Learnings for a toolbox

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ENSURING AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Learnings for a toolbox

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Institutional capacity and knowledge of faecal sludge management is critical. An assessment – survey questionnaire, conducted by the authors and presented in this paper articulates sanitation systems requirements by different stakeholders namely funders, consultants and city managers, specifically in the aspects of technology, institutions, regulations, finance and monitoring. These learnings have been analyzed and incorporated into the design of a toolbox which is being developed by the Asian Institute of Technology. An engagement with stakeholders, before the design of the toolbox, is a critical requirement to ensure relevance and usability of any toolbox/knowledge product in terms of content, functionality and user experience.

Scenario

In India, over 40 million urban dwellers regularly defecate in the open. In this context, the efforts made by national government are focussed on building toilets to eliminate open defecation. However, the solution does not lie in only building toilets, as toilets without proper treatment, before reuse and disposal, do not serve the purpose. According to Energy Alternatives India (EAI) estimates, 0.12 million tonnes of faecal sludge is generated in India per day (Energy Alternatives India. N.D.). Most Indian cities witness unhygienic septage handling practices, with huge gaps in construction design, maintenance, safe disposal from existing septic tanks and pit latrines. As a result the challenge is to address the performance of the entire sanitation value chain (containment, emptying, transportation, treatment, and disposal/reuse), which requires a paradigm shift in the way sanitation planning is done in urban India.

   Given the dire situation regarding sanitation in Indian cities, Urban Local Bodies[1] (ULBs) in India need to consider implementing appropriate sanitation models in a targeted timeframe. In order to address the current and future sanitation needs of cities, the sanitation research community recognises the need for a 'portfolio approach'[2], emphasising the importance for decision makers to think beyond networked sewer systems to non-networked decentralised/on-site solutions, and other established or upcoming models. There is further a need for innovative solutions that are cost-effective and flexible to adapt to the changing dynamics of Indian cities. It is important to understand that only technical options do not solve the puzzle.

Need for a resource base

Sub-optimal performance with respect of projects as well as reform during the implementation of the major urban mission in India, the National Urban Renewal Mission JNNURM[3] has highlighted the lack of capacity (McKinsey, 2010). The report also highlights that "many states and cities have been unable to leverage funds or implement reforms, mainly because of a lack of local capacity and technical expertise (e.g. the ability to prepare detailed project reports)". The High Powered Expert Committee (HPEC) Report on the Urban Infrastructure and Services (Ministry of Urban Development, 2011) and the Report of the Working Group on Capacity Building for the Twelfth Plan (Ministry of Power, 2012) also has also expressed serious concern over lack of the capacity in Urban Local Bodies. It has been highlighted that demand and supply gap in capacity building is high. This gap corresponds to not only the number of people to be capacitated but also to the skill and knowledge of the personnel required to achieve intended governance and service delivery standards.

Thus, ULBs in India need to invest in systematic knowledge management. ULBs should invest in capacity building activities and its institutionalization. This would create knowledge interventions that can create a lasting impact. The capacity building of the ULBs has to be carried out in a phased manner and should include short and long-term strategies. While empowerment of city level government remains a challenge, the short-term measures for capacity building would include creating enabling framework for ULBs. A 'low-hanging' intervention may include consolidating existing information that will provide effective solutions. Thus, a nuanced look at an integrated look at the performance of a sanitation system seems imperative. Effective solutions are those that also consider non-technical considerations such as the accompanying institutional and regulatory framework, business models, awareness and information, and stakeholder involvement. A survey of about 70+ existing support resources, including benchmarks, guides/manuals, case studies, and evaluation tools, reveal that there is lack of tools and guidelines that address all the above aspects, and not easily accessible to the different types of stakeholders/users and their needs (CSTEP, 2013)

In India, information and knowledge to understand and execute the planning process of an effective faecal sludge management is clearly lacking. Common systems might address issues like open defecation, but they do not address septage management and/or safe disposal. It is thus imperative to develop a broad resource base which will enable stakeholders, to implement and use the toolbox. The Fecal Sludge Management (FSM) Toolbox4 is a one-stop toolbox that caters to this need. This has been developed by the Asian Institute of Technology (AIT) and is currently being tested. The FSM toolbox will be 'one-stop database' providing solutions to problems in FSM that is likely to enhance capability of key players such as donors/investors, city planners/utility administrators and consultants, in development of FSM projects and businesses with required tools and resources.

Understanding user needs

In this context, the Center for Study of Science, Technology and Policy (CSTEP) administered a survey/questionnaire to different sets of stakeholders, namely funders, consultants, and city managers[5] to ascertain, their needs in terms of content, functionality and user interface/format of the tool. The questionnaire was divided into 7 sections (technology, finance, regulatory, institutional, advocacy, and monitoring). The question sets were specifically customised to each stakeholder group. Questions consisted of three types:

1. Choices which had to be scored from 1-5 in order of importance[6];
2. Questions to be answered as a 'yes/no',
3. And open ended questions.

Answers to Types A and B were analysed quantitatively as follows: Counts for user values for each selection were tabulated. High importance selections (e.g. - a selection with a score of 1 or 2 for at –least half the stakeholder group) were highlighted. The answers to Type C were highlighted as is. The next section describes the various needs which are essential to design the toolbox in a manner that is based on the needs of the users, and not a top-down approach. This assessment method gave CSTEP insights into the priorities, content relevance for the different stakeholders. The understanding from this assessment gives a broad perspective on the needs for stakeholders, so that this toolkit is robustly designed and can be made relevant in different contexts.

The study was a qualitative need assessment, which required in depth discussion with all relevant stakeholders. It was administered through a detailed questionnaire7, which varied among the different categories of respondents. The respondents included planners, engineers, consultants, and donors. The discussions helped understand:
1. Priority aspects of FSM Management for different stakeholders
2. Content and functionality needs
3. Format/user interface that will enable usability

Survey findings

The ideas that emerged in designing the FSM toolbox were the following:
- Need for a toolkit that has a user friendly narrative guiding the user through the process. It was highlighted that information available was not organized and so not accessible, as desired. Also, if accessible, they were often not comprehensible to a common person

- It should be hosted on a neutral platform through an online portal tool which would allow everyone to access the toolbox and not just in a physical format which might restrict access to certain communities/ user-groups.

Table 1. Survey findings			
Major aspects	**Funders**	**Consultants**	**Planners/City Engineers**
The most important aspects for FSM	Technology Institutional Financial	Technology Monitoring Institutional	Technology Finance Regulatory
Widely used formats	Guidelines Technology Facts Manuals	Guidelines Technology facts Software Manuals	Guidelines Software Manuals
Common problems with toolkits	Not being easy to access. Not knowing which ones to use. Not knowing about the credibility	Not being easy to access. Not knowing about the credibility	Not being easy to find. Lacking credibility

As seen from Table 1, the most relevant aspects with respect to FSM were technology, institutional, financial, regulatory and monitoring. The key take-ways that emerged from the interviews are illustrated below.

Technology
- There was an urgent need for evidence based, decentralized data availability/planning for any toolkit to be effective
- A toolkit should deploy accurate baseline assumptions; scenarios on ground should be well represented
- It was highlighted that technology needs to accurately represent geographical data for planning purposes
- Standards should be incorporated
- Vendor options in terms of technology providers should be provided
- To make software relevant, flows and input data needs to be transparent
- A compendium of technologies which contain technology fact sheets would also need to be incorporated to make any tool effective
- Decision support tool for technology choice will be will be useful when city sanitation plans are being prepared
- This technology choice tool will be useful when city sanitation plans are being planned
- The stakeholders suggested that this tool could also play an active role in the monitoring process of an FSM project.

Finance
Funding was one area where stakeholders had different views.
- Funders were of the opinion that financial (internal methods) computations allowed them to understand the true costs of the project, cost components which could be borne by a consumer, government, and funders
- Consultants had a very different understanding of the financial world, for them understanding city plans, feasibility reports was key to identifying financial sources
- Although city managers rated finance as being important from a toolkit point of view, they did not seem to articulate the financial aspects of FSM
- It was understood that use of financial data from a toolkit point of view, needs to reveal the total costs of the project and help understand better the different components which can be borne by different stakeholders (funders, consumers, government).

Regulatory

- There was consensus that currently there was no manual/handbook which adequately covered regulatory issues
- Funders strongly felt that factsheets on regulatory issues, specifically laws, acts would help them in making better decisions on FSM projects
- City Managers studied regulatory toolkits from a practical point of view which would define limits on effluent discharge, waste disposal etc.
- There was a need felt for regulatory toolkits to address issues of acts/laws which would allow a person to know what is allowed and what is not allowed from a legal standpoint. This was voiced by a majority of consultants
- Handbooks/manuals were identified as appropriate tools to represent regulatory information.

Institutional

- Funders were vocal on their view that any toolkit should cover issues of stakeholder consultations, system transparency and local expertise
- Consultants emphasised the need for toolkits to make legal issues and role hierarchies clearer (well defined roles). This was echoed by City-Managers as well who felt that clarity in role should be crystallized
- Consultants highlighted the need for the toolkit to cover references to an act/law which allows them understand the implications of the legal instrument
- City- Managers also felt that any toolkit should have information on who was in charge, list of service providers, their roles and responsibilities.

Monitoring

- Funders felt that any monitoring toolkit should address issues of pollution – that is to say that a toolkit should be able to monitor the pollution/effluents at different stages of the project. For this they felt that a web-based tool would be useful
- This was slightly different from what consultants had to say, who felt that fact-sheets would be a good way to represent monitoring information
- City-Managers felt that 'checklists' and 'guidelines' were important for information dissemination. This was keeping in line with their thinking of being project executioners.

Lessons learnt

Insights from stakeholder interviews have been used to design the FSM toolkit. The engagement with stakeholders, before the design of the toolbox, is a critical requirement to ensure relevance and usability of any toolbox/knowledge product in terms of content, functionality and user experience. The most important principles that were taken forward to develop the FSM tool also remains true for any tool/toolkit development and include:

- Clear narrative to guide the user to the different stages/process (in this case FSM process)
- Information needs to be organized at different levels, suited for the different stakeholders
- Content should be comprehensive, but presented in a simple manner (not information overload)
- Clear methods and transparency with regard to use of formulas, models, assumptions, so that it is credible, and not a black-box.

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Note/s

[1] Urban Local Bodies can either be elected or constituted authorities in charge of urban development. In India, they are in the form of municipal corporations, municipal councils, town area committee, or notified area committee.

[2] To address the sanitation issues of a city, through a range of options that is best suited to the context of the city. For example, a dense area of the city (the city core) may be suitable for networked systems but the decentralized and/or on-site systems may be appropriate for the less dense peripheral areas.

[3] JNNURM was a multi city development plan meant to improve the quality of life and infrastructure in the cities

[4] The FSM toolbox being developed by AIT, in association with multiple partners including CSTEP is a one stop portal which aims to help city managers/consultants/policy makers arrive at decisions regarding sanitation systems (technology, finance, institutions and regulations, capacity-building) for their cities. More details regarding the toolbox can be found at <www.fsmtoolbox.com>

[5] In total, three funders, seven consultants, and four city managers responded to the survey/questionnaire

[6] 1 being most important, 5 being the least important

[7] Questionnaire was developed by AIT

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