CURRENT SITUATION AND ISSUE OF SEPTAGE MANAGEMENT IN MALAYSIA

6th International Workshop on Decentralized Domestic Wastewater Treatment in Asia

2018

TOKYO, JAPAN

Mohd Roslee Mahyudin

NATIONAL WATER SERVICES COMMISSION (SPAN)

MALAYSIA

Table of Contents

Overview - Malaysia

Country Statistic

Total Population : 32 million

Malaysian : 28.7 million

Non Malaysian : 3.3 million

Urban : 75.5% Rural : 24.5%

Population Density : 97 persons/ km

Sewerage Statistic

TYPES OF SERVICES AND APPLICATION	
Type of Services	Units (PE)
OFF-SITE TREATMENT	
Multipoint	10,373 (20,487,766)
Centralized (Regional)	101 (8,132,260)
ON-SITE TREATMENT	
Individual Septic Tank	1,354,986 (6,547,041)
Communal Septic Tank (CST)	4,359 (531,127)
Small Sewage Treatment System*	24,001 (240,000)
Cess Pit (Pour Flush)	1,171,555 (5,857,775)

* Source : Malaysia Water Industry Guide 2017
Note : 1. Estimate installation of SSTS since year 2008
1 PE = 0.225m^3

Overview – Wastewater Treatment System in Malaysia

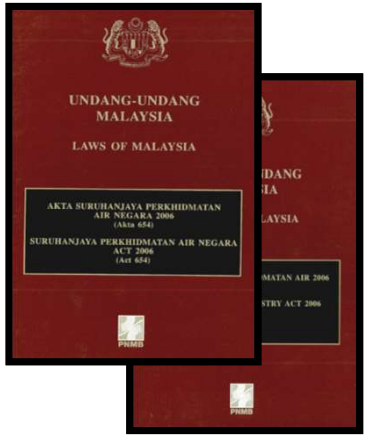
Sewerage Statistic - Definition

	Centralized Wastewater Treatment (Ex: Sewer system)	Middle scale or cluster type wastewater treatment (Ex: Sanimas)	Decentralized wastewater treatment (Ex: Septic tank, johkasou, pit latrine)	Without any wastewater treatment
Definition	Sewage Treatment Plants identified in the Sewerage Catchment Study to cater for a sewerage catchment area	Also known as **multipoint** Sewage Treatment Plants which cater for scattered development by different developers	Also known as on –site treatment systems designed to treat and dispose of effluent from single premise and/or single ownership development	Open defecation or direct discharge
Installed plant number	101	10,373	2,530,900	
Number of Population using each wastewater treatment systems*	8,132,260	20,487,766	12,935,943	-

** Calculation using Population Equivalent (Design Capacity of the system)*

Reference: Malaysia Water Industry Guide 2018 (exclude Sabah & Sarawak)

Overview - SPAN



Establishment of SPAN & Its Function

- 2007 - Establish on 1st April 2007 under Suruhanjaya Perkhidmatan Air Negara Act 2006 (Act 654)
- 2008 - Water Services Industry Act 2006 (Act 655) enforced – to govern the water services industry from treatment of raw water to discharge of waste water.

Vision

'Towards a sustainable, reliable and affordable water service for all'

Mission

'To regulate the water services industry through fair, effective and transparent implementation of the Water Services Industry Act'

Regulatory Classification

Technical Regulation | Economic Regulation

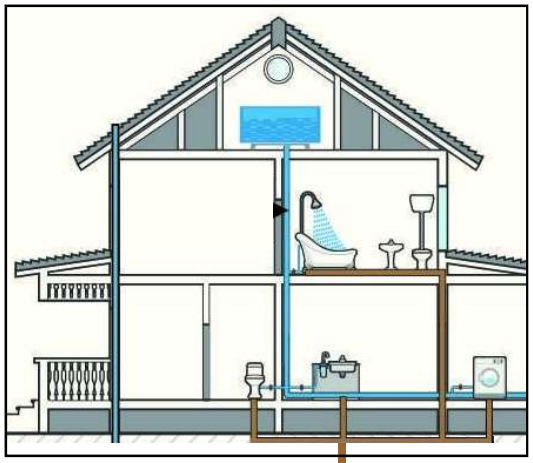
Social Regulation | Consumer Protection

Who Are We Regulated?

Public & Private Sewerage Operators | *Consultants*

Contractors & Plumbers | *System & Product Suppliers*

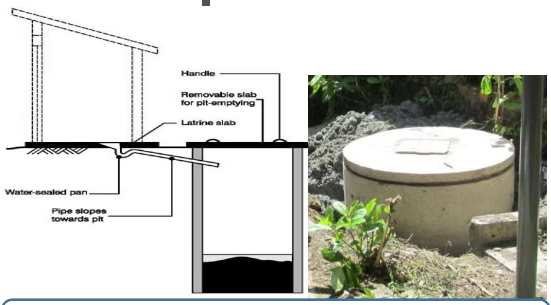
Decentralized (On Site) Wastewater Treatment System in Malaysia



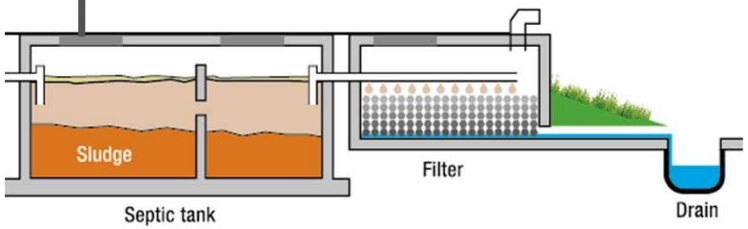
On-site

On –site treatment systems designed to treat and dispose of effluent from single premise and/or single ownership development **with total capacity less than 150 PE (33.75m^3)**

Small Sewage Treatment System (SSTS)



Cess pit (Obsolete)



Communal Septic Tank (Obsolete)

Individual Septic Tank (IST)

SSTS

- Design capacity for 31 – 149 PE (6.975 – 33.525 m3/day)
- Prefabricated system and materials that basically used were FRP & PE
- Must be provided with oil & grease removal to a discharged requirement (design=5mg/l; absolute7.5mg/l)
- Effluent quality for SSTS (BOD5=35mg/l; SS=75mg/l; COD=160mg/l; O&G=7.5mg/l)
- Product is approved and registered with SPAN & being able to comply to minimum effluent discharged standard
- Desludging at a frequency of not less than once a year

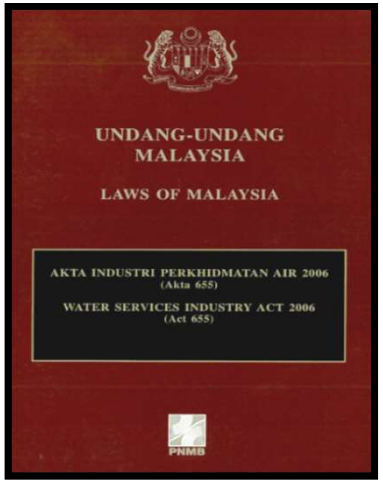
IST

- Product is approved and registered with SPAN & being able to comply to minimum effluent discharged standard (BOD=50mg/l; SS = 100mg/l)
- Desludging at a frequency of not less than once every 2 years (desludging can be at 3 years once)

Provision of Law on Decentralized System & Septage Management

SPAN
Suruhanjaya Perkhidmatan Air Negara

Water Services Industry Act 2006



Section 44 (1)
Obligation of service licensee to desludge septic tanks as prescribed

Section 65
Provision to liberalize desludging works to SPAN permit E holders

Section 65 (1)
Service licensee or permit holder must be given access for the purpose of servicing and desludging

Section 179
Empowers Minister to make Rules for Desludging

Service Licensee/ Authorised Person

Two major contractor are licensed by SPAN to provide desludging services

IndahWater

Majaari Services

Indah Water Konsortium Sdn Bhd

Majaari Services Sdn Bhd

Private Desludging Contractor (SPAN Permit E Holder)

Desludging activities can only be carried out by Permit E contractor registered by SPAN

APPLY PERMIT CLICK HERE
SPAN e-permit

Desludging Charges

Required for Services Rendered

- Executed upon premise owner's request
- No official agreement between operator and the premise owner

Provision of Law on Decentralized System & Septage Management

Current Desludging Charges

SPAN Service Licensee (Public Operator)

IndahWater	**(IWK)**	Ceiling Price
	Majaari	= RM 300/ service (up to 2m^3) RM 115 for each additional m^3

SPAN Permit E Holder (Private Operator)

Ceiling Price

= RM 230/ service (up to 2m^3)
RM 115 for each additional m^3

Roles & Responsibility of Upstream & Downstream Stakeholders

Water Services Industry Act 2006

Responsibility of Upstream Stakeholders

Desludging Operator

- IWK & Majaari - must acknowledge all desludging requests and ensure proper record keeping

Permit holder (private desludging contractor)

- Able to choose service to render

Sludge Treatment Facility Operator

- Validates quantity of sludge

Responsibility of Downstream Stakeholders

- Provide proper access to septic tank for desludging activities by service licensee or permit holder
- Maintain their septic tank and all accessories to avoid nuisance or harmful to health
- Ensure the septic tank to be serviced or maintained by service licensee or permit holder

Standards & Certification for Decentralized Wastewater Treatment Facilities

Standardization & Certification of On-site Domestic Wastewater Treatment System

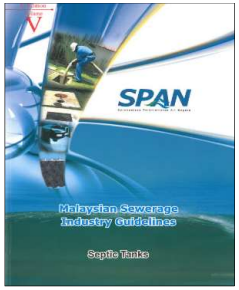
Water Services Industry Act 2006

Section 45

Plans and specifications for the construction of sewerage systems and septic tanks require the approval of the Commission

Section 180(a)(i)

The Commission may make such rules to provide for the minimum standards and specifications which shall be used in the design, construction, installation, protection, operation and maintenance of any water supply system or sewerage system



MALAYSIAN SEWERAGE INDUSTRY GUIDELINES VOL. 5 – SEPTIC TANKS

3rd Edition January 2009

Published by SPAN

- ✓ General Guidelines
- ✓ Design Guide
- ✓ Septic Tank Located In Sensitive Receiving Watercourse

MALAYSIAN STANDARD ON SITE TREATMENT UNITS PART 1 : PREFABRICATED SEPTIC TANKS SPECIFICATIONS

Publish on June 2012

- ✓ Certification
- ✓ Performance

MALAYSIAN STANDARD ON SITE TREATMENT UNITS PART 2 : PACKAGED PREFABRICATED SMALL SEWAGE TREATMENT SYSTEM SPECIFICATIONS

Publish on June 2014

- ✓ Certification
- ✓ Performance

Issue & Challenges

Desludging Trend

BACKGROUND

In January 2008, Water Services Industry Act 2006 become enforceable

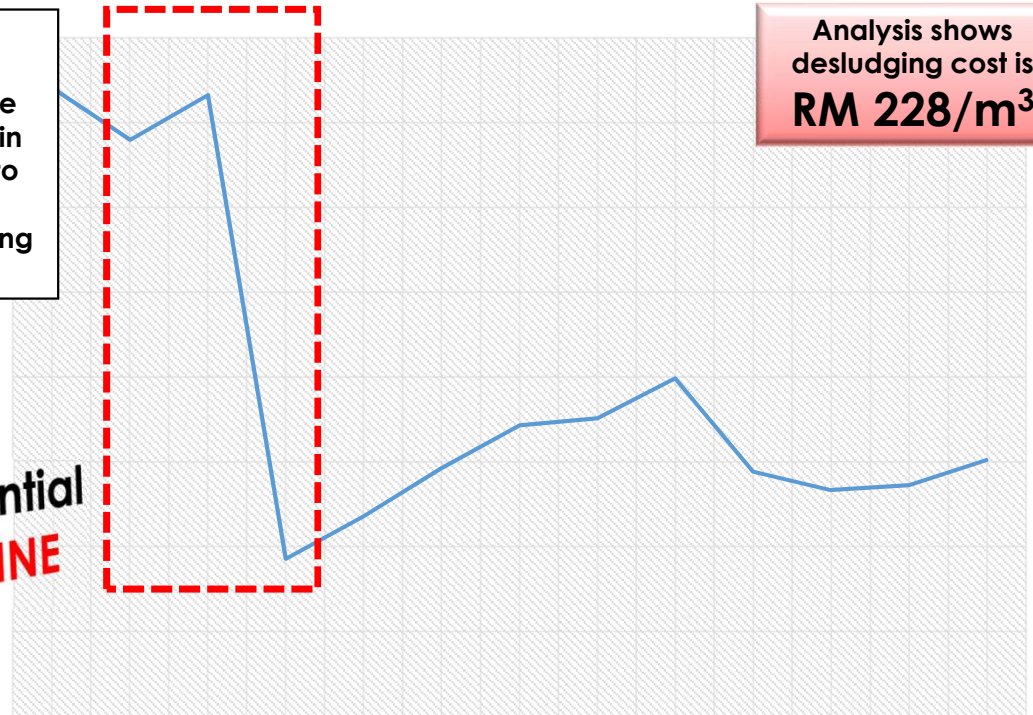
Responsibility of desludging individual septic tank falls under the owner

Prior to WSIA mandatory scheduled desludging was in place

INDIVIDUAL SEPTIC TANK (IST) DESLUDGING TREND (2005 – 2017)

Before 2008, desludging contractors were more proactive in providing door to door notices offering desludging services

Analysis shows desludging cost is RM 228/m³



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Desluding Done	148,2	135,9	146,5	37,01	47,05	58,40	68,54	70,17	79,63	57,65	53,25	54,41	60,37

Social Issues

- Refusal From Owners
- Septic Tank Cover Sealed
- Inaccessible, etc

Impact

- Higher risk of being confronted with water borne diseases
- Quality of water resource will be affected, etc

Issue & Challenges

International Report Findings

Landscape Analysis And Business Model Assessment In Faecal: Extraction And Transportation Model

Findings

- New business model based on liberalization has an **adverse effect** on the desludging operators
- If the revenue declines even slightly by 5%, after tax IRR is plunges to 0%
- Expected to **trigger losses** to medium scaled operator within 2 years and large operator such as IWK within 5 years
- 96% of the respondents in the survey conducted for the study are **not willing to pay more than RM 250** for the services

Current & Future Initiative for Septage Management in Malaysia

SPAN
Suruhanjaya Perkhidmatan Air Negara

Development of Desludging Rules (Scheduled Desludging)

- To moved from responsive to scheduled desludging by Sewerage Service Licensee/ Operator in its sewerage services area
- Private contractors (permit holder) will be responsible to desludge outside operators services area and also act as a sub contractor under operator to desludge in their services area
- Currently on final drafting stage and targeted to be enforced in 2019

Revision of Desludging Fee & Charges

- The objective is to revise current fee & charges due to increase of operational cost
- Its also aim to reduce the differences in tariff between connected services and desludging services
- Currently on final consultation stage with Service Licensee/ Operator and targeted to be enforce in 2019 together with Desludging Rules

Key Performance Indicator Setting (Service Licensee KPI)

- Objective is to monitor and drive efficient performance delivery of sewerage services operators
- Four Main Indicators has been identified for Servise Licensee KPI – Operation & Maintenance, Customer Service, Financial & Environment
- Sub Indicators - Operation & Maintenance (*Desludging & Sludge Disposal*), Customer Service (*Desludging Enquiry & Complaints*), Financial (*Operational Cost Efficiency for Desludging Services*) & Environment (*Recycling of Bio solids*)

Current & Future Initiative for Septage Management in Malaysia

Development of Guidelines for Reuse of Bio Solids

- Objective of this guidelines is to specify the quality that must be complied by the byproduct that are produced using bio solids
- It will also used as a guide by the producer of products from sewage
- This guidelines has been finalized and will undergo public consultation before getting necessary approval for implementation

Operation & Maintenance Regulatory Audit

- Part of Commission's key functions to ensure the productivity of sewerage services industry and monitoring of operator's compliance
- One of the performance scope in O&M Audit – Sludge Handling (Sludge Equipment Maintenance and Sludge Received, Treatment & Disposal Record

THANK YOU

Mohd Roslee Mahyudin
NATIONAL WATER SERVICES COMMISSION (SPAN)
MALAYSIA
roslee@span.gov.my