



# FSSM Workshop for Private Enterprises

Pune

October, 2018

## Workshop on Faecal Sludge and Septage Management (FSSM) for Private enterprises

### Workshop report

Over the past 5 years sanitation has been on the forefront development agenda in India. The Government of India's Swachh Bharat Mission (SBM) and AMRUT program have targeted eradication of open defecation by providing proper sanitation infrastructure in all cities. However, beyond toilets, only a few cities have sewerage network and a large number of cities are fully dependent on onsite sanitation systems. The Government of India (GoI) has also realized that eradicating open defecation is only half the battle. For improving citywide sanitation situation, faecal sludge and wastewater generated from on-site sanitation systems will also need to be safely managed.

It is in this context that Government of India, Ministry of Housing and Urban Affairs (MoHUA) issued a National Faecal Sludge and Septage Management (FSSM) Policy in 2017. In recent years there is an increasing amount of work being done on FSSM. Given the limited technical and financial capacity of ULBs, the role of private sector will be crucial in implementation of citywide FSSM services. For this, an assessment of the private sector and discussions with them will be significant to build mutually beneficial business models for FSSM.

To explore the private sector interest, Center for Water and Sanitation (CWAS) at CEPT University along with Ecosan Services Foundation had organized a two-day workshop on 22nd and 23rd October, 2018 in Pune. The participants of the workshop included private enterprises, entrepreneurs as well as academicians. The workshop aimed to appraise the private sector enterprises regarding the emerging demand and market opportunities in the FSSM sector, and to understand their opinions and concerns.



### Need to increase awareness of the private sector about the potential scale of FSSM in Maharashtra

In Maharashtra, 340 cities (of the total 384 cities) are completely dependent on onsite sanitation systems. At present, 35 cities have Sewage Treatment Plants (STP) and 9 more cities have proposed STPs under AMRUT programme. In cities dependent on on-site systems, septic tanks are emptied only when they are full, often once in 8 to 10 years. The septage that is collected by the ULB or private emptier is indiscriminately disposed of on open lands or water bodies without any treatment. It is estimated that nearly 58 lakh households in Maharashtra will continue to depend on FSSM by the year 2022.

The State government of Maharashtra has recognised that it is important to ensure that cities sustain their ODF status over time. Its sustainability charter mentions FSSM as a key point. This requires that faecal sludge is properly collected, conveyed, treated and reused. This entire service chain has been recognized by the Government of Maharashtra (GoM) in its government resolution on ODF, ODF+ and ODF++ framework. Wai and Sinnar, two small towns of Maharashtra are the first cities in India to implement scheduled emptying service by involving private sector along with faecal sludge treatment plants. Their experiences in FSSM are now planned to be scaled up in the remaining 300 cities of Maharashtra, which do not have FSTPs.



It is also recognized that the city governments in small and medium towns face challenges of low institutional capacity, chronic shortage of technical staff, limited technical know-how and restricted access to financial resources for planning and implementation of FSSM services. The private sector can bring in financial and institutional resources that complement local government efforts. The local governments will have to engage and work with the private sector for ensuring proper implementation of FSSM services.

The private sector participants at the workshop highlighted that they were not aware of the potential scale of the market and business opportunities in FSSM in the state of Maharashtra. It was suggested that more dissemination and awareness activities are required for private enterprises in view of nascent stage of FSSM sector.

### Business opportunities in conveyance through scheduled emptying services

During the workshop, the participants were exposed to various business models for conveyance. It was highlighted that existing practice of emptying septic tanks as “emergency complaint redressal system” results in much higher user charges and irregular or delayed service. This also puts a threat to public health and environment. As the national policies on FSSM has recommended, cleaning of septic tanks once in every 2 to 3 years, referred to as “scheduled emptying” of septic tanks, needs to be practiced. Wai is the first city in India to take up scheduled emptying using a public-private

partnership model. The experience of “citywide” scheduled emptying in Wai was presented depicting how ULB and private enterprise joined hands to build a mutually beneficial business model.

Different emptying business models were discussed, for both demand and scheduled emptying.

Sr. no.	Business model description	Role of private sector enterprise
	<b>Demand Based emptying</b>	
1	Fully private (truck capex and operations), user charges	Private enterprise- desludger buys own trucks; undertake emptying operation after licensing or registration from local government and collects user charges.
2	Fully government (truck capex and operations), user charges	-
3	Private sector led with government capex (truck capex by government and operations by private) with user charges	Private enterprise lease vehicles from the government. Provide cleaning in response to service requests from HHs. User charges are either collected by private operator or by local government.
	<b>Scheduled Emptying</b>	
4	Performance linked annuity models (truck capex and operation by private), sanitation tax	Private enterprise buy trucks through self-financing or market debt; Private operators are given a contract and a license to operate in the city and carry out scheduled desludging operations on pre-determined scheduled set (number of septic tanks to be emptied daily) by local government. The city collects a special tax from households to finance the operations. Predetermined fees are given to the private operators per household.
5	PSP service contract (truck capex by government and operation by private), sanitation tax	Only difference from the previous model is that Private enterprise lease trucks from the government and carry out desludging operations.

While the models under demand based emptying category are common in Indian cities, private enterprises were keenly interested in scheduled emptying through performance linked annuity models backed by sanitation and property tax. Under this model, ULB appoints the private enterprise to carry out scheduled emptying service in the city. The capex cost of the truck and opex cost of the emptying service will be initially mobilized by the private enterprise which will be paid back by the local government using annuity payments. The private enterprise will be paid on its performance linked to the number of septic tanks emptied. The household will pay the sanitation tax to the local government, which will ensure that adequate funds are available to recover the cost of emptying service. Thus, through performance-based contracts, customers were assured of a high quality service with low pricing through sanitation tax due to economies of scale.

The risk of late payment raised by private enterprises was mitigated through escrow account mechanisms. The concept of “escrow” account mechanism was well appreciated by the private sector.

However, it was observed that there is a common hesitation among the private enterprises to work with the local government because of multiple risk factors like late payments and lack of awareness about the possible business options.

**Escrow account mechanism:** The participants emphasized that the tripartite escrow account as a risk mitigation mechanism for the private sector, must not remain a special case innovation or a prerogative of the local government while structuring a contract. It should become a mandate for engaging private sector. Delayed payments by state or local governments or their entities were highlighted by most private sector companies as a major risk. To manage this risk better, an escrow account mechanism has been used in annuity-based models for private sector investments in both conveyance and treatment. In the case of annuity-based models for conveyance, in Maharashtra cities a risk reserve fund of three months of payments has been kept in the escrow account. This is further backed by a council order to pay direct monthly allocations to the escrow account. This mechanism is now being attempted by cities in Odisha.



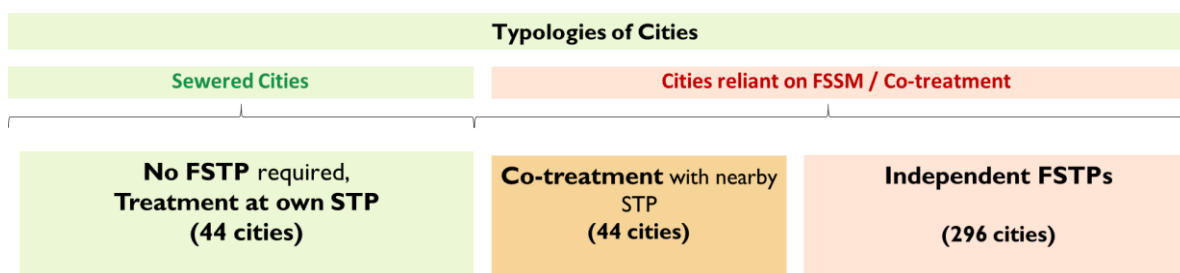
**Appropriate regulatory and policy guidelines at the state level to minimize risks**

In order to mitigate payment risks, private sector expressed need for regulatory measures and formulation of guidelines at the state level. The modalities of private sector engagement with city governments or other parastatal agencies require clearly spelling out mandates, leaving no room for ambiguity regarding roles and responsibilities of ULBs, private players, and households. For example, for desludging operations, guidelines for license to operate should be prepared at state level. Similarly for treatment of faecal sludge, there should be clear guideline/standards prescribed by MPCB.

Risk management also necessitates that the contracts are bid out and processed through normal government procedures. This would ensure that transfer of key officials or a change in government will not put the project in jeopardy and its continuance and timely payments are ensured. Institutionalizing all these aspects is very important.

**Treatment technologies and business models – potentials and challenges**

Figure 1 Treatment technology options for different types of cities



Different treatment options for FSSM are possible for different typologies of cities, for example: large cities can co-treat faecal sludge at their own STP, towns in 20 km vicinity of cities with STP can explore co-treatment with nearby city STP, while other cities need to treat septage at independent Faecal Sludge Treatment Plant (FSTP) as shown in figure 1. The treatment facility can be implemented either through Detailed Project Report (DPR) based or DBOT based tenders covering key clauses in terms of land availability, O&M, payment terms etc.



Once the basic types of treatment technologies were explained to the participants, the discussion revolved around types of treatment business models for implementing these technologies. Essentially, three types of business models along with their examples were discussed:

Sr. no.	Business model description	Role of private sector enterprise
1	Government funded and privately operated FSTP plant (E.g.: Sinner)	The government funds plant capex; A private enterprise operates the plant, working under an O&M contract with the State/local government.
2	Privately funded treatment (e.g. AP, Leh and Telangana)	The private enterprise funds plant capex fully or partially with the rest borne by the government. Private enterprise also undertakes construction, operation and maintenance of a treatment plant.
3	Funded by philanthropic organisation and privately operated treatment (e.g. Wai and Warangal)	The private enterprise constructs and operates the treatment plant working with the philanthropic funder to develop and test treatment technologies or models.

While there was reluctance among the private enterprises to invest in treatment capex, they showed willingness to construct, operate and maintain the treatment facility for 3-5 years with government funding. They also suggested that treatment cost has to be essentially borne by the local government.

The private sector participants expressed their concerns about the Hybrid Annuity Model (HAM) of Andhra Pradesh and emphasized its possible bias towards large enterprises as small enterprises may not have the capacity and finance to participate in the bids. Under the HAM model, private sector is expected to bring upfront 50% of the capex cost which will be repaid by the government in the form of annuity payment over the 10 years of O&M period. They also indicated that bundling of FSTPs in packages appears more favourable to large enterprises. Large private enterprises look at this as very small market as compared to large STPs, while the small enterprises may not have adequate financial capacity for it. They highlighted that FS technology is not that different and difficult but there are limited private enterprises available for this market.

## Integrated/bundled vs. Independent enterprises in FSSM



There was discussion regarding whether the city should have independent contracts with private enterprises for conveyance and treatment or integrated contract with a single private enterprise. While most participants agreed that from the ULB perspective a single operator for conveyance and treatment may imply ease and simplicity of reporting and

monitoring, many of the private enterprises expressed hesitation about integrated contracts as it required private enterprises to enter an area of business which may not be their forte. In the process it may lead to crowding out of expertise of smaller independent entrepreneurs.

## Can FSSM be made a “profitable” business?

Most participants were convinced that FSSM can be a “profitable” business if the process is regularized and sufficient support from the government is received to mitigate risk of delayed payments. Private sector will be interested to enter this market if appropriate policies and government support are available.

The following challenges were highlighted by the private sector in both conveyance and treatment business models of FSSM.



## Emptying Challenges

- The most likely cost implication in emptying business is the varying fuel pricing. They suggested that variable fuel costs should be the part of tender document itself and monthly payment should be factored in actual fuel cost or indexed to fuel prices.
- Because of variations in sizes of septic tanks in most cities, they suggested that emptying payments should be linked to per trip or per km basis rather than per septic tank emptied. However, it was also discussed that alternative methods are needed as trip-based payments can lead to inflating number of trips.

- Participants also suggested that minimum contract period of emptying should be 2-3 years to recover the capex cost invested in trucks. According to them, a too long or too short contract period should be avoided to give more flexibility to private operator.

#### **Treatment challenges**

- The operational cost for treatment is often difficult to recover through reuse revenue or user charges through tipping fees. This has to be mainly funded by local government. Reuse of treated sludge and water also requires developed markets, in view of the prevailing subsidies for chemical fertilizers. More advocacy and innovation is needed to develop these markets.

#### **Challenges in working with local government**

- The participants suggested that to avoid late or no payment risk, there should payment guarantee support provided from Government of Maharashtra.
- One common risk highlighted by the groups was availability of labour. They highlighted that it is difficult to retain the existing labour from informal sector and there is less willingness among people to take up the jobs and enter this sector. There is a strong need to spread awareness among people to remove social taboos.
- Political influence and inflation are common constraints for both conveyance and treatment parts of FSSM. Therefore policy guidelines and regulations are required.

#### **Support requested from government**

- For encouraging entrepreneurs/ private sector entering in the FSSM market, an approach to incentivize private sector in form of subsidies or tax incentive was also suggested.
- “Planning and data collection” followed by scientific assessment, are tedious but necessary tasks. This is also major constraint for the private enterprises entering into this market where they would require further support and guidance.



## Way forward

The two-day training workshop on FSSM served to increase awareness among the private enterprises that are already involved in the sector, as well as with potential entrepreneurs who are willing to take up a career in FSSM. Key concerns raised by the private sector participants were the lack of awareness of scale of business opportunities in FSSM, delay in payments by government and the need for policies at state level to regularize private sector participation in FSSM. In order to resolve these issues and mitigate risks, there is a strong need for appropriate regulatory and policy guidelines at the state level. Increased support from local and state government would certainly ensure higher confidence and willingness among private enterprises to participate in FSSM sector.

As this training workshop catered to a small group of private enterprises, there is a need to scale up such awareness generation activities to increase willingness of private operators to work with local government in FSSM sector. If such awareness initiatives are taken up by the state government, private operators will be keen to provide FSSM services. Also, in future, such workshops need to be followed by exposure visits to cities where private enterprises are active. This would add value to the training.



## List of Participants

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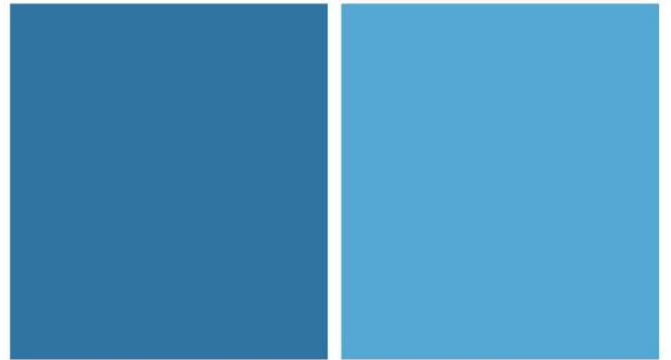
## Workshop Agenda

## Day 1

Time	Session
9.30 - 10.15	Registration
10.15 - 10.45	Setting up the ground!
10.45 - 11.30	Need of FSSM and its potential scale in India
11.30 - 11.45	Coffee Break
11.45 - 12.30	Sludge quantification and characterization
12.30 - 13.15	Conveyance technologies
13.15 - 14.30	Lunch
14.30 - 15.15	Conveyance Business models
15.15 - 16.00	Group exercise
16.00 - 16.15	Coffee Break
16.15 - 16.50	Group exercise
16.50 - 17.00	End of First Day

## Day 2

Time	Session
10.00 - 10.15	Recap
10.15 - 11.15	Sludge treatment processes
11.15 - 11.30	Coffee Break
11.30 - 12.30	Treatment technologies: non-mechanized/mechanized
12.30 - 13.15	Treatment Business models
13.15 - 14.30	Lunch
14.30 - 15.15	Session on different types of Tenders/Contract
15.15 - 16.00	Financing FSSM service
16.00 - 16.15	Coffee Break
16.15 - 16.30	Rapid fire pitching
16.30 - 17.00	Wrap up



The Center for Water and Sanitation (C-WAS) at CEPT University carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services. In recent years C-WAS has focused its work on urban sanitation.