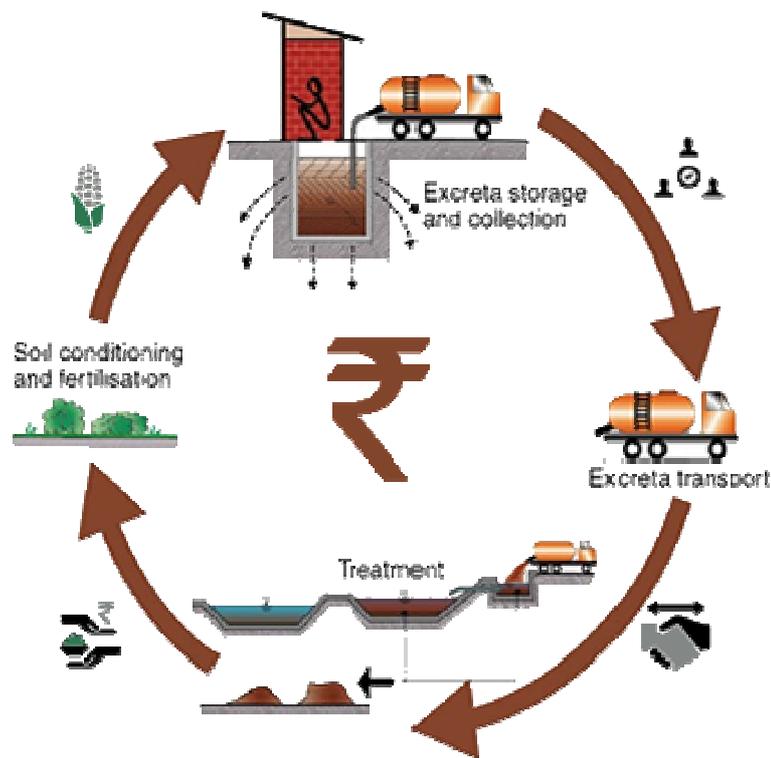


Learning Note for Bihar

on

FINANCING & PROCUREMENT OF FECAL SLUDGE MANAGEMENT (FSM) PROJECTS

SANITATION CAPACITY BUILDING PLATFORM (SCBP)



Background

The urban sector in India has been witnessing a flurry of activities in terms of the various Government sponsored schemes and programs like the 'Swachh Bharat Mission (SBM)', the 'Atal Mission for Rejuvenation and Urban Transformation (AMRUT)', Smart Cities Mission etc. which aim at providing universal access to urban services to all segments of the society. However, given the rate at which the urban areas have been expanding, coverage of all areas of the city/ies with more evidently in case of water and sanitation with conventional centralized-sewerage systems is turning into a very capital intensive affair. Hence, local and financially sustainable options in terms of decentralized sanitation infrastructure are fast emerging as the most practicable solution to address the needs of the un-served areas.

Experience of the sector in the past few decades indicates that most of the projects planned for providing water and sanitation services have largely been focussed on networked and large scale centralized systems. These projects by themselves are riddled with various issues like lack of funds for operation and maintenance, 100% connectivity issues, availability of sufficient water and power for running the system, monitoring issues etc. Though decentralized sanitation system of fecal sludge management has been in practise, the level of services is abysmal given the lack of financial feasibility/funding options, proper regulation and monitoring and knowledge in terms of choosing the right technology option for a particular locality. Hence, in the absence of a formal system of providing decentralized sanitation systems, the Municipalities/Urban Local Bodies find it difficult to conceive and implement such projects on ground even though they are easier to implement and low cost solution compared to water and power intensive centralised systems.

About the Sanitation Capacity Building Platform (SCBP)

In order to address the above mentioned challenges, the National Institute of Urban Affairs (NIUA) among its various urban sector initiatives has set up of the '**Sanitation Capacity Building Platform**' (SCBP). The SCBP would provide a continued hand-holding support to the States/ULBs in providing sanitation services as NIUA will work closely with various partners to form different modules which can be assembled into courses of training.

Orientation Workshop in Bhagalpur

As a part of activities of the SCBP, the cities of Bhagalpur and Hajipur have been identified in the State of Bihar for piloting a Fecal Sludge Management (FSM) project on ground. In order to provide a basic introduction to the concept and to help the ULB officials in understanding the procedures involved in planning, designing, financing, procuring and implementing an FSM project at a city level, a "Two-day orientation workshop on Fecal Sludge Management" has been organized in Bhagalpur on 18th & 19th of January 2016.

Some of the key decision points in the financial planning and procurement of FSM projects are provided below which are intended to help the reader understanding the key takeaways from the sessions

How can an FSM project be initiated in a city and what are the key activities to be carried out?

For any project to be successful, a few project development/preparation activities would need to be carried out including the following:

- Needs assessment- It is important to ascertain that there is a sufficient need for the project. In case of an FSM project, it would be essential to estimate the size/population of people/households which are using on-site sanitation systems like septic tanks, soak pits or any other such systems. Once this is established, there should be a sufficient number of septage extraction trucks in the city to meet the demand of such population. This would include both Government as well as private truck operators. Once both it is established that a sizable project can be planned, the next activity would need to be undertaken
- Technical feasibility- It is a known fact that sewerage networks are both capital as well as water intensive. In the situation of lack of drinking water itself, it puts a lot of pressure on the system to function smoothly, further the huge requirement of power and heavy investments to construct and maintain such systems, it would be prudent to opt for decentralized low cost treatment systems. There are several technology options for planning fecal sludge treatment. Each option would need to be assessed in terms of pros and cons to arrive at the most suitable technology option for a particular city. The required land for the same would also need to be identified as the final activity
- Financial feasibility- Once the right technology and land for the project has been chosen, the financial viability for implementing the same would need to be assessed. This would require a detailed estimate of the construction and operation costs, revenues from the services, available options for financing the project etc. Based on these estimates, the sustainability of the project would be assessed in order to plan the future activities for the same, which would include necessary project approvals for budgeting or viability gap funding in case project is not financially sustainable.
- Project structuring- Any project would be associated with various risks, such risks need to be identified and planned to be borne by the party which is most competent for the same. The other aspects like duration of contract, payment mechanism, performance standards and monitoring, penal provisions etc. would need to be decided as a part of the structuring exercise.
- Procurement of services- Like any other municipal services, the procurement of FSM services would need to be carried out through a transparent tendering process.
- Monitoring and regulation- Once project has been initiated, a continued strong monitoring system would need to be laid out for ensuring smooth functioning of the project and efficient service delivery to the public.

What are the key success factors for making an FSM project viable?

The first step to project financing would be the source of finances. If funds are available under a Government sponsored scheme (like AMRUT, Swachha Bharat Mission, BRGF, etc.) the sourcing would be easier for a city. This would need to be done under the procedures laid out by the guidelines of such schemes. In cases where such funds are not available, alternative sources would need to be tapped like funding by multilateral development agencies/foundations, CSR funding through private sector, etc. There are also low interest rate loans available through Micro-Financing Institutions and the National Safai Karmachari Finance & Development Corporation. The other factors would include the demand for FSM services and revenues possible during operation periods which should not only be sufficient to cover the operating costs but also recover the initial investment in the project in due course.

How to choose a funding option for undertaking an FSM project in the city?

As there are several financing options, each would need to be assessed to estimate the cost of availing the same by the city. While doing this, the possible revenues from the project would need to be assessed which should be sufficient to cover the costs of such investment and recovery of the same for the funding party. Obtaining approvals for the concerned authority/ies is also crucial for getting the funds in right time and hence this would also be an important deciding factor in choosing the source of funding for the project.

How can the operating expenses of an FSM project be met?

The key sources of revenues to meet the operating expenses in case of an FSM project would be the user charges for extraction of septage from the septic tanks. But it has been the general experience, that this single source is not sufficient to overcome expenses. Hence the city may want to explore other avenues for increasing revenues which could be through advertising, charging an additional sanitation cess either separately or as a part of the property tax, explore revenue through sale of compost and treated wastewater for non-potable uses (by-products of an FSM project), cross subsidize the FSM services with any other profitable service, sanitation revolving funds or through any external funding support in the form of viability gap funding.

Which are the key risks in an FSM project and how to assess these?

For ensuring the smooth functioning of a project, the probable risks would need to be assessed upfront before implementation. These key risks can be categorized into mainly following three categories:

- Financial risks which would include the un-availability of funds or part of it after starting work on project, feasibility of the project during operations stage (which could be a result of improper cost or revenue estimated during planning), sustainability of the project etc.
- Implementation risks including a lack of demand for the project leading to its failure, delays in construction, operational issues (insufficient fecal sludge disposal at the treatment facility, untimely emptying of septic tanks, quality of input & output, unruly open dumping of septage into open water bodies etc.), availability of a matured market for such services etc.
- Regulatory risks- The reason why FSM services are a grey area today is that there is no sufficient regulatory and policy support for the same, however if this continues, there will be issues in project implementation. Other such risks would include improper monitoring, environmental hazards, stringent penal provisions leading to stalling of project etc.

How can the risks identified be mitigated in a project?

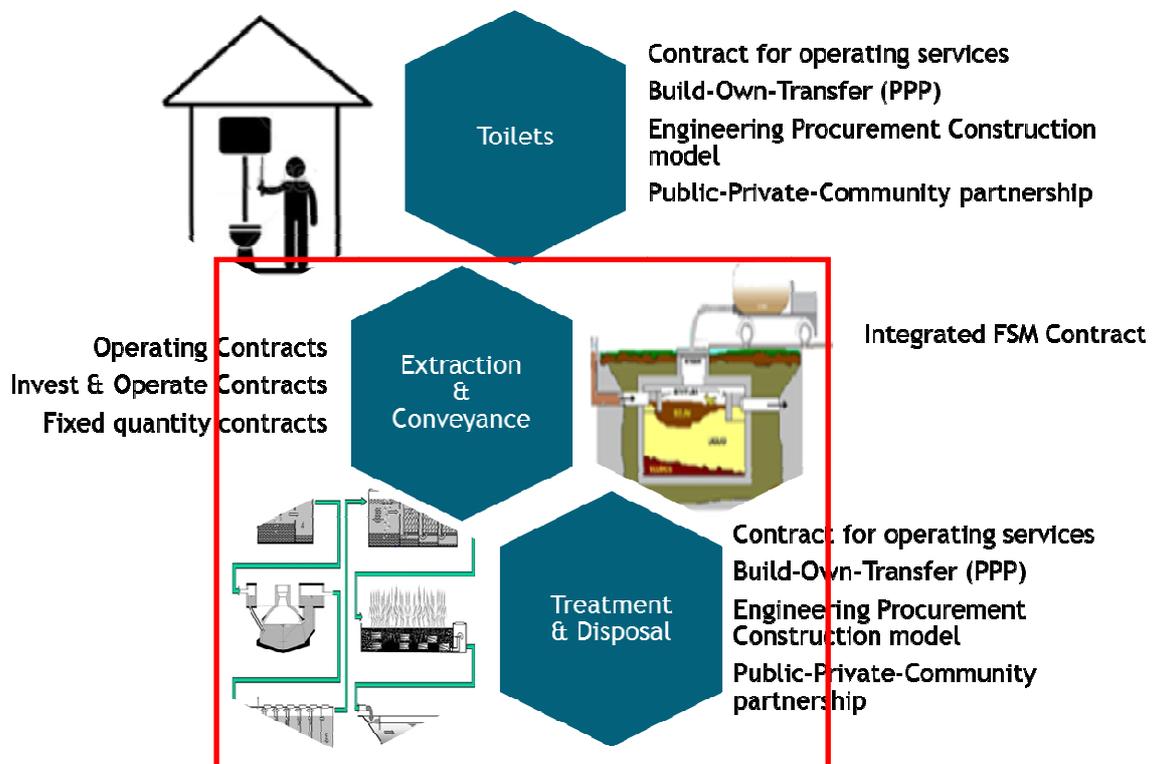
Once the key risks have been identified, it would be essential to also identify the party which is most capable of bearing the same for example in case of a regulatory risk, the Government or ULB would be most suited in bearing these risks as legal and institutional issues are better handled by such authorities. This would be ensured by including suitable clauses reflecting the same in the Contract document. Some such measures are indicated in the table below:

Key risks	Responsible Party	Suggested mitigation measures
Delay in land transfer	ULB	Penalty for delay in transfer
Financial Closure (Sponsor Risk)	ULB and/or Private Operator/Service Provider	Tie-ups/Identification & approval of sources within a stipulated period

Key risks	Responsible Party	Suggested mitigation measures
Delay in project execution	Private Operator/Service Provider	<ul style="list-style-type: none"> Clearly defined milestones Penalty mechanism
Design Risk	Private Operator/Service Provider	<ul style="list-style-type: none"> Monitoring-Third party inspection/Independent Engineer Damages/penalty clause
O & M Risk	Private Operator/Service Provider	Performance standards/penalty clause
Abandonment of project	ULB and/or Private Operator/Service Provider	Termination payment
Market risk	Other stakeholders	Change of scope
Payment risk	ULB	Penalty mechanism/termination payment

What are the different contractual frameworks for procuring FSM services?

There are different types of contracts which need to be assessed for the city in terms of availability of funds (for construction and operations), manpower, technical know-how, management efficiency etc. which could be an EPC (Engineering, procurement & construction), turnkey, O&M (Operation & Maintenance) or a PPP (Public Private Partnership- which has different variations) contract. The diagram below lists the possible contracting option across the sanitation value chain:



What are the key features of the different forms of contracts in FSM?

The contracts for each phase of the sanitation value chain would include:

1. Extraction & conveyance contracts- For only emptying of septic tanks and transporting the septage to the designated locations by the ULB. This activity could be undertaken under two types of contracts-
 - a. Procurement contract for only purchasing of the vacuum/septage extraction tanker which is the standard practise followed by ULBs for any vehicle for public use. This would be possible when the ULB has sufficient funds to purchase new vehicles. This would be followed by
 - b. O & M Contract- The vehicle purchased with ULB funds would be operated by a private operator under this contract. Can be done with an option of the operator collecting user charges from households and sharing a portion (after meeting its O&M expenses) with the ULB or collecting fixed monthly fees from ULB for O&M (in which case the user charges are either directly collected from households or from operator on behalf of ULB)
 - c. Conveyance Contract- Under this framework, a private operator would procure the truck through its own resources and collect user charges from households or get paid by the ULB (which in turn would collect user charges, taxes etc.)
2. Treatment & disposal contracts- for the fecal sludge treatment plant (FSTP) which could be done through the following frameworks provided land has been provided by the ULB-
 - a. BOT (Build-Operate-Transfer) Contract where the private developer would construct and operate the FSTP with its own funds on the land provided by ULB for a fixed contract period and get an annual annuity or periodical payment from ULB to meet both construction and operating expenses. Suitable for cities which may not be able to mobilize funds for implementation of the project.
 - b. EPC Contract-Where the ULB would provide both land and funds for construction of the project which could be in the form of a Turnkey project where the private operator will design and construct the project and operate for a minimum period of 1-3 years after which ULB would take over the operations. Suitable for cities which can mobilize funds for the project.
 - c. The above mentioned EPC contract would need to be followed by an O&M contract where a private operator would need to take over the operation and maintenance of the project. Payment for the same would be made on a periodical basis by the ULB, the private operator may also be given the rights to make additional revenues by sale of compost for increasing the viability of the project.
3. Integrated contracts-where the entire activity of extraction, conveyance, treatment and disposal of the septage is handed over to a private operator (this can be compared to an integrated solid waste management project where the operator is responsible for door-to-door collection, transportation, treatment and disposal activities for an entire city). There could be two options of implementing this kind of a contract-
 - a. Investment by the private operator in which case the firm is given the rights to collect user charges and make additional revenues by any other means as acceptable to the ULB
 - b. Investments made by the ULB under existing schemes/programs/funding options, the private operator in this case will only design- construct-operate- transfer the facilities to the ULB at the end of the contract period
 - c. Part investment by the private operator and part by the ULB based on financial viability of the project

In all the above contractual frameworks, the ULB would need to plan the financing of the project right from construction to operation & maintenance as well as replacement or augmentation of the project if required. For this various alternative mechanisms for increasing revenues would need to be explored and utilized like a sanitation cess, additional property tax, advertising, etc. which would need to be undertaken through a well planned and comprehensive consultative process with the support of the local council/mayoral system as well as public participation.

Who would be the key stakeholders for ensuring success of an FSM project in the city?

The success of an FSM project can be ensured with an equal participation and support of all the following stakeholders:

- State/Central Government Department/Agencies- for financing, approvals as well as a regulatory framework (in the form of relevant policies/Acts etc.)
- All the concerned departments of the ULB- including Administrative wing, political wing (consisting of mayors/council members/ward Corporators), Engineering division, Accounts & Finance division, Health & Sanitary officials etc.
- Private sector- Local contractors, technical design and transaction advisory consultants, developers, etc.
- Resident Welfare Associations (RWAs)/ Community groups/prominent citizens/local institutions/NGOs for propagation/IEC/awareness creation as well as project implementation support
- Households/end users in terms of taking services and paying necessary user charges
- Banks, Micro Financing Institutions, Private Corporates (for CSR funding), development agencies, foundations/NGOs, local politicians, State level parastatals etc. for funding/financing support