

Application Level:

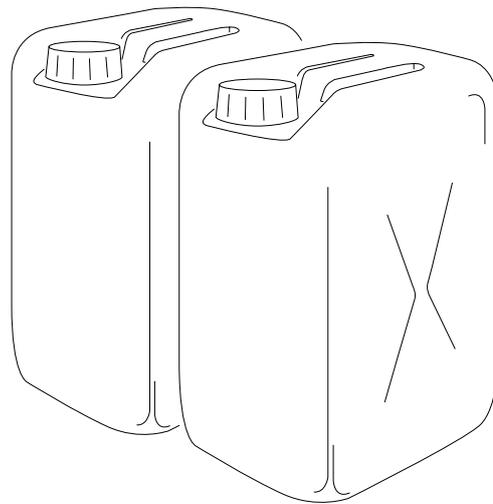
- Household
 Neighbourhood
 City

Management Level:

- Household
 Shared
 Public

Inputs/Outputs:

- Urine Stored Urine



Jerrycans are light, plastic containers that are readily available and can be easily carried by one person. When sealed, they can be used to safely store or transport urine.

Urine can be collected in jerrycans or they can be filled with the urine stored in Storage Tanks/Containers (S.1) for transportation to agricultural fields or to a central storage facility. Where urine-diversion systems are common, a micro-enterprise may specialize in the collection and transport of jerrycans, using e.g., bicycles, donkeys, carts or small trucks.

Design Considerations On average, a person generates about 1.2 L of urine a day; however, this quantity may vary significantly depending on climate and fluid consumption. A family of 5 can be expected to fill a 20 L jerrycan with urine in approximately 3 to 4 days. It can either be stored on site or immediately transported. If the jerrycan is directly connected to the toilet or urinal with a pipe, care should be taken to minimize its length since precipitates will accumulate. Pipes should have a steep slope (> 1%), no sharp angles, and large diameters. They should be easily accessible in case of blockages.

Because jerrycans quickly fill up and need to be frequently exchanged or emptied, the use of a large Storage Tank/Container should be considered for primary collection of the urine. The stored urine can then be filled into jerrycans (e.g., using a small pump) and transported to the fields.

Appropriateness A well-sealed jerrycan is an effective way of transporting urine over short distances. It is inexpensive, easy to clean and re-useable. This type of transport is only appropriate for areas where the points of generation and use (i.e., homes and fields) are close together, and where relatively small quantities of urine are produced. Otherwise, a more formalized and efficient collection and distribution system is necessary. For compounds or communities with urine-diverting systems, for example, it may be more appropriate to have a large urine storage tank that can be emptied by such means as Motorized Emptying and Transport (C.3).

Jerrycans can be used in cold environments (where urine freezes) as long as they are not completely filled. In warmer months the stored urine can be used when it is needed for agriculture.

Health Aspects/Acceptance The people who exchange or empty jerrycans incur low health risks because urine is normally sterile. Carrying jerrycans also poses little health risk as they seal very well. While carrying a jerrycan may not be the most pleasant activity, it is likely to be more convenient and less costly than emptying a pit.

In some locations, urine has an economic value and it may be collected from households for free. Families who invest the time to transport and use their own urine may be rewarded with increased agricultural production, improving their nutrition and/or increasing their income.

Operation & Maintenance To minimize bacterial growth, sludge accumulation and unpleasant odours, jerrycans should be frequently washed. Because of safety concerns and transportation difficulties, no other liquids (such as blackwater or greywater) should be transported in jerrycans.

Pros & Cons

- + Jerrycans are widely available and robust
- + Very low capital and operating costs
- + Potential for local job creation and income generation
- + Easy to clean and reusable
- + Low risk of pathogen transmission
- Heavy to carry
- Spills may happen
- Mild to strong odour when filling and emptying jerrycans (depending on storage conditions)

References & Further Reading

- von Münch, E. and Winker, M. (2011). *Technology Review of Urine Diversion Components. Overview of Urine Diversion Components Such as Waterless Urinals, Urine Diversion Toilets, Urine Storage and Reuse Systems*. Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn, DE. Available at: www.susana.org/library
- Richert, A., Gensch, R., Jönsson, H., Stenström, T. A., and Dagerskog, L. (2010). *Practical Guidance on the Use of Urine in Crop Production*. EcoSanRes, Stockholm Environment Institute, Stockholm, SE. Available at: www.susana.org/library
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