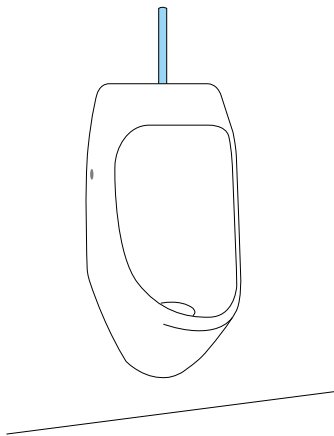


Urinal

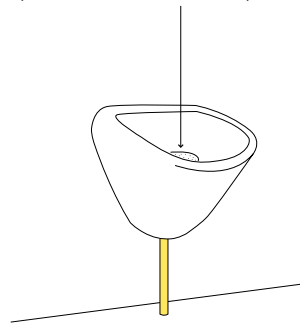
Phase of Emergency	Application Level/ Scale	Management Level	Objectives / Key Features
** Acute Response ** Stabilisation ** Recovery	** Household Neighbourhood City	** Household * Shared * Public	Separate urine collection, Take off user pressure from other user interfaces
Space Required	Technical Complexity	Inputs	Outputs
* Little	* Low	● Urine, (● Flushwater)	● Urine, (● Flushwater)

urinal with flush

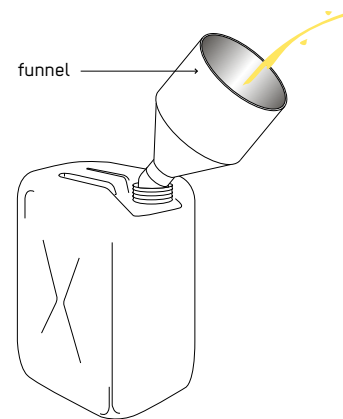


waterless urinal

special valve as an odour trap



jerrycan urinal



A Urinal is used only for collecting urine. Urinals are usually for men, although models for women have also been developed. Some Urinals use water for flushing, but waterless Urinals are also available.

Urinals for men can be either vertical wall-mounted units, or squat slabs over which the user squats. Urinals for women consist of raised foot-steps and a sloped channel or catchment area that conducts the urine to a collection technology. The Urinal can be used with or without water and the plumbing can be developed accordingly. If water is used, it is mainly used for cleaning and limiting odours (with a water-seal). Urinals need to be equipped with a urine storage container or a disposal system such as a Soak Pit (D.10).

Design Considerations: During an acute emergency, a Urinal can be a simple trench or pit filled with gravel or a piece of rainwater guttering against a vertical plastic sheet discharging into a Soak Pit (D.10). Other options include (recycled) containers or jerrycans with a funnel on top or other locally available Urinal options made out of plastic or ceramic. For water-based Urinals, the water use per flush ranges from less than 1 L in current designs to 5–10 L of flush water in older models. Water-saving or waterless technologies should be favoured. Some Urinals come equipped with an odour seal that may have a mechanical closure, a membrane, or a sealing liquid. For male Urinals, adding a small target near the drain can reduce urine splash. Because the Urinal is exclusively for urine it is important to also provide a regular toilet for faeces. To minimise odours and nitrogen loss in simple waterless Urinal designs, the collection pipe should be submerged in the urine tank to provide a basic liquid seal. For planning, a maximum urinal per user ratio of 1:50 is recommended.

Materials: Urinals can be constructed using a wide variety of local materials, ranging from very simple (e.g. plastic funnels connected to a jerrycan), to more elaborate and prefabricated designs. In principle, any sealed material can be made into a Urinal and be connected to a storage container or a soakaway or sewer system.

Applicability: Urinals are suitable for shared and public facilities. Particularly in the acute response phase Urinals offer a good possibility to reduce the volume entering pit latrines (urine can be considered pathogen free and makes up around 90 % of the excreta load). In some cases, the provision of a Urinal is useful to prevent the misuse of dry systems, as no urine enters the system. Urinals are particularly appropriate for communities that already use Urinals. Urinals can boost efficiency of existing toilets, increase use of sanitation facilities, reduce the amount of wastewater generated and remaining toilets can be reduced in number or used more efficiently. Urinals usually smell in warm climates which should be considered when deciding on an appropriate location.

Operation and Maintenance: With Urinals there are often odour issues, especially if the Urinal floor is not sealed. Frequent flushing with water and regular cleaning of the surrounding area (bowl, slab and wall) is necessary. Urinals require maintenance to minimise odour, remove solid waste (e.g. cigarette butts) and to minimise the formation of stains and mineral deposits. Particularly, in waterless Urinals, calcium- and magnesium-based minerals and salts can precipitate and build up in pipes and on surfaces where urine is constantly present. Washing the bowl with a mild acid (e.g. vinegar) and/or hot water can prevent the build-up of mineral deposits and scaling. Stronger acid or a caustic soda solution can be used for removing blockages or manual removal may be required. For waterless Urinals, it is critical to regularly check the functioning of the odour seal. The tank for urine collection needs to be emptied on a regular basis. If a Urinal is used by an average of 50 people per day, each producing around 1 L of urine, a minimum of 350 L of storage is needed if emptied weekly.

Health and Safety: As there are low or no pathogens associated with the urine the public health risk is relatively low. A Handwashing Facility (**U.7**) has to be in close proximity.

Costs: Urinals can be built economically using local materials. However, any cost consideration needs to reflect the costs related to labour required for the emptying and transportation of the urine collected with daily urine loads of approx. 1–1.5 L per person and day.

Social Considerations: A Urinal is a comfortable and widely accepted user interface for men. However, in some cultures the use of Urinals may not be appropriate and prior consultation with users is recommended. Urinals for women are less common and users should be consulted if this can be a potential solution. It should be considered placing the Urinals in areas where open urination is an issue in order to maintain a clean and odourless environment. Handwashing stations need to be placed close to Urinals, as hand hygiene after urination is important.

Strengths and Weaknesses:

- ⊕ Waterless Urinals do not require a constant source of water
- ⊕ Can be built and repaired with locally available materials
- ⊕ Low capital and operating costs
- ⊖ Problems with odours may occur if not used and maintained correctly
- ⊖ Models for women are not widely available and may have acceptance issues

→ **References and further reading material for this technology can be found on page 190**