

Proceedings of the Learning Event on
**Urban Sanitation – Upgrading and
Emptying of On-site Facilities**

Sustainable Sanitation and Hygiene for All – Urban Program



Khulna, Bangladesh, December 7-10, 2014



This report documents the activities from the *Learning Event* held by SNV Netherlands Development Organisation in Khulna, Bangladesh, from 7-10 December 2014, as part of the Knowledge and Learning component of its *Sustainable Sanitation for All – Urban* program. The event was attended by 43 participants from 10 countries, and focussed on ‘upgrading and emptying of on-site facilities’ in relation to the faecal sludge management (FSM) service chain. The event concluded with country representatives making commitments to actions and sharing learnings on their return to their own countries. Key actions and learning commitments included:

- advocacy for developing standards and guidelines for construction, emptying, OH&S, and disposal/reuse, and stronger enforcement of standards
- exploring different business models for services, including scheduled desludging
- further exploration of treatment and reuse options
- considering trenching (as seen in Khulna) as a low cost disposal option where treatment and reuse was not yet an option.

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BACKGROUND

The Learning Event was conducted through SNV's *Sustainable Sanitation and Hygiene for All - Urban (SSH4A-Urban)* program, that aims to improve the health and quality of life of people in cities and towns through access to improved environmentally safe sanitation and hygiene practices. The program was launched in 2012, as an extension to the SSH4A program focussed on rural populations established in 2008. *SSH4A-Urban* is operational in four countries in South/South-East Asia: Nepal, Bhutan, Bangladesh and Indonesia.



The *SSH4A-Urban* program has 5 components – the four components depicted in the diagram above, and a fifth on '**Improving learning, documentation and sharing of best practices**' – namely, learning, documentation and sharing of best WASH practices both within SNV, with clients, regionally and through networks. The objective is to not only to improve SNV's own practice, but also the practices of others in the sector, and to influence an enabling environment for sustainable urban sanitation.

SSH4A-U learning activities: The 'learning component' activities include regional learning events, online Dgroup discussions, linkages with subject specialists and research organisations, preparation and dissemination of learning papers and other resources. At a meeting of urban sanitation programme leaders in August 2013, it was determined to organise two learning events. The first, on the topic of '*urban sanitation planning and finance*', was held in Lampung, Indonesia in November 2013. This workshop on '*upgrading and emptying of on-site facilities*' is the second learning event planned at the leaders' meeting. The learning component of the SSH4A-U program is supported by the Institute for Sustainable Futures at the University of Technology Sydney (ISF).

The Learning Event is a 4-day residential program that uses adult learning principles, including short presentations, discussions and many group activities including field work in a dynamic and fun atmosphere.

Learning Event attendees: The 2014 Learning Event in Bangladesh was attended by participants from the 4 countries in the SSH4A-urban program and from Kenya and Ethiopia. There were 4-5 participants from each country (SNV staff members and country partners) except the host country Bangladesh, where a greater number of participants were able to attend. External resource persons from Eawag, ISF and Global Development Services were also in attendance. Local government representatives were invited to specific events – the opening, presentation of observations and recommendations from field visits, and the cultural dinner (see Annex 1 for images from cultural dinner).

Preparatory DGroup discussion: A DGroup discussion was held in November 2014 as preparation for the Learning Event (7-10 December), on the same theme of ‘upgrading and emptying of on-site sanitation facilities’. The topics for discussion in each of the three weeks of the Dgroup were:

- The upgrading debate: does containment really happen?
- Emptying: your thoughts on different business models for organising emptying and collection
- What does it take to ensure city-wide services?

A summary of the DGroup discussion was provided to attendees as a hand-out (available at <https://dgroups.org/?fgv39atv.3>).

INTRODUCTION TO THE LEARNING EVENT 2014

Presentation by Antoinette Kome, Learning Event Facilitator and SNV's Global Sector Coordinator WASH <https://dgroups.org/?fgy39atv.0>

In this presentation, Antoinette Kome explained that the intention of the learning activity was to exchange ideas and deepen our understanding of **upgrading and emptying of on-site facilities** with respect to city wide services. The activity was made up of the following components:

- The preparatory DGroup discussion, summarised in the handout
- This workshop
- Post-workshop Dgroup discussion
- In-country follow-up, application of learnings from this activity.

The workshop was not simply about SNV, but also about SNV's partners, improving sector practice, and learning from each other.

Resolving the challenges of upgrading containment and emptying requires optimism, because the task is huge. But she said we don't want to see optimism that is limited to technology – that is, to believe that the answers will come just from technology alone. Similarly we don't want to see optimism limited to business only, or government only, or civil society only. Rather, we need to all work together. There is a lot happening in FSM so there is reason for optimism.

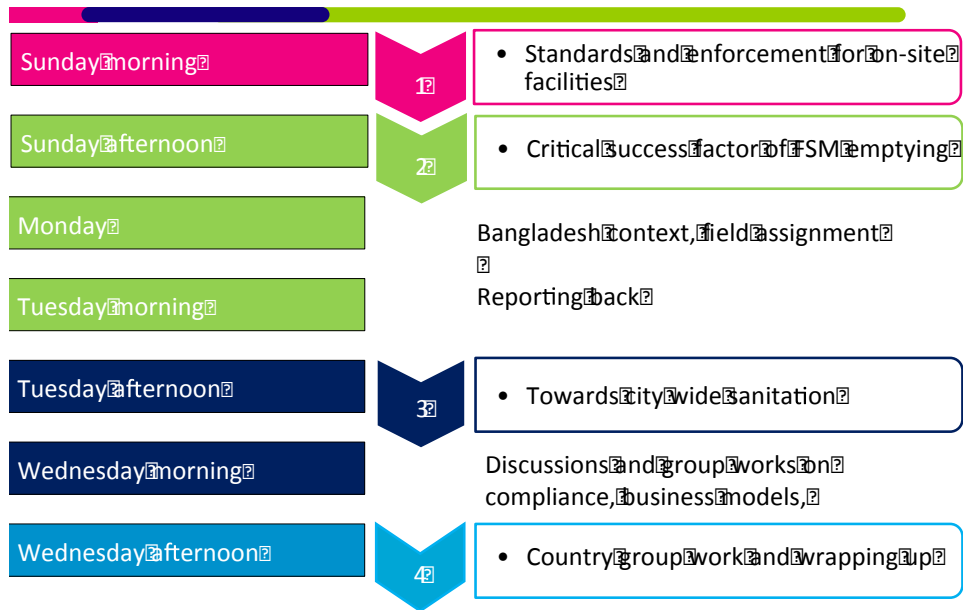
She noted that containment is just one part of the challenge. We also need to think about financially viable FSM services, and city-wide services. During the workshop participants would think about success factors for emptying services, and different service models, and enforcement and compliance, and how these can be applied as options for our own context. These were the objectives of the workshop.

She said the workshop can be seen as 'work + shop' – the aim was for everyone to work. Participants had the option to shop for ideas and take them back in their 'shopping bags'. In a few months, SNV plans to check back with participants about what they had done with their shopping.

The workshop was arranged with four learning blocks:

- Block 1: Standards and enforcement for on-site facilities
- Block 2: Critical success factors for FSM emptying
- Block 3: Towards city wide services
- Block 4: Country group session and wrap up.

Programme by day



She noted that the field work on Monday has several assignments, and national and local stakeholders would be here to listen to the reporting back on Tuesday morning. This was to be followed by a large learning block about city wide sanitation, including presentations about case studies from Bangladesh and Philippines. A presentation of a case study from Senegal had been planned but the presenter Dr. Mbaye Mbégué (ONAS) sent his apologies for not being able to attend – this case study will be made available later. Before the official opening, participants were asked to share their expectations.

Scheduled Program

Programme of the learning event

Day 0 Saturday 6th of December

Arrival of participants in Khulna

Day 1 Sunday 7th of December

- 8.30 Registration
- 9.00 Official opening and introductions-Khulna
- 10.15 **Block I: Standards and enforcement for on-site facilities**
Sharing by groups about the standards for on-site facilities in their country
- 13.00 lunch
- 14.00 **Block II: Critical success factors for faecal sludge emptying services**
Discussion on success factors for faecal sludge emptying services
Introduction to urban sanitation in Khulna, Jenaidah and Kushtia (Southern Bangladesh)
Explanation and preparation of field assignments in 5 groups
- 17.00 Closure

Day 2 Monday 8th of December

7:00- 18:00 Field visit (5 groups).

Day 3 Tuesday 9th of December

- 9.00 **Block II: Critical success factors for FS emptying services** (continued)
Groups consolidate their findings
- 10.30 Presentation by groups to a panel of national and local sanitation partners
- 13.00 Reflection in country groups
- 13.00 lunch
- 14.00 **Block III: Towards city-wide services**
Presentations by external resource people (DSK Dhaka, Philippines)
Discussion
- 16.00 Debating game
- 17.00 Closure for the day
- 19.30 Cultural dinner

Day 4 Wednesday 10th of December

- 9.00 **Block III: Towards city-wide services** (continued)
Leadership, business models and compliance (with EAWAG)
- 13.00 lunch
- 14.00 **Block IV: Country group sessions and wrap up**
World café sessions
Country group reflections
- 17.15 Evaluation and closure sessions

Day 5 Thursday 11th of December

Return travel

Introductions and Expectations of Participants by Country

Participants from each country introduced themselves and shared their expectations of the Learning Event, as summarised below.

Country	Expectations
Bangladesh	• Learn about onsite emptying practices elsewhere and applicability to Bangladesh • Improve knowledge sharing between municipalities • To learn how to address the challenge of collection in existing containment in Dhaka, and improve transportation of sludge • Find sustainable area-specific mechanisms for emptying services • Help Khulna city develop integrated plan for sustainable total onsite facilities (emptying, collection, transport, treatment, reuse) • Help make Khulna city clean and green • Understand constraints and opportunities for FSM in Bangladesh • Learn about FSM experiences regarding technologies, stakeholder/community participation, financing, business development process, O&M planning
Bhutan	• Learn how to get better attention to sanitation at national level (so priority equal to water supply priority) • Learn about good experiences of upgrading, emptying and financing, especially to share at Bhutan Learning Event • Learn about bad experiences to avoid repeating mistakes • Learn about different options for urban sanitation
Ethiopia	• Learn about experiences in the field from other countries • Learn about local business models for small towns • Learn about technology options and management for FSM • Learn about regulation and enforcement of different countries
Indonesia	• Learn about other countries experiences and take back new ideas, perspectives and solutions • Be able to prepare a concept note on sustainable sanitation for all, to coordinate stakeholders and donors to work together • Learn about how to improve infrastructure functionality for service delivery
Kenya	• Take home a 'shopping bag' full of ideas • Learn about appropriate business models for collection and treatment • Improve understanding of enforcement • Strengthen collaboration between relevant sanitation stakeholders in the country
Nepal	• Improve clarity about the role of municipality • Learn about best practice of onsite upgrading existing systems • Learn about successful business models • Understand reasons for failure

Official Opening

The Mayor of Khulna City Corporation (KCC), as co-host of the Learning Event, was invited to open the workshop, with the SNV-Bangladesh Country Director.

Opening address by Mayor of Khulna City Corporation, Mr. Mohammed Moniruzzaman

The mayor expressed his pleasure at being invited to open the workshop with participants from around the world: Asia, Africa, USA, UK and Europe. He saw KCC's involvement as a great opportunity, and thanked SNV for selecting Khulna for this event. The different municipalities and local governments can learn from those with practical experience and academic learning, all sharing their knowledge. In Bangladesh, FSM is a new concept so the learning process from this workshop is especially valuable. KCC has been involved with SNV for some time. And conducted the baseline survey. He noted that Khulna is a quiet city with a vision to be clean and green. He invited participants to enjoy their time in the city.

Opening address by SNV-Bangladesh Country Director Mr. Paul Stevens

Mr. Stevens warmly welcomed everyone. He noted that although he was not an expert in FSM or WASH, he was struck by the fact that urban FSM affects everyone in the city, it is not only about the poor. Lack of FSM creates health problems that affect the poor as well as the wealthy. Since Bangladesh is developing very rapidly, with already huge populations increasing further, it is very important to address this issue. He observed that although municipalities are legally responsible, capacity is weak. He recognized it is a multifaceted problem that needs an integrated approach to solve, considering both supply and demand for FSM services. He welcomed and thanked representatives from KCC and Jhenaidah Paurasava (municipality) who were present, for their proactive support and participation:

- The Mayor of Khulna Mr. Mohammed Moniruzzaman
- Mrs. Ruma Khatun, Panel Mayor, Khulna
- Mrs. Farhana Reza Anju, Panel Mayor, Jhenaidah Paurashava
- Mrs. Sufia Begum, Ward Councillor, Jhenaidah Paurashava
- Md. Idris Siddiqui, Secretary, Khulna City Corporation.

He also expressed his thanks to the Mayors of Kushtia and Jhenaidah who were not present, for their leadership and continuous cooperation for the implementation of the programme.

- Mr. Anwar Ali, Mayor, Kushtia Paurashava
- Mr. Saidul Karim Mintu, Mayor, Jhenaidah Paurashava

Mr. Stevens stressed the need for leadership and ownership at the local government level, and expressed appreciation of the genuine committed leadership from the Mayor and KCC. He closed by wishing everyone stamina and good luck for the week ahead.

BLOCK 1: STANDARDS AND ENFORCEMENT FOR ONSITE FACILITIES

OVERVIEW OF BLOCK 1: STANDARDS AND ENFORCEMENT FOR ON-SITE SANITATION

Why is this relevant?

A majority of households in developing country cities depend on on-site sanitation services, and it is critically important to ensure that these services deliver the desired outcomes: to protect public health (through separation of human waste from human contact) and provide a cleaner healthier living environment.

Standards set out the requirements that need to be met in the design, installation/construction and operation/maintenance of on-site facilities and performance of support services (e.g. desludging, treatment, disposal), in order to meet the desired sanitation outcomes. Standards are important because they inform relevant people (householders, masons, builders, designers, pit emptiers etc) about *what they need to do*. In reality, Standards in different countries can vary, from being non-existent to partial (covering only some aspects of the services) to being strong and covering all aspects of the sanitation service chain.

Enforcement is needed to make sure that people not only know what to do (through standards), but that they actually comply with what is required. Legal and regulatory frameworks and institutional arrangements support enforcement, which allows monitoring, and gives legal powers to impose penalties on people who fail to comply. Like standards, legal and institutional arrangements can vary, making enforcement more or less effective in different places.

What knowledge and learning outcomes were intended from this block?

- To gain deeper understanding of the importance of standards and enforcement
- To learn from each other about strengths and weaknesses in different country approaches to standards and enforcement
- Gain ideas about how to bring about improvements in this area of standards and enforcement

What was the process?

- Introductory presentation reflecting on contributions from the DGroup discussion on this topic
- Country-based group activity to discuss and prepare posters regarding 3 questions and a scorecard assessment of their local authorities' capacities for enforcement:
 - What are the standards for a toilet (and containment) in urban areas?
 - What are the standards for timely emptying?
 - Who enforces these two types of standards?
- Sharing and exchange of experience: plenary discussion where each country group presented their poster
- Plenary discussion about entry points for improving standards and enforcement
- Further consideration of the topic under Block 3

1.1 Introduction to Block 1

Presentation by Antoinette Kome, Learning Event Facilitator

<https://dgroups.org/?fgv39atv.1>

Requirements for effective sanitation: To achieve safe and effective sanitation, 3 requirements need to be met:

- Separation of human waste that prevents contact with humans while protecting a healthy environment
- Practices that meet occupational health and safety standards
- Financially sustainable services.

For urban areas serviced by on-site sanitation, safe sanitation requires that all (or nearly all) premises must have functional latrines and safe on-site containment that is emptied at the appropriate time.

Challenge of ensuring effective sanitation: the ‘million dollar question’: Regarding achievement of effective safe sanitation, the *Million Dollar Question* is: how do we ensure that house owners and building owners comply with minimal standards for sanitation facilities and their maintenance (timely emptying)?!

Sometimes there are no standards for urban on-site sanitation, or standards exist but are not practicable, or no-one knows about them. Or standards exist but are not enforced. In Bangladesh, the Building Code requires emptying every 6-12 months, but this is not enforced.

Inputs from the DGroup discussion on the challenges: There were many interesting contributions from the DGroup discussion about whether containment happens. The importance of containment was widely recognised, but contributors noted challenging tendencies for “skeptical tanks” to be “SEP (Someone Else’s Problem)”, and that “no one manages their onsite system until it fails”. Some noted that waste from trains, ferries and slaughter houses also need to be managed.

It would take some courage to enforce standards, as some contributors noted there would be public outrage on this politically sensitive issue. Some technical issues have no answer, such as lack of space for septic tanks in very dense urban environments. The capacity to comply also varies, so it is not possible to ask everyone to comply with minimum standards.

Ideas from the DGroup on answering the ‘million dollar question’: There were several suggestions for achieving compliance with the standards. Since masons are in the frontline for construction of containment on-site, making masonry a profession backed by training on the standards can improve compliance. Emptying can be integrated into ODF programs so emptying after a period of 2 years is the second step following communities becoming open defecation free. Installing other types of toilets that do not require emptying, and bundling services so the agency that constructs the on-site containment is responsible for emptying, were other ideas proposed.

Structure of Block 1: Participants have been seated so each country team has its own table (Bangladesh has 2 tables). The first activity is a discussion about standards for toilets and emptying in

each country. Teams will present their analysis in plenary discussion, so people learn and share. On the final day we will revisit the topic of standards and enforcement.

1.2 Country analysis of standards and enforcement at premise level

The country groups considered standards and enforcement in their country and prepared a poster which they presented to other participants. A worksheet (in *italics* below) was provided to structure and guide the session.

ENFORCEMENT OF STANDARDS AT PREMISE LEVEL – WORKSHEET

At premise level there are two basic standards to be complied with and enforced:

<i>Standards</i>	<i>Stakeholder responsible for complying with standards at premise level</i>	<i>Entity/entities responsible for enforcement (depending on country)</i>
<i>Toilet standards at premise level (often based on building code)</i>	<i>Owners of buildings</i>	<i>Building inspectors, ward authorities</i>
<i>Discharge standards that is basically timely emptying at premise level</i>	<i>Owners or tenants/occupants</i>	<i>Inspectors from environmental or health department, ward authorities</i>

- 1. In your country, what are the standards for a toilet (and containment) in urban areas? If possible, make a drawing.*
- 2. What are the standards for timely emptying?*
- 3. Who enforces these two types of standards?*
- 4. How does your enforcement capacity score in the score card?*

Responses to questions 1-3 from each country are summarised below (sections 1.2.1 – 1.2.6). Responses to the score card in question 4 are provided in section 1.2.7.

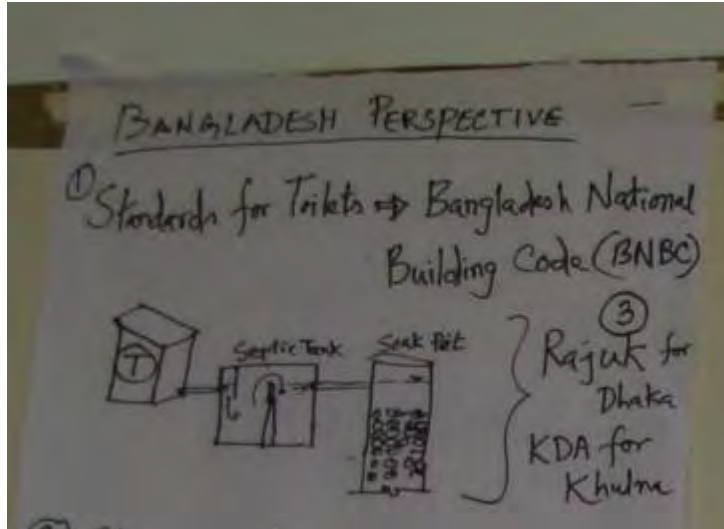
1.2.1 Bangladesh premise level standards and enforcement

The Bangladesh participants formed 3 groups, whose responses have been combined in the summary below as there were several points in common.

1. What are the standards for toilet/containment in urban areas?

- Bangladesh National building code (BNBC) has a chapter on Sanitary Drainage; septic tank design criteria are well specified. Seepage (Soak) pit has very specific criteria. In practice when soak pit becomes clogged, there is provision to discharge to water bodies.
- Connecting the toilet line with drain is prohibited. To get building plans approved, the design of septic tank should be there.

- There are standards for installing toilet in different institutions according to number of users. Male and female toilets have to be separated.



2. What are the standards for timely emptying?

- Standards for emptying is specified as every 6 months – 1 year. In practice, this is not followed. Emptying is undertaken by DCC in Dhaka, when householder submits an application. Or householder might informally ask manual emptiers to empty.

3. Who enforces these two types of standards?

- Construction oversight is responsibility City Development Authorities in 4 main metropolitan cities (like Rajuk in Dhaka (Capital city development authority) Khulna Development Authority in Khulna) but for municipalities Paurashava themselves are responsible. Legal basis is good, legal process for noncompliance is also good.
- Emptying is responsibility of city corporations and municipalities. There is a lack of clarity about who is responsible for desludging and enforcement – City Corporation or WASA (Water and Sewerage Authority) or municipality. Responsibilities are not clearly defined, and there is overlap. Department of Public Health Engineering takes responsibility for implementing any centrally funded infrastructure projects in all the towns except cities having WASA.
- Under the WASA Act, WASAs are responsible only for sewerage. Municipalities and City Corporations are involved in emptying services. Vacutugs services are provided by City Corporation and Paurashava or municipalities. WASAs are not involved in onsite sanitation. But Khulna has very ambitious development plans because of strategic location, plans include a sewerage system. Then there is scope for KWASA to offer sludge treatment similar to Malaysia and Philippines.
- Sometimes it is not possible to comply, then inspectors are flexible. Approvals are based on paper only (without site inspections). Technical standards are complex, but householders are expected to understand enough to comply. Often services are not available.

1.2.2 Bhutan premise level standards and enforcement

1. What are the standards for toilet/containment in urban areas?

- There are detailed specifications about inclusions for dwellings (taps, wc, kitchen sinks etc), standards for septic tanks (dimensions of tanks for different numbers of users).

2. What are the standards for timely emptying?

- Specification of minimum tank cleaning period of 2 years.

3. Who enforces these two types of standards?

- At town level, the municipality is responsible. Thromde has responsibility at district level. But in practice there is little enforcement.

1.2.3 Ethiopia premise level standards and enforcement

1. What are the standards for toilet/containment in urban areas?

- All dwellings and institutions are required by law to have toilets, but no requirements on septic tanks/ containment facilities. In practice, there are mostly pit latrines directly below toilet (without offset). In cities there are septic tanks also. Very deep ground water table in urban areas means that ground water quality is not a concern.

2. What are the standards for timely emptying?

- No clear standard for facilities or emptying.

3. Who enforces these two types of standards?

- Law requires waste collection in specially designated places, but there is no standard to guide enforcement of law. Though highly regulated, public services are inefficient and limited, and there are too few private service providers. In capital city Addis Ababa (AA), there is very limited availability of emptying services. Vacuum truck services are available to only around 20% of AA households. In AA, trucks (with 3 cubic metre tanks) deposit sludge to transfer stations, larger trucks then take it to treatment plant. Emptying cost is equivalent to \$50 per truck load.
- Public Health proclamation and regulations allow enforcement of law by Health and Environmental authorities. Ethiopia is highly regulated with strong enforcement. People not permitted to dispose waste and contaminate the environment. Institutional waste disposal has standards for special care.

1.2.4 Indonesia premise level standards and enforcement

1. What are the standards for toilet/containment in urban areas?

- There is a national standard (SNI 03-2398-2002) but designed only for situations with low water tables. Indonesia is an archipelago country with diverse conditions. There is no implementation, people just build without consideration of standard. Historically “safe access” was limited to septic tank but now government is aware of the need to consider the full

sanitation service chain including FSM.

2. What are the standards for timely emptying?

- There is mention of emptying at the “required frequency”, but no guidance of what this frequency should be. There is no enforcement. People usually empty septic tank when they have problem with clogged pipe.

3. Who enforces these two types of standards?

- There is no enforcement for containment and emptying.

1.2.5 Kenya premise level standards and enforcement

1. What are the standards for toilet/containment in urban areas?

- Kenya has standards for range of toilets – VIP, twin pit, pour flush, and septic tanks. The Standard provides schematic diagrams with specified dimensions. The design manuals are available at national level but may not be followed on the ground. So, standards are not complied with at implementation.

2. What are the standards for timely emptying?

- There are standards for emptying but in practice, emptying happens only when pits/tanks are full.

3. Who enforces these two types of standards?

- Public Health Dept is responsible for enforcement. Public Health Technicians/Officers have training in design, and construction is supervised by PHT/PHO. There is a national construction approval process.

1.2.6 Nepal premise level standards and enforcement

1. What are the standards for toilet/containment in urban areas?

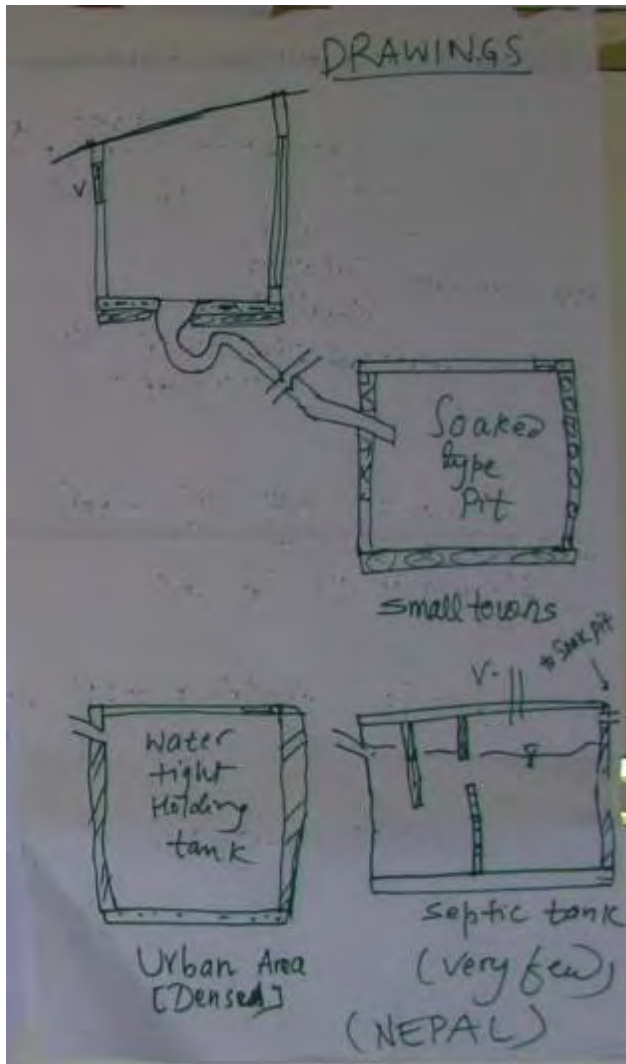
- Sanitation movement is ODF centred, containment is not considered much. There is no standard for onsite sanitation, the focus has only been on off-site sanitation. Building code mentions that there should be a septic tank or stabilization pond (if no off-site) but there are no standards. Any method is approved by concerned authority based on building drawings. Monitoring is only of what is above ground (toilet)- no inspections below ground structures (or whether they are constructed at all). But there are plans to develop standards for septic tanks in 2015. Current containment options are soakage pits mainly in small towns, and water-tight holding tanks or septic tanks in dense urban areas.

2. What are the standards for timely emptying?

- No standards for emptying, no monitoring. Emptying done when tanks are full. Householders need to call for emptying service when water-tight tanks are full – but likely to connect pipe to overflow into drains.

3. Who enforces these two types of standards?

- Municipality is the enforcing authority. There are multiple coordination committees at national, local, grassroots levels.



1.2.7 Scoring of enforcement capacity for all six countries

The following table summarises the assessment made by country teams about the capacities for enforcement in their country, as they saw it. The scoring sheet filled collaboratively by the group (in some groups, the scoring sheet was filled individually first).

The scoring scheme is as follows

- 0 = does not consider important;
- 1 = considers important but doesn't know
- 2 = more or less
- 3 = mostly
- 4 = 100%

Capacities for smart enforcement of Standards at premise level by local authorities	Bangladesh	Bhutan	Ethiopia	Indonesia	Kenya	Nepal
There is a legal basis for enforcement of standards in the city/town	3	2	3	1	4	1
Information on standards and penalties are disseminated to the general public/building owners	1	2	1	0	2	2
Staff are aware of standards	2	2		0	2	2
Local leaders/neighbourhood leaders are aware of standards and engaged in compliance efforts	1	1		1	1	1
Staff are capable to observe compliance or non-compliance in standards in the field (most common cases)	1	1	3	0	3	2
Staff are capable to address non-compliance with the public/building owners	1	1	3	0	3	1
Staff are backed up by police in case of violence or threats	2	3	3	4	3	0
There is an administrative procedure for addressing non-compliance	2	3	3	0	3	4
There is a legal procedure for addressing non-compliance after exhausting the administrative way	3	3	3	0	4	2
There are incentives for premises/building owners achieving compliance within certain deadlines	0		0	0	1	0

The scoring showed that, while there is a wide variation in different capacities in the countries, in all the countries there was little incentive for owners to comply within a specified time – even where administrative and/or legal procedures for enforcement existed. The assessment indicates an opportunity to fill the gap in awareness about standards amongst the public, staff and local leaders.

1.3 Entry points for solutions

Given the situations in each country, the possible entry points for improving standards and

Emerging points from discussion

- National strategies are useful:
 - Bangladesh National Water Supply and Sanitation Strategy 2014, #5 is on FSM enabling entry for urban/rural FSM. Institutional frameworks for different city scales are being set up (Mega city, city with/without WASA (water and sewerage authority) etc).
 - Ethiopia Urban Sanitation Strategy 2011 specifies how to contain, transport faecal sludge, providing entry point. Building code development is happening because of the Strategy.
- Institutional coordination needs to improve, as it is often low. For example, in Bangladesh, despite existence of good standards, low coordination and lack of clarification of roles leads to weak outcomes.
- A menu of standards for different situations can help, rather than 'one size fits all'. E.g., for mountainous areas, sandy soils, high water table areas etc.
- Socialisation of standards and regulations is essential, so people know what they are required to do.
- Enforcement could accompany socialisation, so people have a time frame for compliance. An incentive could be provided if they comply within the time frame (e.g they get a subsidy for upgrading). A penalty could be imposed if they haven't complied within the time frame.
- Introduce tax scheme to pay for sanitation.
- Learn from successful ODF campaigns : get political buy in, raise awareness at both supply side (raise awareness for service providers) and demand side (raise community awareness).
- Having standards is not enough, Standards need to be communicated, taking local context into account. Requires wide stakeholder engagement and intergration with city wide strategy.
- Benefits need to be made clear to businesses and endusers ("what's in it for me?"). This can lead to self regulation, that must be balanced with public oversight.
- FSM management process of "what, who, where" needs to be clarified, because the process of FSM is currently challenging and unclear.

enforcement were discussed in a plenary session.

A follow up activity to further consider entry points for standards and enforcement for each country group was included in Day 4 (see section 3.5).

BLOCK 2: CRITICAL SUCCESS FACTORS FOR FSM EMPTYING SERVICES - FIELD ASSIGNMENTS

OVERVIEW OF BLOCK 2: CRITICAL SUCCESS FACTORS FOR FS EMPTYING SERVICES

Why is this relevant?

While there are many different types of faecal sludge emptying services around the world, they are seldom sustainable in social, environmental and economic terms, which threatens their ability to deliver continuous services over the long term. Understanding what factors lead to more (or less) successful FS emptying services can allow sanitation planners, decision makers and policy makers to design services to enable these success factors.

The aim of this block is to focus at a very practical level on FS emptying services in Khulna district and City, and enable influential decision makers in Bangladesh to hear participants' thoughts on how to strengthen critical success factors for these services, based on their rapid assessments of FS emptying services in their jurisdictions.

What knowledge and learning outcomes were intended from this block?

- To gain direct experience of how emptying services work in Khulna/district
- To practice conducting a rapid review to gain an understanding of what is happening
- To learn collaboratively about success factors for FSM through discussion and hearing from others about strengths, weaknesses and potential improvements for the services observed

What was the process?

- Assignment of participants into 5 groups for field trips to 5 locations prearranged by SNV Bangladesh staff
- Short presentations as preparation for the field trips, with background and contextual information about FSM in Bangladesh/Khulna
- Field visits (Day 2 of the Learning Event)
- Group presentations of observations and recommendations about environmental health, occupational health and safety, and financial viability aspects of emptying services visited
- Response from local government representatives invited to hear the presentations

2.1 Preparation for field work

2.1.1 Field assignment set up

Sunday 7 December

Participants were informed of the mixed (multi-country) groups they had been assigned to, and location of their field visit to pit emptying services, scheduled for Monday 8 December.

Three groups were to visit sites within Khulna City, while the other two groups had over-night trips to Kushtia Paurashava and Jhenaidah Paurashava.



The groups were instructed to report back on their field visits on the morning of Tuesday 9 December. The report was to present field observations and make recommendations, including on environmental health, occupational health and safety, and financial viability of the pit emptying service.

To cater to diverse communication styles of group members, each group was asked to prepare:

- A photo diary
- A testimony of a person associated with the pit emptying services
- A 2-page case study
- A powerpoint presentation (up to 15 minutes).

The groups were informed that local government representatives from Khulna City, Kushtia Paurashava and Jhenaidah Paurashava would be present to hear the field trip reports, assessments and recommendations.

Two presentations were made to provide background information for the field work. The first was a policy perspective on FSM in Bangladesh by Md. Mohsin (Assistant Project Director(Deputy Secretary), Policy Support Unit (PSU), Local Government Division), for all groups. The second by Mr. Abirul Jabbar, (Chief Planning Officer, KCC) was for groups making field visits within Khulna City, on the current sanitation situation in Khulna based on a recent baseline study.

2.1.2 FSM in Bangladesh: Policy Perspective

Presentation by Md. Mohsin, Deputy Secretary and Assistant Project Director, Policy Support Unit (PSU), Local Government Department, Ministry of Local Government and Rural Development and Cooperatives (MoLGRD&C) <https://dgroups.org/?fgy39atv.2>

Brief history of progress in sanitation in Bangladesh: Limited progress was made in the International Drinking Water and Sanitation Decade (1980-1990), where social mobilisation was lacking. With social mobilisation actively incorporated in the 1990s, building awareness and participation, significant progress has been made. Initiatives included Sanitation Week, school sanitation program, latrine promotion campaign and CLTS (1999). In 2003 the national baseline survey indicated that only 33% of the population had access to hygienic latrines, while 42% practiced open defecation. This led the government to launch the *National Sanitation Campaign* with a target for universal access by 2010. The 2014 JMP assessment of progress towards the MDGs showed Bangladesh achieved 97% coverage (improved, shared and unimproved sanitation) with only 3% practicing open defecation (of a population of 155 million). However, FSM is neglected – in Dhaka city, an estimated 98% of faecal sludge is dumped improperly in the environment.

Promotion of sanitation by the Government of Bangladesh: There are numerous policy directives and national strategies supporting the government's commitment to improving sanitation. GoB has a circular that directs every LGIs to earmark 20% of its Annual Development Program budget for funding sanitation related activities (infrastructure and software). Sanitation Task Forces have been established from national to district to sub-district levels. A National Award has been established to reward achievement of 100% sanitation coverage. Sanitation is promoted via mass media campaigns and the declaration of October as the national "sanitation month" since 2003.

Government initiatives for improving FSM: The National Water Supply and Sanitation Strategy 2014 seeks to provide strategic direction to establish FSM in the country. Although its predecessor the National Sanitation Strategy of 2005 stipulated requirements for desludging septic tanks and pit latrines, and proper disposal of effluent, its implementation focused on latrines and neglected FSM. The new Strategy is in the process of developing a supportive institutional/regulatory framework (IRF) for prioritising the complete FSM service chain, and facilitating environmental, financial and social sustainability. A government-approved Working Committee for involving stakeholders in FSM met for the first time on 3 December, and a National Consultation Workshop on IRF-FSM will be held in very shortly. The present Policy Support Unit (PSU) will become a permanent unit within the Local Government Division of the Ministry (MoLGRD&C) in the 3rd phase for regulatory set up.

Concluding remarks: The Government of Bangladesh has recently prioritised the establishment of FSM in the country. Small scale initiatives taken by government are encouraging. There are still challenges to establishing the full system for FSM, due to rural/urban variation, geopolitical variations, technical aspects, financial factors and so on. But together in partnership we can overcome all challenges and establish effective FSM systems as it is critically important that we do so without delay.

Q&A:

Q: *In the institutional set up, what is the coordination between agencies?*

A: There are several different organisations involved for water supply and sanitation, such as Department of Public Health & Engineering; Water Supply and Sewerage Authorities (WASA) in urban mega cities (Dhaka DWASA, Khulna KWASA etc), and municipalities. Through the new Strategy the FSM issue will be addressed.

Q: *Only 2% of waste is finally treated in Dhaka, with 98% untreated. Is there concern about it?*

A: In Dhaka the treatment plant capacity cannot meet needs of the population. While 2% is treated, others make direct connections that discharge wastewater to the river. However, there is greater public awareness, open defecation has stopped, people drink boiled water, and health overall has improved.

Q: *Regarding the National Award, what certification and verification is done for awarding it?*

A: The Award is made by the Ministry of Local Government (MoLGRD&C). The ministry has fixed specific criteria to be met, to demonstrate awardee is 100% free of open defecation.

2.1.3 FSM situation in Khulna City households

Presentation by Mr. Abirul Jabbar, Chief Planning Officer, Khulna City Corporation

This presentation on Khulna City provided highlights from a baseline study of sanitation in Khulna.

Background on Khulna City: Khulna City is the 3rd largest city in Bangladesh administered by KCC. It has a population of 1.5 million, with 66,000 holdings across 31 wards and area of 33 square kilometres. KCC is responsible for onsite sanitation. Other key sector players are the Khulna Development Authority (KDA) responsible for urban planning, and the Khulna Water supply and Sewerage Authority (KWASA) responsible for water supply (there is no sewer network in the city). Khulna's location is highly strategic and there are ambitious development plans for it to become important city for Bangladesh, linking to Dhaka and India.

The context of the baseline study: The baseline study provides an initial 'snapshot' of the status of sanitation in households and select institutions (educational premises, offices, shops, markets, bus stations etc), so change can be measured. Five sanitation impact indicators were used: (1) access to sanitation facilities (2) hygienic use and maintenance of sanitation facilities (3) access to hand washing with soap (4) safe pit emptying and collection (5) safe treatment, re-use and disposal. Households and commercial premises were measured through a survey, while other sites were sampled and measured separately (e.g., based on direct observation). The results were scored on a QIS scale from 0 to 4.

The study was led by Khulna University (Urban and Rural Planning Discipline) in collaboration with SNV Bangladesh, with data collection carried out by staff of the Conservancy Department of the Khulna City Corporation (KCC).

While the study covered both households and select institutions, the presentation to the Learning Event was focussed on the findings on households. 4,367 Khulna households were surveyed, with sample households chosen from 12 clusters/groupings of similar wards. The households were also categorised into wealth quintiles – poorest, poor, medium wealth, wealthy, wealthiest, allowing conclusions on the possible relationships between wealth and specific sanitation indicators to be drawn.

Baseline study highlights

The study showed that while access to and quality of sanitation facilities (including hand washing facilities) was strongly related to household wealth, lack of safe pit emptying and collection was near universal and independent of wealth levels.

Indicator	Key findings	Relationship to household wealth
Access to sanitation facilities	62% households use toilets with septic tank, but 84% of these septic tanks do not have a soak well (i.e. 52% of total households' toilet are directly connected to drain). 18% households use shared toilets and 7% households have unimproved toilets.	The wealthier groups enjoy better toilet facilities than the 'poor' and 'poorest' groups.
Hygienic use and maintenance of sanitation facilities	- One-fifth of the households in Khulna have non-functional toilets. - About half of the households do not clean their toilet more than three times a week and 10% not even once a week.	Majority of the 'wealthy' and 'wealthiest' households use clean and functional toilets with running water inside.
Access to hand washing with soap	A large portion of the households has no hand washing station within accessible distance.	Majority of households lacking access are from the poorer section of population.
Safety of pit emptying and collection	- Majority of the people practices unsafe pit/ septic tank emptying. 97% had either not emptied in last 3 years or had no toilet or onsite storage.	No relationship between the safety of pit emptying and wealth quintiles as the services are inadequate and unknown to most of the citizens.
Safe treatment and disposal	- Khulna lacks arrangements for safe treatment and disposal of sludge. - Majority of the households don't know where the collected sludge is dumped.	

Q&A

Q: How can desludging be enforced?

A: The KDA is mandated to monitor building designs/plans and issue building permits. But 84% of households don't have a soak well and connect directly to drains. KCC Conservancy Dept has no legal authority to impose penalties. If complaints are received, KCC can only send them a notice and send them to a magistrate, who will investigate and impose a fine. KCC has done this with 60-65 cases, sending to the magistrate is all they can do. But most often, other issues take priority in the courts so nothing happens in practice. The KDA has 2 supervisors to monitor nearly 100,000 holdings so they can't monitor effectively either.

Q: There are large numbers of pit latrines, what are the implications for water seepage and ground water?

A: The water table is relatively high in the area. Pits are usually about 5 feet deep, and they fill up in the rainy season. Ground water impact is there but doesn't impact human health because people don't drink from shallow aquifers because of salinity. Ground water from deep tube wells (1000 feet) is used for drinking. In fact people use this water in preference to water provided by KWASA.

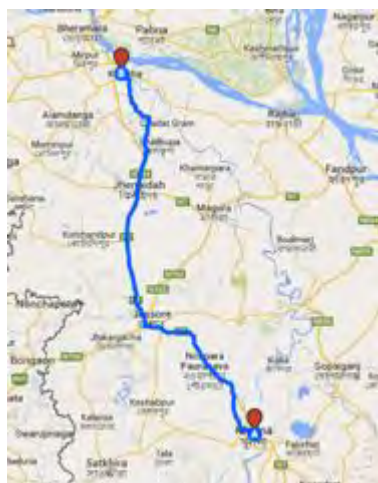
2.2 Reports from field assignment

Tuesday 9 December

Each group were given the opportunity to converse with those in charge of the pit emptying services, and to observe the pit emptying process. They also viewed arrangements for disposal of faecal sludge. Field trips also included visits to public toilets, low income communities, a DEWATS (decentralised wastewater treatment system) and other elements in the sanitation service chain, as well as composting of organic municipal waste. All the groups expressed concern about the fate of manual emptiers (usually sweepers who do manual emptying to supplement their meagre incomes) when more effective FSM services are in place as recommended by them.

The summaries below are focussed on the pit emptying services towards identifying critical success factors.

2.2.1 Group 1: Kushtia Municipal FSM Services



Kushtia Municipality has approximately 13,000 holdings or allotments (240,000 people), some consisting of several households. An estimated 92% of holdings use onsite storage pits that have not been emptied in 3+ years. High water table makes area unsuitable for soak wells onsite.

The municipality takes responsibility for managing the full FS service chain: pit emptying, transport, and treatment and disposal (for reuse). The unit for co-composting sludge and organic waste was constructed in 2012 – it is one of the few such systems in the country.

Infrastructure and administration

Emptying

Three vacutugs of 5000L, 2000L and 500L capacity.

Each vacutug is operated by a team of 5 workers although the 500L tug is rarely used.

To request services, clients fill out a simple application form and make payment at the municipal office.

FS Treatment and Disposal

The FS is transported 3km out of town for disposal at a processing plant consisting of two drying beds (200 m² each) linked to a coco-peat filter for effluent treatment. The final pond for effluent treatment is planned to be used for fish farming.

An adjoining composting unit co-composts dried sludge with organic matter from nearby landfill through a 6-week composting process employing a team of 4 labourers.

Neighbouring farmer was keen to use the compost, supply is currently insufficient to meet their demand¹.

Service features

Costs, fees, viability issues

Fees are at subsidised rate of 500 Taka per truck (tug).

3-4 trips are made per day. 5-6 service call-outs per day.

If regulatory requirement for 6-12 monthly emptying was enforced, there is potential for services to be expanded to 15 vacutugs operating

¹ This claim has subsequently been questioned, as it is understood the Municipality has stockpiled compost as farmers are not willing to buy and has therefore ceased to practice co-composting.

Marketing/service promotion

at the current efficiency of 260 days/year. Some interviewed households reported more frequent emptying of their pits. Trucks are labelled to promote the services. Municipality has raised awareness of good sanitation practices in the community, with the result that who want to comply. Additional, there is evidence that social control works: 5 – 10 complaints are registered at municipality monthly, further incentivising use of the services.

Occupational health and safety

Workers do not use protective gear (gloves, boots etc).

Competing manual emptying

Manual emptying cost 100 Taka, compared with 500 Taka for vacutug service. People are reportedly willing to pay more for a cleaner service. It is unclear to what level the municipal vacutug services have displaced manual emptying and illegal disposal.

RECOMMENDATIONS FROM GROUP

Short term:

- Schedule and organization of collection (minimise trucks returning to plant half-full)
- Data collection – operator's log book
- Occupation health and safety standards
- Equip vacutugs with proper tools
- Operator training program to encourage others to participate
- Add random checks by management. Self monitoring and citizen rewards should be used

Medium term

- Cost analysis - full analysis of collection, treatment and composting programs
- Business plan development – could investigate private sector leasing trucks or PPP
- Look at micro finance, voucher system for private operators
- Sanitation census and database development
- Develop incentive program – window stickers
- Increase production of compost – could be outsourced and scaled up.
- Start planning for local ordinance on FSM
- Start developing promotions program

Long term

- Intermediate collection centers
- Develop programs for on-site system upgrading
- Gradual implementation of more DEWATS types of systems
- Implement local ordinance
- Implement Promotions campaign



2.2.2 Group 2. Jhenaidah Municipal FSM Services

A map of Jhenaidah Municipality, showing its location relative to surrounding areas like Khulna and Barisal. The map highlights the municipality's boundaries and major roads.

A group of people, including men and women, are standing in front of a presentation board and a screen. The screen displays the text "Jhenaidah Municipality" and the presentation board features various images and text related to the municipality's services.

The population of Jhenaidah is 157,822. The municipality consists of 9 wards across an area of 32.4 sq Km. An estimated 92% of the population has some form of storage but it was not emptied in the last 3 years or was disposed into a non-designated sites. Two thirds of households in Jhenaidah practice environmentally unsafe emptying and disposal.

The Municipality started to provide a mechanical emptying service 1.5 years ago. Vacutugs were provided by the Department of Public Health Engineering (DPHE) with support from ADB, and FS treatment plant was constructed.

The Municipality's Engineering Department and Conservancy Section is responsible for the town's FSM emptying services and partial treatment at a treatment plant. However, there is no dedicated post in the organogram of the municipality for FSM. Conservancy staff are expected to run the operations in addition to their main work of solid waste management.

Infrastructure and administration

Emptying Three vacutugs available: one of 1000L capacity, two of 700 L capacity. The emptying service is currently run by four temporary staff that were hired to undertake this operation. With these staff the municipality has the capacity of operating only one vacutug at any time while the other two remain idle.

FS Treatment and Disposal The sludge treatment facility constructed 2 years ago by DPHE is not fully operational, and lacks operation and maintenance. There are no staff allocated to manage and oversee operations at the treatment plant.

Service features

Costs, fees, viability issues Customers are expected to deposit 3000 Taka per septic tank before receiving the service, usually the next day. It is not clear how the tariff is set and if it covers operation, maintenance and recovery cost. The basic expenses includes salary for the temporary staff and fuel Expenses. Currently very few people use the service, only 4-5 call-outs per month.

Marketing/service promotion As a part of creating the demand the municipality is trying to increase awareness about the service through different social mobilization activities such as 'Vacutug show' and leaflet distribution in all nine Wards during the World Toilet Day.

Occupational health and safety The workers observed without any minimum protective gear such as boots, gloves and face masks. They also barely practice hand washing after emptying. The vacutug vehicle is not inspected prior to transport to avoid leaking and spilling. The team observed some spilling during emptying and no disinfection.

Competing manual emptying Many households continue to use manual emptying which is perceived as being cheaper and more efficient. The manual emptying is usually supported by small pumping machine that is usually rented from local shops at daily rate of 500 Taka.

Manual emptiers charge about 1000 - 1500 Taka per household. Emptied waste is typically dumped in drains.

RECOMMENDATIONS FROM GROUP

- Increase the population's awareness about the mechanical emptying and enforce the existing legislation that regulates illegal dumping
- Assess the current cost of the service and observe to what extent it can be decreased while observing operation and maintenance costs when compared with manual service
- Vacutugs volume should be increased to 5000 L to used where possible and smaller for the narrower streets
- Provide the staff with information and means to be safe during their job
 - Instructions and equipment to emptiers about mixing the sludge prior to extraction
 - Information about the hygiene conditions that should be observed during and after desludging
- Provide capacity development to workers/staff to better manage the service (including cost recovery)
 - Create a logging system (monitoring of HH and revenue)
 - Improve operation and maintenance of the disposal site
 - The composting should be marketed (value chain approach)
- Increase coordination for all stakeholders
- Assess how manual emptiers can be integrated in the new system of mechanical emptying to prevent them losing livelihoods



<https://dgroups.org/?z7sgqs3y.2>

2.2.3 Group 3: Khulna City Corporation FSM services



Khulna City consists of 31 wards with 66,400 holdings.

KCC's sanitation services under the Conservancy Department cover current FSM services, solid waste management, and maintenance of public and community toilets.

Infrastructure and administration

Emptying 2 Vacutugs with 5000 L capacity; 6 boogeys with 500 L capacity (all of them stored in KCC's garage)

Vacutugs are aimed at commercial, industrial and settlement services, while boogeys are aimed at individual households services in narrow lanes.

FS Treatment and Disposal Sludge is disposed at a disposal trench on municipal land located far from settlement.

Service features

Costs, fees, viability issues Tariff for vacutug services is 2000 Taka per 2 trips. Boogey tariff is 500 Taka per two trips.

Vacutugs services are provided as a social service, not commercial business orientation. Operational cost for vacutugs per 2 trips is estimated at around 8000 Taka.

Marketing/service promotion The workers each receive 100 Taka per service
KCC service coverage is about 50%, the public is largely unaware of services and do not approach KCC for services. When pit failures are reported, KCC conservancy department serves a notice on holding, when they are required to desludge.

Occupational health and safety

No use of safety gear observed by emptiers. Safety instructions and operational manuals are lacking.

RECOMMENDATIONS FROM GROUP

- Mini Vacutugs for slums area
- Cost recovery tariff and/or progressive tariff
- Mobilization gap (information gap)
- Mechanism to ensure the disposal process
- Faecal Sludge Treatment facility should be in place and function
- Community based organisation to manage the public toilet facilities
- Retribution to use the public latrines/toilets
- Slum upgrading (including: sanitation facilities, drainage, solid waste, green environment, etc)



<https://dgroups.org/?z7sgqs3y.3>

2.2.4 Group 4: Mahananda Cluster CDC emptying service



The Mahananda Cluster consists of 4500 households of which 3600 are classified poor or ultra poor. A Cluster Community Development Committee (CDC) has oversight of many activities in the cluster that consists of 13 CDCs.

Vacutug services were developed for the cluster as part of a larger UNDP development project providing savings, education, livelihood training, and other initiatives. The UNDP program provided one vacutug to the Mahananda Cluster in 2013, for management by the Cluster CDC.

Infrastructure and administration

Emptying

One vacutug of 1000L capacity.

It is operated by a driver and 2 emptiers.

Vacutug removes only liquid. Traditional sweepers enter tank with hand tools like spade and shovel to remove hardened solid portion.

FS Treatment and Disposal

KCC's trenching ground is provided for FS disposal – the trench is approx. 8 feet deep x 6 feet wide x 200 feet long.

The designated disposal point is approximately 12 km away from the Mahananda area, so it could be tempting for the workers to dispose their load improperly at a closer location.

Service features

Costs, fees, viability issues

A fee of 500 Taka is charged per load (1000L). An average household septic tank can need 3-5 loads to be emptied.

8-12 customers are serviced per month.

The CDC kept records of call-outs and fees charged, but recordkeeping ended in May 2014.

Householders pay the emptier for the service, with no paper trail of receipts created.

The CDC has little capacity or interest in improving financial viability or operating vacutug on a commercial basis.

Marketing/service promotion

No ongoing promotion or marketing since the initial distribution of flyers and announcements by mobile loud-speaker in 2013.

Occupational health and safety

No personal protective equipment used, no regular cleaning of equipment after use. There is no water facility at disposal site making cleaning/hand washing difficult

Competing manual emptying

The CDC reported that the traditional sweepers who perform emptying services have lost this livelihood after vacutug services began. Have appealed to Mayor to support livelihoods for former emptiers.

RECOMMENDATIONS FROM GROUP

- Provide training on business management
- Increase revenues – marketing to increase customers
- Decrease costs - construct transfer station, scheduled pit emptying by area
- Explore schemes to reuse treated sludge and generate additional value/revenues
- Secure greater support from KCC
- Increase stakeholder consultation



<https://dgroups.org/?z7sgqs3y.0>

2.2.5 Group 5: Garai Cluster CDC emptying services



The Garai cluster consists of 11 Community Development Committees (CDCs), with the vacutug service is organised and run by women. Like the Mahananda Cluster CDC, the Garai service is part of the UNDP project but specifically targeted at poor housewives. Women in the cluster take the lead in community development, including sanitation challenges. Environmental conditions and financial conditions in the community have improved since the Cluster CDC commenced, including no open defecation. The Women's cluster is well organised, built on social cohesion and trust rather than a business plan.

Infrastructure and administration

Emptying One vacutug (1000 L capacity), small enough to work in narrow paths in slum area.

FS Treatment and Disposal Treatment/disposal in trench system – low cost, environmentally low risk solution

Service features

Costs, fees, viability issues Differentiated tariffs are in place for poor and rich users of vacutug services. Two/three part tariffs include fixed tariff for service plus additional fuel costs. 4-5 call-outs are made per month in dry season. None are made in rainy months. Low demand is a challenge. Vacutug servicemen do not have a regular income from this service.

Marketing/service promotion Looking for expansion of business to other clusters, with advertisement through vacutug, leaflets, mosque etc.

Occupational health and safety Vacutug servicemen have no habit of wearing masks or proper gloves.

Competing manual emptying People have easy alternative of manual emptying so vacutug service is ignored.

RECOMMENDATIONS FROM GROUP

Construction and operation

- Pit construction should be raised to reduce risk from flood waters
- Solutions (close to source) are needed for proper disposal of faecal sludge from pits that are emptied out manually
- Regular health check-ups of vacutug service-men and enforcement of safety measures
- Hand washing with soap practice

Recommendations – Business model

- Business assessment based on existing and potential demand
- Scheduled, mandatory emptying- awareness campaign
- Monthly fee to distribute cost burden
- Value chain in three parts:
 - (1) house to transfer point (e.g. smaller vacutug)- borne by client as household service cost
 - (2) transfer point to disposal trenches- subsidised by city corporation for ensuring environmental services
 - (3) Recycling (water, nutrients, energy)- for economic and environmental purposes
- Explore leasing arrangement with licenced private partner



<https://dgroups.org/?z7sgqs3y.1>

2.3 Reflections from panel of Bangladesh representatives

1. Mr. Shaikh Hafizur Rahman, Panel Mayor, KCC.

The Panel Mayor welcomed and thanked everyone for coming from overseas, and visiting Khulna, Kushtia and Jhenaidah. He noted that he had spent the last 2 hours listening to the 5 presentations, and recognised they were a true depiction of the situations faced in Bangladesh and city corporations/pourasavas. Although the sanitation situation has improved compared to what they had before, he acknowledged that they, as councillors and mayors need training to become more aware of these important issues. He requested SNV to help them address this need, in particular to enable them to improve FSM in the future.

2. Mr. Humayun Kabir, Chairman, Conservancy Standing Committee and Councillor, KCC.

The Chairman offered his thanks, for taking his entire Conservancy team for orientation, in a far place (Munshigonj) so that they don't get distracted by their regular work and focus on the topic.. He noted that SNV is an important player for Khulna, Jhenaidah and Kushtia, and wished SNV success.

3. Mr. Anisur Rahman, Conservancy Officer, KCC.

Mr. Rahman noted that FSM is very important in context of country. He mentioned that a solution was challenging because there are 3-4 departments that are responsible: KWASA (water & sewerage utility), Local Government/municipality, department of public health and engineering DPHE – but there is no clarity about which department is actually responsible to solve the problem. He stated that Khulna City will have sewerage in 10 years time and KWASA, which has already been established, will be responsible, and that will solve problem 100%. But he acknowledged the need to solve the problem, and welcomed SNV's presence and willingness to work with the KCC. He noted that the KCC officers, councillors and mayor worked in cooperation with SNV on the baseline survey. The recommendations following the survey will help solve the problems. He closed with his thanks to all.

4. Mr. Akhtar Hossain, Panel Mayor Kushtia Municipality.

The Panel Mayor extended his thanks to SNV for organizing this gathering from so many countries. He noted that did not know much about FSM before workshop, and that after this workshop they have a better idea about how to address the issues.

5. Mrs. Farhana Reza Anju, Panel Mayor, Jhenaidah Municipality.

The Panel Mayor thanked all the participants at the workshop. She stated that Jhenaidah Pourashava started providing this type of (FSM) service 2.5 years ago, and expressed the hope that they could provide a good service to all their constituents in the future. She noted that Jhenaidah provided a good example for FSM services amongst the three towns present, and hoped that in time all three towns will be able to deliver good pit emptying and FSM services.

BLOCK 3: TOWARDS CITY WIDE SERVICES

OVERVIEW OF BLOCK 3: TOWARDS CITY WIDE SERVICES

Why is this relevant?

Arrangements for sanitation need to protect public health and protect the environment. The long-term benefits from sanitation to individuals depend on the sanitary practices of others, so it requires that all people in urban areas need to have access to sanitation in order to achieve the benefits. This means *city wide sanitation* where no groups of people or areas of the city are excluded from access to effective sanitation – which is also consistent with the duty of governments to protect citizens' rights to access to sanitation.

Enforcement of desired sanitation-related practices and behaviours is another important aspect of achieving continuous and effective city wide services.

While planning for city wide sanitation that addresses achievement/enforcement of the complete sanitation service chain is complex and challenging, it is very important to find a way through.

The aim of this block is to contribute towards this goal with respect to emptying services and FSM.

What were the knowledge and learning outcomes intended from this block?

- To gain new ideas about what has worked in moving towards city wide services elsewhere
- To practice thinking of arguments for and against certain practices (scheduled desludging), and make adjustments to respond to weaknesses (negative arguments)
- To gain understanding about reasons for non-compliance, so enforcement strategies can be targeted appropriately through penalties ('sticks') and incentives ('carrots')
- To apply concepts of 'sticks' and 'carrots' of enforcement in own countries
- To understand the workings of different emptying services and business models
- To practice identifying the basic elements for a business model for an emptying service

What was the process?

- Introductory presentation to Block 3 (Day 3)
- Presentations of case studies of city wide services from:
 - Dhaka DKK
 - Philippines
- Debating game on "Scheduled desludging is the best way to achieve effective city wide FSM"
- Presentations on compliance strategies using 'sticks and carrots' (Day 4)
- Country group activity devising 'sticks and carrots' for own country
- Presentation on business models for FSM
- Group exercise on developing basic elements of business model for field visit sites
- Reflections on process of developing business models for emptying services

3.1 Introduction to Block 3

Presentation by Antoinette Kome <https://dgroups.org/?v51j0wsj.0>

Tuesday 9 December

The concept of city-wide services: Safe and effective sanitation services need to separate human waste from human contact and the living environment, meet occupational health and safety standards and be financially sustainable. In addition, effective sanitation in urban environments need services to cover the entire city – or city wide sanitation – that is *spatially* reaching every part of the city and *socially* reaching all classes of people in the city, while addressing the full sanitation service chain. It can mean different service elements or technologies for different parts of a city, ranging from on-site sanitation to centralised sewerage, with decentralised systems, public toilets/community systems all part of the mix. Services can be operated by different service providers – public sector or private sector. There are many business models around, for example emptying/transport by small business. There is no single solution, all need to coexist in the city, because cities are growing very rapidly. Some taxes would also be needed to finance city wide sanitation.

Inputs about city wide services from the DGroup discussion: Most contributors to the discussion identified *city wide sanitation planning* as necessary for gaining city wide services. But creating a workable city wide plan is difficult in practice, sometimes overambitious, or so entangled and interdependent that the problems can't be solved all at once. Plans often end up not being implemented. Text book best practice conditions for successful city wide services were suggested by Christoph Luthi:

- Political will to provide services for all
- Financial arrangement (earmarked budgets and investment in O&M)
- Skill and capacities
- Meaningful user participation.

A 'middle way' towards practicable city wide sanitation: A reasonable 'middle way' for making progress towards city wide services is to 'think big, start small'. That is, to think big and create a city wide sanitation plan that is reasonable or good enough, and implement short term improvements that are aligned with the plan and are straightforward to implement - for example, passing a 'Local Septage Ordinance' as Dave Robbins noted from examples from the Philippines. Concurrently the city wide plans can be improved and updated.

Structure of Block 3: There are two presentations of case studies of emptying services, from DSK in Dhaka and 3 case studies from the Philippines – with discussion time after each presentation. This will be followed by a fun debating game on desludging, that will allow everyone to think about pros and cons about scheduled desludging. The debate will be followed by the Cultural Dinner. The second part of Block 3 will continue on Wednesday (Day 4) of the workshop.

3.2 Case study Presentations on City Wide Services

3.2.1 DSK Vacutug Service in Dhaka

Presentation by Dr. Dibalok Singha <https://dgroups.org/?v51j0wsj.2>
Tuesday 9 December 2014

FS context in Dhaka: Approx. 3 million cubic metres of FS is produced in Dhaka each day. The four rivers surrounding Dhaka and open water bodies are contaminated by fecal matter and chemical pollution. There is one sludge treatment plant (built 1980, upgraded 1991). There is no official dumping site for FS. Public health and environmental pollution are major concerns. The issue of FS received little focus or attention from government.

Sanitation has been on the development agenda since 2003, after NGOs, World Bank and other international organisations lobbied the government. Now, irrespective of political change, commitment to sanitation development and being free from open defecation will remain on the political agenda.

DSK's vacutug service: DSK's vacutug service commenced in 2000 when a vacutug was imported from the UK through DSK's longstanding partnership with WaterAid. The vacutug machine is mounted on a truck provided by UNICEF. The vacutug service now operates self-sufficiently without further external financial assistance. The service is active in the Dhaka North City Corporation (DNCC) area that consists of approx. 150,000 holdings where the majority use onsite septic tanks or pit latrines. DSK works in the Mirpur area slums focused on reaching the disadvantaged population. It also serves (wealthier) residential customers and institutions/commercial establishments, who enable financial viability by providing cross subsidization of poor customers.

Key features of service: The service seeks to demonstrate hygienic FS collection and the advantages of effective FSM services. The 2000 litres capacity vacutug is operated by 3 staff: a driver and two operators. The DSK service has capacity to empty 5000 cubic metres of FS per annum. The sludge is discharged at designated discharge points in the sewer network in accordance with an MoU with the Dhaka Water and Sanitation Authority (DWASA) who own the network.

The fees charged per 2000 L load are: 1400 Taka for commercial enterprises; 1200 taka for domestic residents; 1000 Taka (negotiable) for slum dwellers.

Between July 2011 and June 2014, DSK emptied 167 septic tanks and 962 pit latrines, generating 2,350,000 Taka. Expenditures over the same period were 2,220,000 Taka, yielding a small break-even balance.

Manual emptiers help market the services, informing DSK of clients who need emptying services in return for a payment. DWASA contractors also provide information about where services are needed. The services are also publicised through customers word of mouth, promotion leaflet distribution, and coordination with DNCC and DWASA.

Challenges: Demand for services is low. There are easy alternatives for households, instead of calling for the services. Septic tanks are connected to storm water drains so there is little pressure to empty overflowing tanks. Manual cleaning is relatively cheap. There is low enforcement of pit cleaning, infringement notices are not served. Government institutions are not aware of the graveness of the situation. Traffic jams create problems for conveyance.

The sanitation business doesn't attract many. DSK only just breaks even. DWASA has 3 vacutugs that sit idle - DWASA appear to feel their responsibility is only water supply.

Key lessons and way forward: There's need to analyse reasons for smallness of the FSM market. Householders' 'flush and forget' perspective is a factor in low demand for downstream services. The government must discharge its responsibility to uphold public health and environmental protection. PPPs can be of help, but government should also invest in FSM. Enforcement is very important.

Government leadership is critical – and there are signs for optimism that the government will deliver on establishing FSM regulatory framework. Need to lobby government for FSM policy for tariff structures that pay for FSM. FS treatment facilities need to be made available. Incentives are needed to encourage entry of FSM service providers.

Q&A

Q: *What happens to the sludge collected by DSK?*

A: Final destination of DSK sludge is DWASA discharge point. There are several discharge points in Dhaka. Sewer network discharge points are not water bodies. Sewerage network doesn't necessarily mean treatment.

Q: *Can use of bigger trucks help?*

A: A Big truck is a high investment. Currently, DSK only just breaks even, requires strong business case to invest in a bigger truck. Traffic jams are also an issue. Frequent breakdowns have meant that lower numbers of customers and recent income has been lower.

Q: *What about other FSM service providers?*

A: DSK has capacity to collect 5000 m³ of the 3 million m³ generated each day. There is plenty of scope for other players.

Government has a policy for PPP. But what are the incentives for private partners? Either DWASA or DCC might decide to contract out services to a private partner, and institutionalise incentives – ensure payments, provide trucks with lower import duty etc. DWASA customers currently pay 100 Taka for water services, 200 Taka for sewerage services. They could add a desludging cost to customers who are not connected to sewerage. There is little interest shown by the private sector. FSM is relatively new concept in Bangladesh. Low demand is a problem. Many wealthy households are connected to drains or discharge into slums. Highrise buildings in the wealthy neighbourhood of Gulshan discharge to the neighbouring ponds/water bodies. Ultimately government must act without delay.

3.2.2 Three Models for City-Wide FSM in the Philippines

Presentation by David Robbins, Independent Consultant <https://dgroups.org/?v51j0wsj.1>

The presentation introduced the 3 components of FSM for successful programs with many illustrative examples of successful features, and described models of FSM in three cities in the Philippines – Dumaguete (population 121,000), San Fernando (population 115,000) and Baliwag (population 144,000).

Components of effective FSM programs: FSM – or “the regular desludging or cleaning of septic tanks and pit toilets on a scheduled basis” – is most likely to succeed when three components to FSM are all present, namely:

- a) Infrastructure and associated products and services – accessible and properly constructed septic tanks, collection vehicles appropriate to the terrain, FS processing/treatment systems;
- b) Promotional activities – ensuring people know importance and value of service; and
- c) A supportive regulatory environment.

Promotions are effective when based on evidence, and speak to motivators for FSM. Gather evidence from social engagement (surveys, interviews and focus group discussions). The health of children has been shown to be an important motivator for public support of FSM. Other motivators might be convenience of having your own toilet, pride of community, and status. Promotional outputs such as images and posters should be tested for appropriateness before roll out – a provocative image that works effectively in one place may be too confronting in another.

An enabling regulatory environment is created through appropriate policies, procedures and rules such as local ordinances; sustainable fee schedules that are pro-poor; and incentives for compliance and penalties for non-compliance. For example, the local government may create an ordinance making it illegal to dump FS in the river, and/or codify rules requiring people to participate in the FSM program when it is offered in their area. Other parts of the enabling environment are training and capacity building programs, and financing (access to capital).

Three FSM models:

Dumaguete FSM program is conducted through **public sector partnership** between the City and the Water District. The City constructed the septage treatment facility and passed the enabling local ordinance on septage management, while the Water District manages the septage collection program, fee collection, and support for homeowners to upgrade facilities, and maintains a database of customers, payments and compliance status. A FSM tariff of 2 pesos per m³ is added to the water tariff.

In San Fernando, a **public private partnership** is used for FSM. The City provided land, and passed a local septage management ordinance. The private sector was contracted to provide design and construction services to the City for the facilities, and to provide ongoing desludging services. Households pay the City for FSM through the property tax system, however there is limited

information about the efficiency of local tax collection. Cooperation between the City and private desludgers has led to an efficient neighbourhood desludging program. A few days prior to the neighbourhood desludging program, households are informed of the pending service through sound trucks encouraging them to participate. On the day of the service, advance crews help homeowners open septic tanks, while traffic is directed to ease movement of desludging trucks.

Baliwag has a FSM service that is a **utility run program**. The Water District designed the facility with external technical assistance but funded construction and purchase of desludging trucks through a commercial loan. FSM is funded by a 10% surcharge on water bills, providing a steady stream of revenue backed by local ordinance.

Q&A

Q: How does one decide which model is the most appropriate and likely to succeed?

A: It depends very much on the local context. In San Fernando, only 26% of residents are connected to the water network so public-private partnership was more appropriate. In Dumaguete where there is high connectivity to the water network, the water utility saw an opportunity for profit and they partnered with the City. In Baliwag, the water district saw the opportunity even though the City was not that interested (the City has now come to the party). Note that of the 1200 municipalities in the Philippines, about 12 have FSM programs so they haven't got it all worked out for deciding on the model.

Q: What are some incentives and penalties that have worked?

A: The desludger does not collect the money at the door, they get paid only when they take it to the treatment plant, and payment is based on the volume deposited, encouraging them to collect as much septage as possible from each tank.

Window stickers awarded to households to display when they participate in the desludging program have worked well in fostering pride in the community for doing the right thing.

Q: How does a city fund the initial investment needed?

A: There are different mechanisms. Dumaguete had reserves they were able to direct. In Baliwag they made a good business case with a guaranteed revenue stream that allowed them to borrow commercial funds. Another city got a grant.

Q: How can cash-strapped municipalities be encouraged not to spend their FSM program income on other municipal projects/activities?

A: Ring-fencing the municipalities' FSM program can prevent funds being diverted away. This means that the funds received from user fees goes into a special account that is managed by the FSM program, and not the general fund for the local government. Similarly, expense payment go out of this account. So all of the expenses and revenues are with the FSM project. It makes it much easier to see the efficiency of the program and provides motivation for staff in keeping the program efficient.

3.3 Debating game on scheduled desludging

The formal activities on Day 3 of the Learning Event (*Tuesday 9 December 2014*) closed with an informal debate, intended as a fun way of engaging with the pros and cons of scheduled desludging. Event participants were split into two teams to debate the statement “*Scheduled desludging is the best way to achieve effective city wide FSM*”. There were three ‘rounds’ to the debate, with each side getting three firmly enforced time slots to speak, with time for teams to retreat between rounds to re-organise arguments and refutes to opposing side’s arguments. Several speakers on each side contributed to their speaking slot. The debate was judged on the basis of consistency and coherence of arguments and refutation of opposing arguments, with the affirmative side winning the debate as they effectively refuted the negatives by adjusting their business model. Some of the arguments are summarised below.

Debating topic: <i>Scheduled desludging is the best way to achieve effective city wide FSM</i>	
Arguments from affirmative side	
• It allows households to distribute payments for desludging • It takes responsibility off the household to decide when to schedule, and makes is planned rather than random/ad hoc • It shifts responsibility to the service provider • Desludging becomes a collective responsibility of the neighbourhood • Scheduling by neighbourhood reduces service costs • Reducing the cost of desludging will increase demand because the price barrier is lowered • It reduces costs for maintaining and managing a database of customers and their systems • The city makes a stronger link between planning and scheduling • It makes monitoring easier, and enforcing/complying with desludging standards • It reduces illegal dumping of sludge • Traffic disruptions from desludging vehicles can be reduced by scheduling at off-peak times or weekends • Demand becomes mandatory • It makes better use of resources on the supply side • Greater profit incentive can drive sustainable service expansion • Scheduling is not ‘imposed’ on customers, it is based on agreement with customers • Scheduling does not exclude/prevent responding to emergency desludging when required	
Arguments from negative side	
• Leads to monopoly service and control • Consumer led/demand led services are more democratic than supplier-led service • Schedule decided by supplier may not suit customer – they may be away on holidays and miss out. Or they could be having a wedding/special event that would be interrupted • Services that are responsive leads to happier citizens • Scheduled desludging can lead to tanks being emptied when they didn’t need emptying – increasing costs for customers • Flexibility is needed, not rigidity • Scheduled desludging is driven by profit motive, not improving health • It reduces empowerment of people • Database of properties can take years to build	

3.4 Compliance strategies for upgrading: Sticks and Carrots

3.4.1 Introduction and Compliance Strategies Part 1: 'Sticks'

Presentation by Antoinette Kome

Wednesday 10 December 2014

Motivators for compliance: To answer our *Million Dollar Question* ('how do we ensure that house owners and building owners comply...') it is useful to understand what motivates people to comply, so that tools for enforcing compliance can target these motivators. There are *external* and *internal* motivators for compliance. Tools such as providing information, raising awareness, using peer pressure and social norms speak to internal motivators. *External motivators* are the focus here, using 'sticks' and 'carrots'.

This first part of this presentation will focus on 'sticks', and the second part by Heiko Gebauer will focus on 'carrots'.

A need for strategies to enforce compliance: Municipalities and other regulators need a strategy for enforcement because they lack the resources to constantly monitor everyone all the time - they need to be clever and strategic about it. To allow this, it is necessary that the basics are in place, such as standards and legal frameworks, the legal authority to enforce them, and public awareness. Then, enforcement resources can be distributed strategically to have the most impact on compliance.



Enforcement pyramid: Four groups of attitudes towards compliance have been identified (figure above)² that allow strategies (with different costs) to be matched to attitudes. Most people are willing

² This discussion comes from a paper from the Queensland Department of Environment and Resource Management (DERM) 2009 – for details see [Briefing Paper by White and Heckenberg \(2012\)](#)

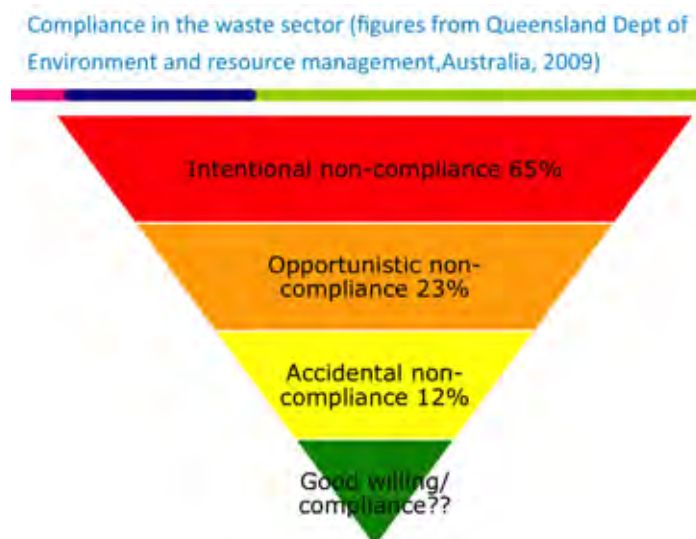
to do the right thing (Group 1) or *try* to do the right thing but don't succeed (Group 2). The strategy for these groups is to help them to comply easily, which is not so costly. There's another group who don't want to comply, and detection can deter this group from non-compliance. Finally there's a smaller group that has deliberately decided not to comply, and all legal means should be used to force them into compliance.

The pyramid works if there is a 'big stick' for the group at the top of the pyramid. Those responsible for enforcement can work together with networks of other organisations ('networked enforcement'), such as civil society organisations, local/international NGOs, industry association co-regulators etc.

Understanding non-compliance in the waste sector: In the waste sector, the main reasons for non-compliance are:

- Economic motivations (money can be made/saved by non-compliance)
- Lack of enforcement (belief that they will not be caught)
- Ignorance (no knowledge about the laws/standards or how to comply).

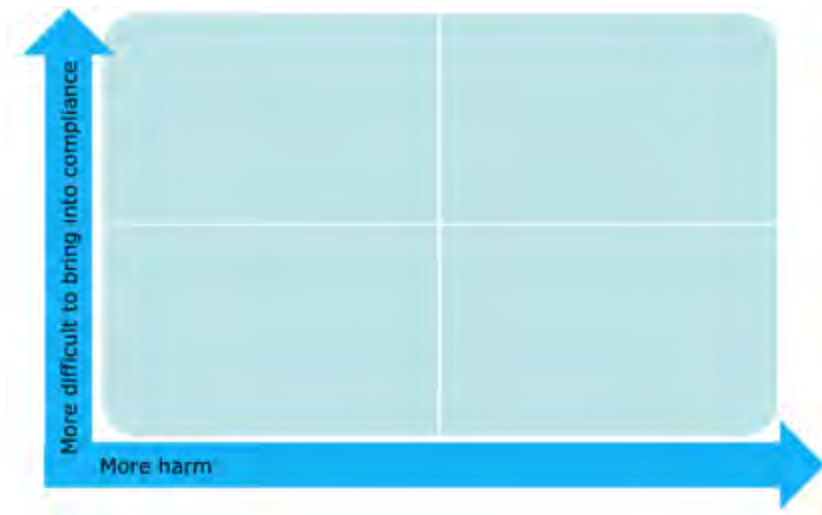
A study in Queensland, Australia (DERM 2009) showed that in the waste sector the situation is more challenging, where the majority of those who don't comply do so intentionally and knowingly, as shown in the inverted pyramid below. This is because there is no 'big stick' at the top, and little willingness to enforce



Requirements for compliance: The pyramid 'works' only if:

- There is a BIG STICK at the top – namely, serious criminal prosecution for intentional non-compliance
- There is transparency and public information
- Enforcement is consistent and predictable
- Measures are proportional to the harm
- There is broad social acceptance of the importance and need for compliance.

Prioritising enforcement strategies: Enforcement efforts should be focussed at the areas of biggest impact. The risks of harm from non-compliant behaviours vary, while some behaviours are easier or more difficult to bring into compliance. If we place these variables on two axes as shown, it means designing different compliance strategies for each of the quadrants.



3.4.2 Compliance Strategies Part 2: 'Carrots'

Presentation by Heiko Gebauer, Eawag

The presentation illustrated different business models for upgrading toilets. Business models were defined and structured according to four main dimensions. These dimensions refer to key activities, value proposition, cost structures and revenues. We discussed following two business models for upgrading:

1. Ad hoc provision of upgrading services
2. Standardized upgrade solutions

Each business model was explained according to the key activities, value proposition, cost structures and revenues.

Business model 1: Ad-hoc provision of upgrading services

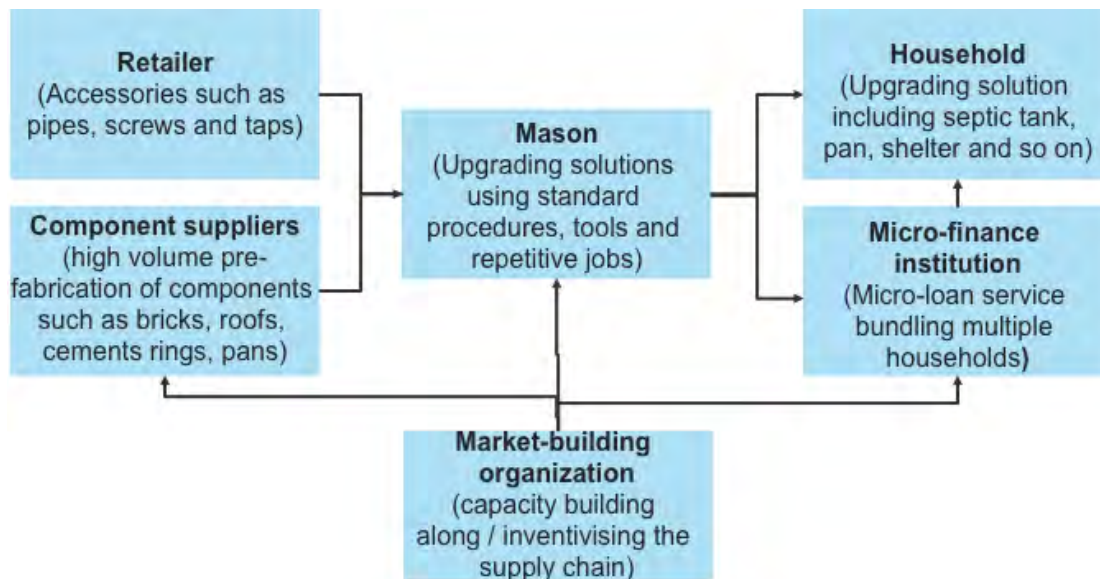
How are the upgrading services delivered? • Customer demand and/or public push for upgrading services • Inspecting the sites • Organizing and pre-financing the necessary materials • Material get delivered • Providing the upgrading service	What value is proposed to the customers? • <i>Customer:</i> Few interested customers • <i>Value proposition:</i> Customized upgrading services
What are the costs for delivering the upgrading services? • Labor costs • Material costs • Administrative costs	How much do customers pay for upgrading services? • High prices for upgrading services with limited customer value

Business model 2: Standardized upgrade solutions

How are the upgrading solutions delivered? • Supply chain development • Market demand generation • Financing the upgrading solutions through micro-loans • Pre-fabrication of components • Provision of multiple standardized upgrading solutions	What value is proposed to the customers? • <i>Customer:</i> Many interested customers • <i>Value proposition:</i> Comprehensive and aspirational upgrading solutions
What are the costs for delivering the upgrading services? • Labor costs • Material costs • Financing costs • Cost for supply chain development	How much do customers pay for upgrading solutions? • Upgrading solutions made affordable through micro-loans (around six month pay back)

This business model was illustrated by examples from PSI and iDE. We discussed a supply chain vision, which provides an aspirational and cost effective toilet. The supply chain requires various actors such as retailers, component suppliers, masons, micro-finance institutions and households. Building such as

supply chain requires a market-building organization, which build the capacity of the supply chain players and incentivize them.



3.5 Entry points for compliance in each country

Participants were asked to develop a compliance framework in their country groups, using ideas that came up through the presentations, and through discussions with others, including the concept of '*carrots and sticks*' for improving compliance with upgrading services.

Groups prepared posters of their discussion and shared the main points with everyone, summarised below.

3.5.1 Bangladesh group - concepts for compliance

It is very easy for households to connect pits (containment) to drains, giving a very easy 'out' instead of design and construction in line with BNBC (National Building Code) standards - this is a major challenge to address. One entry point for enforcement could be through the Housing and Building Research Institute (HBRI), to conduct action research for upgradation and pilot/field testing, to inform BNBC and train consultants, contractors and masons.

Sticks:

- Strong enforcement of current laws – with public well informed about the laws and standards
- For new constructions, require approvals of plans for toilets/containment/treatment
- Required certified engineer for design and construction that is compliant with standards
- Hold producer responsible for standard toilet construction
- Penalties for landlords and professionals involved in non-compliant construction of toilets/containment
- Higher tariffs for non-compliant holdings.

Carrots:

- Pourashavas can create awards or rewards – e.g., declare an area/ward “illegal connection free”
- Government provide training to improve awareness of staff about policy, standards
- Vocational training for masons
- Reduce local government taxes when regular desludging is done
- Subsidies for timely desludging (e.g. 50% reduction in charges when done within 1 year)
- Micro finance loans offered to owners to help finance desludging.

3.5.2 Bhutan group - concepts for compliance

Main ideas/lessons to take home:

- Mobile toilets (operational in Nepal and Indonesia)
- Stickers for households that desludge (community pride)
- Treatment and reuse of sludge through composting
- Intermediate collection centres/holding tanks for sludge removed from pits in congested urban areas.

Sticks:

- Strengthen policies/standards on septic systems. Tie strong approval processes to new properties
- Strengthen monitoring mechanisms.

Carrots:

- Create communications for behaviour change
- Reduce fees/charges for compliant households
- Ensure affordable charges (make compliance affordable).

3.5.3 Ethiopia group - concepts for compliance

Sticks:

- Ensure inspectors to enforce that every household has a latrine
- Raise requirements for institutions, currently health extension workers (HEWs) cannot report on or influence institutions.

Carrots:

- Provide information about upgrading. Currently, 333 HEWs promote hygiene and health package to households regarding solid waste, food wastes, handwashing etc. Use HEW to provide upgrade information
- Provide construction training to builders/construction businesses – especially about slab construction.

3.5.4 Indonesia group - concepts for compliance

The key entry point for compliance strategy is to **raise awareness** to influence **attitudes and practice**, by (a) providing information to build knowledge and (b) having legal frameworks in place and making them known so people are aware.

Sticks and Carrots:

To help the majority of people to comply:

- Inform all people effectively and efficiently about “the right conditions” - provide locally relevant evidence-based information
- Focus energies on changing the harmful behaviours (in the quadrants of behaviour types from Antoinette’s presentation).

Difficult to bring into compliance Causes less harm	Difficult to bring into compliance Causes more harm (B)
Easy to bring into compliance Causes less harm	Easy to bring into compliance Causes more harm (A)

(A) For people engaging in harmful practices, who are easy to bring into compliance

- Use legislation and penalties as ‘stick’
- Spread knowledge to change attitude and practice.

(B) For people engaging in harmful practices, who are difficult to bring into compliance

- These people can be slum dwellers in legal settlements(either tenants or landlords) or illegal settlements, or residents in older settlements.
- Use legislation and penalties as ‘stick’. Push social penalties, engaging neighbourhood leaders to support the process
- Provide incentives for poor people to upgrade
- Relocate residents of illegal settlements – move them to apartments.

3.5.5 Kenya group - concepts for compliance

Laws exist but enforcement is the biggest challenge in Kenya, need sticks and carrots urgently.

Sticks:

- Focus effort on cities where there is high demand for houses, developers cut corners to save costs and do not comply. (biggest landlord is county level government). Aim to hit where it hurts most. Shut down operations when non compliant. This involves many agencies who have responsibilities regarding planning approvals – departments of planning, water, health, construction authority.

Carrots:

- Information schemes demonstrating comfort and convenience
- Opportunities for landlords to make cost savings.

3.5.6 Nepal group - concepts for compliance

Main enforcement ideas to take home:

- Develop standards/manual of onsite facilities (septic tank with soak pit) at municipal level – lessons from Bhutan and Philippines
- Enforce standards/manual by municipal council
- Establish trench system for FS disposal – lesson from Bangladesh
- Start FS transportation via vacutug under PPP model.

Sticks:

- Double property tax charges to non-complying households from next year
- Name and shame offenders - publish black list at TLO notice board and municipal notice board
- Impose rule that offenders who violate the standards cannot hold office as people's representative
- Disconnect municipal services when standards are violated.

Carrots:

- Reduce property tax on compliant households. Give households that upgrade according to the standard an exemption from property tax for the first year
- Introduce 'green sticker' system – enable community pride for households and institutions with environmentally safe behaviours
- Provide community information via TLO – awards, media recognition. Allocate more resources for their development
- Provide subsidy to promote biogas (microfinance soft loans, no-interest loans to poor households provided from municipal funds.

3.6 Business Models for FSM: Presentation

Presentation by Heiko Gebauer, Eawag

The presentation illustrated different business models for emptying. Business models were defined and structured according to four main dimensions. These dimensions refer to key activities, value proposition, cost structures and revenues. We discussed following four business models for emptying services:

1. Informal labourers working add-hoc as manual pit emptier
2. Micro-entrepreneur using mechanical emptying devices
3. Entrepreneurs investing into a single truck and generating revenue through household payments
4. City finances emptying services through water tariffs

Each business model was illustrated by a specific example and explained according to the key activities, value proposition, cost structures and revenues.



Gulper entrepreneurs illustrating Model 2



Honeysuckers illustrating Model 3



Dumaguete City illustrating Model 4

Business model 1: Informal labours working add-hoc as manual pit emptier

How does an informal laborer deliver emptying services? • Offering man power for different types of work • Besides emptying services, informal laborer also have other construction jobs • Emptying does not take more than 20% of the total work • Mostly burying faecal sludge or in some circumstances organizing transportation to a disposal site	What value does informal laborer propose to the customers? • <i>Customers:</i> households in informal settlements • <i>Value propositions:</i> very affordable ($\approx \\$30^1$) and flexible, reaching pit latrines with very limited accessibility
What are the costs for delivering the emptying services? • Labor costs • Emptying devices (buckets, rope)	How much does an informal labor get paid for it? • \$20 to almost \$400 per month in profits (income)¹

Note 1: Business Analysis of Fecal Sludge Management: Emptying and Transportation Services in Africa and Asia

Business model 2: Micro-entrepreneur emptying with mechanically devices

How does a gulper deliver emptying services? • <i>Support activities:</i> Gulper purchase & maintenance, hiring helpers, arranging pick-up • <i>Core activities:</i> marketing emptying businesses, customer calls, emptying, organizing transportation to disposal site	What value does the honeysucker propose to the customers? • <i>Customers:</i> households in informal settlements • <i>Value propositions:</i> More affordable and faster compared to manual emptying
What are the costs for delivering the emptying services? • Gulper purchase: \$ 150 • Expenses (\$92) • \$4 (dumping) • \$40 (truck) • \$16 (fuel) • \$32 (wages)	How much does a Gulper get paid for it? • Two latrines per day • Income: \$120 (200l for \$10)

Business model 3: Entrepreneurs investing into a single truck and generating revenue through household payments

How does a honeysucker deliver emptying services? • <i>Support activities:</i> Truck purchasing, registration, and maintenance, hiring helpers • <i>Core activities:</i> Marketing, customer calls, emptying, transporting to farmers	What value does the honeysucker propose to the customers? • <i>Customers:</i> households and apartment buildings • <i>Value propositions:</i> Affordable, reliable and safe emptying service
What are the costs for delivering the emptying services? • Yearly wages costs Rs 13.50 lakhs • Expenditure for operation and maintenance of Rs 4.0 lakhs • Total costs of Rs 17.50 lakhs	How much does a honeysucker gets paid for it? • Emptying charges of about 300 Rs • Income in a year Rs 27 Lakhs

Business model 4: City finances emptying services through water tariffs

How are the emptying services delivered? • <i>Support activities:</i> Maintenance of the trucks, financial administration, education • <i>Core activities:</i> Desludging operation (emptying, transportation, and disposal)	What value is proposed to the customers? • <i>Customers:</i> Septic tank users (residences & households, commercial establishments, offices) • <i>Value propositions:</i> Significant lower costs than the commercial desludger chargers of Php 3'000 to 10'000 per trip
What are the costs for delivering the emptying services? • Desludging vacuum truck cost Php 6.000.000 per year • Operational costs are Php 3'000'000 per year Exchange rate: 1 Php = 0.0224 USD	How much does the household pay for it? • Income is equally shared (50:50) city government and water district • User fees collected are P 10'800'000 per year (based on the assumption of 450'000 m³ per month) • Php 2.00 per m³ added to the water bill as charges for septage tank management

3.6.1 Exercise: Business models for field visit emptying services

For this group activity, participants were split into their field trip groups, and asked to:

- consider conceptual business models for improving the services they had observed on the field trips
- identify the basic elements of these business models based on Heiko Gebauer's presentation.

How is it delivered?	Who is the customer?
What are the costs?	What do customers pay?

The groups took different approaches to the assignment – some took a qualitative approach, some developed costing models to estimate costs, revenues and pay back periods. Group 3 that visited KCC developed a sophisticated model for a credit scheme to help households to pay for emptying services. Group 5 that visited Garai conducted the exercise on a service model under development in Kenya.

The exercise was wrapped up with reflections on the process of developing business models (see next section 3.6.2).

The results of the exercise are summarised below.

Group 1

Kushtia Municipal service - Partially Covered Operational Model	
<i>(see page 22 for current service details)</i>	
How is it delivered?	
By Municipal Services Vacutug	
Who is the customer?	
• Households • Institutions • Building Owners	
What are the costs?	
Total monthly cost 49,000 Taka or 816 Taka per tank emptied as Labour (20,000 Taka)	Assumptions: • 60 tanks desludged/month • Program is 100% efficient • All tanks are septic tanks

Fuel (8,000 Taka)	• No cost for treatment
Maintenance (3,000 Taka)	
Depreciation (18,000 Taka)	
What do customers pay?	
Total 33,000 Taka/month	(550 Taka/service)
Subsidy 16,000 Taka/month	(subsidy of 267 Taka/service)

Group 2

Jhenaidah Municipal service
<i>(see page 24 for current service details)</i>
How is it delivered?
The service will be delivered by Municipality, and the Conservancy Section is responsible for organizing and maintaining the service. Accordingly the faecal sludge management service will be staffed with 4 temporary staff and two permanent staff (coordinator and finance officer). The service will be delivered using three Vacutugs on daily basis. The frequency of service shall be on demand initially, to be later on upgraded to scheduled emptying. The operation shall be guided by standard operating procedure and proper mechanism for requisition of service.
Who is the customer?
1. Households having latrines or septic tanks (largest customer group) 2. Institutions (schools, health facilities, offices, organisations) 3. Public latrine operators
What are the costs?
Service provision/administration, operation cost and full investment cost recovery over 5 years of operation • Service provision/administration: staff wages, documentation etc. • Operation: fuel, costs for maintenance of equipment and infrastructure • Investment: Land lease for treatment plant, trucks (3 vacutugs)
What do customers pay?
Customers shall pay both for the service and investment cost recovery of the equipment and the infrastructure, so company is profitable and services satisfy customers.

Group 3

Khulna City Corporation (KCC) service
<i>(see page 27 for current service details)</i>
The main problems of the existing business model in Khulna are:
1. The tariff structure do not recover costs

2. Customers have to pay upfront 3. The vacutugs are simply not enough in number and capacity to cover the whole KCC area - the vacutugs have to be redesigned.
How is it delivered?
An alternative business model is 'emptying credit program'. This is to answer the issue of money. In this way, people can pay by installment and can have the emptying services.
Who is the customer?
Holdings/households
What are the costs?
The cost of the credit itself which accounts the cost of the emptying services • 4000-5000 Taka per service
What do customers pay?
• Operational cost • Maintenance cost • Depreciation cost • Fuel cost • Wage of workers • Interest of the loan (6%) This business model covers all operation and maintenance cost.

Group 4

Mahananda Cluster CDC service
<i>(see page 29 for current service details)</i> The Mahananda Cluster CDC located at ward 3 provides on-call services to households and institutions. Although supposed to provide service across 10 wards in the northern part of the city, actual services are limited to a few wards. Many of the people in the other wards do not know about this service. Currently a fee of Taka 500 is being charged to the customer for each trip (load), and 14 trips made per month on average. Most of the time the Vacutug remain idle and heavily underutilized. As a result they incur losses.
How is it delivered?
<i>Resources:</i> One Vacutug mounted on a two-ton truck A Resource centre (office and garage) One Driver and two helpers Four Office Bearers (volunteer) • Total catchment area to be reduced to five wards (instead of ten wards at present) considering the capacity • Records of customer sites/building foot print to be prepared, that will include: (i) types of premises (residential and non-residential), (ii) types of containment (pits or septic tanks), and (iii) accessibility of Vacutug (width of access road). This will help introducing differential tariff

structure • Introduce micro entrepreneurs for emptying pit/septic tanks located in the narrow road where Vacutug can't get access • Establish a secondary transfer station (STS) at a suitable location within the five wards with dewatering facilities (if possible). Additionally multiple mobile STS for micro enterprise will also be established • Use KCC's larger Vacutug for transfer the consolidated sludge from STS to final disposal site as it is far away from the locality • Operational modalities will be developed among the KCC, CDC and micro entrepreneurs • Establish a call centre for Vacutug services • Provision for commission for collection of orders for emptying • Mass campaign to aware the citizen about safe emptying of vacutug services
Who is the customer?
Households
What are the costs?
<i>Investment cost</i> • Vacutug (1,6M Taka, grant from UNDP) <i>O&M cost</i> • Driver and two helpers (16,000 Taka) • Fuel (30,000 Taka) • Repairs, maintenance (5,000 Taka) • Personal Protective Equipment PPE (1,000 Taka) • Management/administration (10,000 Taka) Total 62,000 Taka per month.
What do customers pay?
Revenues through tariffs 84,000 Taka based on: 120 trips/month @ 700 Taka per trip (load) Differentiate tariff structure will be followed: (i) Slum and Low income communities, (ii) formal residential areas, and (iii) institutional premises Net profit: 22,000 Taka/month → Pay-back period of 6 years (Tax and Vat is been exempted and no interest is charged on loan for capital expenditure)

Group 5

Kenya: Nakuru County Sanitation Program											
The objective of the program is 1. To collect 450m³ of faecal sludge per month 2. To produce # Kgs of fertilizers											
How is it delivered?											
Full sanitation chain with treatment and reuse 											
Who is the customer?											
• Household in Low Income Areas • Farmers • Hotels (Small Scale) • Schools											
What are the costs?											
<i>Capital/Equipment</i> Tractors (1x4WD; 1x2WD), primary collection points (PCPs): 7.72M KShs <i>Annual Operations</i> Insurances, approvals, wages, supervision, administration, fuel, tractor maintenance : 5.07M KShs	<i>Assumptions</i> • Conversion of sludge to fertilizer XX m³ of sludge => XX tons of fertilizers • Customers of water company who are not connected to sewers will accept to pay new charge • Revenue will be ring-fenced										
What do customers pay?											
• Pit emptying at household level • Farmers to pay for the fertilizers • Household, institutions and Hotels to pay for briquettes <i>Annual revenues:</i> <table> <tr> <td>Exhaust services fees</td><td>0.54 M KShs</td></tr> <tr> <td>Non-sewered connections</td><td>15.13 M KShs</td></tr> <tr> <td>Compost sales</td><td>7.2 M KShs</td></tr> <tr> <td>Briquettes sales</td><td></td></tr> <tr> <td>Total annual revenues</td><td>22.9M KShs</td></tr> </table> Payback period (Capital/(Annual revenues – operating cost)) → Pay-back period of 0.43 years (5 months)		Exhaust services fees	0.54 M KShs	Non-sewered connections	15.13 M KShs	Compost sales	7.2 M KShs	Briquettes sales		Total annual revenues	22.9M KShs
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Total annual revenues	22.9M KShs										

3.6.2 Reflections on developing business models

Following the group exercise in developing the basic elements of business models, the group reflected on the process in a plenary session.

Heiko Gebauer observed that developing a business model is complex and offered the following thoughts and strategies for working with the complexity:

- The process is not linear – need to make assumptions and refine by iteration
- May need to negotiate with customer until a price is agreed
- Need a long term perspective – plan for some months without income
- Work with scenarios of adjusting numbers by small amounts – small change in distance, fee, fuel cost, number of services per day, number of trips, etc.
- Plan for alignment between material flows and financial flows. Units aligned.
- Consider a range of different scenarios of services - different customers, different prices to allow cleaning truck etc
- There are also practical details to resolve:
- Should tariffs be based on per trip cost or per service (emptying)
- If truck costs are very high, may need to review truck options – consider new vs old truck etc.

There is currently no formal tool to help the process. Eawag will try to develop a tool. SNV has excel sheet that can be adapted.

Further reflections from participants about costs and cost recovery:

- Total cost for total FSM chain is very high. How do we charge a reasonable tariff, strike a balance between affordable charges and cost recovery?
- FSM does cost money, whereas previously dumping was 'free'.
- Cost recovery doesn't need to be from tariffs only, there are the 4Ts – Tariffs, Taxes (government subsidies), Transfers (donor aid) and 'Trade' (value from resource recovery)
- There are also hidden costs that can be avoided through reuse of biosolids. Manila Water is spending huge sums of money to dispose of their biosolids, they could turn it into a revenue stream.

BLOCK 4: COUNTRY GROUP SESSIONS AND WRAPPING UP

OVERVIEW OF BLOCK 4: COUNTRY GROUP WORK AND WRAPPING UP

Why is this relevant?

The ultimate goal of the 'knowledge and learning' component of SNV's SSH4A-urban program is for practices on the ground to be improved through learning about 'best' practices. Educators know that learning is improved through reflecting on what has been learnt, and actioning is improved through making public commitments and being accountable for them – which are the aims of this block.

What were the knowledge and learning outcomes intended from this block?

- Consolidation, reflection about what has been learnt

What was the process?

- Checking 'shopping bags' (Morning of Day 4) – internal country group reflections on what has been learnt that they want to share to improve practice in their countries
- World café exercise – giving advice as 'consultants' on key challenges faced by each country, applying new (and old) knowledge and learning (afternoon of Day 4)
- Country group sharing of reflections on learning highlights and commitments on what they will take back in their 'shopping bags'

4.1 World café – advice to address key challenges

Country- based groups discussed and prepared briefs on issues/problems in their countries that they seek advice on from 'consultants'. One or two people from the country group were appointed to be the country 'client' while the remaining participants were allocated to 6 mixed groups A-F of 'consultant companies'. The 'consultant companies' then rotated to country 'clients' for briefing and offered their advice to the questions in 15-20 minutes. Time limitations meant each 'consultant company' was able to advise 3-4 countries and not all 6.

The briefs and advice offered are summarised below.

Bangladesh

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS

Issue: Up-gradation of containment in Southern Bangladesh

Problem statement:

In Khulna majority of the households (62%) have a septic tank connected to their toilet but 84% of them are not connected to a soak well. That means they connect their septic tank with the surface drain or water body. One of the important reasons for not having soak well is that it won't function due to high water table. Additionally because of high population density, people construct their building on a small piece of land, and often there is no space where a soak well can be constructed.

ADVICE FROM CONSULTANTS
• Rapid Technical Assessment: It was suggested to conduct a rapid technical assessment to identify the technical aspects of septic tanks i.e. size of septic tanks, depth of soak well, generation of faecal sludge, average number of users per septic tank (and its size), location of septic tanks (bottom of the building or outside of the building), as-built drawing, etc. It will help to analyse the situation more in-depth and will be to determine the next course of action. A representative sample would be determined for this purpose. • Installation of condominal sewer (simplified sewer): This is a sewerage network that is constructed using smaller diameter pipes laid at a shallower depth and at a flatter gradient than conventional sewers. The simplified sewer allows for a more flexible design at lower costs. As the land in Khulna is flat and water table is comparatively high this system might be suitable. Since there are less traffic loads on the narrow roads located within the community shallow-depth sewer will not be a problem. As the town is growing fast the system can be extended to the growing area with little effort. As most of the households have a septic tank at their premises, it can be converted into a solid free sewer [network of small-diameter pipes that transports pre-treated and solids-free wastewater (such as Septic Tank effluent)] and thus the performance will be increased. However establishing community management system may be a challenge in this case. • Shared septic tank: As it is difficult to upgrade the septic tank located below the building, a common place for two or more premises can be identified (may be between household premises and road) and install a septic tank with upgraded technologies. However, getting agreement to this concept from two or more premises with different size and number of users might be a challenge. • Bio-gas plant: Installation of bio-gas plant could solve the problem of soak-well. • Consultation with the community: Most important thing is to consult with the local people to get their suggestions.

Bhutan

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS
Issues • Sustainable Municipal Financing and • Integration of urban services. Consultants' Brief a. What are various source that the Municipal can generate income for its sustainability b. How to integrate urban services like sewer line, water supply line, telecom cables, power cable and TV cables c. How to coordinate amongst stakeholders for Operation and Maintenance of integrated services.
ADVICE FROM CONSULTANTS
On income generation sources • Lease municipal properties eg land, • Develop commercial buildings within the municipal on Public Private Partnership (PPP) and lease out for income • Integrate sanitation with other good income earner like water supply • Build social infrastructure such as market shed and lease to private sector • Taxation.

On integration of utility services

- Bring all the relevant stakeholders on board to discuss on the integration
- Draw up joint implementation plan.

Coordination for O&M of integrated services

- Services to be maintained by respective stakeholders
- Can appoint one focal person from each stakeholder
- All relevant stakeholders to be made accountable to head of the municipality (e.g., mayor)
- Regular meetings of stakeholders
- One stop shop or one window service to expedite procedures.

Ethiopia

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS
What advice do you give us to start urban sanitation program on emptying, disposal site and resource recovery on small town with a population size of 30,000 to 50,000 population size? The consultancy covers: • Situation analysis • Facilities required • The management and business model aspect • Finally how to recover resources from the treated sludge.
ADVICE FROM CONSULTANTS
On situation analysis • Work with NGO or CBO to clearly understand the situation • You may use the university students • Prepare the TOR to clearly lists the areas you need to test • You may also hire the consultant • Deploy consultant to assess the technology option the community is using • Understand the technical and social aspect • Understand the available sanitation facilities • Determine the production volume • Assess place of sludge generation • Review current practice of emptying • Assess willingness to pay for the service • Assess frequency of emptying practices • Understand customers preference and economic condition • Understand segmentation of the population (rich, poor, etc.). On facilities required • Understand sludge characterization • Proportion of solid in the sludge • Explore the available menu of available technologies (Gulper, Auger fitted with pump, small vacuum trucks etc.) • Assess size of the streets and traffic frequency • Assess required frequency of emptying

- The following need to be considered when thinking about the facilities required:
 - Whether proper containment is available at HH and institutional level
 - Ground water condition
- First decide on the collection point and the end point, then decide the process in between
- Understand the current practice
- Follow the general principle of managing waste close to the point of production.

On Management

- Requires proactive local mayor/government who really is convinced
- Consider financial contexts
- Create demand
- Municipality should be in control
- Differentiate tariffs for different segments of the population
- Consider different leasing g contracts
- The environment cost need to be subsidized by the government and the customer should pay for the service
- Integrate with the existing practice.

On resource recovery

- Understand the demand first during situation analysis (is the community in need of fertilizer, energy, fish etc.)
- Based on the demand look for the design that fits to the demand
- Conduct the need for the resources to be recovered for example: Fertilizer, Energy –biogas, beatification of town etc. and manage your design accordingly.

Indonesia

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS

Indonesia presented a financial mechanism aiming at supporting the development of urban sanitation for the urban poor. The mechanism is funded by the Government or by private banks; the fund can then be accessed by people interested in installing or upgrading their sanitation facilities. Since these are loans, payments will guarantee that the fund is sustainable; the interest rate will guarantee that the fund can also be used by local municipalities to further invest in sanitation.

ADVICE FROM CONSULTANTS

- More information needs to be collected in order to understand the sanitation challenge in the project locations: How many poor exist in the project locations? How you would determine the concept of “poor”?
- Consider community sanitation systems, not only household systems. Think DEWATS
- Inform people about the consequences of poor sanitation to increase their interest in investing in sanitation
- It is important that you understand the barriers to behaviour change, or what’s preventing people from accessing sanitation. Don’t assume; do research. It might be poverty, but it might be land issues, lack of understanding of the negative consequences of poor sanitation or some other reason/s. Investigate
- Based on this, you’ll understand what behaviour needs to be changed; maybe a financial mechanism is necessary; maybe it’s not
- As to the upgrading of existing sanitation facilities, consider penalties for those that don’t comply with the legislation; but before that give people a chance to change their behaviour
- Make sure you’re asking the right questions: do you know why things are the way they are? Do

you know if people are willing to pay to upgrade their sanitation facilities? Are they willing to pay for emptying services? Are current services and products too expensive (and therefore a financial mechanism might be relevant)? Or is it a different type of problem?

- Give different groups of people different options in terms of technological solutions
- Use a clean neighbourhood approach to make sure you engage everyone; otherwise is pointless
- Base your mechanism in similar experiences, like from the micro-credit institutions
- Consider the possibility of basket funds – supported by the Municipality and external donors
 - Identify the poor and the ultra-poor
 - Provide the loans a 0% interest rate for the ultra poor; and a 2% interest rate for the poor
 - Make sure the basket fund is properly managed by a section of the municipality
- Penalties for those that don't pay might include cutting water and electricity services
- Create community groups so people encourage each other
- At the same time provide economical support so people are actually able to meet the challenge
- Be clear on the regulation and who does what
- Involve other stakeholders: female volunteer workers: the media; the schools.

Kenya

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS

Consultants' brief

- 1) How do you ensure that occupation health and safety standards (OHSS) are put in practice in Faecal Sludge Management?
- 2) How do you ensure there is coordination in planning and implementation of sanitation activities where a wide range of institutions and donors are involved.

ADVICE FROM CONSULTANTS

On ensuring OH&S

- Engage relevant departments/ministries concerned with labour matters to assist in enforcement. If no form of policy or legislation exists for Occupation Health and Safety Standards, we could employ consultative discussion to have the systems in place
- Research on Knowledge, Attitude and Practice need to be considered to understand what gaps need to be addressed
- If the problem has to do with tools, it was encouraged to find and provide alternative tools for specifics job roles
- Efficient monitoring systems need to be put in place to curb non-conformity.
- Introduce penalties as a deterrent measure
- Insurance covers, certificate of health are an important element to effective FSM
- Continuous advocacy, refresher courses and awareness campaigns will be crucial
- Random spot checks
- Roles need to be clear and specific.

On coordination

- Comprehensive planning
- Multi-sectoral approach
- Establish stakeholders forums and define stakeholders relevance

- Round of consultations amongst all partners.

Nepal

ISSUE AND PROBLEM/BRIEF FOR CONSULTANTS
Problem Many private sector players in Birendranagar Municipality have shown interest on providing FS emptying services. However, at present only one private sector actor (PS) is providing such service in particular emptying, transportation and disposal of FS. The PS acts independently without any link or co-ordination with the municipality, the duty bearer for waste management in the town. FS is being disposed anywhere in the open environment wherever the PS likes, and has no any specific place for disposal. Until now, there is no any regulatory provision in the municipality, hence there is not any control and PS is functioning as a monopoly. Nearby communities are constantly complaining to the municipality about the filthy environment created by such untreated FS waste.
ADVICE FROM CONSULTANTS
• Develop and endorse rules and regulations from municipal council • Make public call from interested private sectors for registration • Fix tariff (fee) in consultation with these registered private sectors • Demark cluster for each private sector to provide service • Establish biogas plant and compost plant at ward level and distribute outputs to affected nearby people • Ensure trench for FS disposal from the municipality • Make it mandatory for FS to be disposed in the trench • Collect certain fee for disposal in the trench from the private sector • Open separate bank account to deposit the fee/tariff • Use this fund to manage the disposal system.

4.2 Country group take away messages in “shopping bag”

An important objective of the learning event is that participants take away a ‘shopping bag’ full of new ideas and learning to influence practice in their own countries. Documenting what participants share about what is in their ‘shopping bags’ holds participants accountable to knowledge and learning they pledge to take back; SNV leaders plan to check on which pledges have been kept in upcoming months.

Country groups had the opportunity to reflect on learning highlights at the beginning of the final day, and re-visit and finalise at the end of the day’s activities concluding Block 3, which they then shared in the plenary session.

Country	Shopping bag contents – learnings and actions
Bangladesh group 1	- Standards of Toilet - Containment (update required). - Weak Dissemination (enforcement). - Many Practical Guidelines available. - Emptying - Manual - Mechanical - Maximizing utilization of vacutugs - Schedule vs on-call demand - Upgrading - Business models.
Bangladesh group 2	- National level - Bangladesh standard and other country’s standard (esp. Kenya) on FSM - Identified gap between policy & code. - Technology - Tailor-made Vacutug required - Handing over technologies without proper capacity building initiative - Limited no. of emptying technologies – 500L tanker etc., think about matching size to context - Technology aspect – especially containment. Updating containment - Context specific FSM service model (Philippines model) - Engaging other stakeholder at beginning stage - Scheduled desludging - Pit emptying services can be diversified. - Business model lessons from session, will apply - Desludging – ad hoc. W’shop helped us think widely – able to introduce model - Learning from other groups.

Bhutan	Taking a small and compact bag with things that can be used. Just 4 items in the bag. 1. Mobile toilet concept (for festival use) well suited to context 2. Desludging stickers. Variation of Philippines example – directly after emptying, operator will write service information. Inspector can see everything at glance. 3. Treatment & reuse. (composting- sludge) Kushtia gave idea, will promote to farmers 4. Sludge holding tank (congested area) no space, will go for accessible holding tank.
Ethiopia	• Strengthening the existing small town SSTP Program through - Piloting and emptying - Testing of business model. - Scoping exercise with money, through national task force • Situation analysis in selected town - Determine critical factors in demand creation • Be active member of the National and International working groups. • Engage with national and international working groups, eg dggroup.
Indonesia	• Introduce standards for safety of the workers (emptying and disposal) • Guidelines on emptying- disposal services. • Complete menu of user interface standards - not too many options – holding tanks etc. only standard for public toilet and households • Clear function of regulator-operator control/supervisor at district level. • Optimize FSM treatment plant. • Database on sanitation at household level (user interface + septic tank) • Program to update the facility (septic tank), with Grandfather Clause so existing systems that do no harm will be absolved. • Cost structure- cost analysis. • Develop business model and financing scheme.
Kenya	• Regulation of construction of toilets (Septic tanks, Latrines) by spot checks. • Construction Schedule • Compliance Schedule. • Occupation healthy and safety standards for pit emptiers, UDDTs, other options • Transportation models and emptying models – lessons from different countries • Business model basics – explore more models. • Treatment plant options from Kushtia. • Payment system for emptiers based on delivering sludge, not HH payment (not demanding payment from hh)

	• FSM policy & Regulation – kick-start discussion at national level • Tendering process – think further about eThekwini model.
Nepal	• Development of standards/manual of on-site facilities (Septic tank with soak pit) at Municipal level (i.e. Bhutan, Philippines) • Will develop Standards/ manual for enforcement by municipal council, like Philippines and Bhutan • Monitor ad hoc disposal by private sector. Implement trenching system - establish trench system for FS management like seen in Bangladesh • Will start FS transportation via cess-pool (vacutug) under PPP model. Vacutug will promote PPP. • No national or local guidelines re FSM. Pick out some of the many lessons from workshop.

4.3 Closing of Learning Event

Closing comment from Md. Mohsin, PSU, MoLGRD&C

Md. Mohsin expressed his pleasure that participants from Indonesia, Nepal, Bhutan, Kenya and Ethiopia came to Bangladesh to attend the 4-day workshop. He thanked everyone on behalf of his ministry (Ministry of Local Government and Rural Development and Cooperatives) and of Bangladesh. He said that all the ideas are helpful for better implementation of FSM. Although the workshop is concluding, he hoped participants will remain in contact. He invited all to come again, and thanked everyone for their contributions and participation again.

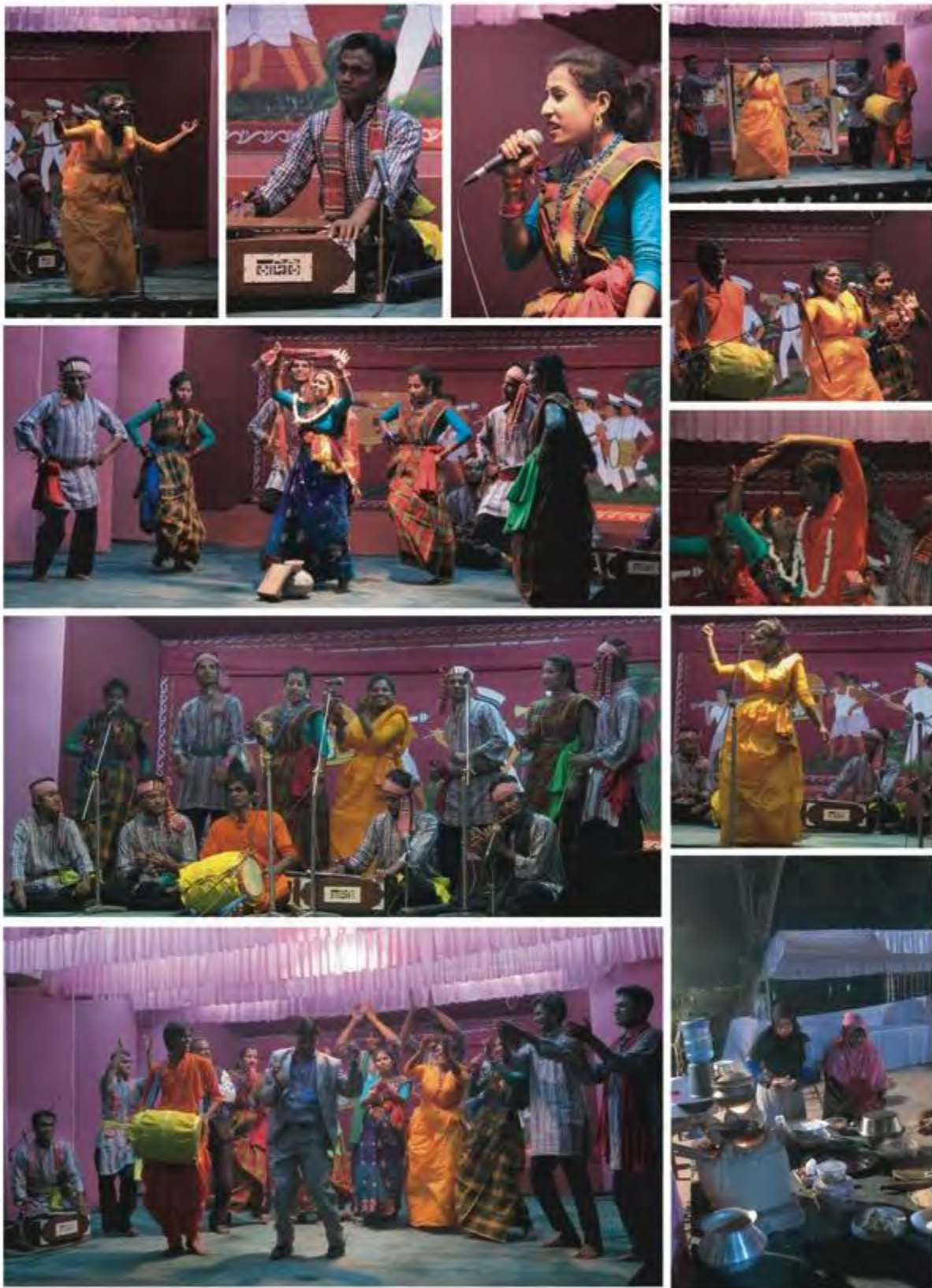
Closing vote of thanks from Antoinette Kome, workshop facilitator

Antoinette Kome thanked Md. Mohsin for his closing comments and offered her own thanks to everyone. She especially thanked

- The Bangladesh team for their organisation and logistics for the workshop.
- Khulna City Corporation for organising the workshop with SNV, and for travelling alongside SNV in complex discussions.
- The international resource persons David Robbins, Heiko Gebauer and Kumi Abey Suriya
- All the presenters.
- KUET (Khulna University of Engineering & Technology) for their support.

Finally she thanked all participants, and observed that it was a huge group that made plenary sessions challenging but that the workshop had a great outcome. She concluded by inviting everyone for group photos.

Annex 1: Images from the Cultural Dinner



Dgroup discussion

“Urban Sanitation – Upgrading and emptying of on-site facilities”

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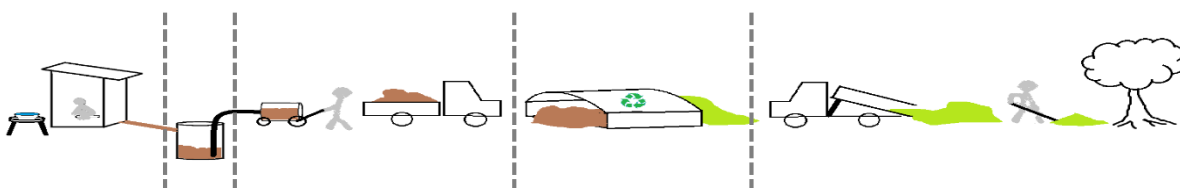
Introduction

This is the summary of an email discussion held on the Urban Sanitation and Hygiene Dgroups platform from the Tuesday 11th of November till Friday 5th of December 2014. The discussion was moderated by SNV knowledge network, and involves 202 member from 36 different countries (mostly Asia and Africa). Twenty seven contributions were written over the course of the discussion. The discussion aims to bring together examples and perspectives of practitioners from the field with perspectives from people working at international level. It also aims to reflect together on new ideas and best practices in sanitation and hygiene. Needless to say, it is not intended as a conclusive document on the subject.

This is the third Dgroup discussion on urban sanitation and hygiene. The first discussed “Urban sanitation planning and finance” and the second discussion was about “Financing for urban sanitation infrastructure investment”. The discussions are linked to the learning component of the urban Sustainable Sanitation and Hygiene for All programme in Nepal, Bhutan, Bangladesh and Indonesia. This summary will be an input for the regional workshop on “Urban Sanitation – Upgrading and emptying of on-site facilities” in Bangladesh in December 2014.

Topic 1: The upgrading debate: does containment really happen?

Let’s take a moment of reflection. The reason that we are all working in this sector is to help improve environment health, more specifically to “separate human waste from human contact”. Lately, more and more people are getting excited about faecal sludge management (FSM), because we’re finally recognising that the vast majority of citizens in our cities and towns in the world are relying on on-site facilities. It is part of the SDGs! This is impressive, having FSM on the global agenda is a great step forward in addressing environmental health.

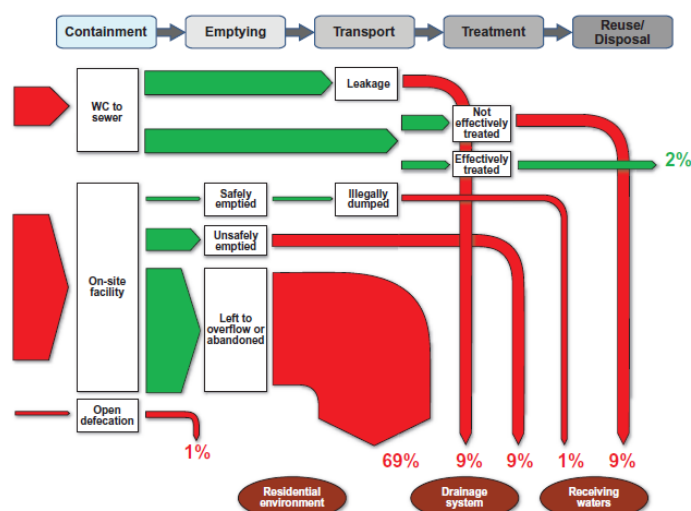


However, there’s one thing that worries greatly. In the sanitation value chain- see below- we seem to focus on emptying, collection/transport, treatment, reuse/ disposal. As long as people have some form of toilet, we seem to take [containment](#) for granted.



Even in WSP’s “shit flows diagram” the arrow that comes out of on-site facilities is green.

Figure 2: Fecal Waste Flows in Dhaka, Bangladesh



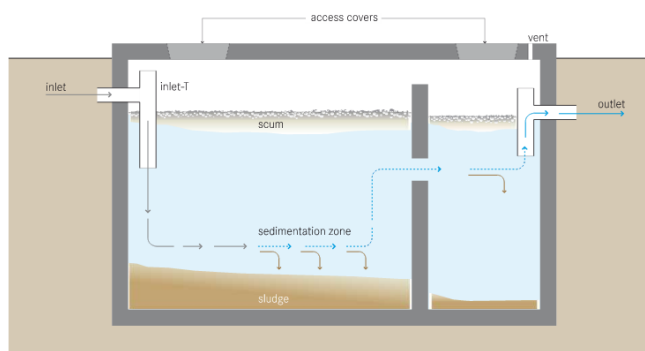
Are we fooling ourselves here?

In most countries there are either:

- No standards for on-site urban sanitation facilities
- The standards are not used because they are unknown at field level or unrealistic
- Standards are not enforced

We see huge variations in designs of what is called “a septic tank”. Textbook says it is a double chamber, sealed tank with the outlet slightly lower than the inlet, and a soak bed (not shown here). This figure is from the EAWAG compendium, see <http://ecompendium.sswm.info/sanitation-technologies/septic-tank>.

Septic Tank



I cannot count the number of facilities called “septic tank” that I’ve seen which do not comply with the above.

*There are no 2 chambers!
It's open at the bottom!
Outlet pipes are way down, so that that tank
doesn't fill up!
There's definitely no soak bed!
And then the variations in pits, including unlined
pits in densely populated areas with high ground
water tables.
Or toilets that connect almost directly to the
drains.*

No, this is not a poem.

If we are truly committed to environmental health, upgrading of onsite facilities has to be on our agenda as much as emptying and treatment. We need to give attention and start thinking more about how bring all these facilities up to a minimal standard, how do we bring users into compliance, how do we technically find the best ways to improve on-site facilities.

1. Should upgrading of on-site facilities be on our agenda as much as emptying and treatment?

Practically everybody agrees that containment is a challenging issue which receives too little attention. Aftab Opel working with SNV Laos writes that this is just another form of open defecation. Hassan Khondoker Mahbub from KUET University and Rajeev Munankami from SNV Bangladesh also point to the fact that the magnitude of contamination of our living environment due to this issue is huge. Fany Wedahuditama from the Ministry on National Development Planning in Indonesia and Kapil Gyawali from SNV Nepal are asking what we are doing in promoting inadequate on-site facilities in urban areas on an ad-hoc basis. They feel this is an issue that might explode in future. Giacomo Galli from IRC in the Netherlands introduces the concept of “skeptical tanks”, which is summarised by Henk Veerdig from SNV Bhutan as malfunctioning septic tanks not meeting minimum standards. Besides these skeptical tanks, the vast majority of on-site facilities are of course pits.

The question is why the containment issue is hardly part of the ongoing urban sanitation discussion. In the WSP diagramme sent with the introduction to this topic, the effluent from on-site facilities is considered “green” (=good/safe) per definition. We’re not talking enough about this, says Sahidul Islam from SNV Bangladesh, because the problem is mostly invisible. However, Rajeev and Giacomo feel that it’s also convenient for most stakeholders to make the containment issue “Somebody Else’s Problem” (SEP), even though, I would add, we all know this SEP might be our children.

While most contributors feel that that it is a priority to include containment in our urban sanitation agenda, there are different perspectives. George Mikhael from WSUP Ghana says rightly: “I don’t think one aspect of the sanitation chain should supersede the others. All aspects are equally important to ensure public health.” Maria Carreiro from SNV Indonesia asks whether we are framing the issue in the wrong way. Instead of talking about other parts of the sanitation value chain, shouldn’t our goal be to eliminate all forms of open defecation, including from deficient containment. Hassan points out that it is not possible to ask people to improve containment if there are no emptying services.

Another challenge is feasibility, Kumi Abeysuriya from ISF Sydney wonders how difficult it will be to do something about containment in practice. Henk says that ideally one would not work on treatment options while still trying to figure out how to upgrade onsite facilities and improving emptying services, however, in practice it can be OK in some cases. It’s important to understand how bad the on-site facilities are in the specific context.

My personal summary based on your comments would be: “Yes, improving containment hugely important, together with the rest of the sanitation value chain, but we really have very little tested solutions to address this.

2. So how did we end up in this situation?

First of all, as Henk and several others say, it’s important to remember that the vast majority of on-site facilities were built without support, guidance or supervision from authorities. Aftab further mentions that there is both a lack of enforcement as well as a lack of knowledge. As Fany nicely puts it, the situation is mixed both from the perspective of the household and from the perspective of the local government. Talking about households, there is a group which is unaware, there is a group which is aware, but does not act and then there is a group of households that do want to do the right thing, but trust the contractor.

Another issue is that in many countries there is still no clear legal basis for enforcement of standards, as Kapil illustrates for Nepal. In other countries, policies, regulations and standards exist but there is fragmentation, as

explained by Alfred Lambertus from Indonesia or there is no clear institutional house for enforcement as explained by Rajeev.

Furthermore, Giacomo, Sahidul and Fany explain, enforcement of standards for on-site facilities is politically sensitive. Giacomo calls it a vicious cycle; “If municipalities really start to effectively regulate and enforce policy on these ‘sceptic’ tanks, the public outrage would be too great.”

There are also technical challenges, especially in areas with high ground water tables. We cannot ask households to do the impossible.

There are thus many plausible reasons and motivations for ignoring the issue.

3. How do we bring users/ house owners into compliance?

Getting owners building new construction into compliance with minimal standards seems a difficult but achievable goal to most. Specific suggestions from Henk are to:

- Ensure quality approval of sanitation components in building plans.
- Ensure through on-site supervision that construction takes place in accordance with plan.
- Insist on rebuilding if construction does not meet plan and minimal standard, supported by a fine system.
- Ensure effective enforcement of the fine system.

George adds that enforcement does not need to be a blunt tool used on everyone equally. There is a significant part of the population that can afford a safe facility and should be penalized if the facility is not appropriately constructed. There are many however that cannot afford a safe facility, and should probably not be charged with fines. Instead, enforcement through support and mediation should be provided (a softer face to enforcement) by improving access to information and finance. The latter for example through loans.

An alternative strategy for compliance with standards mentioned by George is to promote self-regulation of the private sector, as quality is linked to branding and low-quality can be traced back to the seller. He gives the example of Duraplast in Ghana who provides free training for artisans on their pre-fabricated septic tank.

Heiko Gebauer from EAWAG in Switzerland adds that better containment probably will be more costly from the perspective of masons. It may require more time for non-core activities, which we tend to overlook. Also Hilda Muthesi from SNV Kenya talks from a business perspective, but pointing out that all 3 key stakeholders, government, service providers and households, need to see the added value.

Contrary to new to build septic tanks, getting owners of existing on-site facilities into compliance is a completely different ball game. It seems that the general consensus is that this is almost impossible. As Kumi puts it: “Given the situation described about the lack of standards, will “upgrading” of huge numbers of individually owned systems be even more ad hoc than the initial installation?” Henk adds to this: “Most building owners will most probably say; ‘If the municipality wants me to upgrade my on-site facilities, they should financially compensate my costs’.”

While this may be the right perspective, it’s hard to accept it from an environmental health point of view. Most of these facilities will be in place for another 20 years to come. Do we just forget about it because it’s too difficult?

Linda Strande from EAWAG in Switzerland cites the example of Japan, where high quality onsite systems (Jokhasou) exist in parallel with sewer based systems, and continuous effort are made to improve the on-site technology. The model is successful due to the strong enabling environment, which includes regulations on frequency of inspections, installation of onsite systems, licenses for people maintaining systems, etc. It also includes subsidies so that truck drivers do not have to pay to discharge sludge at treatment facilities.

The model maybe beyond reach of most countries who do not have such a strong enabling environment, but this does not mean that no progress could be made at all. For example Fany proposed to Ministry of Health in Indonesia to have two triggering points. The first triggering is all about stopping people from open defecation. The second triggering is to empty their septic tank (on the second year). The implication of this is to ensure

that Ministry of Health (somebody) assist the community on ascending the sanitation ladder. Also in Bhutan, small steps forward were made in the small town programme in Chukkha where owners of septic tanks were asked to make small upgrades, such as change the height of their outlet pipes.

Finally, it's important to remember that not only construction, but also O&M of the septic tanks will determine the level of contamination. As Linda says, the current situation is that nobody manages their septic tank until it fails. That is not limited to developing countries, Kumi writes that design and installation of on-site facilities may be stronger in industrialised countries, but failures down the track from lack of maintenance appear to be universal. For example, in the USA where 25% of the population is said to be served by on-site sanitation facilities, about half are estimated to be failing. Australian studies suggest similar rates of effluent standards not being met.

4. How do we technically find the best ways to improve existing on-site facilities?

While all write that the politically sensitive aspects around improving containment in the sanitation value chain is the most difficult, the technical challenge should not be underestimated. Dave Robbins from the USA shared a "nice" picture of a damaged dislodged septic tank. He also shared a list of basic quality criteria for proper septic tanks:

1. Selection of materials that will be long lasting and non-corroding in the soil;
2. Enough detention time to allow for at least partial anaerobic digestion;
3. Water-tight chambers (a minimum of 2);
4. Sanitary tees that draw effluent from the "clear zone" which is half way between the top of the sludge blanket and the bottom of the scum layer;
5. Proper venting with a vent stack that terminates above the peak of the roof (and not at nose level);
6. Access ports that allow for the proper desludging of the compartment, and not just a 10 cm inspection hole. Important to note that access ports should be gas tight and be able to be secured to exclude unauthorized entry;
7. Buoyancy forces should be considered in high groundwater areas when designing and installing tanks. Add enough weight on top of the tank (soil) to counteract the buoyancy forces. Avoid septic tank disasters, through proper installation. Set tanks on a level bed of compacted sand or gravel, fill with water (to identify leaks) and pack soil around tanks in .5 meter lifts and tamp with a 2X4 or other tamping device. This helps avoid differential settling.

In addition to these seven points, it's important to consider the distance to water sources, in function of soil type, and of course the accessibility for future desludging (very often forgotten!).

However, we all know that it's not so straightforward to realise standards in practice. Rajeev writes: "In all the cities we work, the septic tank or even the pit latrine in most of the cases are working simply as containment primarily because 1. The soak pit which is an integral part of the septic tank doesn't function due to high water table 2. No other technical options are promoted yet. Hence to avoid quick filling of the containment the only option is to directly connect to the drains or somehow link with nearby water bodies.

Shahidul Islam from SNV Bangladesh adds to this a number of real technical issues that people face when installing a septic tank. First of all Bangladesh is a densely populated and land is very scarce and costly in urban areas. This means that people try to maximise their construction on a very small piece of land and often no space remains to construct a soak well. Another aspect of reality is that people in middle and low income areas tend to gradually expand their houses (horizontally and/or vertically) over time. The number of people living in the house increases and the original septic tank might be under designed. Another complicated factor in reality is that many of the low income communities are located on a land filled by solid waste (municipalities often do it) which contains lots of non-degradable materials like polythene. This land does not soak the water from a soak well as expected.

So while we might have very nice technical solutions, as long as there is no capacity on the ground to anticipate, adjust and innovate in the right way, we still end up with non-functioning on-site facilities. Rajeev explains this issue of the lack of capacity of the front liners in (sanitation) construction sector. He mentions that there is

capacity, standards and regulation, but masonry is still not considered as a trade in any of the vocational school/training institutes. Masons start working as helper and obtain years of experience through an apprenticeship with 'Raj Mistri' (Head Mason) who had also followed the same route and very rarely had any formal or informal trainings (some of the cement companies do short orientation programmes). If you see the original design approved by the authority it will have all compliance but when constructing they will depend upon the Mason who have very little clue or understand the drawing. There comes the innovation of the Mason who somehow has to manage to get the outlet of the containment out of that premise so that it does not bother the household.

Kumi approaches the technical challenge from a different angle. She questions whether we should be rethinking the entire water based sanitation systems, explaining that the current sanitation technologies are more a product of history than the technically best solutions. Not especially clever solutions. Not necessarily, she writes, these are what would be done today if industrialised countries had the chance to start again. Lilliana from SNV Bolivia gives an example of alternative technology. This is a dry toilet approach, in which the whole chain until marketing of compost, is taken into account.

5. Other issues that you raised

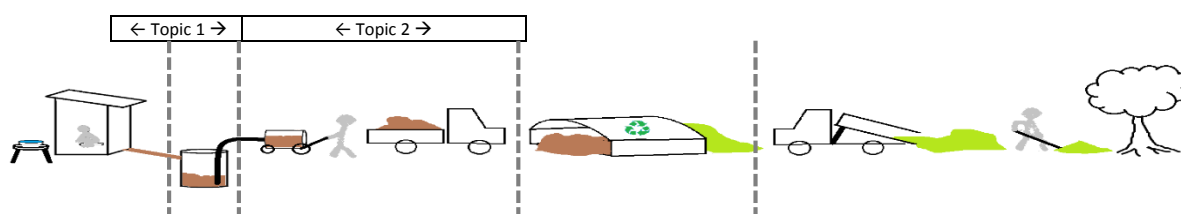
You raised more issues. Sahidul mentioned that containment is not only about household facilities, but also about trains, launches, ferries and steamers. We're simply ignoring the contamination from such other sources. Alfred mentions the liquid waste from slaughter houses etc. My 2 pennies is that it is certainly important to quantify and set priorities. No municipalities can possibly address all sources of faecal contamination at once and only specific data can help to set priorities.

Kumi and Heiko suggest exploring new ways of managing on-site sanitation facilities. One possibility is to integrate septic tank construction and management into the rest of the sanitation value chain. And then manage that chain professionally. Heiko asks whether it would be possible to "bundle" 5-7 households and reduce complexity (and costs) in that way. The question of course remains whether revenues can be raised (from the 4T's as Kumi says) to cover all costs of a professionalised system. Kumi's question: "Would it be easier to create supportive regulatory and institutional arrangements to enable professionalised entities to manage OSS collectively, than regulatory/institutional arrangements to induce individual householders to upgrade their OSS?" would be an excellent research question.

Topic 2: Emptying: different business models for organising emptying and collection

This second topic is about emptying of on-site sanitation facilities and faecal sludge collection and how we organise that most efficiently.

Of course the appropriate solution for emptying and collection is highly context specific and also we are still learning about this in the sector. However, comparing the different experiences, we hope to find some key principles.



First of all it's clear that a lot of emptying is already ongoing in the world, but often it's unsafe, unhygienic and the sludge is dumped in the wrong places. We are thus looking for emptying models with certain minimal

quality criteria. Secondly, the question is how to engage the different stakeholders in this part of the sanitation value chain. While it's clear that sanitation is a human right and governments are the duty bearers of that right, this does not mean that governments need to provide all services themselves. They need to ensure that all people have affordable and appropriate services. This raises the question about roles of different stakeholders. Finally some examples were shared in this topic, which for comparison are mapped against the sanitation value chain.

6. What should be minimal outcomes and quality criteria are that we would want to ensure through emptying and collection services for faecal sludge?

This seems a complex question, but it is not. It's about what we are trying to achieve by emptying and collection services. What the objectives or goals are.

John Sauer from Water for People in the USA said that the core principle to achieve are universal use (of safe and sustainable sanitation services) and zero pathogens in the environment (neighbourhoods, drainage and water ways). John was basically talking about addressing the whole sanitation chain, and also work towards geographically and institutionally complete solutions.

Kumi Abeyesuriya from the Institute of Sustainable Futures in Sydney wrote that the aim of emptying services is:

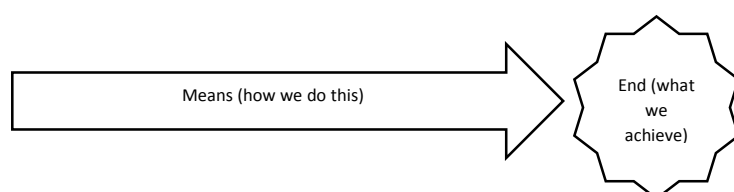
- to protect human health and the environment
- to provide services that meet occupational health and safety standards

Occupational health and safety standards for emptying is not a topic that receives a lot of attention. The question is whether it should be addressed first through regulation or first through practice. SNV is using a 2 pronged approach, promoting both a discussion about regulation and creating local awareness through a score card applied with emptiers themselves (I will share that score card at the bottom of this mail).

Kumi added that none of the above can be achieved without financially viable business models for service providers. She expresses her concern that particularly the smaller businesses are only marginally viable or only take into account cash flows to assess their profitability, not lifecycle costs.

Also Heiko Gebauer from EAWAG in Switzerland wrote in his contribution last week that one of the challenges is the financial attractiveness of manual emptying. This means that to move away from manual emptying, we need to drive efficiency and effectiveness of other emptying options, in particular says Heiko of the non-core processes of those businesses.

The contribution by Laurence Nakuru from SNV Kenya was about containment, but his point about the trade-off between ecological standards and financial viability is equally valid for emptying services. Laurence believes that addressing the ecological (and health I would add) aspects as well as the economic aspects in every part of the value chain, will guide us to what is feasible to sustain and what not.



So while our end goal is public health and zero pathogens in the environment (to say it loosely), the means needs to be both safe and financially sound.

7. To what extent do you feel that separation of roles (Policy/ regulation, oversight and service delivery) is needed for organising emptying and collection of faecal sludge?

In light of the above, Kumi concludes that leaving desludging to the market alone (without policy intervention) is unlikely to deliver the desired outcomes. Meaning that too much market optimism will not work. John does not mention the separation of roles explicitly, but he also talks about the need for rules and regulation by governments that provide enabling environment for entrepreneurs and local businesses and encourage households to adopt safer sanitation services and practices.

Laurence warns that though regulation may be in place, this does not necessarily always work out as intended in practice. So it's important to monitor for "derailed regulation".

Irfan Arianto from SNV Indonesia, shares that Indonesia has been working on urban sanitation for a long time: Integrated Urban Infrastructure Development Program (P3KT), Indonesia Sanitation sector Development Program (ISSDP) and which today is the Acceleration Program Sanitation Settlements (PPSP) with a minimum target of 330 has the City Sanitation Strategy (SSK). The central government as regulator and facilitator while local governments function as implementers, planners and faecal waste management services. Besides the separation of points another important need, Irfan says, is that the different stakeholders concerned with sanitation problems put aside their sectorial ego's.

David's example from Marikina city in the Philippines is actually an example of strong regulation by local government. The City enforces a local ordinance on sanitation that includes incentives for compliance and fines for non-compliance. A fee for wastewater service (20% of the water cost) is added to the water bill that covers the desludging and treatment cost. The private concessionaire deploys trucks and desludges the septic tanks on a street by street basis, one neighbourhood at a time on a 5 year cycle.

8. Do you want to share examples or experiences of organising emptying and collection of faecal sludge?

In the examples given by Dave, for the case of the city of Marikina, a concessionaire manages the emptying, while the city enforces the ordinance. Containment is the responsibility of households. However, the city does contribute a lot to the emptying process as well. They pass a sound truck to inform people about the services, their workers go door to door to help people with their septic tanks.

The other example provided by Dave, in Dumaguete city, has a similar institutional set-up, with the difference that emptying and transport is done by the Water District. Dave also mentions the re-use of biosolids, but it is not clear who manages that part.

example	User interface	containment	Emptying----- Transport	Treatment	Disposal – and/or---	Re-use
Marikina	HHs		concessionaire	City		
Dumaguete	HHs		Water District	City		?? Re-use of biosolids
Nakuru	Public toilet care taker?		Mobile primary collection points	City?		??

Reinilde Eppinga from SNV Kenya provides an example from the city of Nakuru in Kenya, where a consortium of organisations under leadership of Vitens is implementing the Nakuru County Sanitation programme. Reinilde mentions a number of technical innovations, but the institutional set-up is not fully clear. I have tried to capture this example as well in the above diagramme.

Topic 3: What does it take to ensure city-wide sanitation services?

As Kumi said during the previous discussion, ultimately we want to see protection of human health and the environment through services that are both financially viable as well as meeting occupational health and safety standards.

There are many very interesting initiatives ongoing in urban sanitation right now, in particular related to faecal sludge management, however most focus on a selected neighbourhood, e.g. only slums, or a part of the sanitation value chain, e.g. only emptying or treatment. While that innovation is good and extremely important, it does raise the question when and how do we get to city wide services? Is the ambition towards city-wide services even on our agenda?

In Indonesia and India, the government is supporting the development of city-wide strategies/ plans, however, translating those into city wide services is a second. Going city-wide +financially viable+ protection of human health& environment. It is definitely not so easy.

What should be the approach? Start small and then gradually scale up to city level, or start thinking from a city-wide perspective from the start and seek solutions that work in that context? We have learned from other sub-sectors (rural sanitation, urban water supply), that it's often very difficult to scale if you do not have the city-wide perspective from the start.

9. What does it take to ensure city wide services? The expectation of planning

It is interesting that the first reactions to the question about ensuring city-wide sanitation have a very strong [planning](#) focus, while this was exactly the topic of [last year's learning event](#) (urban sanitation planning and finance). Marko Msambazi from SNV Tanzania says city-wide sanitation should be taken into consideration from the start, and it should be part of the wider city/town plan. Also Christoph Luthi from EAWAG mentions a number of experiences (Indonesian ISSDP & PPSP programme and Indian city sanitation plans) as well as manuals on urban sanitation planning (Sanitation21 and WSUP's Urban Programming Guide). In the box at the bottom of this summary, I will copy the text of the last year's Dgroup discussion regarding the Indonesian and Indian urban sanitation planning approaches.

There are many different approaches used for planning in urban sanitation. While Indonesia emphasizes the participatory process, India relies more on data and work by consultants to develop their sanitation plans. WSUP in its guide writes that planning is everything, but not overambitious master plans that are not used, though the later: "[No plans that are not used](#)", is echoed by all.

10. The reality of planning and other strategies

As Christoph says, the complexity and needs in urban sanitation are huge, dynamic and ever changing. Local authorities find themselves overwhelmed by the unmet demand. Making a good workable plan for this is very very difficult. Marko says that city wide sanitation requires a [well organised government structure](#) and that the sanitation plan should be part of the wide city/town plan. Christoph mentions 4 conditions to make city wide services a success, the key word being "[alignment](#)":

1. Political will to provide services for all
2. Financial arrangements, earmarked budgets and investment for O&M as well.
3. Skill and capacities
4. Meaningful user participation

Again something on which most people will agree, but how to put it into practice? The problems in urban sanitation are entangled and interdependent. While there may be some [pro-poor solutions](#) as Marko mentions (gulper, DEWATS), this still requires a system of oversight, enforcement, awareness.

Dave Robbins from the US provides the example of the aftermath of Super Typhoon Haiyan in the Philippines. The moto is: "[Think big; start small](#)". I think that the realisation of the magnitude of the urban sanitation challenge does feel sometimes like a Super Typhoon, but that's a an aside.

The example from Dave is interesting, because making city sanitation plans like in India or Indonesia is not done in the Philippines. Rather cities make a “[Local Septage Ordinance](#)” which regulates emptying and tariffs. This is implemented together with an awareness campaign for the public. In terms of investment, they have distinguished 2 phases in the city of Tacloban, a short term plan, which addresses the immediate emptying and treatment needs, and a long term plan (phase 2) which addresses the city wide needs.

I don’t think that there is a simple answer to ensuring city wide services, and it’s not going to come from planning alone. Yet, without planning, a number of fragmented localised activities may lose strategic focus and long term version. In this sense it sounds very much like the discussion about practical and strategic gender needs:

- Working first on practical needs may fail to address structural issues
- Working first on structural strategic issues will take too long and no visible progress is made (so people lose confidence)

We need a double track...

Indonesian urban sanitation strategies

[Indonesian urban sanitation strategies](#) approach^[1] is now being implemented across the country in a national programme called “The Accelerating Sanitation for Human Settlements” (PPSP), which aims to support over 330 cities to develop their city sanitation plan. It is a collaboration of 3 ministries, Home, Public Works and Health, under the leadership of the National Planning Commission (BAPPENAS). The programme is supported with TA from the Urban Sanitation Development Program (USDP).

The PPSP programme trains and provides on-the-job facilitation support to a city sanitation stakeholder group (commission) to understand and analyse the sanitation situation and consequently develop an improvement strategy for the city. This is called the [White Book](#) and the [City Sanitation Strategy](#) respectively. After the city sanitation strategy, implementation funding agreements are made in the Programme Memorandum, this involves the program of activities, cost, financing source and time planning.

The process of [city sanitation strategies in Indonesia](#) takes several years from start to implementation on the ground. From meeting readiness criteria (eligibility criteria) in the first year, to preparation of the white book and city sanitation strategy in the second year, preparation of the project memorandum in the third year, integration of the proposed programmes and activities in regular government planning and budgeting in the fourth year, and then budget is allocated and implementation can start in the fifth year. The big advantages are of the achievements in stakeholder awareness, buy-in as well as the high degree of the institutionalisation of the approach. Information on the overall cost of the process is not available, but may reach to [50,000 USD per city](#), excluding indirect TA provided at national level as well as time investment of staff.

The city sanitation strategy in Indonesia is valid for 5 years and expected to be [renewed](#) after that. As mentioned by Sjoerd Kerstens, of the USDP programme, Public Works and the National Planning Commission are currently gathering feedback from 6 cities that are now in their [second planning cycle](#). As a result of this feedback, a simplification of the data gathering process was achieved. A positive outcome was also that cities are starting to make a longer term plan now.

Indian urban sanitation plans

The [Indian urban sanitation plans](#)^[2] are guided by the [National Urban Sanitation Policy](#) of the Ministry of Urban Development. As India is a federal state, States are now recommended to have [State Sanitation Strategies](#) which provide guidance for the development of [City Sanitation Plans](#) in their area. As explained in the presentation by WSP India during the workshop, [State sanitation strategies](#) include the following: Assignment of institutional responsibility, resources and capacities, Setting State level standards, Planning and financing, Reaching the Un-served populations and Urban Poor, Service Delivery in cities, Regulation of cities and within cities, M&E, Capacity Building & Training: schemes for training, Coordination and Implementation Arrangements. The following states already have strategies for sanitation: Orissa, West Bengal, Maharashtra, Madhya Pradesh, Andhra Pradesh, Uttar Pradesh, Chattisgarh, Tamilnadu and Tripura.

City sanitation planning in India started in 2008, when WSP developed the first CSP for Hoshangabad at the request of MoUD and Madhya Pradesh. In 2009 with MoUD advocacy and support 3 donors (JICA, GTZ and USAID) partnering approximately 50 CSPs were initiated. [Ratings of cities](#) were used to mobilise cities on a competitive basis to rapidly promote and achieve milestones.

^[1] More information can be found in:

http://www.irc.nl/content/download/187360/862598/file/Factsheet_SanitationWhiteBook_USDP.pdf

http://www.irc.nl/content/download/187363/862610/file/Factsheet_CitySanitationStrategy_USDP.pdf

http://www.irc.nl/content/download/187362/862607/file/Factsheet_EHRA_USDP.pdf

http://www.wsp.org/UserFiles/file/citywide_sanitation.pdf (“Marching together for a City wide Sanitation Strategy”).

^[2] For more information see the Indian Sanitation Portal: <http://indiasanitationportal.org/>

<http://indiasanitationportal.org/425> (national urban sanitation policy)

<http://www.susana.org/lang-en/library?view=ccbktypeitem&type=2&id=1582> (several city sanitation plans)

City Color Codes: Categories	
Category	Description
Red: Less than 33 points	Needs immediate remedial action
Black: 34 – 66 points	Needs considerable improvement
Blue: 67 - 90 points	Recovering
Green: 91 - 100 points	Healthy and clean city

The rating resulted in a huge push and public awareness of the issue: the outcomes were not good but it was a wake up call. All cities with population over 100,000 rated: 423 cities rated covering 72% urban population. After the ratings in 2010, 120 cities requested MoUD to support CSPs as means to improve their rating with outcome focussed planning. 2011 onwards, more donors (DFID, World Bank, UNHabitat, Water Aid and ADB) use CSP as a prerequisite for financing (209 cities). Initially rating was annual, but now it is biennial to give cities time to improve.

Additionally a donor coordination committee (GTZ, ADB, JICA, WSP) and a CSP Cell (comprising of Technical, financial, regulatory, social and institutional specialists – supported by donors) have been formed in 2011 to take forward the review and finalization process of CSPs.

In each state, the guidance for city sanitation plans is slightly different. Speaking in general, the city sanitation plan (CSP) is expected to be a comprehensive city wide plan addressing universal access, safe collection, treatment and disposal of 100% liquid and solid waste. It is not a detailed project reference, which comes later. The objective is to think city wide: no ring fencing services to the poor. The Indian urban sanitation plans also form a task force, but an implementing agency is appointed. Data collection relies more heavily on consultants. The cost of the planning process is between 14,000 USD for small towns (with 5,000 households) to 74,000 USD for larger towns with more than 150,000 households.

During the workshop, a presentation was made by WSP on the Indian city sanitation planning. It was shown that investment in urban water supply and sanitation increased drastically during the last two five year plans. In the tenth and eleventh plan, investments reached to 10,000 million and 23,955 million USD respectively. There are several national programmes that invest in sanitation.