Turning the Tide on Fecal Sludge Management

*From toilets for most to sustainable sanitation for all*

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@aweitz1105 here you are poo hugger!
pic.twitter.com/FeUlipCR7t

09:22 AM - 21 Mar 14
......HALVE, BY 2015, THE PROPORTION OF THE POPULATION WITHOUT SUSTAINABLE ACCESS TO SAFE DRINKING WATER AND BASIC SANITATION......
116 countries met MDG target for drinking-water, 45 countries are still off track
South Asian Conference on Sanitation

"Sanitation for All: All for Sanitation"
Kathmandu, Nepal 22-24 October 2013

"Sanitation for All: All for Sanitation"

3rd EAST ASIA MINISTERIAL CONFERENCE ON SANITATION AND HYGIENE
Kathmandu, Nepal 22-24 October 2013

“Sanitation For All - Towards 2015 and Beyond”
Increase in Sanitation Access 1990-2012

Coverage (%)

Bangladesh  Cambodia  Ethiopia  Peru

Open Defecation
Unimproved
Improved
Sustainable Sanitation Service Chain

MDGs

Proposed Post 2015 Goals

Containment → Emptying → Transport → Treatment → Reuse/disposal

Sewerage

Water closet → Sewer network → Pumping stations → Treatment plant → Reuse/disposal

Fecal Sludge Management for on site systems

Latrine or septic tank → Vacuum truck → Primary emptying → Transfer → Treatment plant → Reuse/disposal

Safe burial
Universal Access
Sustainable Sanitation Services
Developing World Cities are Growing Fastest

% Growth of urban population by region (2005-2020)

- Less Developed Regions: 93%
- More Developed Regions: 7%
Double Threat: Open Defecation and High Population Density
Association between Local Open Defecation and Infant Mortality

High population density increases the exposure to pollution created by others

Source: World Bank (2014) from 172 DHS
Fecal Sludge Management in 12 Cities

- Dakar
- Dhaka
- Delhi
- Kampala
- Phnom Penh
- Manila
- Managua
- Tegucigalpa
- Maputo
- Palu
- Dumaguete
Fecal Waste Flow Diagram

**Poor FSM: Institutionalized Open Defecation**

1. Containment
2. Emptying
3. Transport
4. Treatment
5. Reuse/disposal

- **Attention, resources, plans, regulations**: 2%
- **Neglected, low priority, few resources**: 79%

- **WC to sewer**: 20%
- **On-site facility**: 79%
- **Open defecation**: 1%

- **Effectively treated**: 2%
- **Not effectively treated**: 98%

- **Leakage**: 9%
- **Illegally dumped**: 1%
- **Unsafely emptied**: 9%
- **Safely emptied**: 98%

- **Local Area**: 2%
- **Drainage system**: 69%
- **Receiving waters**: 9%

- **Effectively treated**: 2%
- **Not effectively treated**: 98%
Sewerage Waste Management
Telp. 0542-410162

Jasa Pengedotan Limbah WC
Telp. 0542-410163
2010: 10% Urban ppl = 10% \times 26 \text{ million} = 2.6 \text{ million}

2025: 70% Urban = 70% \times 50\% \times 100 \text{ million} = 35 \text{ million}

to supply/connect: 32.4 \text{ million}

32.4 \times \$200 - \$600 \Rightarrow \$6.5 \text{ billion} \rightarrow \$20 \text{ billion}/15\text{ year}

\Rightarrow \$1 \text{ BN}/\text{ year}. \text{ Now } \$50-100\text{M}/\text{yr} \Rightarrow \text{ Scale up 10-20 X}
Sustainable Sanitation Service Chain

**MDGs**

- Containment
- Emptying
- Transport
- Treatment
- Reuse/disposal

**Proposed Post 2015 Goals**

- Sewer network
- Pumping stations
- Treatment plant
- Reuse/disposal

**Sewerage**

- Water closet
- Sewer network
- Pumping stations
- Treatment plant
- Reuse/disposal

**Fecal Sludge Management for on site systems**

- Latrine or septic tank
- Vacuum truck
- Primary emptying
- Transfer
- Treatment plant
- Safe burial
- Reuse/disposal
Thank you