

Session Title	WG 6: New developments & research findings in urban sanitation & FSM	
Date and time	Wednesday, 19.08.2020, 2.00-3.30 pm CEST	
Description of the session / outline	This session aims to cover some new developments on urban sanitation for the development and humanitarian sectors. It will cover aspects of CWIS and FSM.	
Host (SuSanA Constituency / Person / Organization)	SuSanA WG 6 Lead – Christoph Lüthi	
Presenters	<ol style="list-style-type: none"> 1. <i>Christoph Lüthi</i> 2. <i>Vasco Schelbert</i> 3. <i>BJ Ward</i> 4. <i>Abishek S Narayan</i> 5. <i>Christopher Friedrich</i> 	<ol style="list-style-type: none"> 1. Introduction 2. Shared Sanitation 3. Dewatering, QnQ and Volaser 4. Planning for CWIS 5. Fecal Sludge Field Lab

Session notes

Quality Indicators of Shared Sanitation (QUISS)

Presenter: Vasco Schelbert

Background

- This work falls within the monitoring realm of sanitation.
- Context – as per the JMP sanitation service ladder and associated classifications, shared toilets can at best be considered “limited.” They are not even classified as “basic.” Because of this, some funders do not invest in shared sanitation. However, shared sanitation facilities can be a viable option and sometimes they are the only possible solution.
- There is an absence of consistent indicators to measure the quality of shared sanitation facilities.

Methods

- The research had qualitative and quantitative phases. The qualitative phase involved – literature review -> community meetings (gender active learning systems) and focus group discussions. The findings of this phase informed the quantitative research, which involved a user survey and spot checks of sanitation facilities.
- Three partners in three countries – Kenya, Ghana, Bangladesh.
- Focussed on compound and household level shared sanitation, not public toilets.

Findings

- Key user priorities (in descending order) include water availability in close proximity, cleanliness, gender-separated toilets, flush WC, lighting, lockable/functioning door, tiling (enhances ability to clean surfaces), handwashing station and privacy.
- These priorities were grouped into either cleanliness, privacy or safety/security categories.

- Created sanitation quality index – developed four outcome variables and associated indicators.
- SQI scores are lower for shared sanitation facilities as compared to individual household toilets. The most influential indicator is technology, but specifically flush technology, not improved technologies in general.
- Location/distance, lockable door and tiling are all important predictors of SQI scores, and to a lesser extent the number of HHs per cubicle. Using location, lockable door or tiling would measure the quality of a shared toilet better than the number of HHs using the toilet.

You will soon be able to access study results from the Sandec website: www.sandec.ch/quiss

Q&A

Did you look at how the facility is managed? Yes, in the qualitative phase we looked at that. We also included it in the survey, but the findings could not prove that a cleaning arrangement means a higher quality or more hygienic toilet facility.

How/when will results impact the definition of improved/basic sanitation etc.? We are currently producing publications on the findings. There are other ongoing studies looking at shared sanitation too.

Does the number of users relate to hygiene? We did not find a specific cut off figure that related to a lower/higher quality.

Citywide inclusive sanitation – An overview of developments

Presenter: Abishek S Narayan

Background

- There's been a shift in thinking over the past few decades. A key development is thinking about equity.
- The concept of citywide inclusive sanitation (CWIS) started less than 5 years ago (Atlanta conference) but is now considered the approach to align with.
- CWIS is constantly evolving. This year there have been quite a few publications on CWIS. Previously, practice was well ahead of academia. A couple of key papers include *CSIW service framework* by the Gates Foundation and *Business as Unusual* by The World Bank.
- At SuSanA WG6 last year we asked "how do we frame the concept of CWIS?" Key principles: CWIS is an approach, all members of the city, equitable access, adequate and affordable improved sanitation, different scales, entire sanitation value chain.
- Monitored the Manila principles – six main principles.

Case studies – examples of best practices for each key principle:

- Lighthouse case of equity – eThekweni, South Africa. Huge subsidy scheme.
- Environment and public health – Sinner, India. Good tracking system (GPS), scheduled desludging.
- Mix of technologies – Addis Ababa, Ethiopia. Combination of sewerred and non-sewerred.
- Comprehensive planning – Nala, Nepal. CLUES was piloted – community strongly involved.
- Monitoring and accountability – Warangal, India – good laws, policies and local government buy-in.

- Mix of business models – Naivasha, Kenya. Sanitation operate here.

Various different CWIS initiatives including capacity development, case studies, planning approaches and tools (including social network analysis). CWIS is a very broad concept – we are working to ensure that there are basic ideas and guidelines behind it.

Q&A

How did you choose your case studies? Lots were opportunity-based. For example, during Swachh-Bharat there was a lot of data coming out of India.

How do you define sanitation - just excreta management or is solid waste management included too? In almost every case, there are interactions between the different systems. CWIS emphasises looking beyond the silos.

Estimating quantities and qualities of faecal sludge

Presenter: BJ Ward

- Estimating the quality and quantities (Q&Q) of faecal sludge is useful for a number of reasons including the design and management of plants and scheduling desludging.
- Q&Q method developed by Dr. Linda Strande.
- One of the most recent tests of the methodology was in a town in India. 180 samples - tested accumulation rate in three different ways and tried to correlate it with different predictors.
- Measuring Q&Q in situ can be very challenging. The Volaser is a measuring device. There's an app that runs the system from a smartphone. It has been field tested in a number of locations. Working with Tribecraft. We'll be bringing this prototype to FSM 6. Guidelines, app etc. will be made available open source.
- Q&Q in Lusaka. In situ sampling (421 onsite sanitation technologies) and measuring with Volaser.
- Modelling – published several papers on this recently.
- Currently undertaking a meta-analysis of all Q&Q data in past 5 years to evaluate global trends. Working to propose more robust models.
- There'll be a chapter on Q&Q in the upcoming *Methods for faecal sludge analysis* book

Q&A

Can you measure faecal sludge quality with the Volaser? Does it give information on solid/liquid ratio? No, it measures volume, not quality.

How can you measure the bottom of the pit? The next evolution of our approach will simply involve a 2 metre long stick. Using this stick, we can physically measure the depth with the stick then input the measurement into the app.

Faecal sludge field laboratory (FSFL)

Presenter: Christopher Friedrich

- Problem statement – the cholera outbreak following the earthquake in Haiti in 2010 prompted a turning point in agenda setting among humanitarian aid actors. It brought FSM and treatment onto the agenda of humanitarian aid actors. In 2015, IFRC and the Austrian Red Cross identified a number of gaps in current methods, including that methods were not “field ready” (not able to perform analysis in the field e.g. refugee camps).
- Monitoring needs to be possible with a faecal sludge field laboratory. The lab needs to be able to show how well the treatment works and where in the treatment chain there might be flaws.
- Standard methods needed to be adapted.
- Modularity – huge organisations that send people to the field find it easier if they can choose only the modules they need. Faecal sludge field laboratories can measure 25 parameters.
- Field readiness – needs to be packed compactly. Might need to be shipped across the world in a puck up truck.
- 2017 – first prototype was tested in Austria, then in Malawi. 2018 – Uganda. 2019 – Switzerland and Cox’s Bazar, Bangladesh (first real-life deployment to an emergency). 2020 - smaller version developed with Swiss Humanitarian Aid.

There is a website currently under construction where more information will be available in due course.

Q&A

Can this be done in Nigeria? The costs of the lab need to be covered by someone, but if this is done, we are happy to support the deployment.

Are there any examples in India? Not yet, but you could visit the lab in Bangladesh.

How sustainable is the management of the lab? You need a supply of consumables and will need to ship back used chemical vials if there is not somewhere suitable in-country.

Integrated approach to faecal sludge dewatering

Presenter: BJ Ward

- Upcoming book – *Methods for faecal sludge analysis* (available by end of 2020). Open access. PDF available from Eawag website.
- Sludge ranges from 80% to >99% water. One of the problems is that dewatering in short amounts of time is unpredictable. It is particularly challenging in dense urban environments.
- Mechanisms governing dewatering in faecal sludge and wastewater sludge differ.
- Another PhD candidate is asking “How does organic matter transform during stabilisation?” Preliminary finding – transformation of EPC is dependent on the inoculum.
- Applied research – using just photographs, conductivity and pH probes we can calculate dewatering time and total solids among other things. Currently working on developing a smart phone app. We are applying that data to improve dewatering technologies – Aquatron, BUCHER filter press, pelletising to use as a fuel.

Q&A

Why are you conducting cross-country studies? We want to know the extent to which our findings are applicable in different contexts.

Can diet affect cross-country studies? We are really interested in this, but we don't know the answer yet. Another student is working with a master's student in Lusaka to look into this.

What are confidence intervals like on the predictive model? Not excellent at the moment. We are currently trying to work out how adequate they are for specific decisions.

Upcoming

- Working Group 6 publication by the end of this year: *A sanitation journey*.
- The deadline for submitting abstracts for FSM 6 has been extended.