IT ALL STARTS WITH ....

the call of nature
the call of nature

does that mean farting is a missed call?

Credits: https://www.facebook.com/pg/peeandpoo

Credits: https://twitter.com/poopfactoryinc/
SANITATION & SEWERAGE MANAGEMENT FOCUS

Public Health Improvements

Protection of Water Resources

Gradual Shift of Priority

Environmental Protection, quality living space & resource recovery

Eventual focus on all aspects

Initial Priority

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MALAYSIA: 50 years ago

Open defaecation

Direct discharges

Bucket toilet

Sewer overflows

Polluted rivers

Crumbling STPs

Diseases: cholera, dysentery

• Weak management
• Poor infrastructure condition
• Legal / regulatory / institutional shortcomings
• Awareness lacking
• Capacity in Govt / private sector weak
Today

- Infrastructure
- Governance
- Legislative / regulatory
- Institutional
- Awareness

Malaysia considered a model
THE MALAYSIAN JOURNEY

- Federalisation & privatization
- Regulation
- Infrastructure improvement

Before 1957
- Poor sanitation
  Prevalence of waterborne diseases

1970s & 1980s
- Local authorities address basic sanitation

1994
- Integration water / wastewater management

2008
- Resource recovery focus
- Sustainable business model

2018 and beyond

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MALAYSIA: PRE INDEPENDENCE

Containment | Emptying | Transport | Treatment
---|---|---|---
Offsite sanitation | WW contained: 28% | WW contained delivered to treatment: 16% | 9% WW treated
WW not contained: 20%
SN not contained: 11%
FS contained: 22%
FS not contained: 20%

Onsite sanitation

Open defecation

2% Open defecation
19% FS not contained - not emptied
1% FS not delivered to treatment
11% SN not delivered to treatment
30% WW not delivered to treatment

7% WW not treated
22% FS contained - not emptied

The SFD Promotion Initiative recommends preparation of a report on the city context, the analysis carried out and data sources used to produce this graphic.

Full details on how to create an SFD Report are available at: sfd.susana.org

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MALAYSIA FUTURE

Key: WW: Wastewater, FS: Faecal sludge, SN: Supernatant

Safely managed
Unsafely managed

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URBAN AREAS (pre 1994)

Enabling law:
Local Govt Act, Street Drainage & Building Act
Revenue:
Local tax (sewerage tax possible)

DEVELOPER DRIVEN INFRASTRUCTURE

NATIONAL GOVT:
- Advisory role
- Technical: masterplans
- Loans on request
- Programme funds

SANITATION / SEWERAGE MANAGEMENT UNDER LOCAL AUTHORITIES

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OVERALL SANITATION GOVERNANCE TODAY

**GOVT CAPEX**

**DEVELOPER CAPEX**

**MINISTRY OF WATER**
- Regulate Services, technical, economic
- Operator Sewerage (Public Sewerage Systems)
- Septic tank services

**MINISTRY OF ENVIRONMENT**
- Regulate Effluent Discharges

**Facilty Licensee**
- Funding / provide assets

**Permit holder**
- Desludging, Construction

**IndahWater**
- Operator Sewerage (Public Sewerage Systems)
- Septic tank services

**Class Licensee**
- Operate private sewerage facility

**Lease**
Section 45: Plans and specifications for the construction of sewerage systems and septic tanks require the approval of the Commission.

Section 174: Commission may register certifying agencies for the purpose of approving the plans and specifications for the Commission.

GOOD INFRASTRUCTURE THROUGH CONTROL OF APPROVAL PROCEDURES
HYBRID SOLUTION: in most cities
- connected to sewer,
- decentralised
- community system
- septic tank
- pits

ON SITE SYSTEMS WILL REMAIN AND MUST BE MANAGED.

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SEWERED SYSTEMS

- High Cost
- Water requirement
- Land for STP
- Construction difficulties
- Connection issues: grey water
- Management: O&M costs, capacity, risks, asset management
- Leaks / infiltration/ aging asset rehab costs
- Decentralised systems: logistics, risks, nuisances
INDIVIDUAL SEPTIC TANK

Indah Water provides desludging services
INCREMENTAL INTRODUCTION OF TECHNOLOGIES (with co-treatment)
DEDICATED SLUDGE FACILITIES

TREATMENT FACILITIES WITHIN SHORT DISTANCE OF ALL AREAS

Source: IWK
DESLUDGING
Service model

PRIOR TO 2008
• Scheduled Emptying: by Indah water / outsourced
• Monthly tariff RM 6

POST 2008
• Liberalisation
• Owner may call any permit holder (incl Indah Water)
• One off charges RM 230 – 300
• Sludge must be brought to Indah Water facility for treatment

NEW PROPOSAL
• Indah Water to schedule
• Outsource emptying / transport to permit holders
• Sludge must be brought to Indah Water facility for treatment
• Volumetric tariff based on water consumption

UTILITY: SCHEDULING / BILLING / COLLECTION / TREATMENT
PRIVATE OPERATORS: EMPTYING AND TRANSPORT
Fee & Service not directly linked

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TENDENCY TO NEGLECT LIQUID STREAM

- Liquid leaching to ground from pits, leach fields, soakaway etc
- Liquid overflow from septic tanks, pits etc
- Liquid end product from treatment
• Appropriate on site / off site systems

• Appropriate emptying / desludging interval

• Emptying/ transport

• Treatment/ disposal/ reuse

• Legacy / new
TYPE OF DESLUDGING SERVICES

• Scheduled
  - Septic tanks, customers

• Demand
  - Request by customer other than scheduled

• Responsive
  - non-std septic tanks, private STP, non-customer
COST RECOVERY CONSIDERATIONS

- Public goods – perceived benefit
- from user + beneficiary
- Decouple charge & service
- Local tax, water surcharge
- Joint billing
SOME OTHER CONSIDERATIONS:

- Institutional arrangements: Co management (SS & NSS, water & wastewater) has synergies, and opens up opportunities for hybrid models, co siting / co treatment, billing, recycle etc

- Outsourcing models for service delivery (complemented with Govt run service)

- Regulations – how they operate in an environment lacking integrity / capacity / political interference
EMERGING LESSONS

- Local authorities successfully managed basic sanitation
- Water resource pollution remained: STP performance, desludging, grey water
- Governance changes, regulations, institutional reform: centralised approach
- Private sector involvement: utility model
- Developers & certifying agency: quality sewerage, STPs, septic tanks
- Investment in infrastructure, schedule desludging (limited success)
- Challenges: technology, incremental
- Failures: low tariff, poor collection, acceptance of scheduled emptying
QUESTIONS?