

# Need for Septage Management

Urban Fecal Sludge Management – Problems and Solutions

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# Overview of :

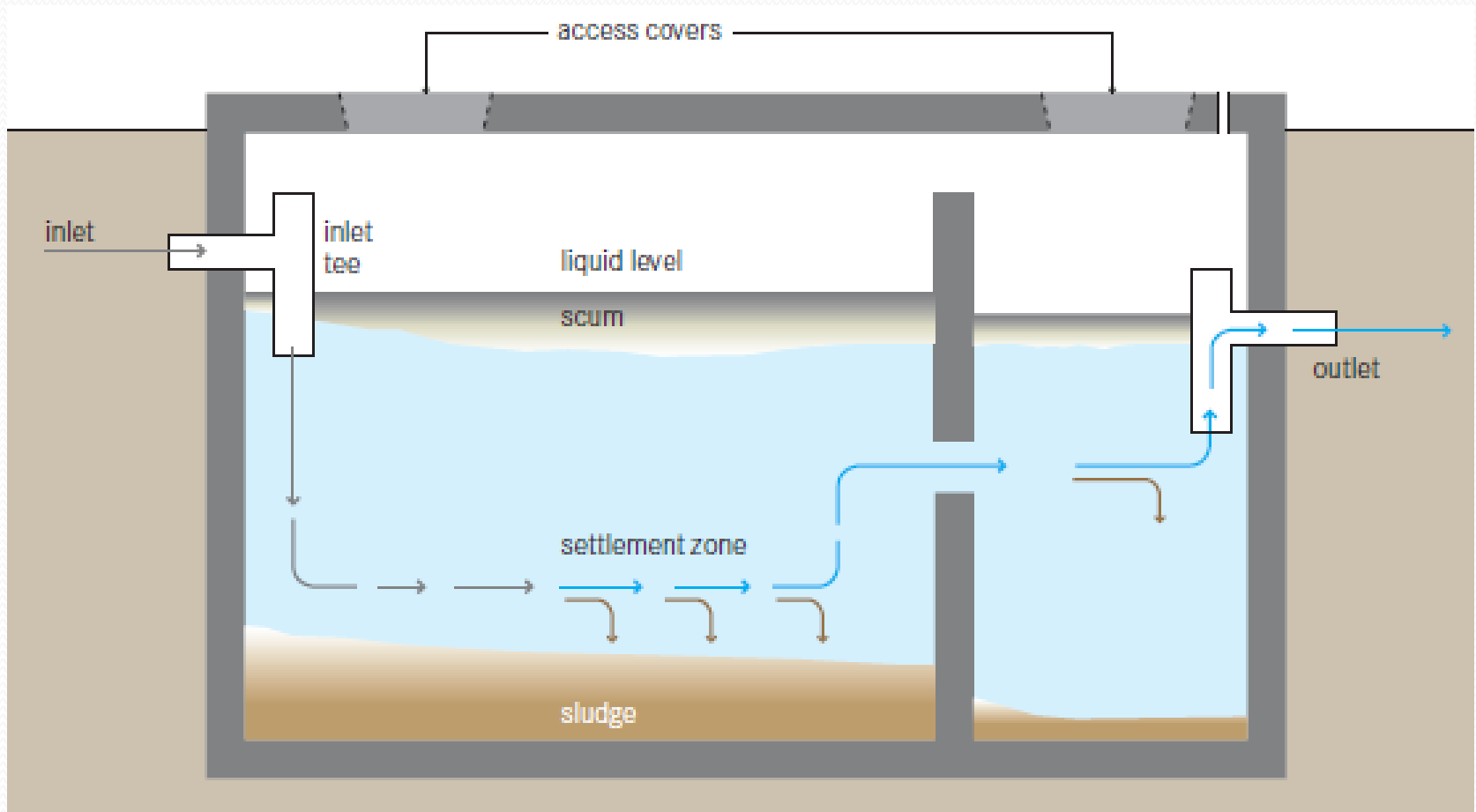
- Access to improved sanitation
- Sewerage connections
- Septic tanks
- Septage treated
- Water polluted
- Economic cost of poor sanitation

# State of sanitation in south & southeast asia<sup>1)</sup>

	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

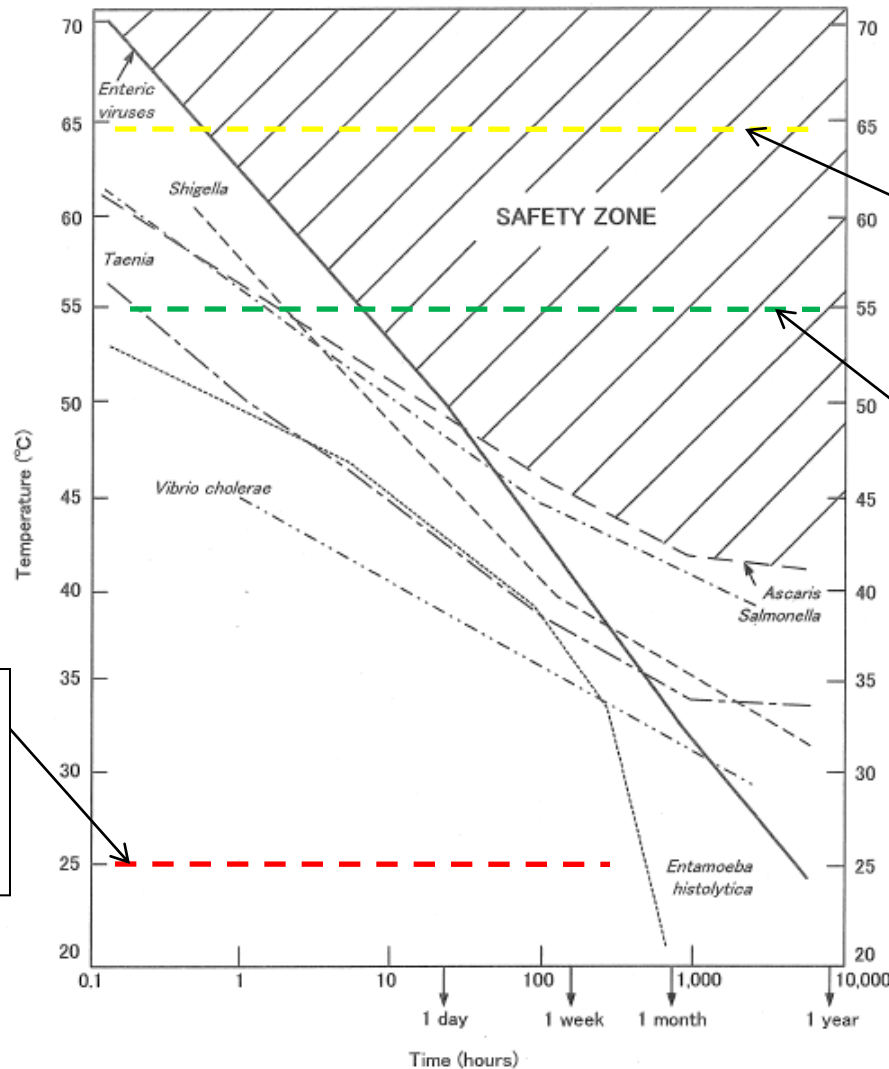
# Septic tank<sup>2)</sup>



# Pros & Cons of septic tank<sup>2)</sup>

- + 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 surface water and ground water
- Effluent and sludge require secondary treatment and/or appropriate discharge
  - According to same reason as above
  - No disinfection causes water-borne disease to death.
- Requires constant source of water

# The inactivation of pathogens: Influence of time & temperature on selected bacterial and helminthic pathogens in excreta and sludge<sup>3)</sup>



composting

Thermophilic methane fermentation

Activated sludge method with disinfection process, Septic tank

# Need for appropriate septage management<sup>4)</sup>

- Main objective of wastewater treatment:
  - to remove contaminants to the environment such as BOD, SS, N, P etc. and reduce the burden to the 'environment'
  - to reduce pathogenic agents which affects to the 'human health'
- Measures to take for septic tanks:

## Situation:

- Septic tanks are widely used
- Too much time and investment required for sewerage system implementation



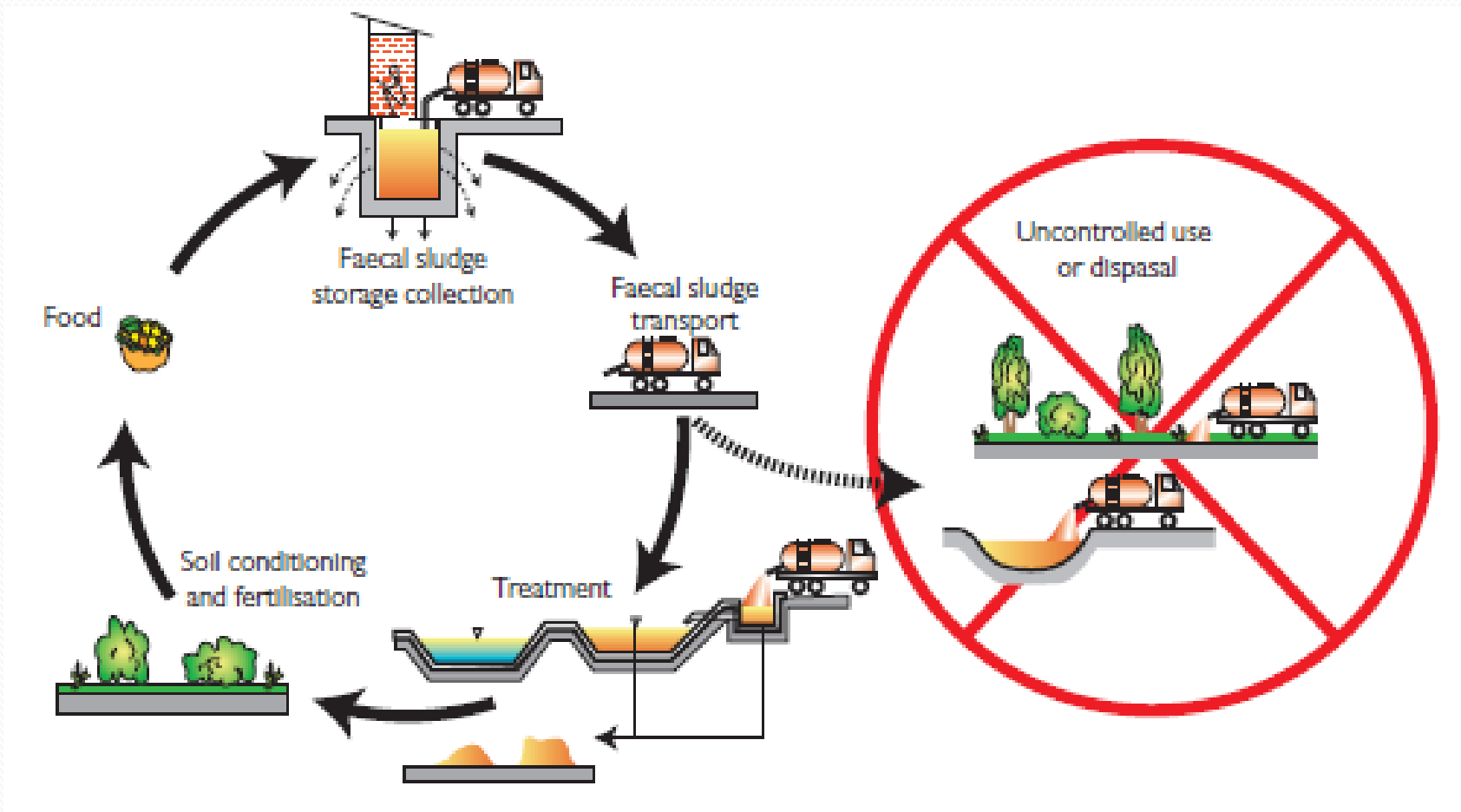
- Appropriate Septage management is required to reduce negative impacts on the environment, health and economy.

# Establishment of system required for conducting appropriate septage management<sup>1)</sup>

- 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 in scale up scheduled de-sludging
- Increase funding and reform tariff structures



# Regular de-sludging , transportation and treatment infrastructure<sup>1)</sup>



# 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