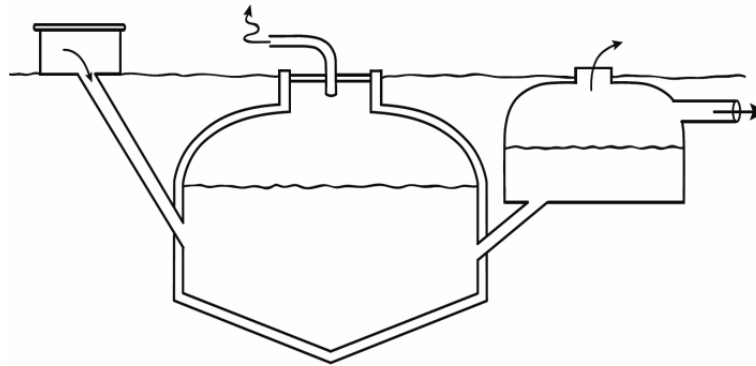




Anaerobic Digestion



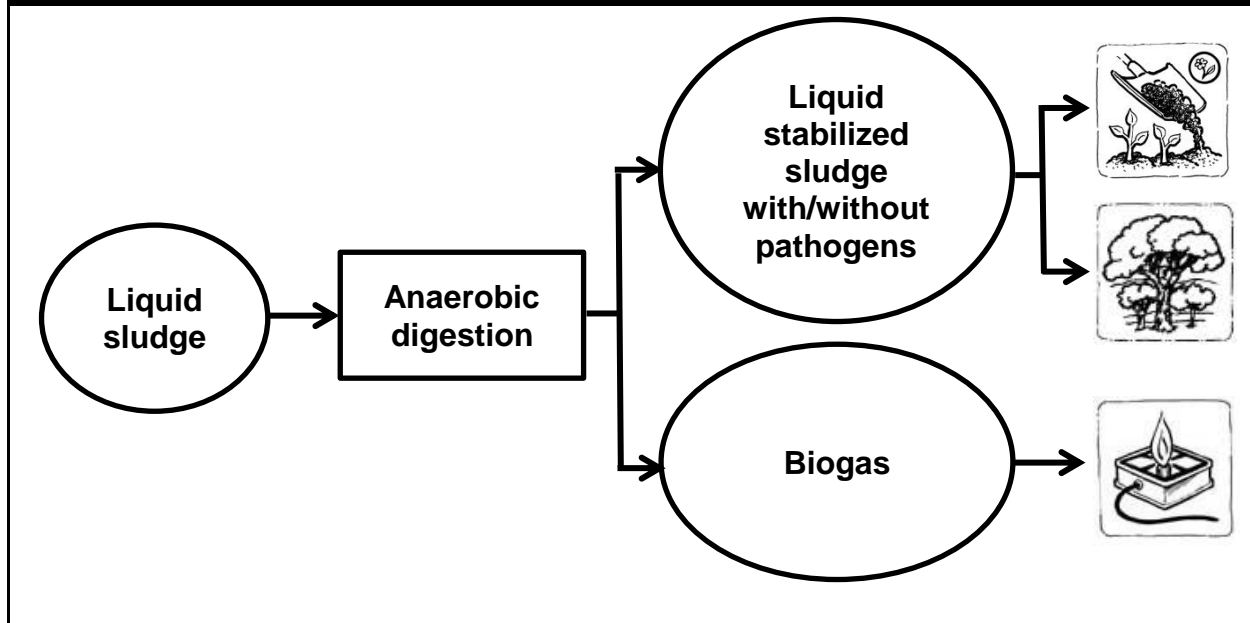
Fixed dome anaerobic digester (Credit: CAWST)





Anaerobic digester under construction in Afghanistan (Credit: SuSanA)

- **Design:** Anaerobic digestion stabilizes faecal sludge. It converts fecal sludge into (1) biogas that can be used for energy, and (2) a slurry that can be used as fertilizer.
- **Operation:** Anaerobic digestion is operated (semi-) continuously. Faecal sludge goes in an airtight reactor. Microorganisms break down the organic material in faecal sludge in the absence of oxygen (anaerobic conditions). This process produces methane, also called biogas. Some part of the faecal sludge remains in the reactor following breakdown. This is called digestate and needs to be removed for continuous operation. Faecal sludge can be co-digested with organic material (like food waste and animal excreta) to increase the volume of biogas. Anaerobic digestion is a delicate process to operate, and can be easily upset.
- **Time and energy required:** Time and energy required is different depending on the reactor design.

Treatment Technology Description



Treatment Objectives	Pathogen Inactivation	Low
	Dewatering	Low
	Stabilization/Nutrient Management	Yes
Pathogen Inactivation		<ul style="list-style-type: none"> Pathogen inactivation depends on the operation of the anaerobic digester. Under thermophilic conditions, pathogens are inactivated by high temperatures. Under mesophilic conditions, the effluent and digestate requires further pathogen inactivation.
Level of Development		<ul style="list-style-type: none"> Anaerobic digestion technologies are being transferred from wastewater treatment. There is very limited experience in the design, operation, and maintenance for faecal sludge treatment.

References

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