

WEPA Workshop & Annual Meeting  
Siem Reap, Cambodia  
18 -20 February 2013

# DECENTRALISED DOMESTIC WASTEWATER MANAGEMENT IN MALAYSIA

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Ministry of Energy, Green Technology &  
Water Malaysia*



## CONTENT

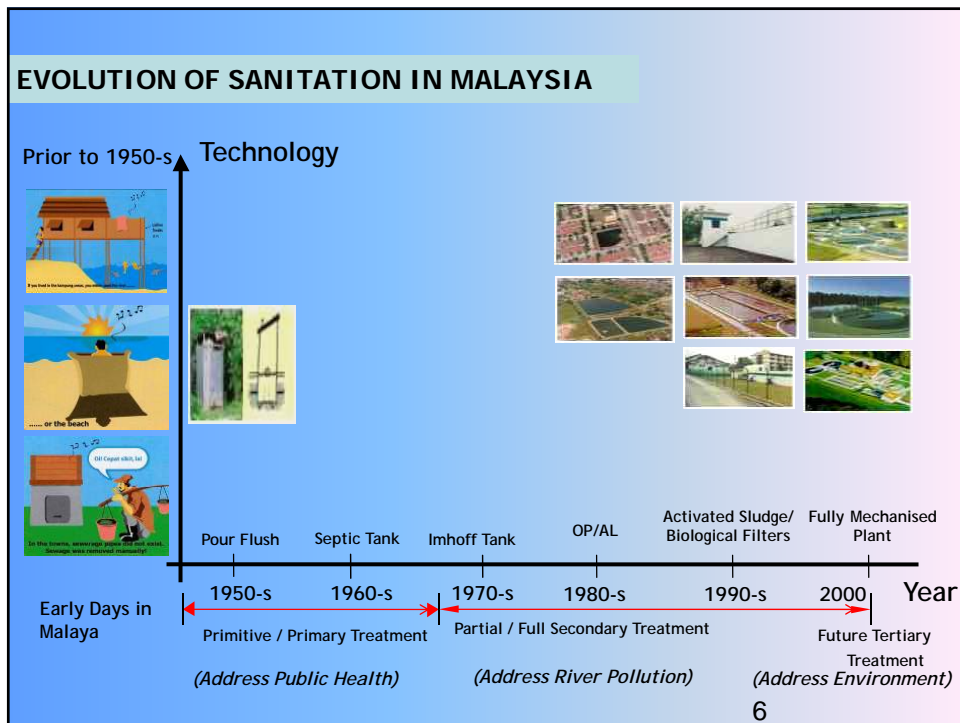
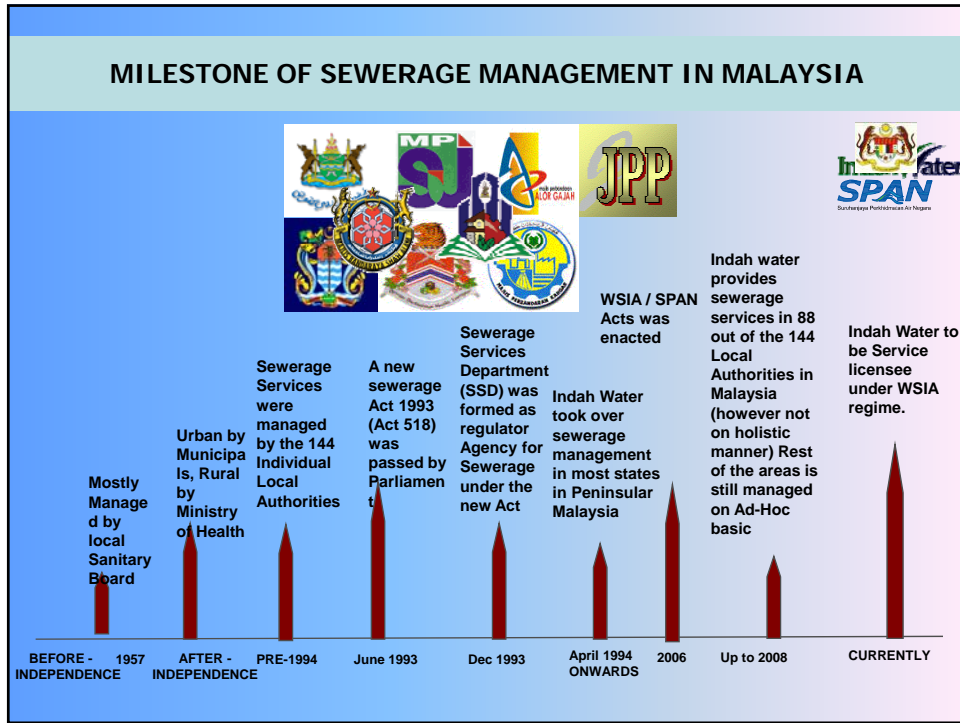
1. BACKGROUND
2. MANAGEMENT AND INSTITUTIONAL ASPECTS
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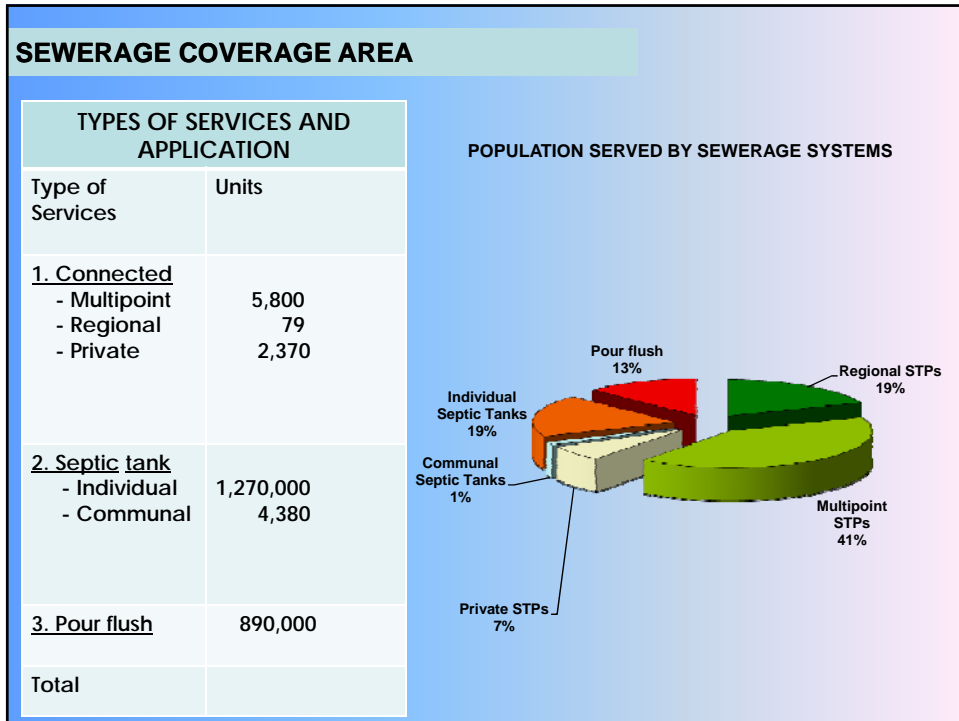
# BACKGROUND

## MALAYSIA

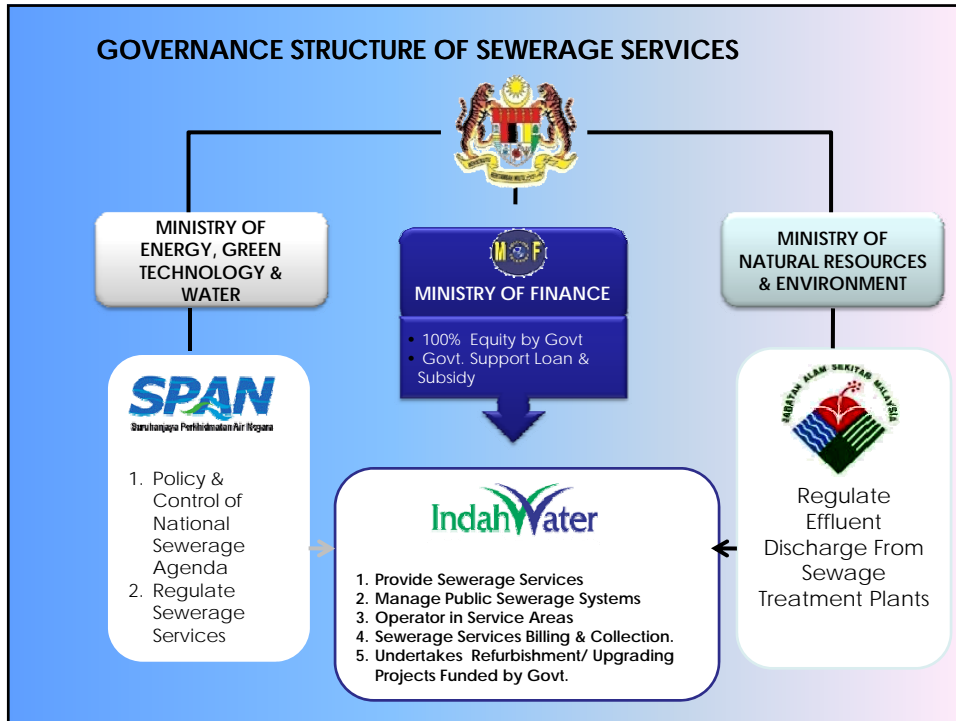
Population: 28 million (Urban, Rural )  
Area: 330,252 sq. km.









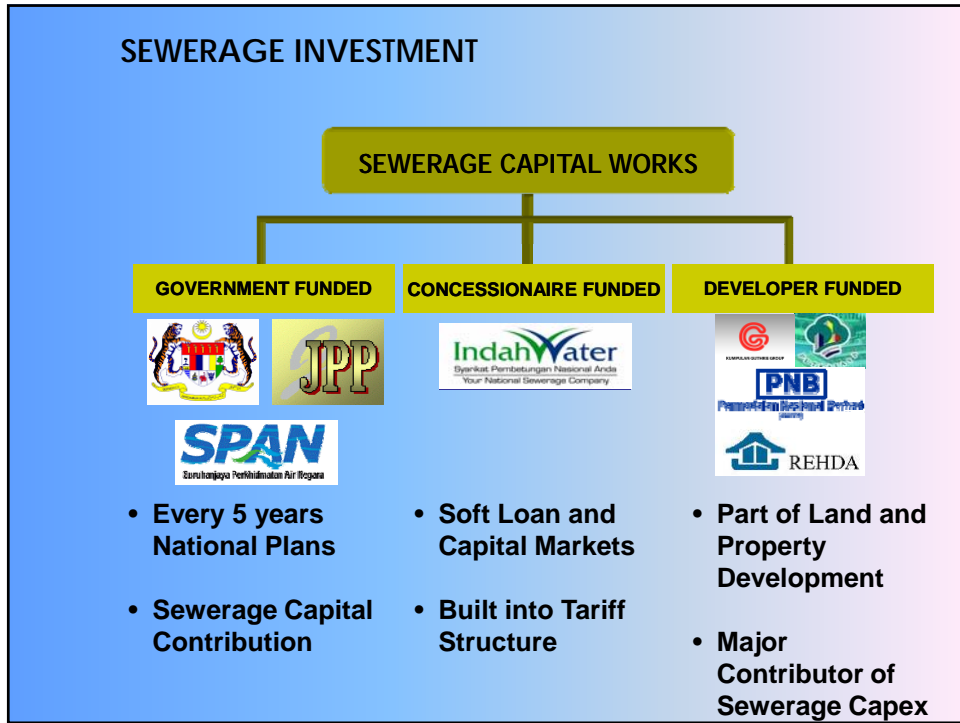


**MANAGEMENT & INSTITUTIONAL ASPECTS**



### SEWERAGE SERVICES CHARGES

	Domestic	Bills are issued once every 6 months RM 2 per month for low-cost houses RM 8 per month for conventional houses
	Commercial	Bills are issued every month Basic Charge + Excess Charge (Average Water Usage Exceeding 100m <sup>3</sup> )
	Industrial	Bills are issued every month RM 2.50 per user / employee (Minimum Charge: RM25.00 per month)
	Government	Bills are issued every month Basic Charge (RM40/RM25) + Excess Charge (Average Water Usage Exceeding 100m <sup>3</sup> )



*TECHNOLOGICAL ASPECTS*

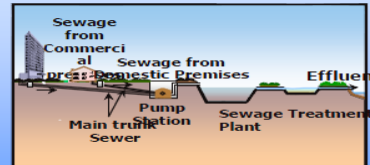
- Sewage Treatment system
- Sludge Treatment
- Operations and maintenance



## SEWAGE TREATMENT SYSTEM



connected  
(centralized  
/decentralized)



Type I - Public Sewerage Systems



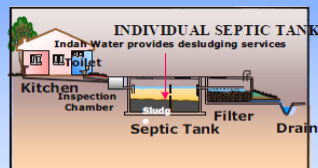
Type II - Private Sewerage Systems

on site  
(decentralized)



Type IV – Primitive Systems/  
Pour Flush

on site  
(decentralized)



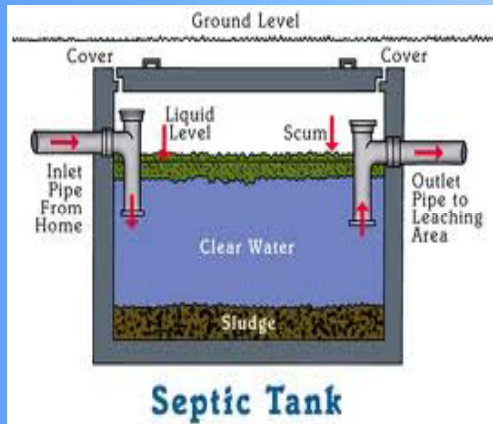
Type III – Septic Tank System including CST

connected  
(decentralized)

## SEWERAGE SYSTEM CLASSIFICATION

- ❖ Sewerage systems are designed and classified based on population equivalent (PE);
- ❖ 1 PE = 0.225 m<sup>3</sup>/PE.day

### INDIVIDUAL SEPTIC TANK

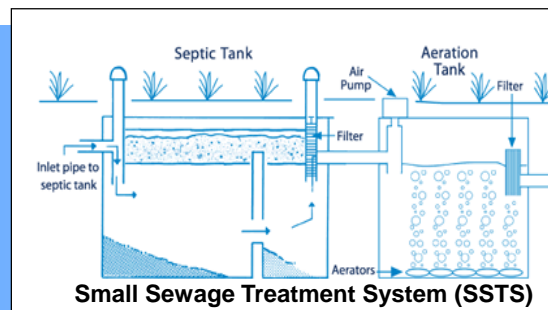


- ❖ For 5 – 30 PE (1.125 – 6.750 m<sup>3</sup>/day)

- ❖ Definition of septic tank based on Water Services Industry 2006 (Act 655):

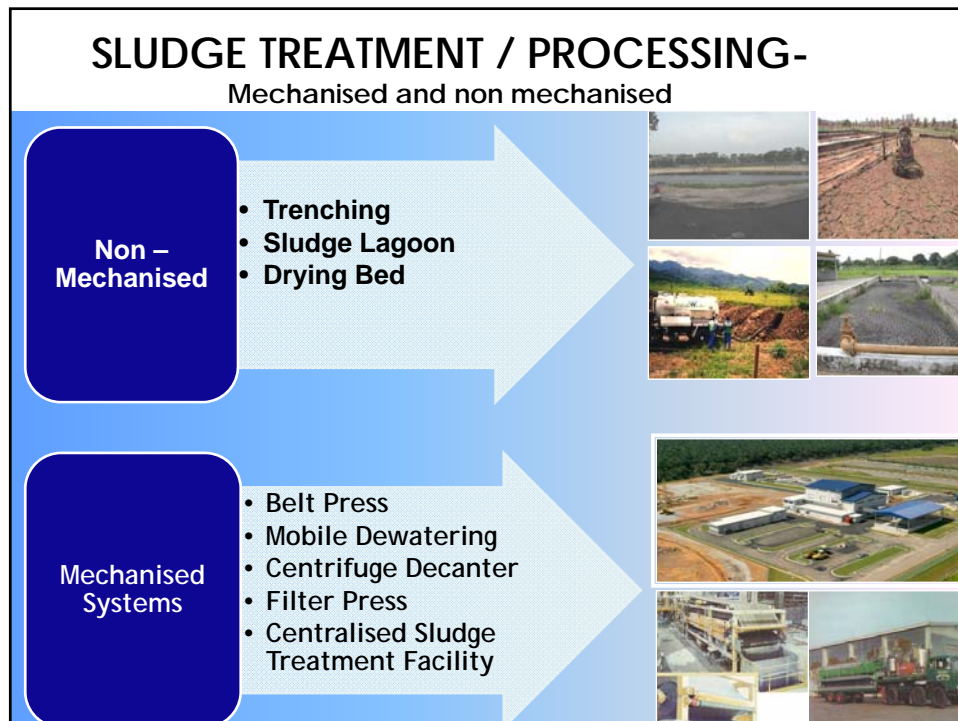
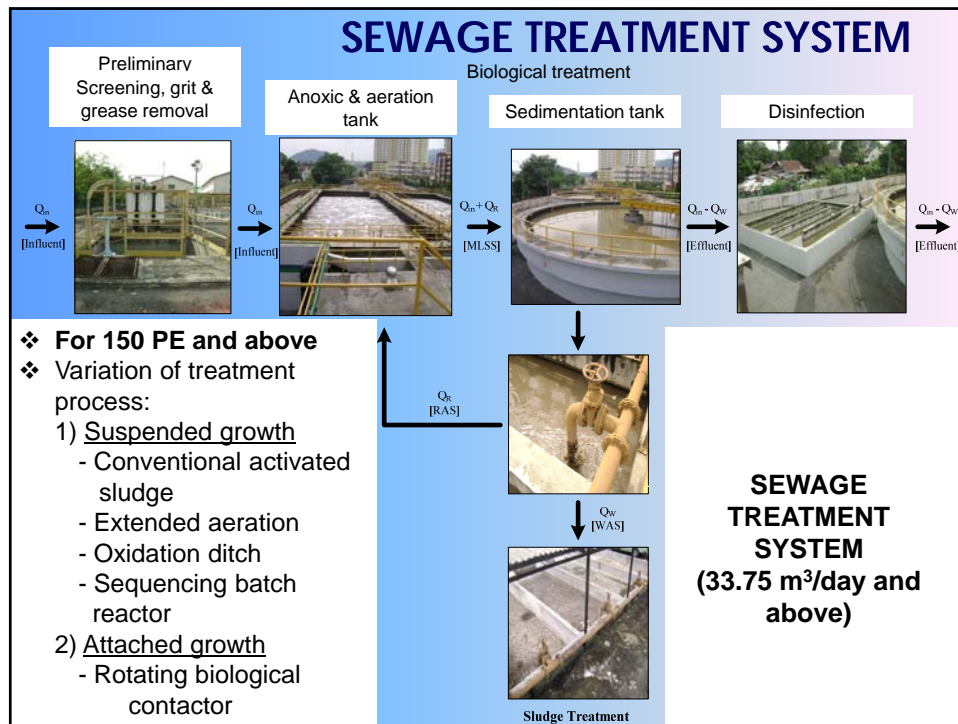
“A basic form of on-site treatment facility consisting of one or more compartments that provides treatment of sewage by means of sedimentation and anaerobic process.”

### SMALL SEWAGE TREATMENT SYSTEM



- For 31 – 149 PE (6.975 – 33.525 m<sup>3</sup>/day)
- Treatment principles:
  - a) Same as septic tank with additional aeration process at the second tank for removal of BOD; or
  - b) Same as sewage treatment plant but only have critical functions to provide partial treatment.
- Only involves low energy and technology application.





## ***WAY FORWARD***

- A mixture – based on location
  - Regionalised/rationalised
- Institutional Framework
  - Restructuring the industry
- Sludge Management
  - **Green Technology** - *Waste to Wealth*



