



Unplanted Drying Bed

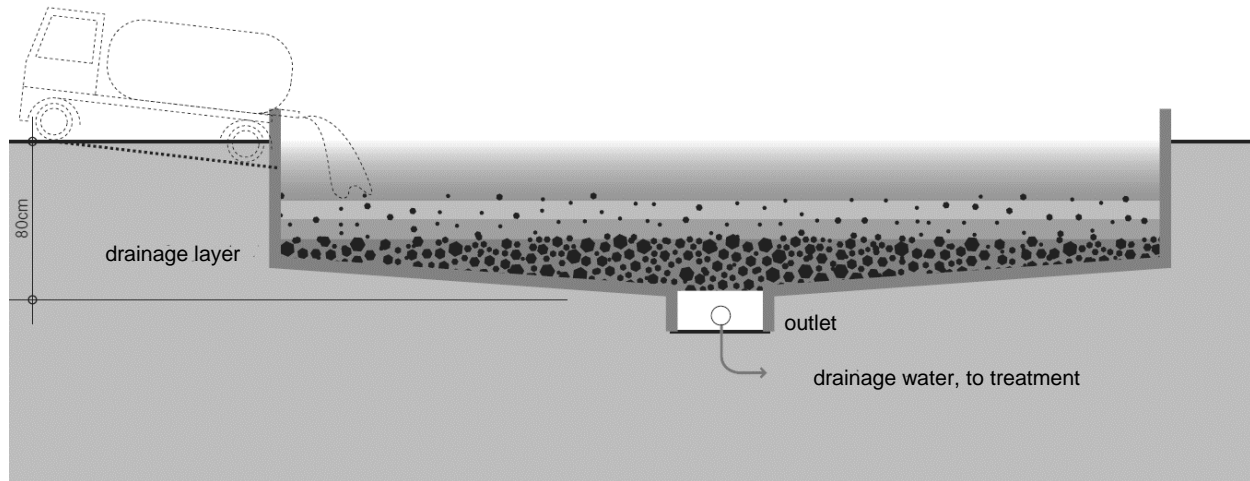


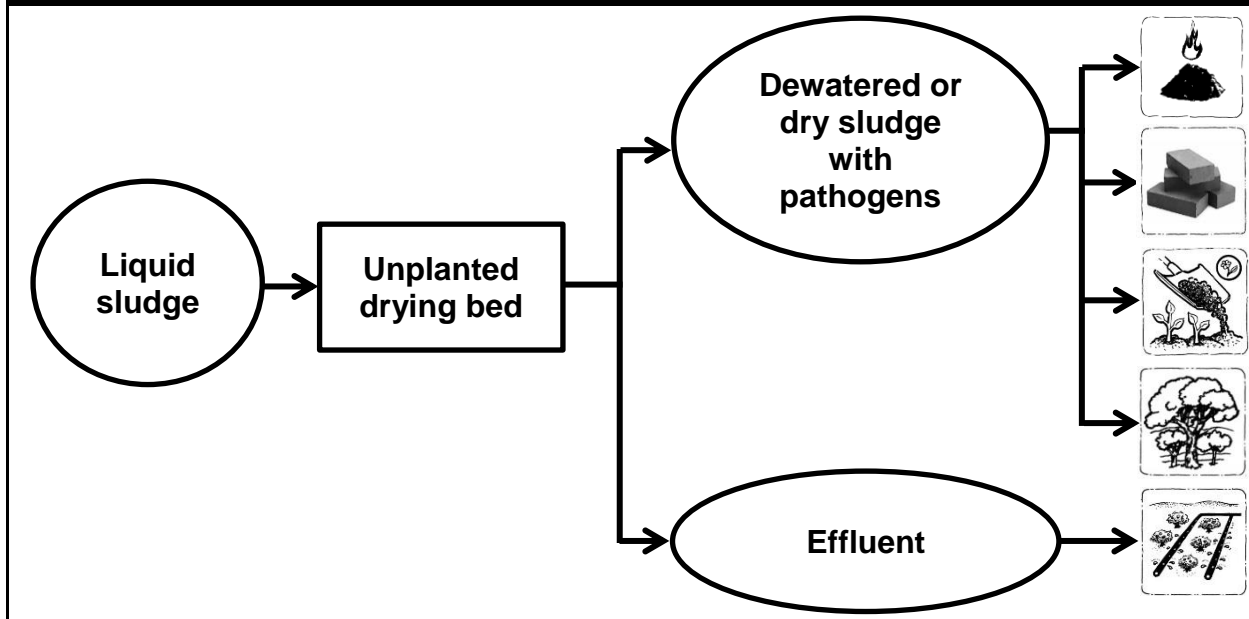
Diagram of an unplanted drying bed (Credit: Tilley et al., 2014)



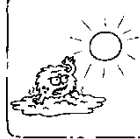



Unplanted drying beds at a faecal sludge treatment facility in Dakar, Senegal (Credit: Eawag-Sandec)

- **Design:** Unplanted drying beds dewater faecal sludge. An unplanted drying bed is filled with filter material, usually gravel at the bottom and sand on top. The bottom of the bed is sloped and lined with perforated pipes to drain away the liquid (called effluent).
- **Operation:** Unplanted drying beds are operated in batches. Sludge is placed on the surface of the bed and the liquid flows through the sand and gravel for a period of days. The majority of the solid portion of the sludge stays on the surface. Some of the remaining water in the sludge is removed by evaporation. The dewatered sludge is then removed from the surface manually or mechanically.
- **Time and energy required:** Dewatered or dried sludge is removed every few weeks to months. Unplanted drying beds require low amounts of energy.

Treatment Technology Description



Treatment Objectives	Pathogen Inactivation	Medium
	Dewatering	High
	Stabilization/Nutrient Management	No
Pathogen Inactivation	  	<ul style="list-style-type: none"> • Some pathogens are inactivated through drying and storage depending on the retention time. • At the surface, some pathogens are inactivated by sunlight. • More helminth eggs are retained on the surface of the drying bed than in the effluent. • Some of the bacteria, viruses, and protozoa leave with the effluent.
Level of Development		<ul style="list-style-type: none"> • Many countries have implemented drying beds for faecal sludge treatment. There is some experience in design, operation, and maintenance.

References

Strande, L., Ronteltap, M. & Brdjanovic, D. (2014). *Faecal sludge management: Systems approach for implementation and operation*. London, UK: IWA Publishing. Retrieved from: www.sandec.ch/fsm_book

Tilley, E., Ulrich, L., Lüthi, C., Reymond, P. & C. Zurbrügg (2014). *Compendium of sanitation systems and technologies*, 2nd Revised Edition. Dübendorf, Switzerland: Swiss Federal Institute of Aquatic Science and Technology (Eawag). Retrieved from: www.sandec.ch/compendium