Needs for Septage Management

Urban Fecal Sludge Management – Problems and Solutions

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Overview of :

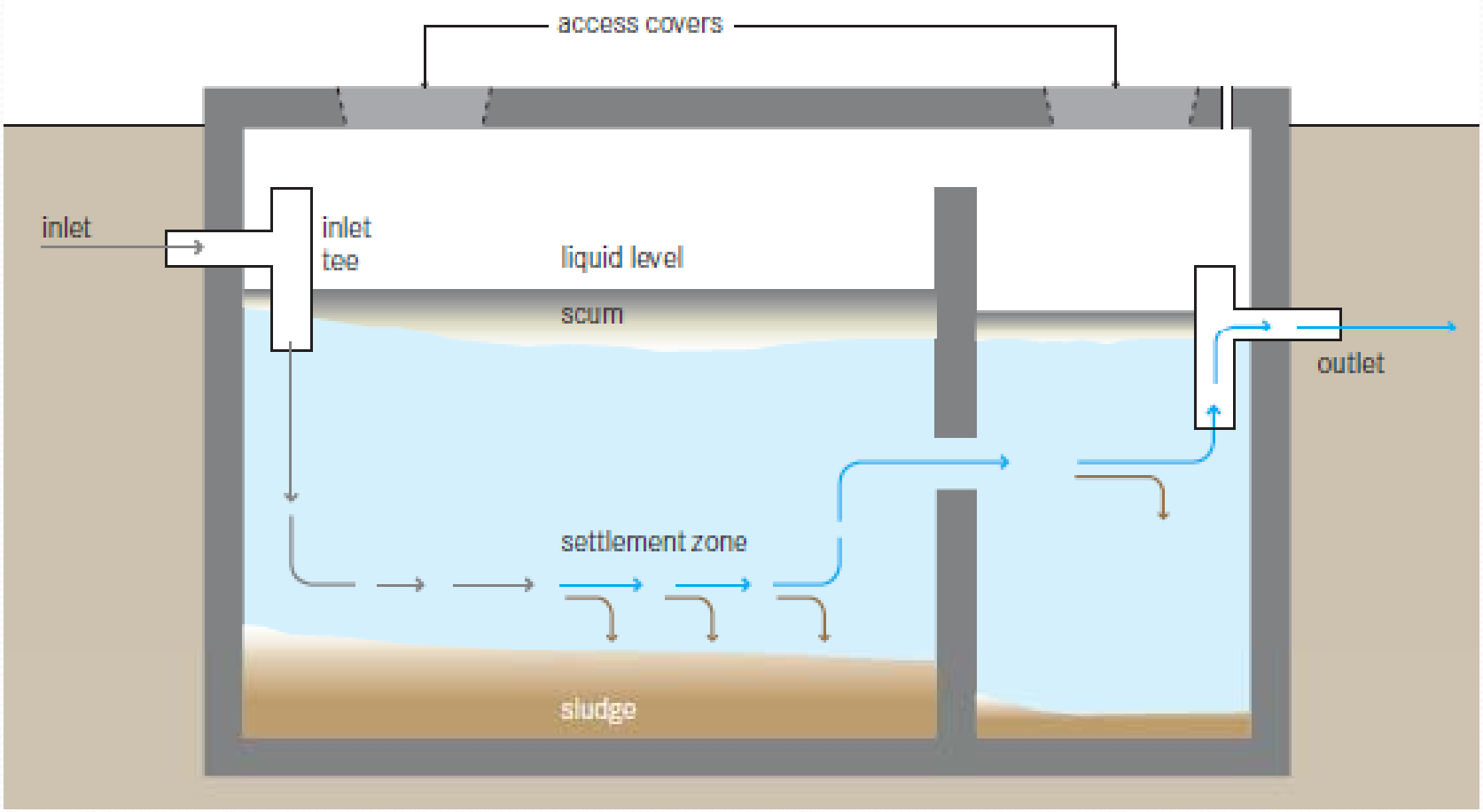
- Access to improved sanitation
- Sewerage connections
- Septic tanks
- Septage treated
- Water polluted
- Economic cost of poor sanitation

State of sanitation in south & southeast asia[1)]

	Southeast Asia					South Asia	
	Indonesia	Malaysia	Philippines	Thailand	Vietnam	India	Sri Lanka
Population (in millions)	222	28	88	63	86	1,150	19
Urban Population (in millions)	93	18	54	21	23	350	3
% Access to improved water (urban)	89%	98%	96%	99%	98%	96%	98%
% Access to improved sanitation (urban)	67%	95%	81%	99%	88%	52-86%	89%
% Sewerage connections	2.3% (urban)	73% (national)	7% (urban)	NA	NA	40% (urban)	4% (urban)
% Sewage treated	<14%	100%	<10%	14%	4%	9%	NA
% Septic Tanks	62% (urban)	27% (national)	40% (national) 85% (Metro Manila)	all but highly urbanized areas	77% (urban)	29% (urban)	89% (nation)
% Septage treated	4% (national)	100% (national)	5% (Metro Manila)	30% (national)	<4% (national)	0% (national)	<1% (Nuwara Eliya)
% Organic water pollution due to domestic wastewater	NA	NA	50%	54%	55% (Hanoi)	80%	NA
% Surface water polluted	75%	45% (monitored rivers)	58% (groundwater)	52%	NA	75%	NA
Economic Cost of Poor Sanitation (in billions)	$6.3	NA	$1.4	NA	$0.8	$5.7	NA

Note: NA = not available < = less than

Septic tank[2)]



Pros & Cons of septic tank[2)]

+ Can be built and repaired with locally available materials
+ Long service life, small land area required, and no electrical energy required
+ No real problems with flies or odours if used correctly
+ Low capital costs, moderate operating costs depending on water and emptying

- Low reduction in pathogens, solids and organics

  Limited removal of 30 to 40 % of BOD, 50% of solids and a 1-log removal of *E.coli*, with polluting risk of surface water and ground water

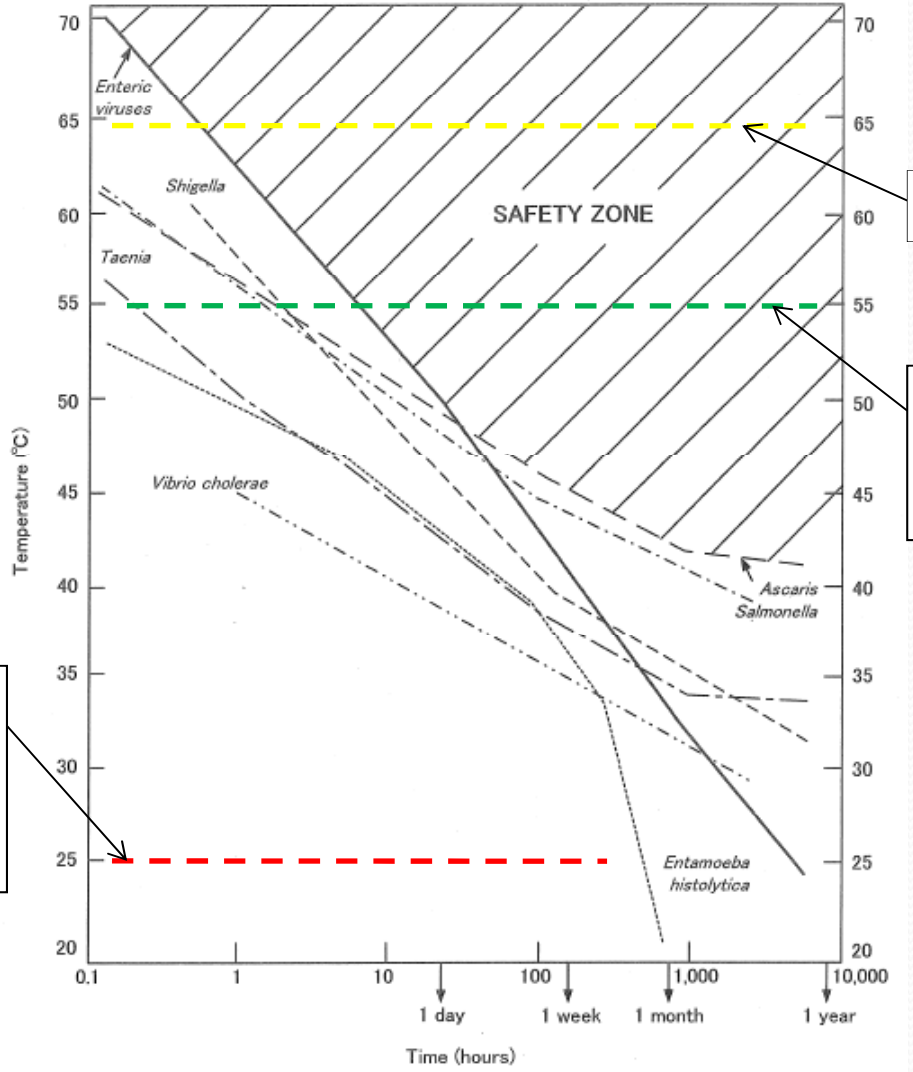
- Effluent and sludge require secondary treatment and/or appropriate discharge

  According to same reason as above

  No disinfection can cause water-borne disease and death.

- Requires constant source of water

The inactivation of pathogens: Influence of time & temperature on selected bacterial and helminthic pathogens in excreta and sludge[3)]

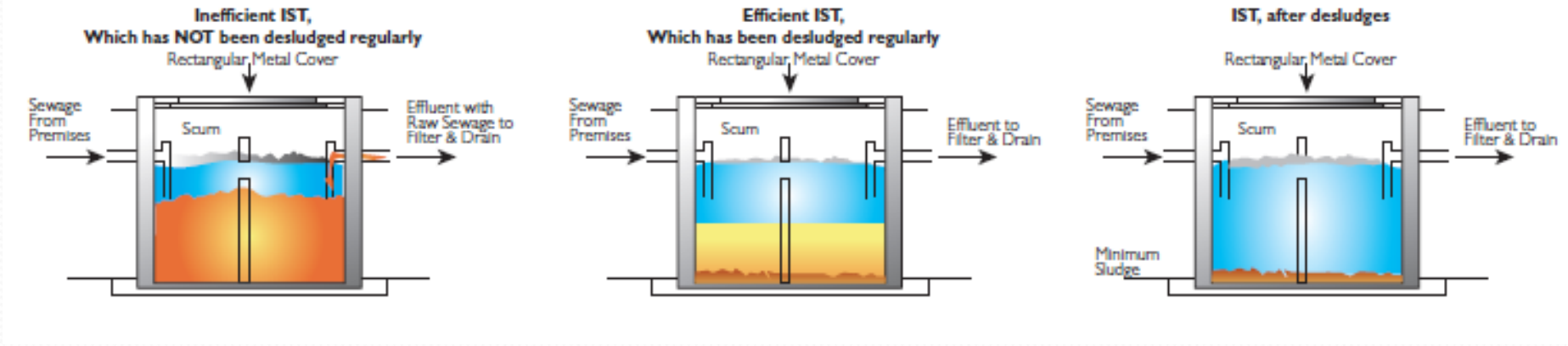


composting

Thermophilic methane fermentation

Activated sludge method with disinfection process, Septic tank

The impact of regular/irregular de-sludging on performance of septic tank



In a regularly de-sludged system, sludge fills less than one-third of the tank, leaving the remaining two-thirds of the tank performing anaerobic digestion.

If a tank is not regularly de-sludged, the sludge gradually fills the tank, leaving less and less space for anaerobic digestion and increasing the level of suspended solids and untreated sewage in the discharged effluent.

Needs for appropriate septage management[4)]

- Main objectives of wastewater treatment:
  - to remove contaminants from the environment such as BOD, SS, N, P etc. and reduce environment load
  - to reduce pathogenic agents which negatively affect human health

- Measure taken for septic tanks:

  - Septic tanks are widely used
  - Too much time and investment required to diffuse the sewerage system

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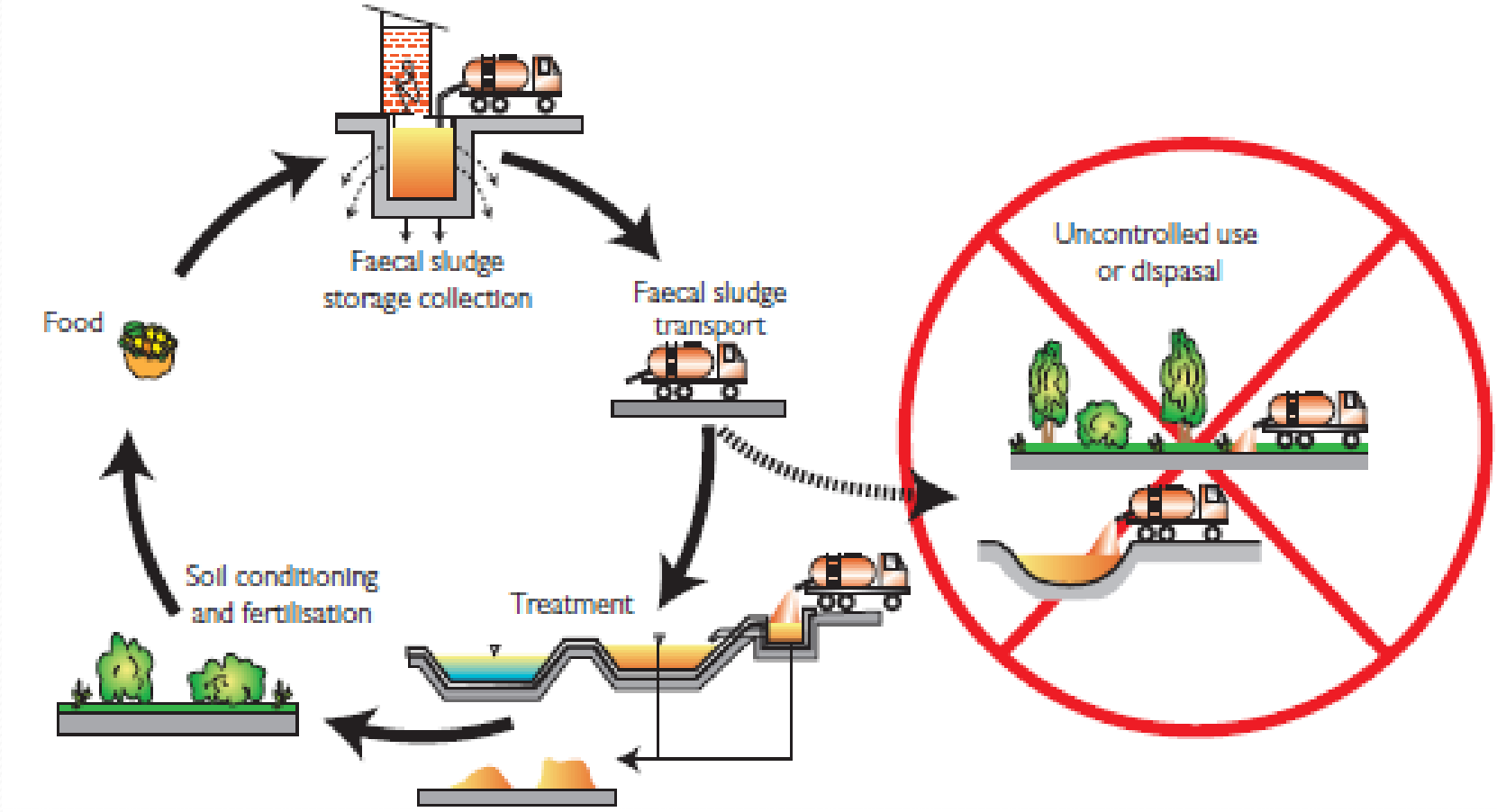
- Appropriate septage management is required to reduce negative impacts on the environment, health and economy.

Establishment of system required for conducting appropriate septage management[1)]

- Raise awareness of both policymakers and septic tank users
- Establish and enforce clear national and local policies
- Strengthen the capacity of implementing agencies and utilities
- Enable private service providers to scale-up scheduled de-sludging
- Increase funding and reform of tariff structures

Regular de-sludging , transportation and treatment infrastructure[1)]



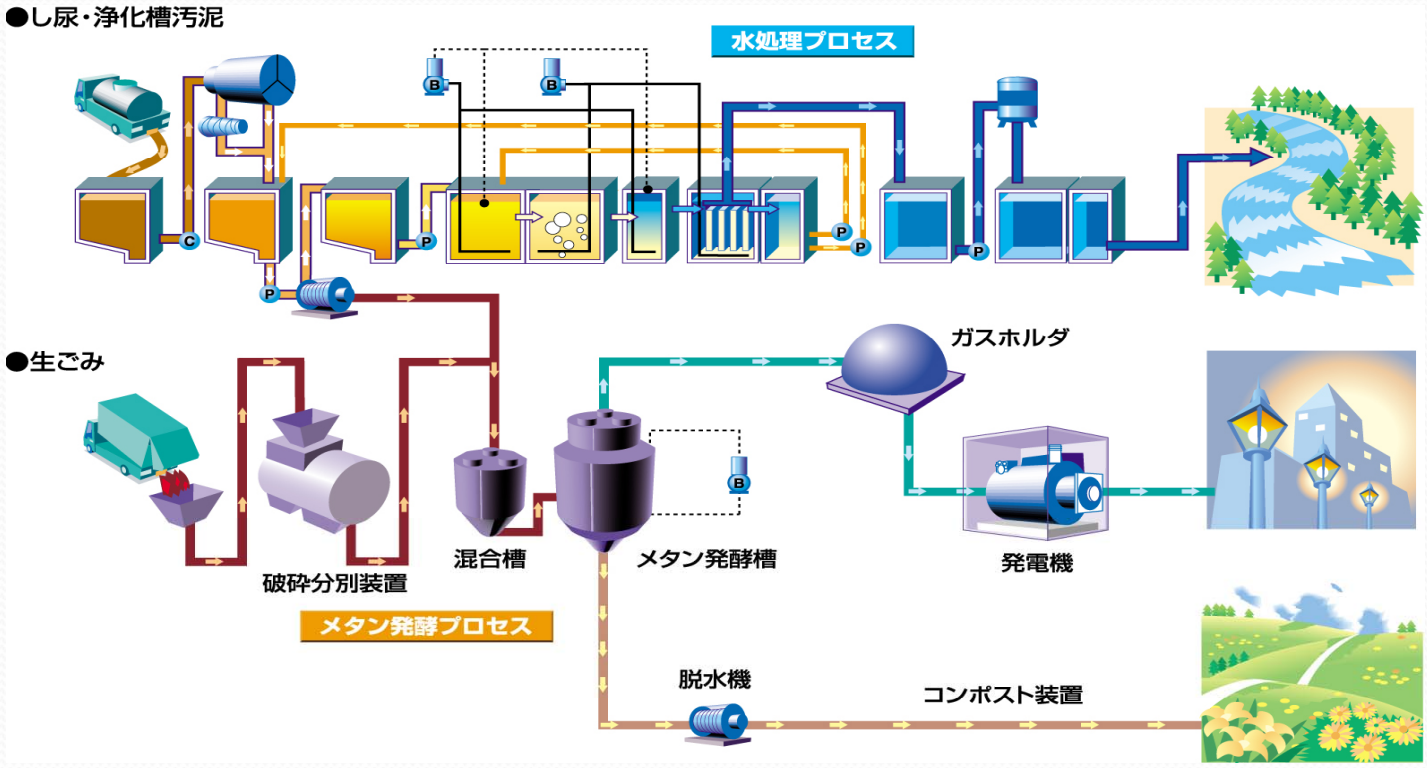
What JSC can offer you

【1】Regulatory framework for collection and transportation of sludge (Regular De-sludging)

Regular de-sludging requires a totally different regulatory framework than for on-call basis de-sludging

What JSC can offer you

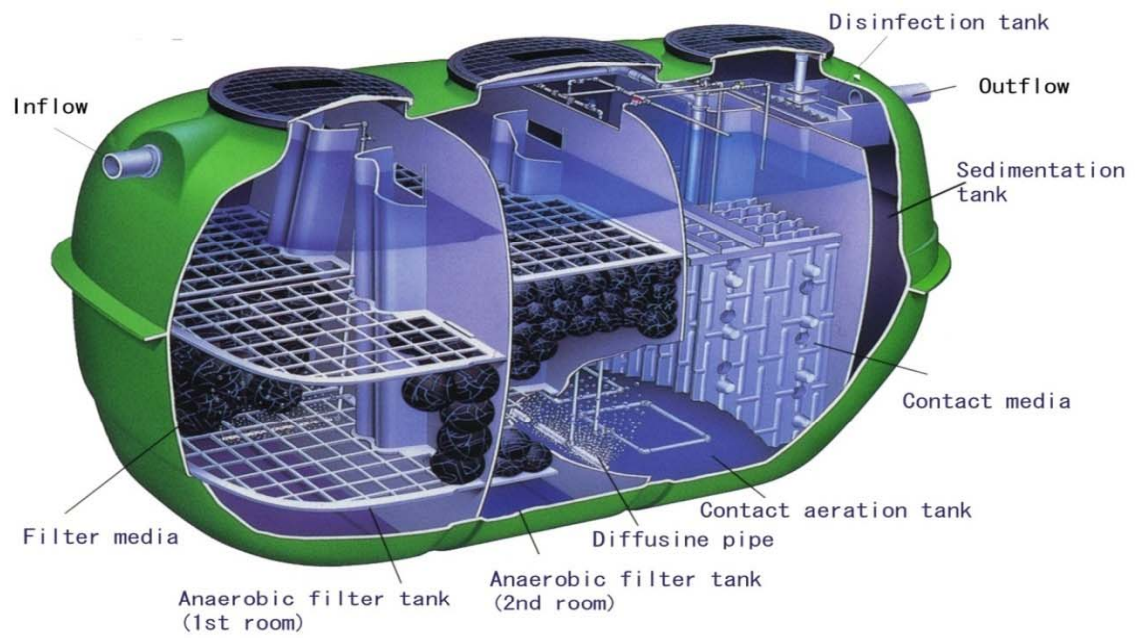
【2】Technology for Sludge Treatment



We do not recommend to build a mechanized sludge treatment plant if a regular de-sludging system is not in place. This would be a waste of money.

What JSC can offer you

【3】Technology for modern septage management
- Packaged Aerated Wastewater Treatment Plant,PAWTP (Johkasou in Japan)



An example of small-scale johkasous

Johkasou cannot work properly if a regular de-sludging system is not in place.

References

1) A Rapid Assessment of Septage Management in Asia, USAID 2010
2) Compendium of Sanitation Systems and Technologies, EAWAG 2008
3) Feachem R. G.et al., Sanitation and disease: Health Aspects of Excreta and Wastewater Management. World Bank Studies in Water Supply and Sanitation 3. Chichester, John Wiley, 1983
4) Policy Paper on Septage Management in India, Centre for Science and Environment, New Delhi, 2011