



Financing and Business Models in FSSM

Workshop Report

New Delhi

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Background

States in India have made great strides in improving upstream sanitation (access to toilets), but Faecal Sludge and Septage Management (FSSM) has been traditionally overlooked. The eradication of open defecation and improved solid waste management has improved people's lives. However, increased toilet access without a corresponding increase in FSSM has only compounded environmental and health problems.

In recent years, there has been an increased attention on Faecal Sludge and Septage Management (FSSM) within the wider national priority through the Swachh Bharat Mission (SBM) on urban sanitation, but is overall at an early stage. This has led to a national FSSM policy and its inclusion in the new flagship program of national infrastructure programme - Atal Mission for Rejuvenation and Urban Transformation (AMRUT).

FSSM guidelines and insights into successful business models are very limited. Financing for FSSM is also very limited. While there is significant funding allocated for toilet construction (through schemes like SBM) and sewerage (through AMRUT and Bilateral/Multilateral aid), there are very limited funds available for FSSM. This is even though far more people rely on FSSM than sewerage in India, and that FSSM is a much cheaper and viable option for sanitation in the near future.



To this end, CEPT University undertook landscape studies on financing and business models to leverage funds for sustainable citywide FSSM services under the project “Financing Faecal Sludge and Septage Management Services (FSSM)” funded by Bill and Melinda Gates Foundation (BMGF). These studies are being carried out in four BMGF focused states i.e. Andhra Pradesh, Tamil Nadu, Maharashtra and Odisha. CEPT University has engaged with Dalberg Global Development Advisors for supporting these studies.

CEPT and Dalberg team presented these studies and detailed out promising business and financing models in FSSM. The studies demonstrated that there exist many promising business models in FSSM, and that it is

possible to incentivize private and public cooperation in the space in a variety of ways, depending on city types. The presentations also made the case that comprehensive and universal FSSM is very financially achievable in urban India, and can be wholly funded by government funds, with support from a wide variety of private and blended financial approaches.



The workshop, involving members of the Gates Foundation team and the relevant Technical Support Units (TSUs) and Programme Support Units (PSUs), provided valuable insights, and highlighted remaining questions and points of research. These questions are highlighted below, separated by the presentations to which they pertained.

Both presentations were the result of the landscape studies on financing and business models to leverage funds for sustainable citywide FSSM services in four states of India.

- The first presentation from CEPT University focused on current sources of funding for FSSM, required future funding for comprehensive FSSM, and the potential public finance through state and local government budgets available for sanitation.
- The second presentation from Dalberg Advisors presented promising business and financing models from a variety of case studies, both domestic and international.
- The second presentation was followed by an interactive brainstorming exercise to determine what the different participants and TSUs felt would be useful business models and financing models to deploy in their respective States

Based on the deliberations during the workshop the following key points emerged.

Financing FSM – Requirements and Approaches

Government funding for FSSM

Overall the financing requirements for FSSM capital investments are not very large as compared to total state budget size of respective state's urban development departments. There seemed to be a strong belief among the group based on the presentation that the governments have enough capital available to fund all FSSM requirements, and there should therefore be advocacy and awareness creation to that effect. It was believed that

private solutions should be focused on if and where gaps exist, but government funding should be the primary source, as FSSM is a key service delivery function of the government. However, private finance would also be important to improve efficiency improvements. This will be particularly relevant for conveyance related investments, where private sector is already active.

Some specific suggestions around state funding included:

- a. It is essential to develop a robust communication strategy for advocacy to National and state government to prioritize public finances for FSSM projects.
- b. At present, transfers from the 14th CFC are amongst the biggest sources of funding for sanitation sector in these four states. In this context, it would be useful to advocate for allocations by the 15th Central Finance Commission as well for sanitation sector especially on non-networked sanitation solutions.
- c. Innovative financing mechanisms are needed at state level to meet the O&M requirements and encourage the private players for FSSM service delivery at ULB level. For example, mechanisms such escrow account maybe established to better manage risks such as delay in payments to private sector.
- d. It would be good to work with Multilateral lenders to enable allocation of their funds for non-sewered systems. In the specific context of Tamil Nadu, ADB funds are tied up already for providing AMRUT funding for the state but there are ongoing discussions with ADB to provide funds for FSSM.

Inputs for financing requirements for FSSM



Financing requirements for all the four states were developed for both conveyance and treatment. For treatment the requirements were estimated by using a city category to capture co-treatment possibilities. There was discussion around the calculations for financing requirements for FSSM in four states. The major feedback was to share the list of key assumptions and input data used for financing requirements calculations. There was particular

concern around FSTP capex / opex data. Unit capital cost of setting up the faecal sludge treatment plants (FSTP) is based on information compiled by national PMU (KPMG). It was suggested that this information needs to be regularly updated.

Financing O&M of FSSM services

Annual O&M funding needs for provision of FSSM services in 4 states was also presented to the group. The presentation also showcased various financing options like user charges, sanitation / property tax to finance O &M of FSSM services. There were discussions amongst the group regarding which as to suitable options in state context to recover O & M cost. It was also discussed that as FSSM is mainly a local service, there is a need to undertake detailed studies on municipal financial health of the urban local bodies in four states, separately from this research project. Such studies would need to capture various aspects related to improvement of the municipal financial health to meet the O&M expenses for reliable sanitation service delivery.

Innovative Financing Models



Innovative financing models from various sectors were presented and contextualize for FSSM sector. Presentation captured the range of innovative financing sources that have been utilized to fund urban infrastructure and other projects in India and overseas and that could be utilized for FSSM in India. The group discussed the applicability of various innovative financing models in context of four states for FSSM projects. The group suggested that the capital

requirements for FSSM in four states are not huge and therefore, it would be good to explore the possibilities of using innovative financing models such as pooled finance model and results-based financing models especially in Tamil Nadu and Maharashtra for FSSM services. In the next round of work in the research, specific innovative models will be identified.

Business model approaches for FSM service chain

Early stage of business models

The group discussed that FSSM activities were currently very early stage in India and that many existing models would not qualify as true business models as they were philanthropically funded pilot programs and the economics would not scale. Therefore, it was felt that detailed analysis at a state level would need a data-based suitability assessment of business models. It was also suggested to review the business models from solid waste management sector.

Scheduled de-sludging versus demand based de-sludging

There was a lot of interest within the group in relation to scheduled de-sludging based on the experience in Maharashtra and experiences from Philippines, Malaysia, Indonesia etc. This has implications for how FSSM can be financed (through taxes) as well as leads to better capacity planning. On the other hand, several others spoke about the challenges in implementing a scheduled de-sludging paradigm.

Context specific technology adoption in states:

Considering the technology to be used for FSTPs, it was discussed that partners be cognizant of individual state needs before recommending solutions. It is also essential to give the states flexibility in terms of choosing the technology and implementation models. The partners feel that it is possible for the States to analyze 4-5 technologies on their own for FSSM. In addition, it was agreed that TSUs need to be cognizant/ cautious regarding promoting model towns where FSTPs are not yet operational for expansion at state level. There is a need to look at technology that is modular; this is something that Technology Taskforce needs to evaluate. It was also discussed that each TSU should make the efforts to incorporate the rate for selected FSTP technologies in the scheduled of rates (SORs) in respective states.

A cluster-based approach for locating FSTPs

A cluster-based approach where several smaller cities combined as a cluster to deploy and use common FSTP could be explored. There are already some early examples of this such as in Berhampur, where the ULB is inviting nearby towns to deposit sludge at its plant (tipping fee model is used). However, the group felt that there are also some challenges that need to be navigated including the optimal location of the FSTP, the creation of robust multi-party contract arrangements with adequate risk and reward sharing.



The Andhra Pradesh team described their experience of cluster-based approach that is being adopted in AP. The 78 ULBs have been organized into clusters. The technology neutral RFP is being prepared in which bidders have to select not more than two clusters to bid. However, they suggested that there were some open questions

such as the ideal cluster size and preferences for cost-sharing by private players.

Coupling of the treatment & transport stages for better viability:

There was some discussion around mechanisms to formally or loosely couple the two segments of conveyance and treatment as they have different revenue possibilities and profitability. In theory, an integrated model may help to improve overall viability, a very different set of players operate in these two segments with little (at least as of now) interest in operating in the other. The group concluded that tight coupling or bundling might be sub-optimal and might distort markets but that loose coupling through mechanisms such as tipping fees, backed by a powerful monitoring process, would be very useful in improving the economics of the treatment stage (FSTP). This would be particularly relevant where there can be significant revenues from emptying due to high presence of commercial entities. In this regard, in future, the Leh model will provide useful insights in future after operations for 2-3 years.

Feedback from group discussions**Group focused on Maharashtra:**

1. The group felt that the financing problem is quite small, but the following methods could be used for covering any funding gaps:
 - a. Pooled financing from commercial banks or an institution such as HUDCO. Such an arrangement can have multi-layered credit enhancements: (a) Each ULB is responsible for the repayment with intercepts from FC grants, (b) DCA guarantee, (c) Intercepts to be used as guarantees
 - b. Financing for opex could be through local government taxes, cess, betterment levy.
 - c. For financing of conveyance PPP models as being used in Wai and Sinnar could be used.
2. The group highlighted the following business models:
 - a. For scheduled desludging, the two cities in Maharashtra plan to use this approach. In this regard, experience from Philippines and Indonesia will be important. The group also indicated that as being used in these two cities, sanitation tax is possible for a scheduled model.
 - b. For demand-based desludging, local context is important and user fees are the preferred method of revenue collection.
 - c. Cluster based model – has the challenge of who the lead is (which GP, which ministry, what roles).
 - d. Integrated models – as this requires considerable investment commitment from the operator, it would be good to assess its workability for SMEs.

Group focused on Tamil Nadu:

1. The group highlighted exploring the following financing models:
 - a. Central Road & Infrastructure Fund. While this could be a potential model to mobilize capital funding, it will need advocacy around ear-marking and support for demand generation from States.
 - b. Planning obligations for new development (large cities on the outskirts, could work in TN) as there is some experience of using deposits by future users to part fund STPs as in the case of Alandur city
 - c. Development Impact Bond: This may be explored to fund opex in a pooled fashion for 20-30 ULBs. However, it will need to be linked to a strong monitoring system.

2. The group found the following business models to be promising:
 - a. Private fertilizer company idea
 - b. Leh integrated model across value chain

Group focused on Andhra Pradesh:

1. The group highlighted the following financing models:
 - a. Counting on the budgetary allocation of the government and implemented through a Hybrid annuity model to attract private sector funding.
 - b. Alternately, a WSPF type pooled fund if budgetary allocation does not happen.
 - c. Central Road and Infrastructure Fund (mechanism will need to be figured out).
 - d. Community infrastructure levy for new projects, new buildings / layouts – this can be taken into account.
2. The group found the following business models to be promising:
 - a. Shared FSTP (land has been a constraint). Land values in AP have increased.
 - b. Informal providers organization for desludging providers (fragmented, single owners, small associations – East / Western Godavari).

Group focused on Odisha:

1. The group highlighted the following financing models:
 - a. Convergence (different kinds of investors): Industry in the mineral sector, need to also explore– corporate funds
 - b. Zambia: Using sanitation levy along with water charges to fund sanitation in low-income settings.
2. The group found the following business models to be promising:
 - a. Bangladesh (Faridpur): Community orgs. As private players have been a challenge
 - b. Wai and Sinnar approach citywide de-sludging, to ensure/facilitate regular emptying
 - c. Common-FSTP for two cities depending on the distance factors

List of Participants

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