Introduction of Scheduled Desludging Services in Indonesia

Foort Bustraan, Institutional Development Advisor for National Workshop Decentralized Sanitation Solutions at Mumbai – 18 November 2018
OVERVIEW current situation/problems

- On-call basis
- No Health and Safety procedures
- No collection SOP
- No license needed
- No transport monitoring
- Direct payment to driver
- (often) illegal disposal

- Built for most big cities (but often far from city)
- Rarely mechanized
- Underutilized or unused, because limited collection
- Inadequate O & M funding
- Unsuitable designs
The “SANBURGER” as domestic Waste Water Framework

- **Onsite Systems**
  - Individual or shared septic tank

- **COMMUNAL SYSTEMS**
  - Piped, public

- **Septage Management**
  - Collection, Transport, Treatment, Disposal & Reuse

- **Sewerage**
  - Neighbourhood or citywide systems, including Treatment, disposal / reuse

- **Citywide Waste Water Operator**
  - Septage and Sewerage Management, Oversight Communal systems, Promotion, Operation & Maintenance, billing / collection systems, customer relation, IT, Quality Control

- **Triggering for Behavior Change**
  - Capacity Development, Behavior Change Communication, Sanitation Triggering, Sanitation Promotion and Sanitation Marketing

**Regulations, Law Enforcement, Finance**
- Legislation, Financing (CAPEX), Strategic planning
and according to an agreed schedule, a licensed desludging unit comes to a registered customer, to conduct mandatory desludging and deliver it to a Treatment Plant.

All of this is done for a Cost Recovery Tariff, covering all direct operational cost of collection, treatment & direct management.

Except Investment cost of the Treatment Plant, which is covered by Central Government.
7 ASPECTS of Scheduled desludging

- registered & eligible septic tank users
- classified based on building use & size
- designated operator
- regulator & supervisor
- private desluder
- tariffs cover operating cost
- capital by government
- can involve private investment
- use of proper septic tanks
- mandatory periodic emptying,
  - tariff & mechanisms.
- Working with private sector
- desludging period
- service area
- desludging scheme
- desludging units
- transfer stations
- treatment plants
- laboratory
- MIS & GIS
- vehicle monitoring
- customer relation
- billing
- emptying
- transportation
- mon-ev
PREPARING Regular Desludging (LLTT) in 14 steps

1. Assess POTENTIAL
2. Agree on PRINCIPLES
3. Prepare BASIC CONCEPTS
4. Obtain BLESSING (of mayor)
5. Understand / Map CUSTOMERS
6. Prepare OPERATION PLANS
7. Prepare OPERATOR
8. Finalize REGULATIONS
9. Establish FINANCIAL SYSTEM
10. Involve PARTNERS
11. Arrange SEPTAGE FLEET
12. Agreement by MANAGEMENT
13. promoting SERVICE
14. LAUNCHING
FSM ACTIVITIES since 2013 - now

- Android & Web-based septic tank census tool
- Financial models & tools
- MIS & customer database
- SOPs on admin & technical
- Template regulations on sludge management
- Contract for private desludgers
- Exposure workshops / visits
- Promotion materials
- Manuals and training programs
- Guidelines on regular desludging and design treatment Plants
69 CITIES implementing FSM supported by National G’ment and donors

39 Ministry Public Works
15 USAID IUWASH
5 World Bank
3 SNV
7 USDP / Dutch
LESSON-LEARNED (1)

- early & strong commitment by city leadership / mayor is crucial to initiate (regular) desludging program

- regulations on establishing operator, mandatory desludging & cost recovery tariff takes time & must be promoted early

- > 80% households prefer regular desludging above “on-call” systems

  Easy, no embarrassment for neighbours, easier payments,
Increasing collection efficiency is crucial for cost reduction. scheduling a truck (4 m³) to empty 2 tanks (@ 2m³) before go to STP + construct STP nearby so truck can make 2 trips / day

Most efficient billing is for a water utility to combine it with the monthly water bill. If not possible, it might be possible to combine with property tax, appoint “billing agent” or use “E-money”.

Existing septage treatment plant almost always be the bottleneck. Consider implementing an incremental approach to increase capacity of the septage plant.
5 STEPS for Design of Septage Treatment Plant

1. RECEIVING
   - Septage
   - Non-mechanical: Receiving, Filter, FOG Removal
   - Mechanical: Stone Trap, Sand/Grit Chamber, Mechanical Acceptance Unit

2. PRE-TREATMENT
   - Non-Mechanical: Anaerobic Pond, Imhoff Tank, Sludge Thickener, Sludge Drying Bed, Sludge Separation Chamber
   - Mechanical: Screw Press, Belt Filter Press

3. SEPARATION
   - solids & liquids

4. LIQUID TREATMENT
   - Anaerobic Treatment: Stabilisation Pond, Anaerobic Baffle Reactor
   - Aerobic Treatment: Aerated Lagoon, Trickling Filter, Oxidation Ditch
   - Pathogen Removal: Desinfection unit, Maturation Pond, Constructed Wetland

5. SOLID TREATMENT
   - Without additional processing:
     - Landfill
     - Land application
     - Reuse
   - With additional processing:
     - Composting
     - Thermal Drying
INCREMENTAL APPROACH to increase capacity of treatment plant

- **10 m³**
  - A, F, M ponds + SDB
  - 35,000 p. 
  - ponds
  - beds
  - low capacity, low cost, low efficiency, low skills

- **30 m³**
  - A, F, M ponds + SDB
  - Aerated lagoons
  - presses
  - higher capacity, higher cost, higher efficiency, higher skills

- **100 m³**
  - Aerated lagoons + SDB + limited mechanical dewatering

- **300 m³**
  - 1 million p.
  - Mechanical dewatering
  - Guide, Syllabus and Training done in 2017 and 2018
“….. Thank you.”