs: Investments costs for Single Vault UDDTs are low and they can be built with locally available materials and labour. However, operational costs for regular emptying, transport and further processing of excreta products can be considerable and need to be taken into consideration when calculating longer-term costs.

Social Considerations: The technology should be discussed with the community beforehand as the use of a urine diversion facility may have considerable acceptability and behavior change implications. Training might be needed to support acceptance, ensure proper use and maintenance and to avoid misuse. It should reflect local user preferences (sitter vs. squatter, anal cleansing practices, direction, positioning etc.) and should account for the accessibility and safety of all users, including men, women, children, elderly and disabled people (X.10). If reuse is not intended and soil conditions allow, urine can be infiltrated directly into the ground, avoiding regular urine management and may increase user acceptance.

Strengths and Weaknesses:

- ⊕ Suitable in areas with challenging ground conditions and that are prone to flooding
- ⊕ Waterless operation
- ⊕ No flies and odour when correctly used and maintained
- ⊕ Adaptability to natural and societally-created disruptions/events
- ⊖ Needs an overall management system (high maintenance)
- ⊖ Requires well-trained user and service personnel
- ⊖ Requires constant source of cover material
- ⊖ Manual removal of faeces (and urine) containers required

→ **References and further reading material for this technology can be found on page 191**