



Planted Drying Bed

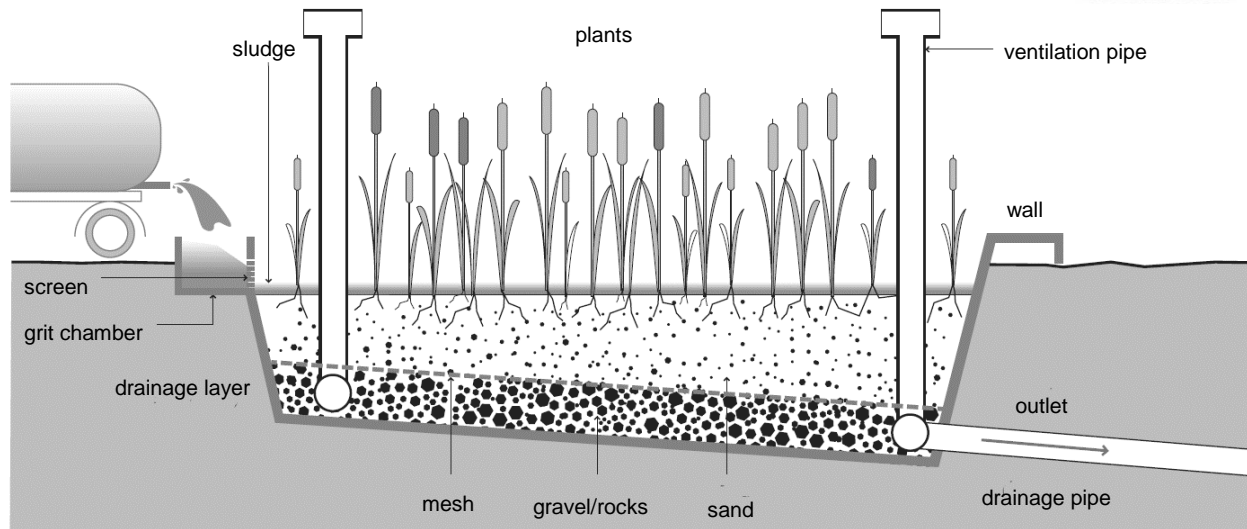


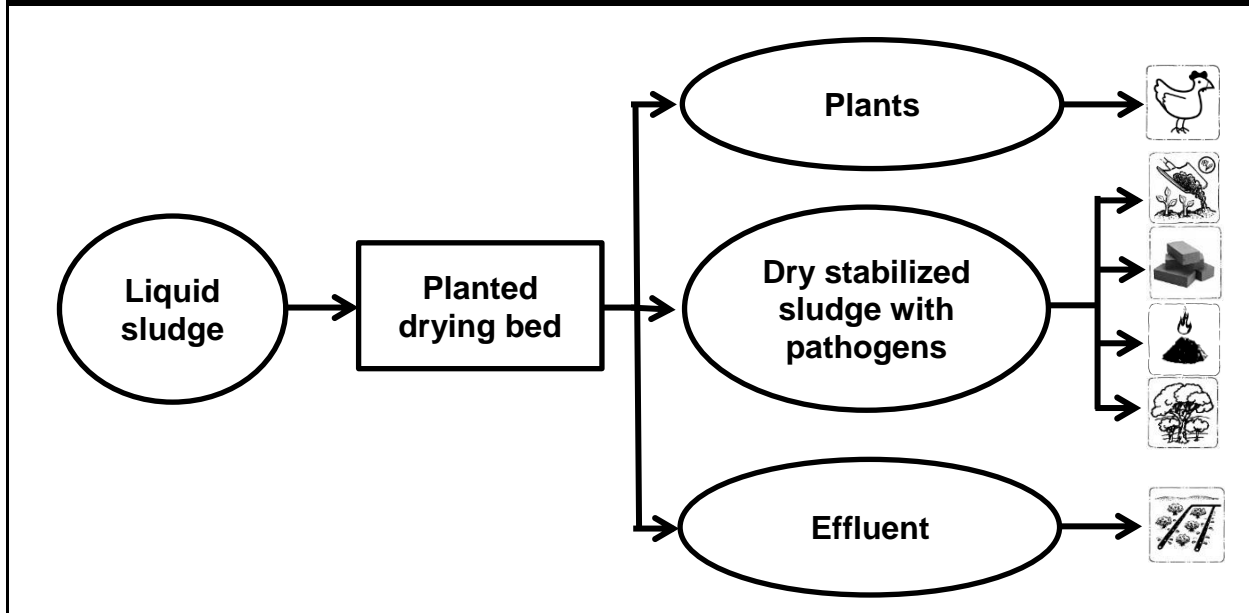
Diagram of a planted drying bed (Credit: Tilley et al., 2014)



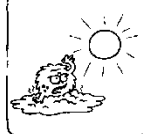



Planted drying bed in Bangladesh (Credit: FSM Action Research Blog)

- **Design:** A planted drying bed is filled with filter material, usually gravel at the bottom and sand on top. Plants selected for a specific climate grow in the filter media. The bottom of the bed is sloped and lined with perforated pipes to drain away the liquid (called effluent).
- **Operation:** Planted drying beds operate (semi-)continuously. Faecal sludge is placed on the surface of the bed and the liquid flows through the sand and gravel. The majority of the solid portion of the sludge stays on the surface. Some of the remaining water in the sludge is removed by evapotranspiration. Sludge can be loaded on the beds without removal for a period of years. Depending on the retention time, the dewatered sludge is stabilized.
- **Time and energy required:** The plants are harvested depending on their growth cycle. Dewatered sludge is removed every few months to years. Planted drying beds require low amounts of energy.

Treatment Technology Description



Treatment Objectives	Pathogen Inactivation	Medium
	Dewatering	Medium
	Stabilization/Nutrient Management	Yes
Pathogen Inactivation	  	<ul style="list-style-type: none"> • Some pathogens are inactivated through drying and storage depending on the retention time. • At the surface of the sludge, some pathogens are inactivated by sunlight. • The majority of helminth eggs are retained on the surface of the drying bed. • More bacteria, viruses, and protozoa leave the bed with the effluent.
Level of Development		<ul style="list-style-type: none"> • Has been implemented in multiple countries for faecal sludge treatment. There is 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