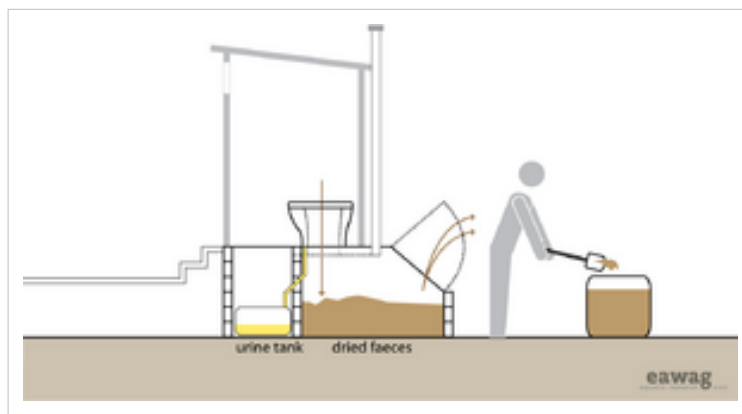


Application_of_Dehydrated_Faeces

Application level		Management level	
Household	XX	Household	XX
Neighbourhood	X	Shared	XX
City		Public	X



Applicable to systems:	Languages / langues / idiomas
4	  

Inputs: Dried Faeces

Outputs: -

When faeces are stored in the absence of moisture (i.e. urine) they dehydrate into a crumbly, white-beige coarse, flaky material or powder. Dehydration means that the moisture naturally present in the faeces evaporates and/or is absorbed by the addition of a drying material (e.g. ash, sawdust, lime).

Dehydration is different from composting because the organic material present is not degraded or transformed; only the moisture is removed. After dehydration, faeces will reduce in volume by about 75%. The shells and carcasses of worms and insects that also dehydrate will remain in the dried faeces.

The degree of pathogen inactivation will depend on the temperature, the pH (e.g. lime raises the pH) and storage time. It is generally accepted that faeces should be stored between 12 to 18 months, although pathogens may still exist after this time.

When the faeces are completely dry they will emerge as a crumbly, powdery substance. The material is rich in carbon and nutrients, but may still contain pathogens or oocysts (spores which can survive extreme environmental conditions and re-animate under favourable conditions). The material can be mixed into soil, either for agriculture or at another site (depending on acceptance).

Faeces that are dried and stored between 2 and 20°C should be stored for between 1.5 to 2 years before they are used at the household or regional level. At higher temperatures (i.e. greater than 20°C) storage over one year is recommended to inactivate *Ascaris* eggs (a type of parasitic worm). A shorter storage time of six months is required if the faeces have a pH above 9 (i.e. lime will increase the pH of the faeces). The WHO has published guidelines and these should be consulted before using dried faeces.



Advantages	Disadvantages/limitations
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<ul style="list-style-type: none"> - Can improve the structure and water-holding capacity of soil. - Simple technique for all users. - Low cost. - Low risk of pathogen transmission. - May encourage income generation (tree planting). 	<ul style="list-style-type: none"> - Labour intensive. - Pathogens may exist in a dormant stage (oocysts) which may become infectious if moisture is added. - Does not replace fertilizer (N, P, K).
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Adequacy

Dried faeces are not as well treated or as useful as a soil amendment as composted faeces. However, they are useful at replenishing poor soils and for boosting the carbon and water-storing properties of a soil with low-risk of pathogen transmission.

Health Aspects/Acceptance

The handling and use of dried faeces may not be acceptable to some. However, because the dried faeces should be dry, crumbly, and odour free, the use of dried faeces may be more acceptable than that of manure or sludge. Dry faeces are a hostile environment for organisms and consequently, they do not survive (for long). If water or urine mixes with the drying faeces, odours and organisms may become problematic; wet faeces allow bacteria to survive and multiply. A warm, moist environment will permit anaerobic processes to generate offensive odours.

When removing the dehydrated faeces from the dehydration vaults, care must be taken to prevent the power from blowing and being inhaled.

Maintenance

Faeces should be kept as dry as possible. If by accident, water or urine enters mixes with the drying faeces, more ash, lime or dry soil can be added to help absorb the moisture. Prevention is the best way of keeping the faeces dry.

Acknowledgements

The material on this page was adapted from: Tilley, E. et al. (2008). Compendium of Sanitation Systems and Technologies ^[2], published by Sandec ^[3], the Department of Water and Sanitation in Developing Countries of Eawag ^[4], the Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland. The publication is available in English, French, and will be made available in Spanish. Available in the IRC Digital Library ^[5]

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 - [2] http://www.eawag.ch/organisation/abteilungen/sandec/publikationen/publications_sesp/downloads_sesp/compendium_high.pdf
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 - [4] http://www.eawag.ch/index_EN
 - [5] <http://www.irc.nl/docsearch/title/163208>
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