



Vermifilter

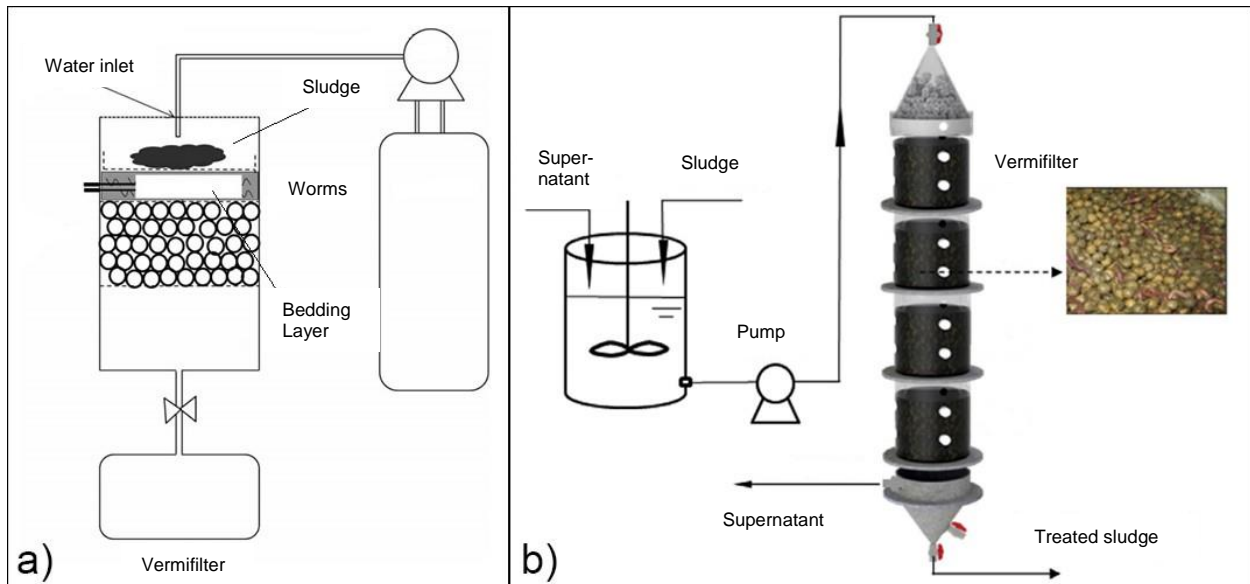


Diagram of different types of vermifilters

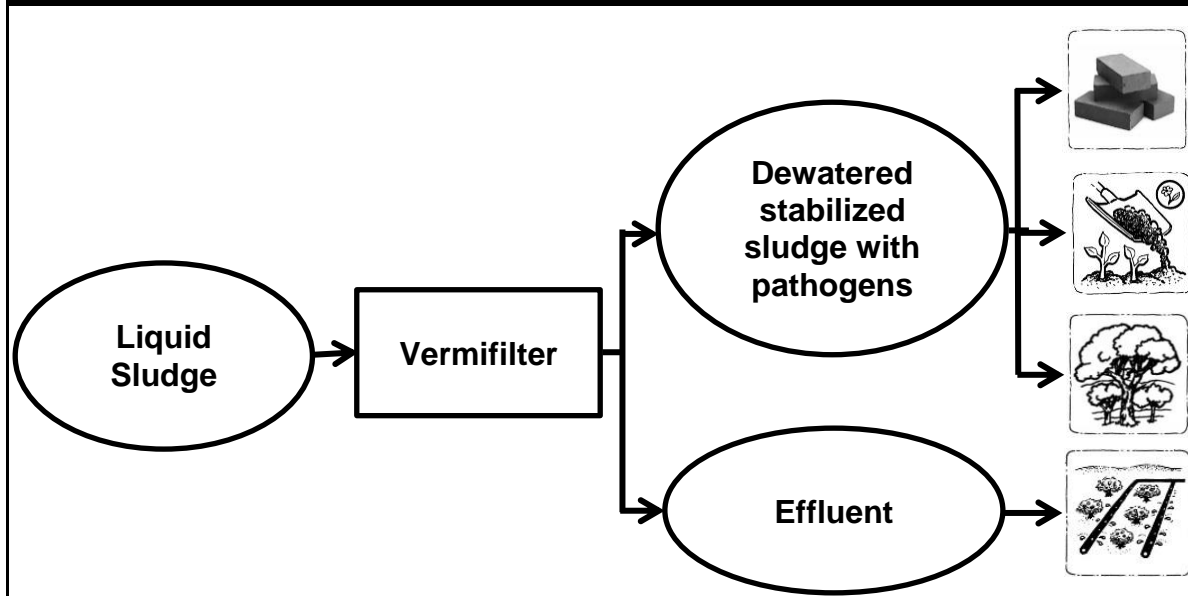
- a) Diagram of a rectangular vermifilter with bedding and drainage layers [Credit: Furlong, Templeton & Gibson (2014, p. 233)]
 b) Diagram of a cylindrical vermifilter with all compartments filled with a bedding layer [Credit: Xing et al. (2016b, 1089)]






Vermifiltration bins in a pilot project in India (Credit: IFRC)

- **Design:** Vermifilters are filters which contain composting worms. The faecal sludge is added directly to the filters where the composting worms and environment stabilizes the faecal sludge through vermicomposting. Vermicomposting stabilizes dewatered faecal sludge. Composting worms break down the organic material as it passes through them. Vermifilters require a layer of bedding material (where the worms live) and a filtration layer. The bedding material must be made of organic material, such as woodchips. The filtration layer may be made from a variety of materials, such as gravel.
- **Operation:** Vermifiltration is done semi-continuously.
- **Time and energy required:** Worms digest faecal sludge in days. The technology needs low amounts of energy.

Treatment Technology Description



Treatment Objectives	Pathogen Inactivation	Low
	Dewatering	Yes
	Stabilization/Nutrient Management	Yes
Pathogen Inactivation		<ul style="list-style-type: none"> • Some pathogens are inactivated through the action of the worms and storage. • More research is needed to understand the other pathogen inactivation mechanisms.
Level of Development	 	<ul style="list-style-type: none"> • Vermifiltration is being transferred from wastewater treatment. • Vermifiltration for faecal sludge treatment is in the pilot stage. Research is ongoing. • There is very limited experience in design, operation, and maintenance specifically for faecal sludge treatment.

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

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