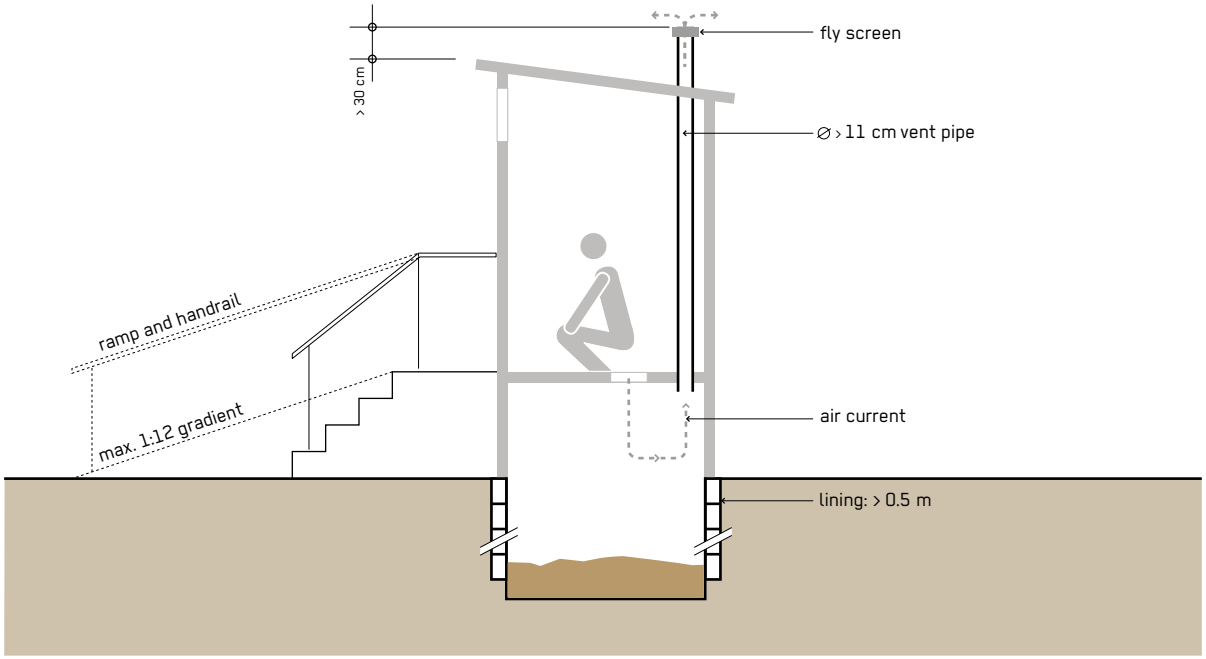
Raised Latrine

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
Space Required	**Technical Complexity**	**Inputs**	**Outputs**
* Little	* Low	● Excreta, ● Faeces, (● Anal Cleansing Water), (● Dry Cleansing Materials)	● Sludge



Raised Latrines are alternatives to pit-based latrines in areas with rocky ground, high water tables or flood affected areas. Depending on site conditions they can either be built as autonomous facilities entirely above ground with a holding tank below the user interface or by raised partially above ground, reducing the risk of groundwater contamination.

If Raised Latrines are built entirely above ground, the excreta must be collected in a sealed vault below the user interface. As no percolation occurs from the sealed vault, raised latrines that are entirely above ground have a high sludge accumulation rate. Storage facilities need regular emptying and a sludge management system is necessary. Raised Latrines with the pit partially below ground allow some of the effluent to percolate into the soil through the bottom and walls of the pit, while microbial action partially degrades the organic material. Raised Latrines can either be built as a single pit solution (with ventilation) or as a toilet block with several cubicles in a row and a trench or larger storage tank underneath. In toilet blocks ventilation is a challenge and thus odours and flies can become an issue.

Design Considerations: Raised Latrines with pits partially below ground need pit lining (> 0.5 m) to ensure that the pit remains stable. To reduce odours and flies the latrine should be equipped with a ventilation pipe **(see S.4)**. Raised Latrines must be equipped with stairs or a ramp and corresponding handrails and, if necessary, structural support at the back. Drainage should be considered around the latrine so that rainwater does not enter the pit. In communal latrines, there should be separate latrines for men and women. The Raised Latrine platform usually does not exceed a maximum height of 1.5 m due to costs and user acceptance. The design must include arrangements for emptying.

Materials: If possible, materials should be used that are readily available and that can be sourced rapidly. The superstructure can be made from materials including bamboo, grass matting, wood, plastic or metal sheeting (though this often heats up the interior). The lining can be of concrete rings, bricks, stones, timber or sand bags. Several companies have developed variations of prefabricated Raised Latrines that can be delivered and assembled quickly.

Applicability: Raised Latrines are particularly suitable for flood prone areas, areas where pit digging is difficult or the water table is high and where construction of permanent structures is not allowed. They can be considered a viable solution in all stages of an emergency provided the technology is acceptable to the users. As no water is needed for operation it is also a solution for water scarce areas. They can be replicated quickly and implemented at scale if enough space is available. In areas with frequent flooding it can also be considered a permanent solution to increase longer-term resilience.

Operation and Maintenance: Operation and maintenance (O & M) requirements depend on which latrine design is used. Raised Latrines with a sealed containment facility fill up quickly and need regular emptying or replacement of storage facility and subsequent management of collected sludge. O & M tasks also include regular cleaning, conducting routine operational tasks (e.g. checking of availability of water, hygiene items, soap), providing advice on proper use, conducting minor repairs and monitoring the fill level. As latrines are often misused for solid waste disposal, which can affect later emptying, special awareness-raising measures should be considered. Public Raised Latrines tend to have a high sludge accumulation rate and will require frequent emptying. If regular desludging is needed, availability of and accessibility for desludging vehicles must be considered **(C1, C2)**.

Health and Safety: If used and managed well, Raised Latrines can be considered 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)**. For Raised Latrines partly below ground, groundwater contamination can be an issue and soil properties and the groundwater level should be assessed (**X.3)** to identify the minimum distance to the next water source and limit exposure to microbial contamination. The Sphere minimum standards on excreta management should be consulted for further guidance. Emptying pits or replacing storage containers should be done in such a way that the risk of disease transmission is minimised (personal protective equipment and hygiene promotion for emptying personnel). Public latrines need additional illumination at night, security guards for protection and require accessibility for all users.

Costs: Building Raised Latrines is relatively inexpensive. Costs vary depending on availability and costs of local materials. Prefabricated versions may be more expensive (particularly costs for stockpiling and transporting) but can usually be implemented faster and with less dependency on local materials. Cost calculations need to reflect ongoing O & M requirements and follow-up costs such as regular desludging, transport, treatment and final disposal/reuse of accumulating sludge. The cost of steps and access ramps for users can also push the cost up.

Social Considerations: Due to the raised design, Raised Latrines increase the risk of users being seen when going to the toilet. The location of the Raised Latrine may therefore be particularly important. Other design elements also need to reflect local user preferences (e.g. sitter vs. squatter, cleansing practices, direction, height, positioning etc.). Latrines need to be accessible to all, therefore ramps with a handrail and a turning space for wheelchairs at the latrine level may need to be considered **(X.10)**. O & M roles and responsibilities need to be agreed upon early on and closely linked to hygiene promotion activities **(X.12)** to ensure appropriate use and O & M of facilities.

Strengths and Weaknesses:

- ⊕ Applicable in areas with challenging ground conditions and frequent flooding
- ⊕ Low (but variable) capital costs
- ⊕ Small land area required

- ⊖ Inclusive design is more difficult than for technologies that are not raised
- ⊖ Emptying costs may be significant compared to capital costs
- ⊖ Collected sludge requires further treatment
- ⊖ For above ground facilities emptying service needs to be in place from the design stage

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