

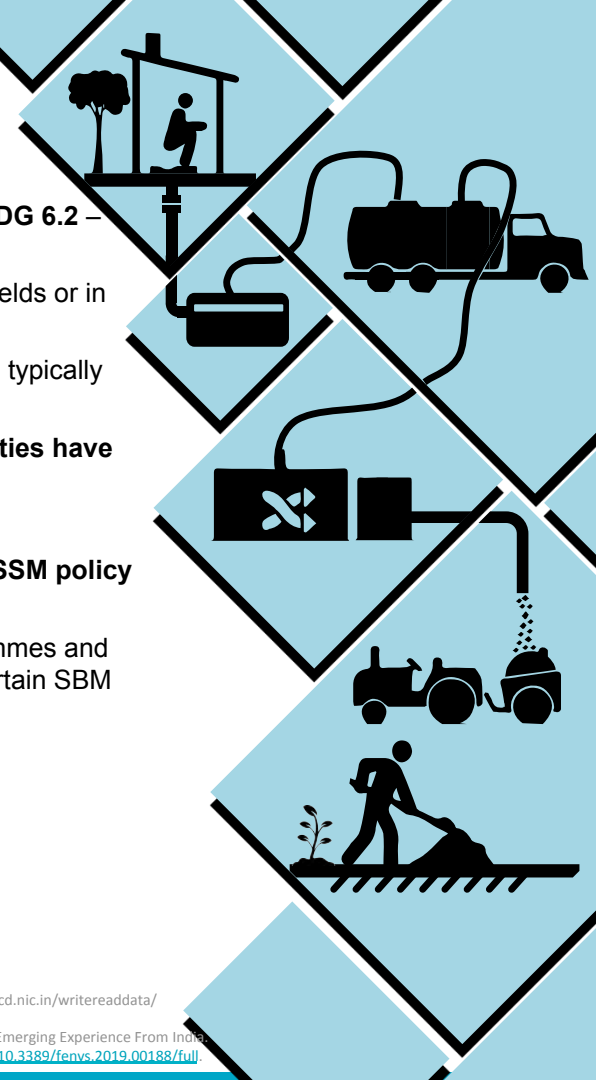
Training on Financing and Contracting Options for FSSM

Part A - Presentation slides



About this training module on Financing and Contracting Options for FSSM

- After making cities ODF under Swachh Bharat Mission, now, need to think 'beyond toilets' for achieving **SDG 6.2** – focus on **conveyance, treatment and also reuse** for “safely managed sanitation”
 - ~ 70% of wastewater remains untreated¹ and discharged in the domestic environment, agriculture fields or in water bodies
 - Conventionally, “beyond toilet” entails treatment plants connected to large scale sewerage systems, typically funded by central and state government programmes
 - ... but only 400/4700 Indian cities, have sewerage connections with treatment plant². **Most small cities have on-site sanitation systems**, which are financially viable for smaller cities² to service and manage.
- FSSM is a viable solution
 - **Faecal Sludge and Septage Management (FSSM)** now recognized nationally through **National FSSM policy** and missions and activities such as **Swachh Sarvekshan** and **AMRUT programme**.
 - Indian states now evolving FSSM strategies and implementing in cities through various state programmes and funds. Government of India has also made available programmatic funding through AMRUT and certain SBM components.
- This module focuses on –
 - how cities can leverage available public funds,
 - augment these with private financing and encourage private sector role in service delivery
 - explore other blended and innovative financing mechanisms.
 - guidance on potential service and operation models in FSSM for both conveyance and treatment.



Learning objectives for this training

What does this training expect the participants to learn?



1. Become familiar with the FSSM finance scenario in India and mechanisms adopted by states/ cities



2. Understand components of different FSSM business models for conveyance and treatment



3. Understanding processes for contracting with private sector and build balanced contracts



4. Understand financial requirements, potential sources and budgeting for operationalizing FSSM in a city



5. Learn about emerging innovative mechanisms for FSSM projects

What can participants expect to do after this training?



Select an appropriate model for providing FSSM services in their city



Develop viable options for financing this model



Select a private player for providing services



Develop appropriate contracts for engaging private players

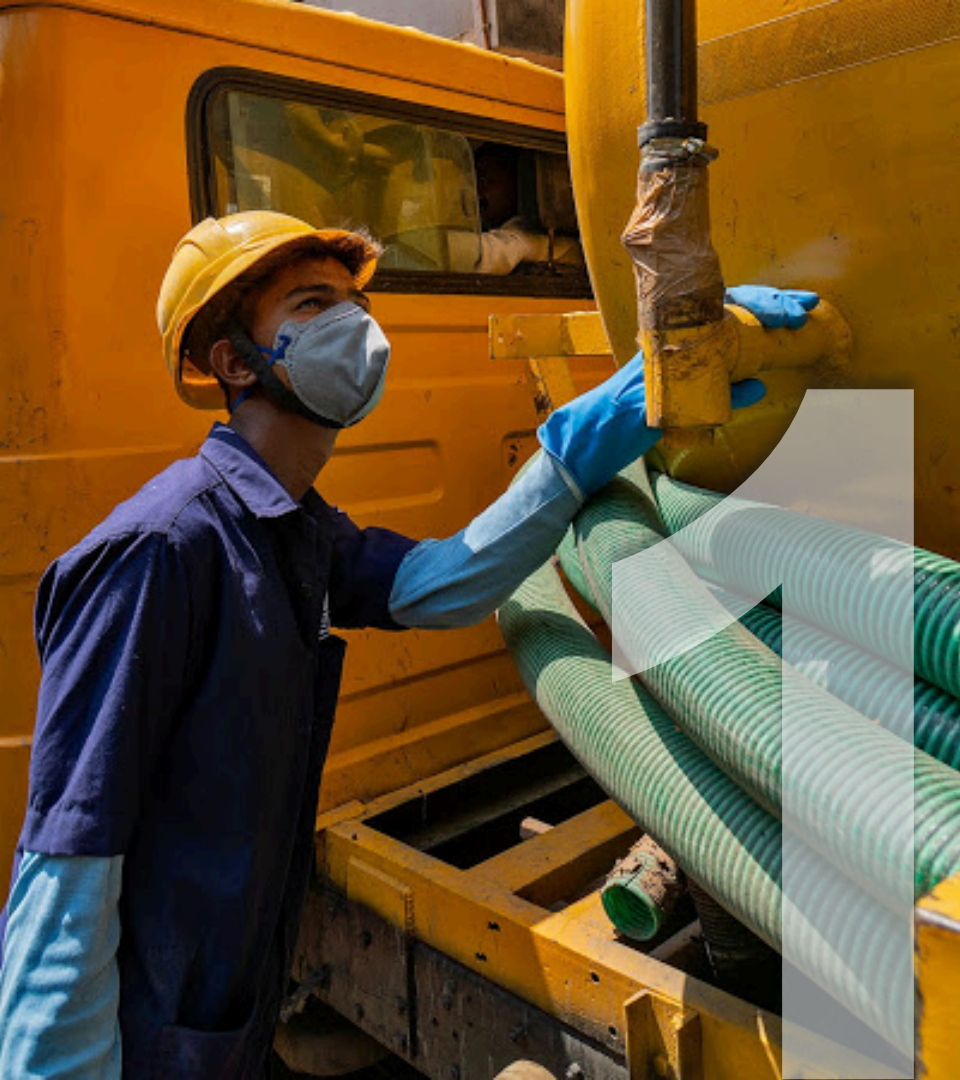
Structure of the training

Session	Session 1 FSSM finance in India	Session 2 Business models for conveyance	Session3 Business models for treatment	Session 4 Private sector partnerships and contract management	Session 5 Innovative Financing options
Objectives	<ul style="list-style-type: none"> • To stress on the emerging importance and emphasis on FSSM in India • Refresh concepts of sanitation value chain, steps for operationalising FSSM in a city, financial requirements for FSSM and potential sources for CapEx and OpEx • Understand the current scenario of FSSM finance in India 	<ul style="list-style-type: none"> • Introduce the types of service models for operationalizing scheduled/ demand based desludging • Understand benefits, challenges, applicability for each model as well as operational and financial roles • Become familiar with national/ international case studies of business models in conveyance 	<ul style="list-style-type: none"> • Introduce the types of models for treatment • Understand benefits, challenges, applicability for each model as well as operational and financial roles • Become familiar with national/ international case studies of business models in treatment 	<ul style="list-style-type: none"> • Understand the need and scope of involving private sector in FSSM • Understand the procurement and contracting process • Understand the components of successful contracts for engaging the private sector – for conveyance of FS and for operation of FSTP 	<ul style="list-style-type: none"> • Understand potential to utilize public funds for leveraging innovative / blended finance and attract private/ commercial funds and impact investors • Understand different innovative financing options like Blended finance, Development Impact Bond, Pooled funds, market borrowings, etc. for FSSM • Present case studies/videos to explain different innovative financing options
Activity	<p>Activity 1 Pre – assessment quiz</p> <p>Activity 2A FSSM Infrastructure estimation for a city</p> <p>Activity 2B State budget estimation for FSSM services</p>	<p>Activity 3 Quiz on PLAM desludging service</p> <p>Activity 4 Building a model for a financially feasible desludging business in a city</p>	<p>Activity 5 FSSM business model canvas for identifying suitable service in a city</p>	<p>Activity 6A Procurement plan</p> <p>Activity 6B Setting goals for drafting contracts</p> <p>Activity 6C Options for overcoming case specific contracting challenges</p>	<p>Activity 7 Video case study and quiz on new and emerging financing options</p>

Activity 1

Pre-assessment quiz

Refer to exercise workbook



Session 1

FSSM Finance in India

CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

Session Objectives



Make a case for FSSM as a solution for safely managed sanitation for which there is growing recognition



Become acquainted with the status of FSSM sector in India



Know the basics of FSSM implementation



Understand financial requirements and emerging solutions for FSSM in cities

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1

Growing significance of FSSM in India

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What does FSSM implementation entail?

3

Financial requirements for FSSM in cities



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Growing significance of FSSM in India

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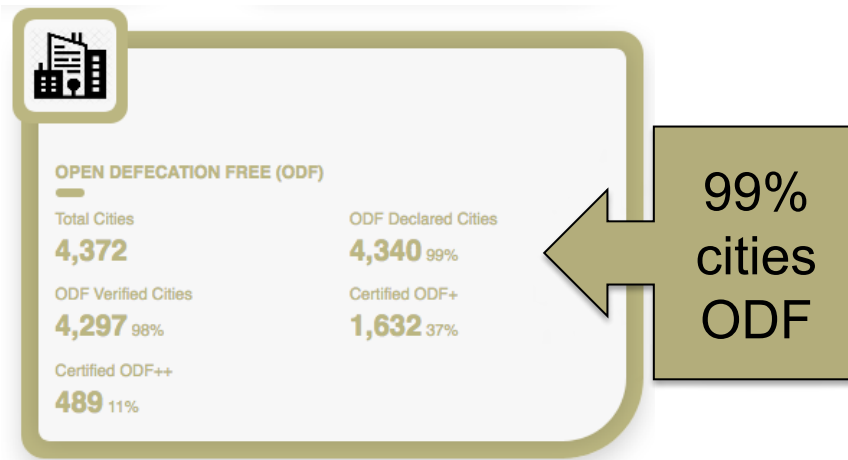
What does FSSM implementation entail?

3

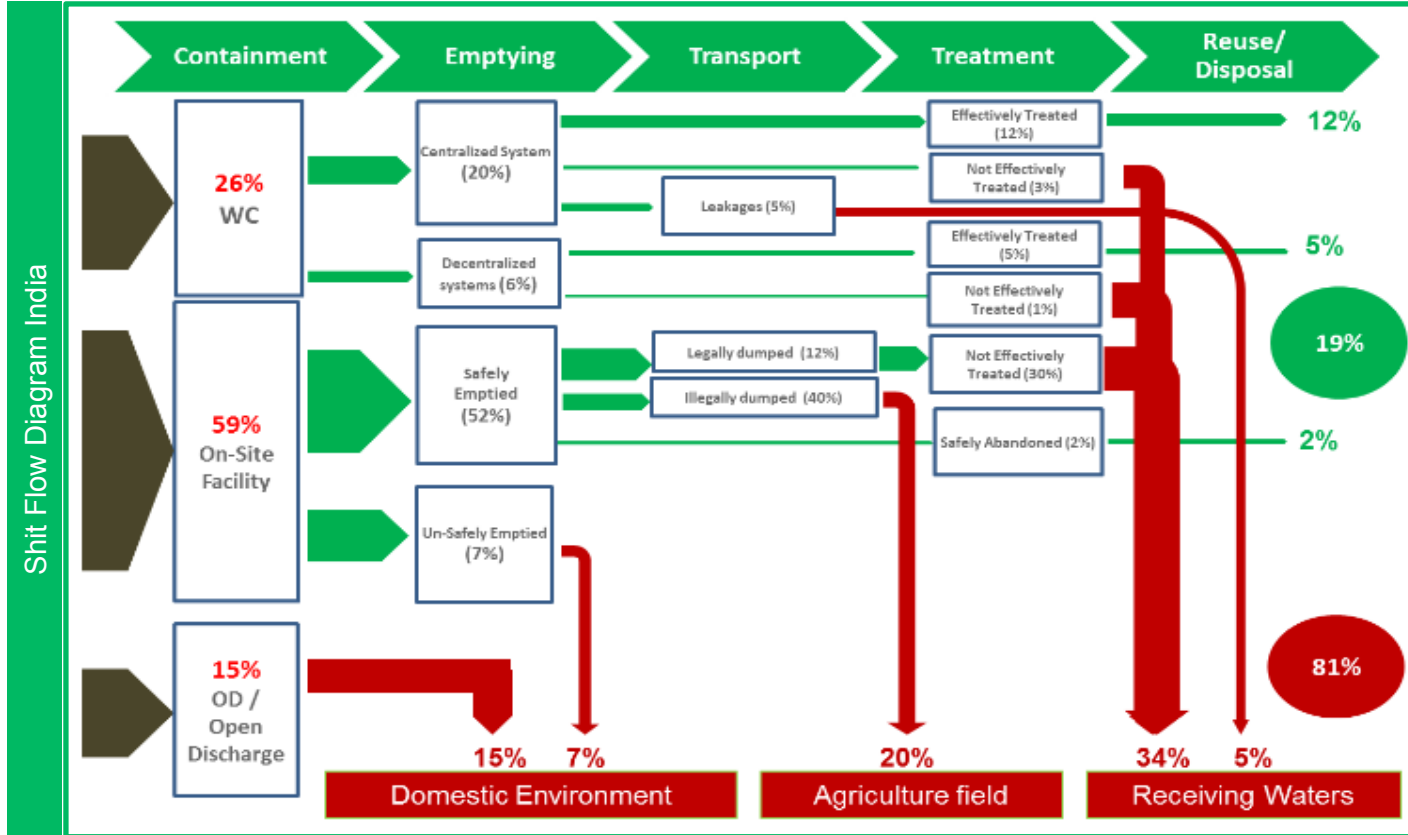
Financial requirements for FSSM in cities



Significant achievements in India under Swachh Bharat Mission



BUT focusing only on toilets leads to a situation where 80% of waste remains untreated



Safely Treated

Untreated

Unsafe disposal

Risk of water borne diseases

Thinking “beyond toilets” to achieve Sustainable Development Goal (SDG)

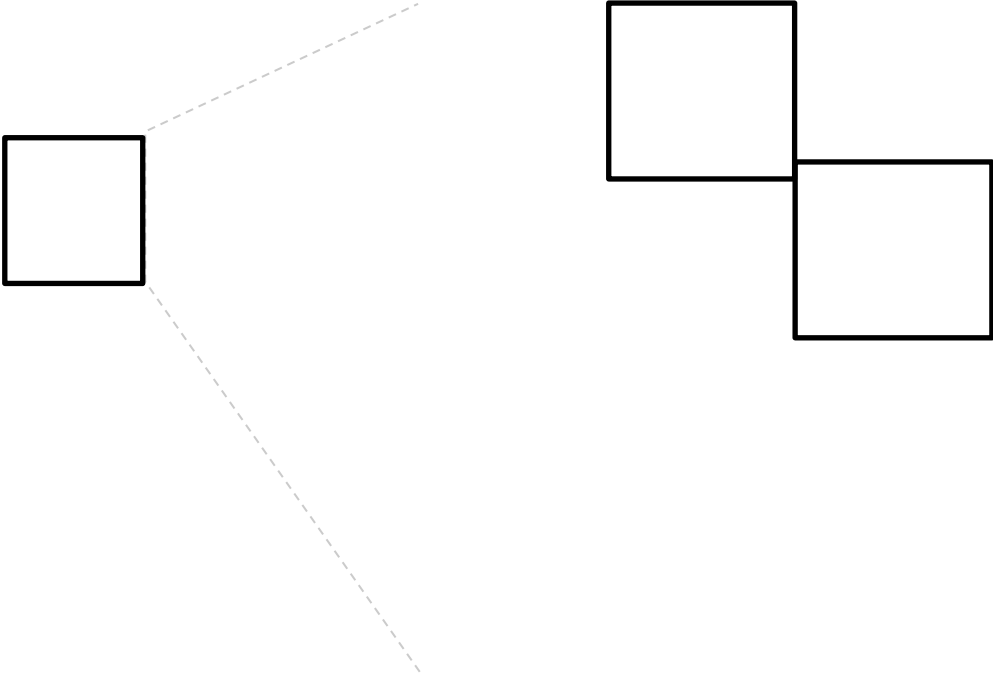


Image source: <http://www.campaign.exchange/campaigns/sustainable-development-goals/>

Image source: <https://www.ice.org.uk/eventarchive/achieving-sdg-6-the-water-goal>

Image source: <https://textilesforsdgs.org/sdgs/goals/6-clean-water-and-sanitation/>

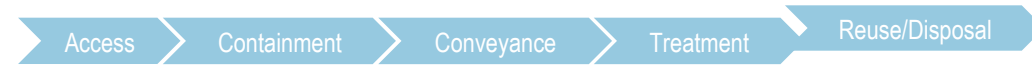
FSSM as a viable solution for safely managed sanitation

Sanitation ladder of JMP (WHO-UNICEF)¹

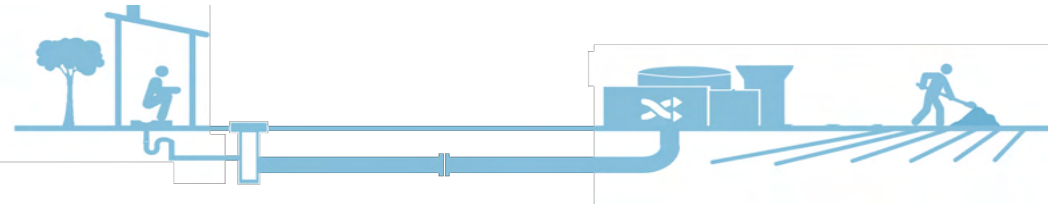
Service Level	Definition
SAFELY MANAGED	Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite
BASIC	Use of improved facilities that are not shared with other households
LIMITED	Use of improved facilities shared between two or more households
UNIMPROVED	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
OPEN DEFECACTION	Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste

Note: improved facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.

Safe management across sanitation value chain



Conventional Sewerage systems



Faecal Sludge and Septage management

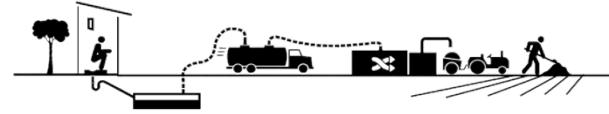


FSSM as a solution to address current urban sanitation challenges

Only **40%** of urban population in India is serviced **with sewerage systems**. **60%** dependent **on-site sanitation systems** like septic tanks¹

Only **30%** of the **waste water** generated in urban areas currently **treated**²

India experiencing **high rate of urbanization** - By the year 2050, 50% population will be urban - indicating further sanitation challenges¹



FSSM as a viable solution

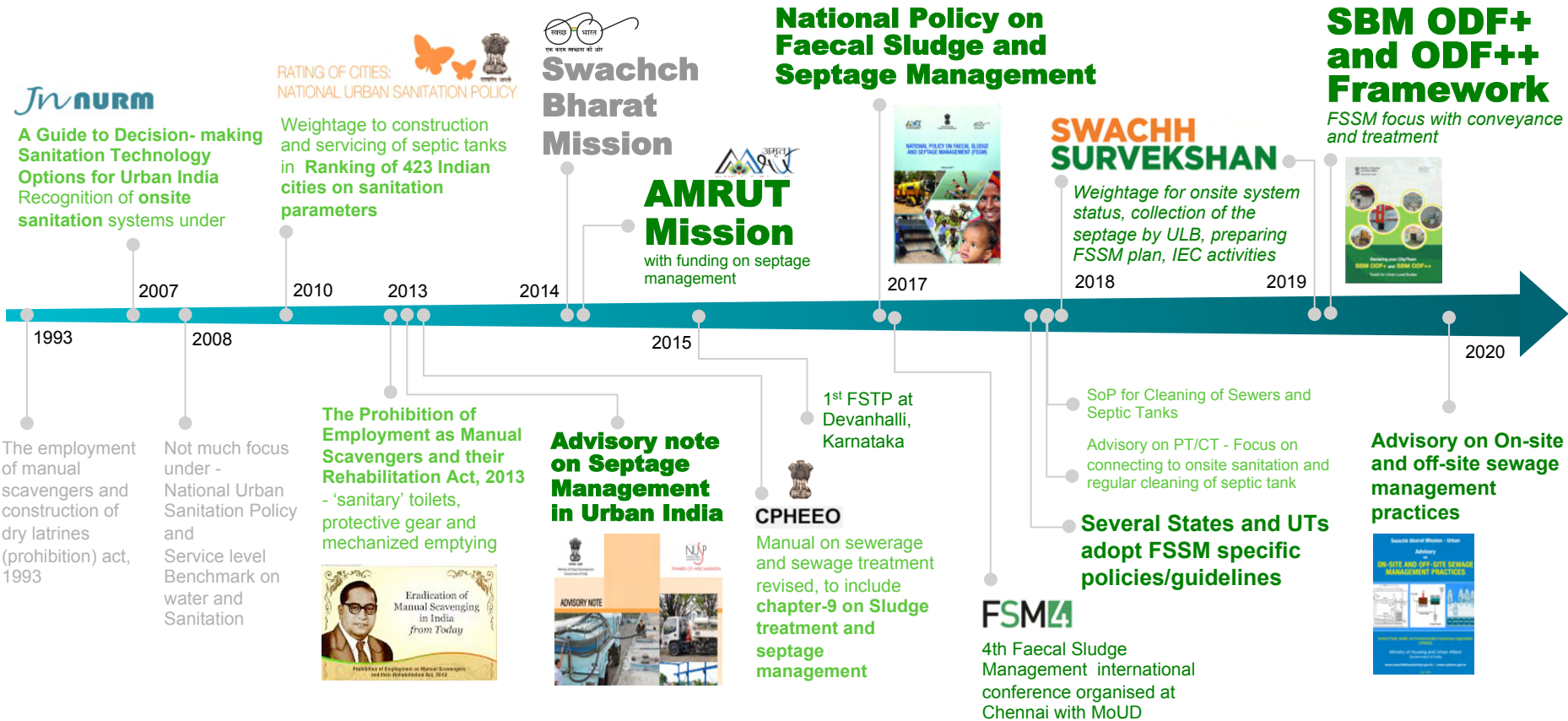
- Inexpensive to implement – low capital, O&M
- Easy to expand services in growing cities
- Lesser water requirements
- Low technical expertise
- Quick implementation

In absence of existing or planned networks in small and medium towns, new toilets built under SBM connected to onsite systems

Sewerage and STP projects being funded and initiated but they take **long periods** to become functional. **Not financially viable** for smaller towns.

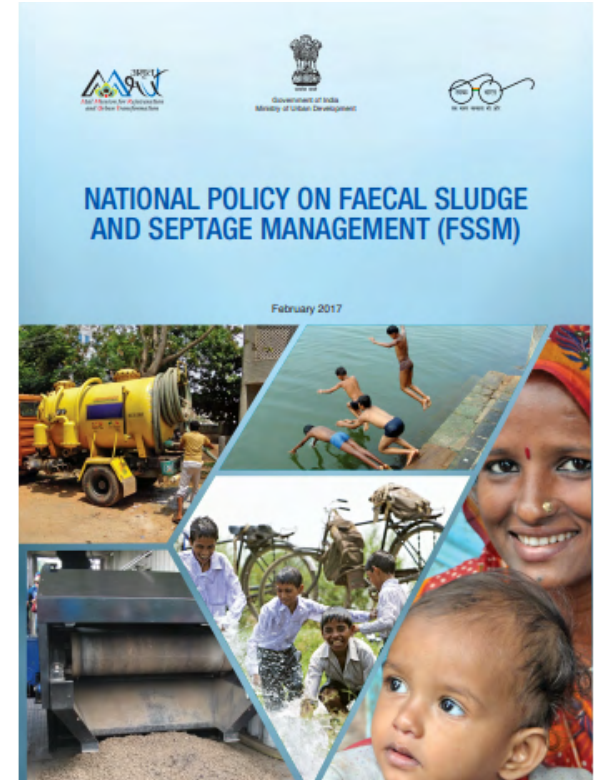
Meanwhile, FSSM more pragmatic solution

Growing recognition for FSSM in India



Key Highlights of the FSSM Policy

- **Roles and responsibilities** of institutions and stakeholders
- **Framework** for **preparing FSSM plan** at **state level**
- **Promotes scheduled emptying** of **septic tanks** at an interval of **2-3 years**
- **Promotes private sector participation** in FSSM
- **Encourages ULBs** to start **levying sanitation tax/ user charges** to **meet the O&M cost** for **effective FSSM** operations at city level.
- **Adopts San-benchmarks at National level** for **monitoring FSSM**, instructs states and cities to set up monitoring and evaluation system for FSSM



Protocols by MoHUA under SBM

– FSSM a requirement to attain ODF++ status

ODF	ODF+	ODF++	Water +
<p>A city / ward can be notified/declared as ODF city/ ODF ward if, at any point of the day, not a single person is found defecating in the open.</p>	<p>Not a single person is found defecating and/or urinating in the open, and all community & public toilets are functional and well maintained</p>	<p>ODF+ AND Faecal sludge/septage and sewage is safely managed and treated, with no discharging and/or dumping of untreated faecal sludge/septage and sewage in drains/water bodies/ open areas</p>	<p>All wastewater released from households, commercial establishments ,drains, nallahs etc. is treated to a satisfactory level before releasing the treated wastewater to the environment</p>

Source: Ministry of Housing and urban Affairs (2019) "Declaring your City/Town SBM ODF+ and SBM ODF++Toolkit for Urban Local Bodies" Govt. of India. Retrieved from: <https://www.pcmcindia.gov.in/marathi/swm2019/ODEPlus.pdf>
 Ministry of Urban Development (2019) "Swachh Bharat Mission (Urban) SBM Water Plus Protocol" Govt. of India. Retrieved from: <http://swachhbharaturban.gov.in/writereaddata/WaterPlusBook24thMay20.pdf>

While sewerage networks have received priority in the past, FSSM is now receiving attention across many states

~700

FSTPs at planning or implementation phase in India

9

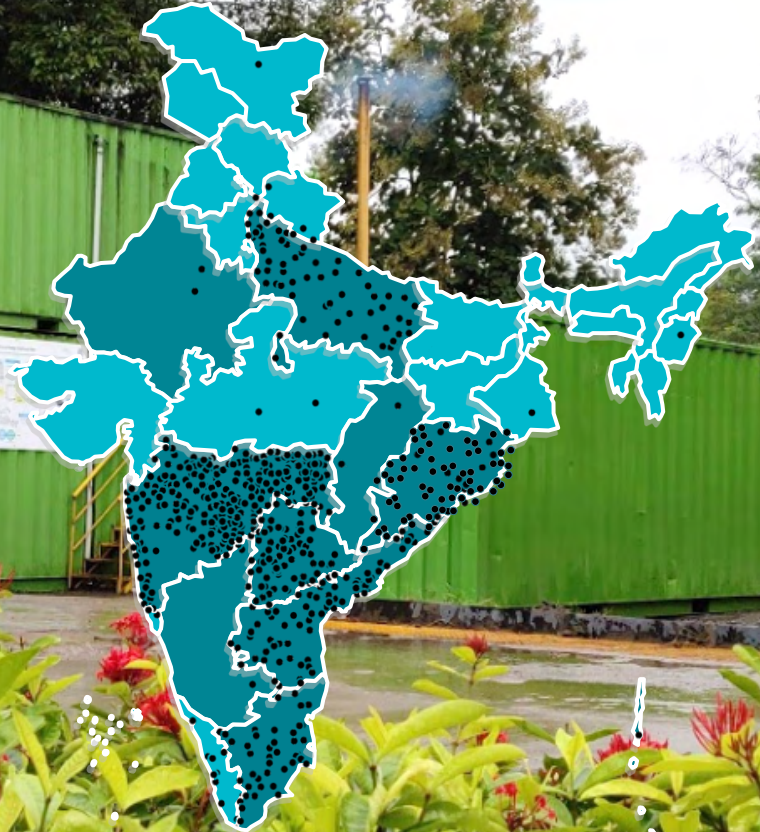
State are progressing with statewide FSTP roll out / FSSM plans

4000

FSTPs are required to address country's need for FSSM

28

NFSSM Alliance partners working together to achieve safe FSSM



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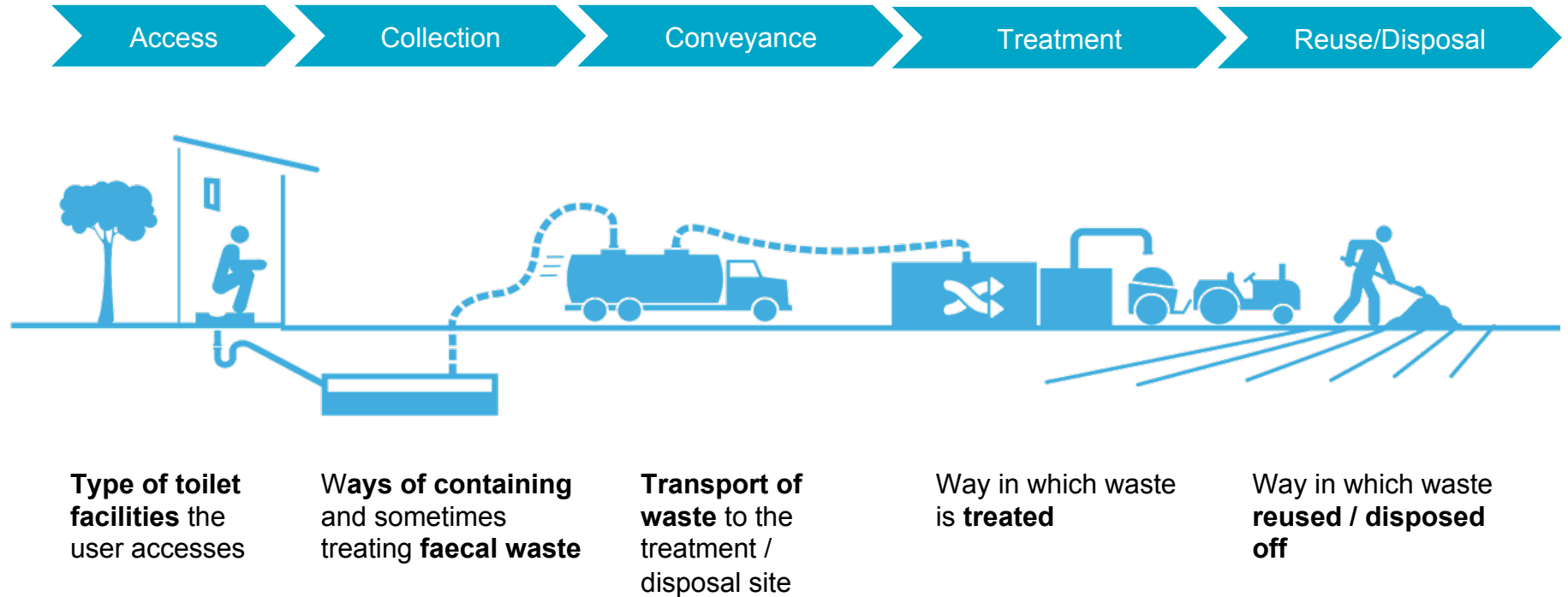
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What does FSSM implementation entail?

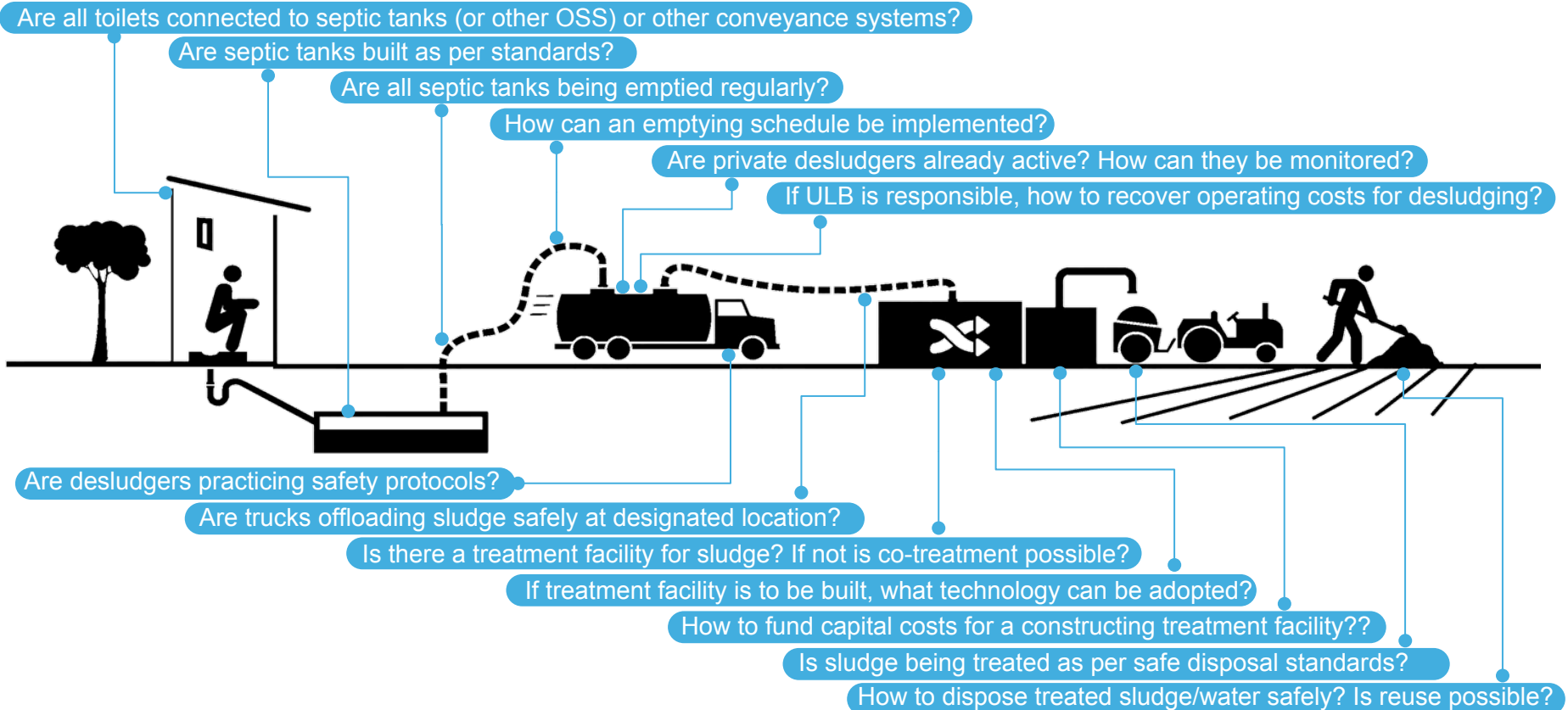
3

Financial requirements for FSSM in cities

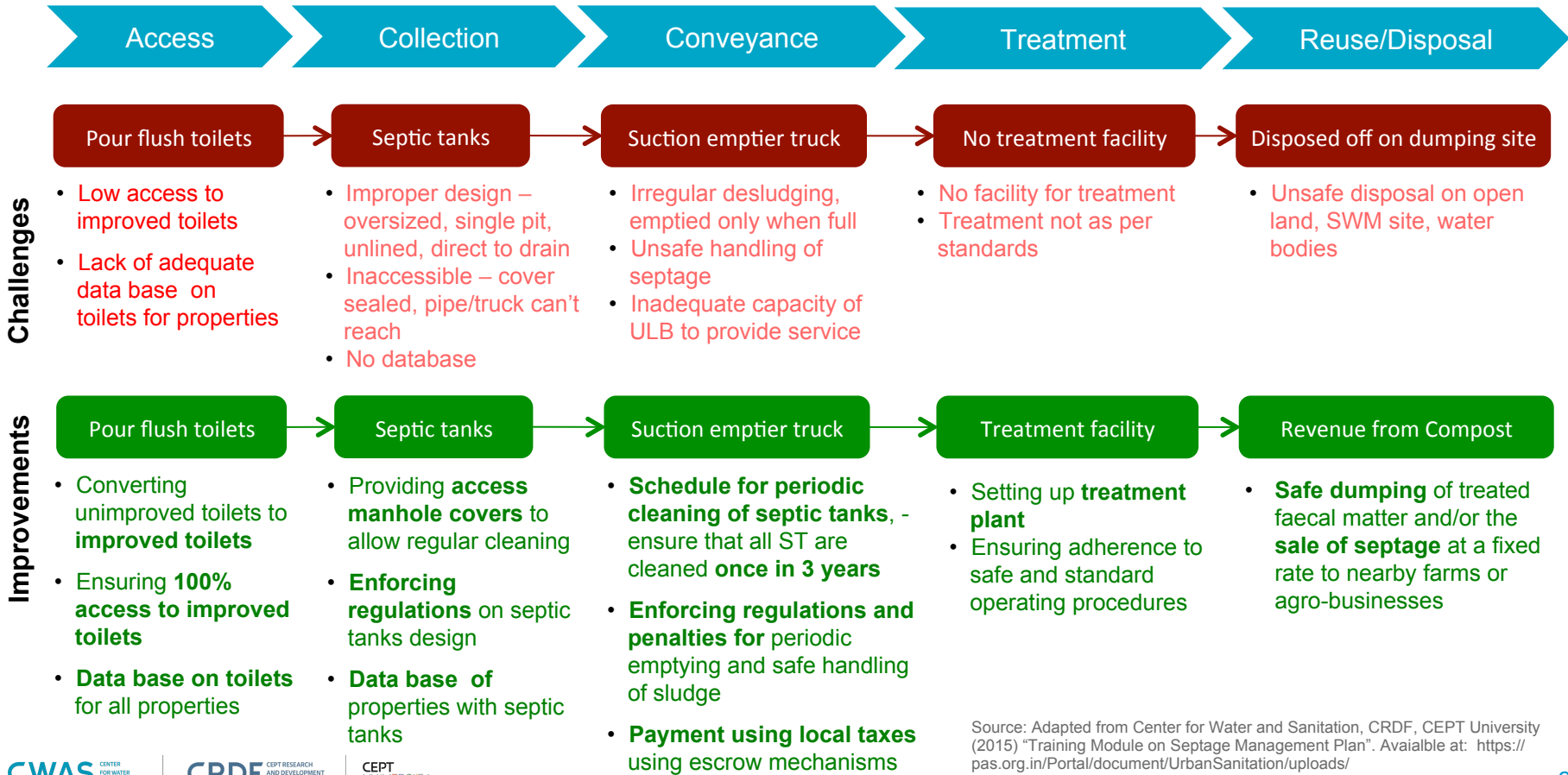
FSSM value chain



Assessment and planning across the value chain



Improvement activities – moving from RED to GREEN



Source: Adapted from Center for Water and Sanitation, CRDF, CEPT University (2015) "Training Module on Septage Management Plan". Available at: <https://pas.org.in/Portal/document/UrbanSanitation/uploads/Capacity%20building%20for%20Septage%20Management%20Plan.pdf>

Scheduled desludging – solution for regular emptying of septic tanks

On-Demand Basis

Emptying is done **on-call** by the household – difficult to enforce regularity in desludging

The **emptying services** are treated as a **complaint redressal** system for overflowing septic tanks rather than a regular cleaning and maintenance service.

ULBs operate trucks only when demand arises

If independent private sector is active - difficult to monitor illegal dumping, environmental hazards, equitable services

Households generally pay a certain amount once in >8-10 years to get tanks cleaned during the time of overflow.

Scheduled Practice

Septic tanks will be cleaned on a **pre-determined schedule**.

Regulations and penalties will be set in place to **ensure periodic cleaning**

Awareness generation activities to educate households about the need for regular cleaning

Each town will require an additional **number of trucks to meet service standards as schedule is known**

If contracted out to private players, easy to monitor

Local taxes may be levied by the ULB to **recover the operating expenses** for regular cleaning but per-emptying fees also possible

Benefits of Scheduled Emptying



Equitable and inclusive services - all households / properties are covered by services. The payment is linked to property tax.



Pricing – Services are offered at lower prices, due to efficiency gains and the pricing is much less than the distress fee that households had to pay previously



Behavior change - Contribution to ODF sustainability as toilet usage can increase



No manual labour - Removal of need for manual labour due to regular emptying



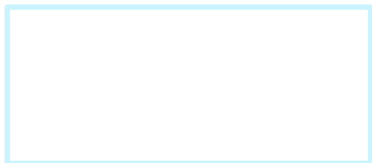
Infrastructure optimization – Planned schedule and frequency for all. Clustered service visits. More predictable loads for treatment facility and route optimization of trucks



Environmental benefits - Lowered likelihood of septic tank overflows, increased efficiency of septic tanks resulting in lower pollutants (such as faecal coliforms) in drain effluent

Identifying Septage Treatment Technology and Site


Key factors in identifying treatment site



Land availability and cost



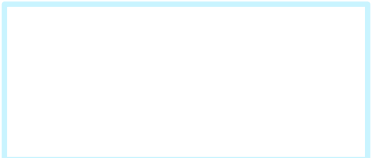
Distance to treatment site



Neighborhood



Geological Parameters



Reliability of electricity

Key factors in identifying treatment technology

Local context and Site conditions: Climate, soil Permeability, groundwater table, soil type, etc.

Sludge characteristics and quantity and frequency of desludging

Land availability and cost

Capital and operating cost - Investment costs covered, O&M costs covered, Affordability for households

Simplicity in Construction & Operation - Level of mechanization required for operations, availability of spares,

Technical performance of treatment option:

- Technology providing required quality of output according to the standards, Interest in end use
- Advantages and disadvantages in terms of local context
- Level of difficulty in handling end products generated, etc.

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1 Growing significance of FSSM in India

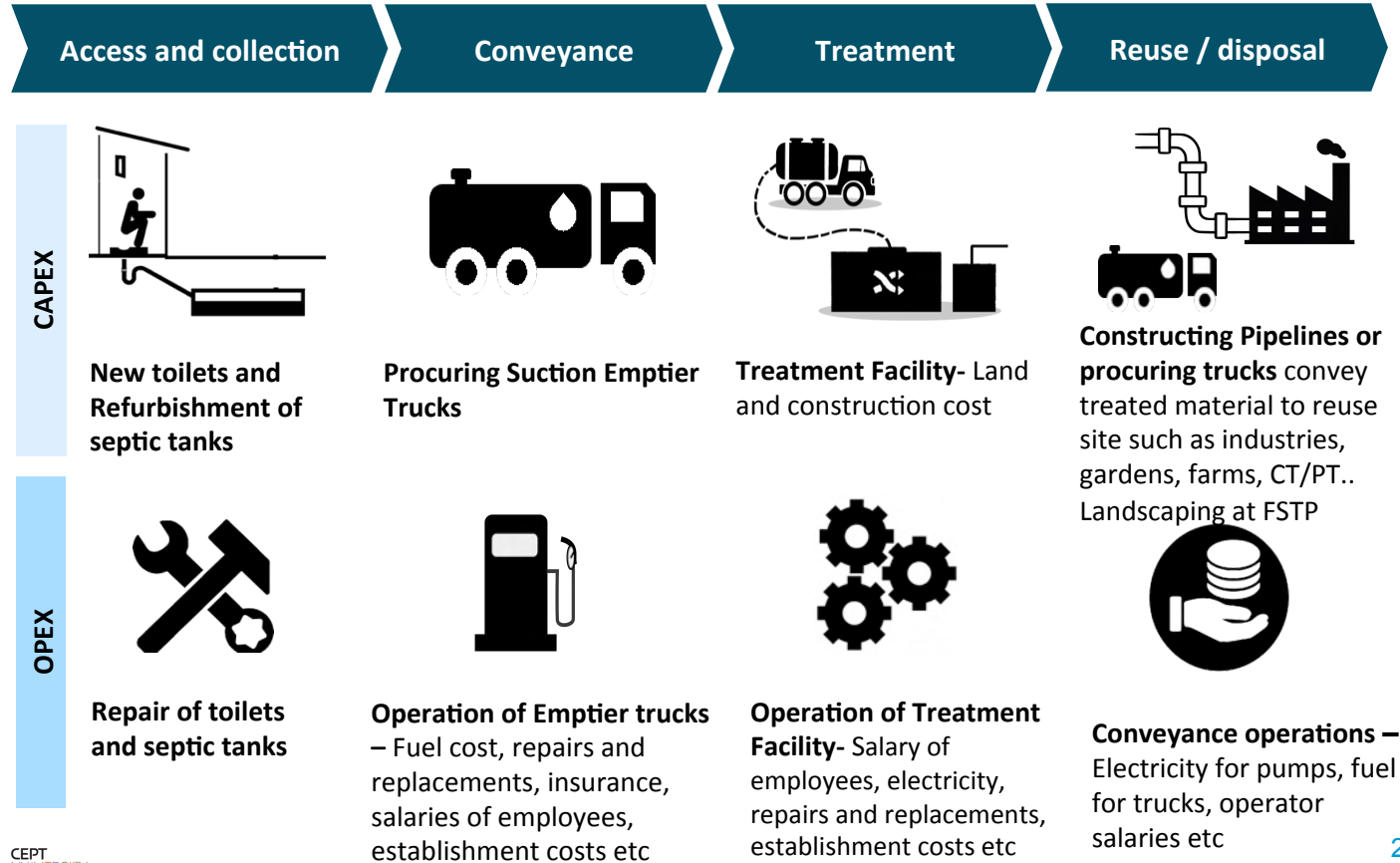
2 What does FSSM implementation entail?

3 Financial requirements for FSSM in cities

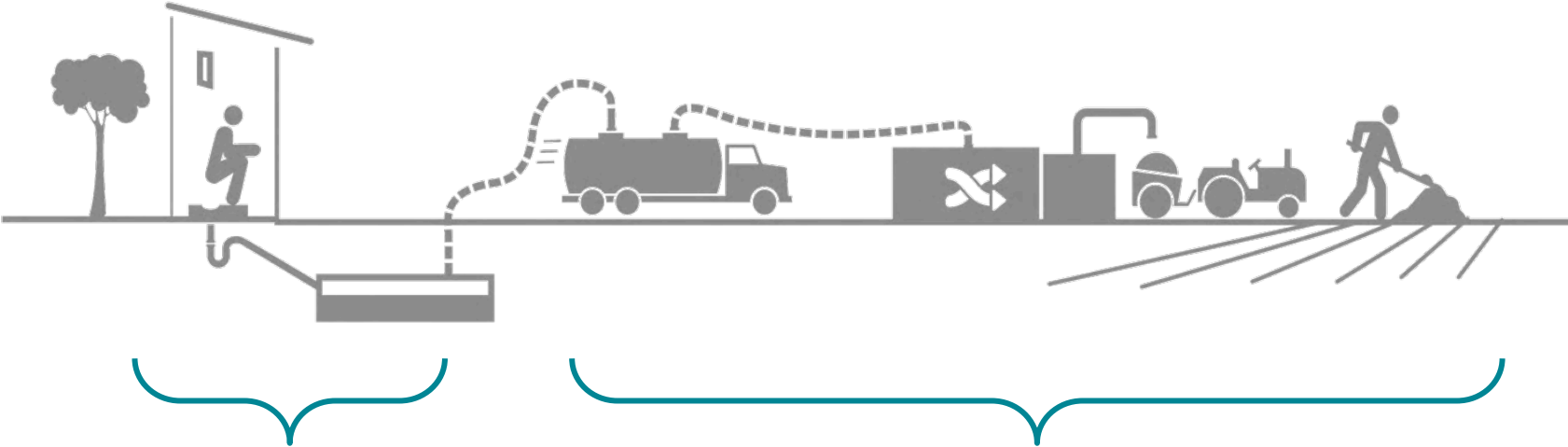


Financial requirements for FSSM

- Availability of funds for FSSM is crucial
- With increasing recognition of FSSM solutions, financing sources and models have emerged as key
- FSSM is typically viewed as a public good - public financing will have a significant role



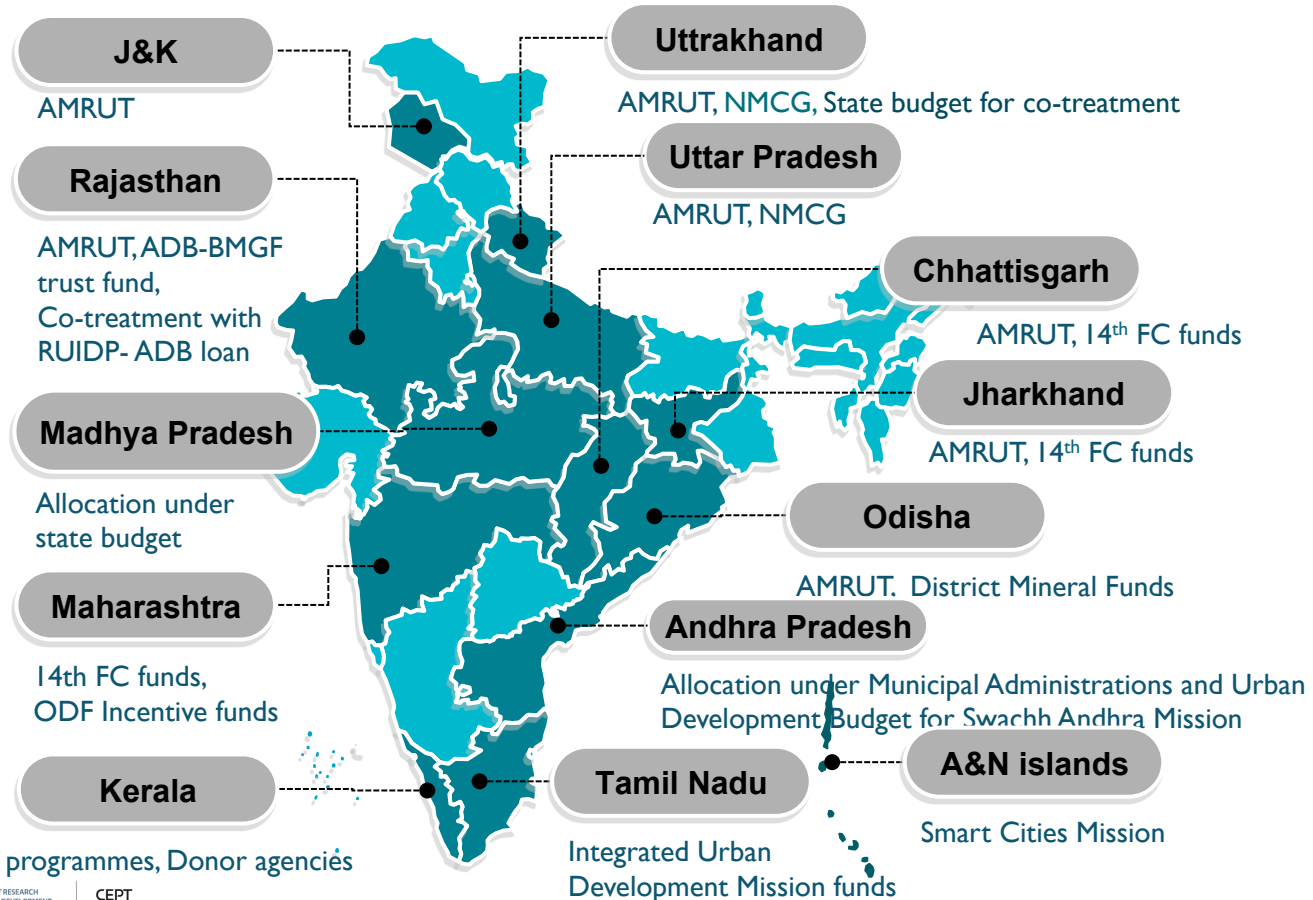
Current sources for funding FSSM



14th Finance Commission funds

available to only class 1+ cities of India (500 cities out of 4000+ cities of India)

States also funding FSTPs through various programmes



Estimates for financing FSSM services across India vary though are not very high! For conveyance Capex ~INR 6000 crore and for treatment Capex ~6000-10,000 crore

Estimate method 1 (2018-2022)¹

Capex Requirement

in Rs. Crore

	Conveyance	Treatment
AMRUT cities	2,833	2,903
Non-AMRUT cities	2,453	4,221
Census Towns	1,626	2,928
All India	6,913	10,051

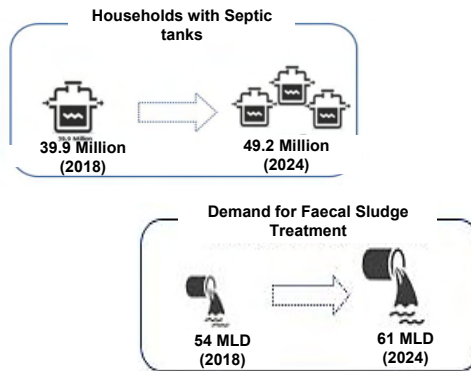
Opex Requirement

in Rs. Crore

	Conveyance	Treatment
AMRUT cities	2,133	808
Non-AMRUT cities	1,846	1,174
Census Towns	1,224	8,14
All India	5,203	2,796

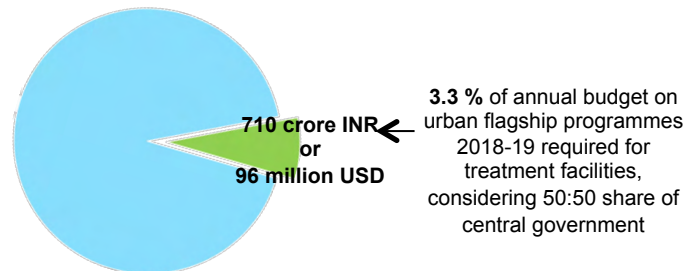
This excludes the investments already allocated. Ex: AMRUT

Estimate method 2 (2020-2024)²



- Intellicap² estimated that the required capacity for faecal sludge treatment will rise to **61 Million Litres per Day by 2024**.
- “At least **2000 Faecal Sludge Treatment Plants** (FSTPs) will be needed to meet this demand along with investment required to the tune of **INR ~6000 Crore** over the next 5 years.”- Intellicap, 2019.

Govt. of India budget share ³



- Govt can **fund for FSTPs through national urban programs**
- CWAS's studies¹ across the four states of Maharashtra, Tamil Nadu, Andhra Pradesh and Odisha suggest that financing requirements for FSTPs is only 1 to 5% of state's UDD budgets
- Local governments have funds from **Finance Commission allocations**
- **Conveyance** can be financed through involvement of **private players**

1. CWAS estimates under the project “Financing FSSM”. <https://cwass.org.in>

2. Intellicap (2019) “Catalyzing Private Sector Participation for Faecal Sludge and Septage Management (FSSM) in India”. <https://www.intellicap.com/>

3. ; Ministry of Finance (2018-19) “Ministry of Housing and Urban Affairs' expenditure budget”

Financially, what does it take to operationalize FSSM in a city?

What does it take to build and run a Faecal Sludge Treatment Plant?

Costs vary widely between different technology options, however, based on generalized averages of existing FSTPs in India (2019)¹ –

- Rs. 6 lakh / KLD to construct
- 6% of construction of FSTP for annual operations

States	Technology	Number of FSTPs	Capacity (KLD)	Avg Capex (Rs lakh/ KLD)	Avg Opex (Rs lakh/KLD)
1. Odisha	DEWATS	10	20-75	5.9	0.4
2. Tamil Nadu	Non-Mechanical	3	23-32	14.0	0.6
3. Andhra Pradesh	-neutral-	2	15	5.0	0.7
4. Maharashtra	Non-Mechanical	100+	70	2.2	0.5
5. Rest of India		14	6-100	6.3	0.5

What does it take to run desludging operations?

- Rs 30-35 lakh for 5000-6000 liters capacity truck
- Rs 15-25 lakh for 3000 liters capacity truck
- Fuel costs, operator salaries, establishment costs, trip economy...
- Desludging charges – Rs1000-3000 per operation. Some examples² -

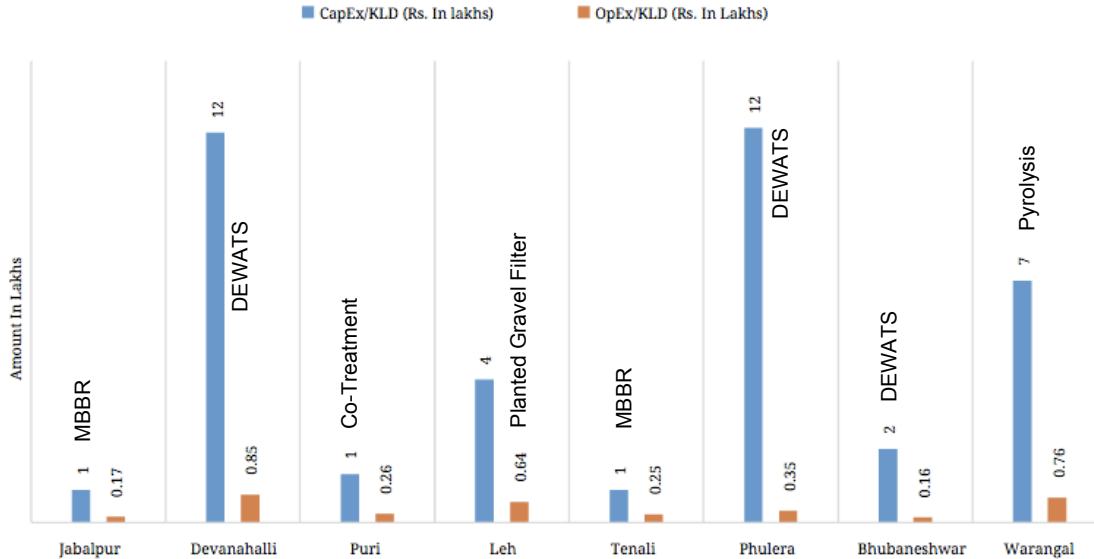
City	Population	Charge per operation (Rs)
Kundapura, Karnataka	31 K	1700
Mihijam, Jharkhand	40 K	2500-3000
Vijayapur, Karnataka	40 K	1000
Belgavi, Karnataka	1.1 L	1500-2500
Hazaribagh, Jharkhand	1.5 L	1000-1200
Adityapur, Jharkhand	1.7 L	2500-3000
Cuttak, Odisha	6.1 L	1000-1300
Jabalpur, Madhya Pradesh	12.6 L	1505

1. Based on Details of FSTP's in India compiled by KPMG for the NFSSM alliance, as on 1st March, 2019

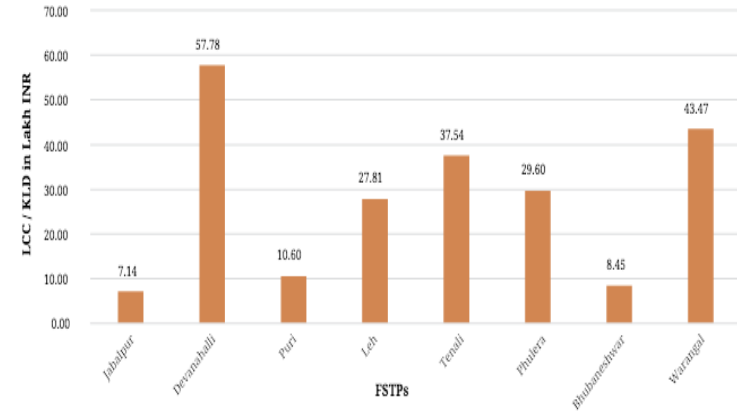
2. NIUA (2018) – Various reports on field based research on septage and wastewater management commissioned for the states of Odisha, Madhya Pradesh, Karnataka and Telangana . Retrieved from:: <https://www.niua.org/scbp/?q=research-and-assessment-studies>

FSTP costs vary by technology

Comparative CapEx and OpEx for 8 FSTPs across India



However, lifecycle cost must also be considered
LLC per KLD across technologies



Activity 2A

FSSM infrastructure estimation for a city

Refer to exercise workbook

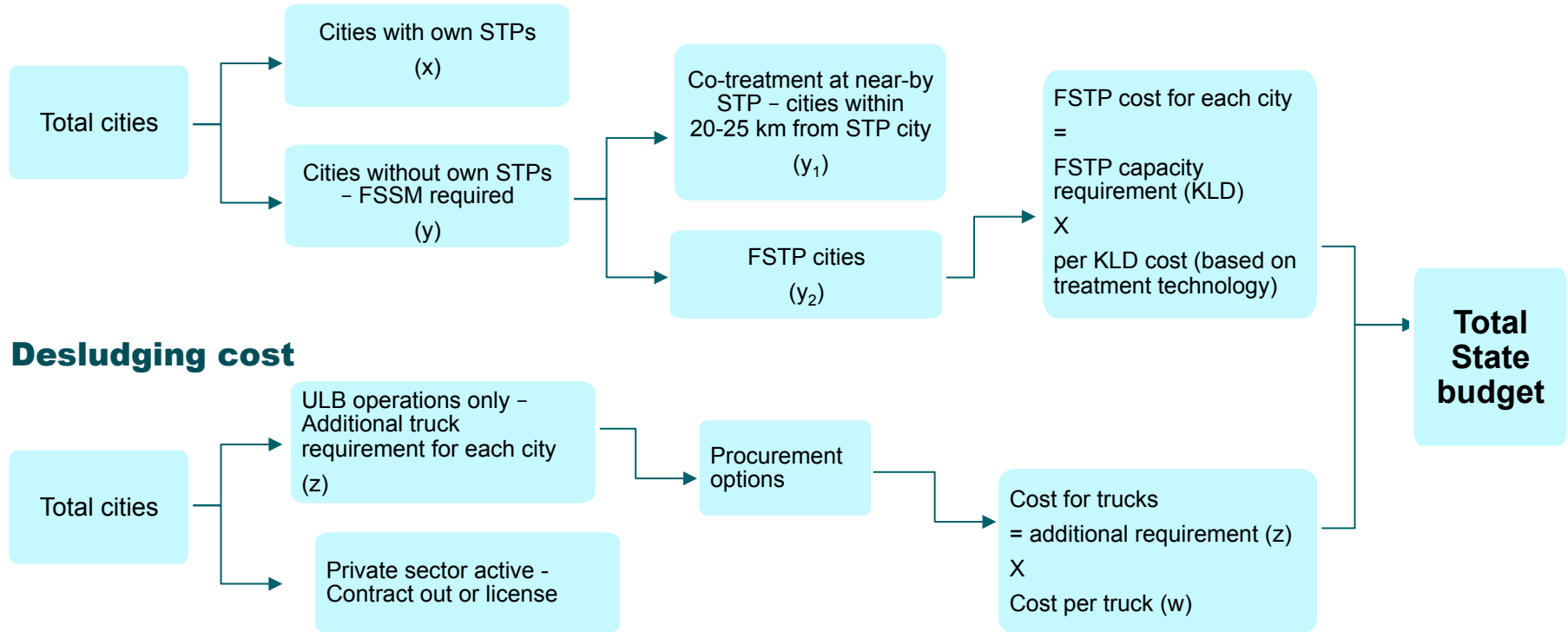
Activity 2B

State budget estimation for FSSM services

Refer to exercise workbook

What should a statewide FSSM budget consider?

FSTP cost



FSSM strategies in two states



Odisha

2016 decided to adopt a non-sewered, decentralised and sustainable approach towards Faecal Sludge Management (FSM)

Two model FSTPs with donor funding

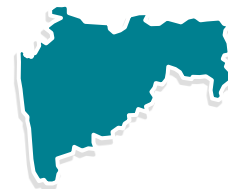
Selection of DEWATS technology with model DPR

8 new FSTPs to cover towns with 50% state population – AMRUT funding

State funds – 114 septage trucks for ULBs

114 new FSTPs commissioned

O&M with SHGs, reuse tie ups



Maharashtra

FSSM as one of the focus areas for ODF sustainability
Two pronged approach = co-treatment + independent FSTPs

2 model FSSM towns, Septage guidelines

GR for Co-treatment at own STP or STP of nearby city - 70 cities

GR to construct independent FSTP in 311 cities through 14th FC funds- Vetting of technology, adoption of cost effective and low mechanisation tech, single window approach for technical and administrative approvals, third party technical audits

Statewide monitoring system to track development

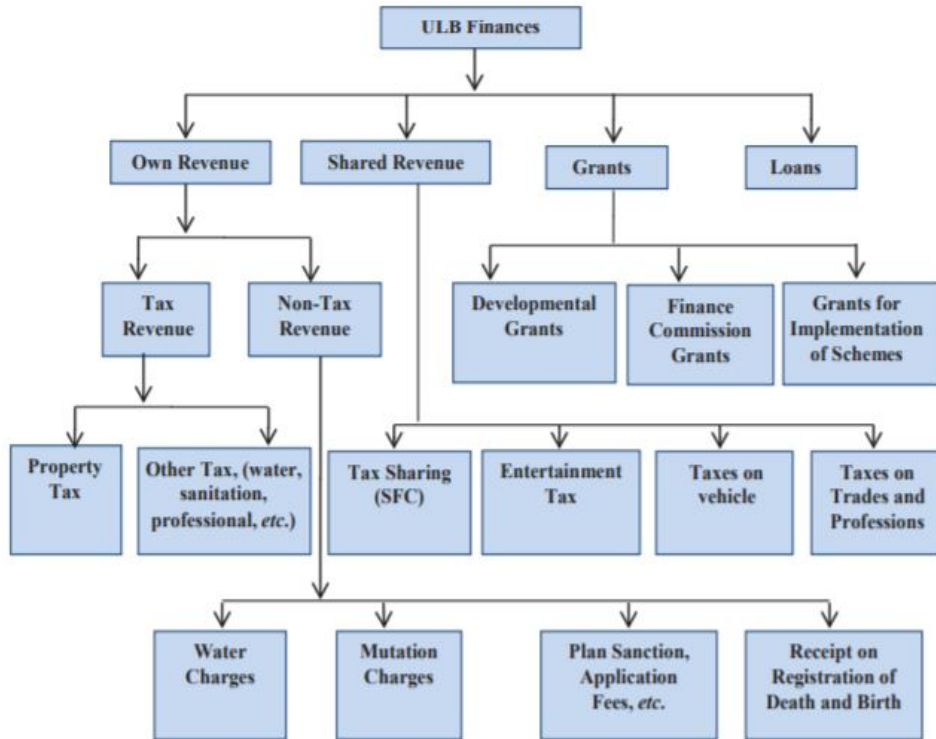
Training and capacity building for implementation

Guidelines and SoPs for FSTP construction and desludging

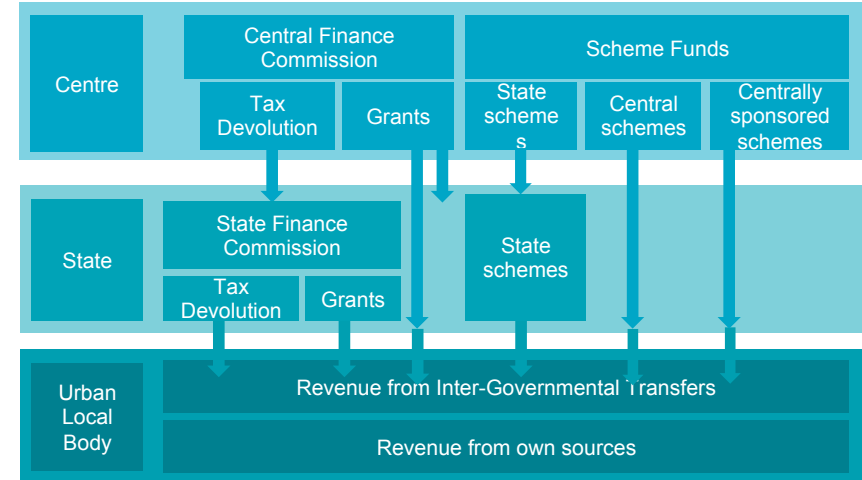
Potential funding sources – CapEx and OpEx

	Access	Conveyance	Treatment/ Disposal/Reuse
CAPEX	New toilets and Refurbishment of septic tanks	Suction Emptier Trucks	Treatment Facility- Land and construction cost
	Households	Central/State Grants	Central/State Grants, VGF
	Government Subsidy	Local Govt. funds	Local Govt. funds
	CSR fund, Crowdfunding, Credit	Private Sector/PPP	Municipal Bonds/Public Finance
			CSR, Crowdfunding, Donor agencies
			Private Sector/PPP
OPEX	Repair of toilets and septic tanks	Operation of Emptier trucks	Operation of Treatment Facility
	Households, Housing society fees	Sanitation Tax/Other Taxes	Initial period covered under grant funds
		User Charges (Emptying fees)	Sanitation Tax/Other Taxes
			Sale of Compost

Sources of finance for ULBs - own revenue, inter-governmental transfers, borrowings



- GST has subsumed local taxes such as octroi, including accounts-based octroi, in the form of local body tax, entry tax and advertisement tax
- Own source revenues are (almost) never enough to cover local expenditure responsibilities
- ULBs dependent on **the inter-governmental transfers (IGT)** from national and state governments



Tax provisions related to sanitation services in municipal acts of various states

State	Provisions related to sanitation services	Provision for Sanitation Tax	State's Municipalities Act
Andhra Pradesh	<ol style="list-style-type: none"> 1. Pay for clearance of sullage 2. Scavenging tax as a part of property tax 	<ol style="list-style-type: none"> 1. Owners of buildings to pay for clearance of sullage from their buildings by connecting their house-drains with public drains 2. a scavenging tax to provide for expenses connected with the removal of rubbish, filth or the carcasses of animals from private premises 	The Andhra Pradesh Municipalities Act, 1965. Part IV and V. Chapter-1, Section 85 and Section 148
Odisha	<ol style="list-style-type: none"> 1. Latrine Tax 2. Drainage Tax 	<ol style="list-style-type: none"> 1. a latrine tax on the annual value of holdings 2. a drainage tax on the annual value of holdings 	The Orissa Municipal Act, 1950, Chapter XIII. Section 131
Gujarat	<ol style="list-style-type: none"> 1. Special sanitary cess 2. General sanitary cess 3. Drainage tax 	<ol style="list-style-type: none"> 1. a special sanitary cess upon private latrines, premises or compounds cleansed by municipal agency, after notice given as hereinafter required a 2. general sanitary cess for the construction and maintenance of public latrines and for the removal and disposal of refuse 3. a drainage tax 	The Gujarat Municipalities Act, 1963. Chapter VIII. Section 99
Uttar Pradesh/ Uttarakhand	<ol style="list-style-type: none"> 1. Conservancy tax 2. Scavenging tax 	<ol style="list-style-type: none"> 1. a conservancy tax for the collection, removal and disposal of excrementious and polluted matter from privies, urinals, cesspools 2. A scavenging tax 	The Uttar Pradesh Municipalities Act, 1916. Chapter V. Section 128.
Tamil Nadu	<ol style="list-style-type: none"> 1. Sewerage tax 	<ol style="list-style-type: none"> 1. Sewerage tax can be levied at a rate not exceeding fifteen percent of property tax as the council may determine 	The Tamil Nadu Urban Local Bodies Act, 1998. Chapter VI. Section 80.



Session 2

Business Models For Conveyance

CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

Session Objective



Introducing the types of models for operationalizing scheduled/ demand based desludging

This section will explain and describe the various types of business models of scheduled and demand based desludging.



Understanding benefits, challenges, applicability for each model as well as operational and financial roles

The key benefits, challenges and applicability of each model along with its operational and financial roles will be explained.



National/international Case studies of business models in conveyance

Case studies and examples of various cities in India and across the world will be explained.

Center for Water and Sanitation (CWAS), CRDF, CEPT University carried out a study on Business models for Faecal Sludge and Septage Management as a part of the project on 'Financing FSSM Services' funded by the Bill and Melinda Gates Foundation (BMGF). This section of the module is based on this study. For detailed study refer to -

https://pas.org.in/Portal/document/UrbanSanitation/uploads/Financing_and_business_models_for_FSSM_an_executive_summary_on_the_landscape_study_of_four_Indian_states.pdf



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3 Summary and Key Inferences



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1 What are Business Models?

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Summary and Key Inferences

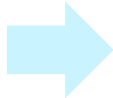
Business models : 'service models' for sanitation and FSSM

A **business model** or a model for delivering a public service outlines the manner in which a service is structured, financed and managed for its delivery. Sanitation, and FSSM in particular, require this approach.

Core parameters



Service arrangement



Examples

For Conveyance

Scheduled desludging vs **On-demand desludging**

For Treatment

Own FSTP vs **Co-treatment at nearby STP**



Financing



Capex

Government operators vs **Private operators** vs **philanthropic funds**

Opex

Taxes vs **user charges** vs **grants** vs **reuse**



Institutional/ contractual structure



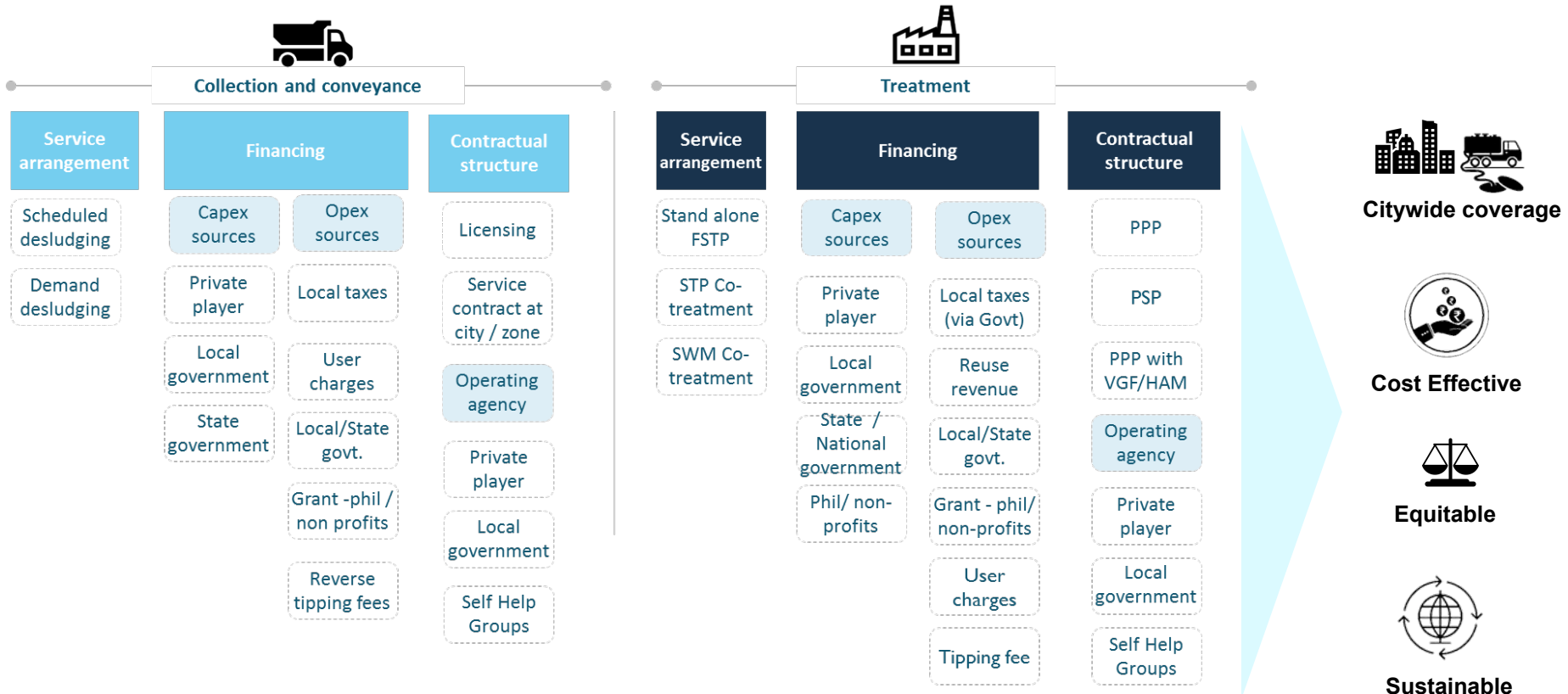
Roles and responsibilities

Who will construct, operate and maintain and monitor various aspects

Contractual arrangement

PPP or **PSP** or a **license to operate**

Core parameters: Range of options to address key considerations



Effective business models are a basic driver to scale FSSM solutions. Appropriate models are needed across the service chain for both conveyance and treatment.

As FSSM gains traction, there is need to identify and catalyze appropriate business models





Contents

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What are Business Models?

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2.1 Demand Based Business Models

2.2 Scheduled Based Business Models

3

Summary and Key Inferences

Types of service arrangements for conveyance



Demand desludging

Cleaning/desludging is done when households/users call for services and typically when their septic tanks are full.



Scheduled desludging

Regular cleaning/ desludging of septic tanks on pre-defined interval (e.g. every 3 to 5 years)



Emerging Business Models of Conveyance System

Demand desludging business models

Full Private model

Truck capex and Operations by private

Full Government model

Truck capex and Operations by government

Government-owned vehicles and leased to private players for operations

Truck capex by government and Operations by private / SHGs

Call Centre with price negotiation model for demand desludging

Truck capex by private and Operations by private with call centre set-up by local government

Scheduled desludging business models

Public Private Partnership (PPP) Annuity model

Truck capex and Operations by private with performance based annuity contract with local government

Private Sector Participation (PSP) Annuity model

Truck capex by government and Operations by private operator /SHGs with performance based annuity contract with local government

Scheduled desludging on requisition

Online platform for Desludging requisition created by local government and services provided by either government or private operators or SHGs

Emerging Business Models of Conveyance System

Demand desludging business models

Full Private model

Truck capex by private and Operations by private

Full Government model

Truck capex by government and Operations by government

Government-owned vehicles and leased to private players for operations

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PPP Annuity model

Truck capex and Operations by private with performance based annuity contract with local government

PSP Annuity model

Truck capex by government and Operations by private operator /SHGs with performance based annuity contract with local government

Scheduled desludging on requisition

Online platform for Desludging requisition created by local government and services provided by either government or private operators or SHGs

Conveyance prototype 1: Fully Private Model

Model Description

- HHs request for desludging, typically only when tanks overflow.
- Private operators- buys own trucks; undertakes desludging after licensing or registration from local government and collects user charges from households

Applicability

- When private sector is already active
- This model is common globally and in many states of India

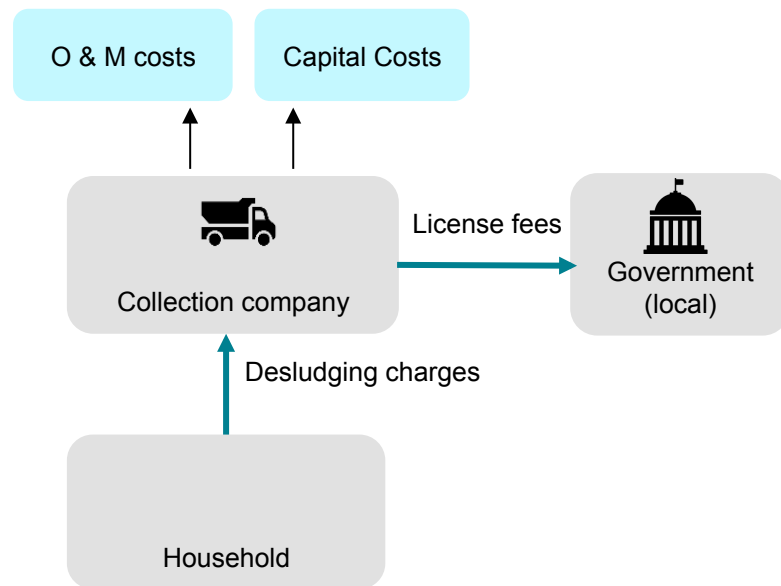
Benefits



Challenge



Service:	Contract:	Capex:	Opex:
Demand desludging	Private player licensed	Private player	User charges



Fully private models are prevalent globally and in many states of India

Kumasi, Ghana



- City authority moves away from providing direct services and facilitates participation of the private sector in providing desludging services.
- **Waste Management Department (WMD) at Kumasi Metropolitan Assembly (KMA)** issues licenses to operate for private trucks
- **Rules for private sector participation** and operator vetted before issuing a license.
- **Private truck operators pay disposal fees to treatment plant**
- **Strict monitoring + threat of license** being revoked on non-compliance + community shaming has drastically reduced illegal dumping of FS.

Andhra Pradesh, India



- Most ULBs have active private players for desludging
- Private operators register with ULB - only allowed to operate within ULB limits
- Condition to dump at the treatment site for registration
- No tipping fees, Opex is recovered through user charges (Rs. 1000-2500 per trip)

Conveyance prototype 2: Full government model

Model Description

- HHs request for desludging, typically only **when tanks overflow**.
- The **local/state government buys own trucks**; undertake desludging operation and collects user charges from households.

Applicability

ULB financial and operational capacity is more and presence of private sector desludging operator is not available.

Benefits

Financially feasible for the government

No contracting and monitoring arrangements needed between multiple players since the govt. is the single service provider

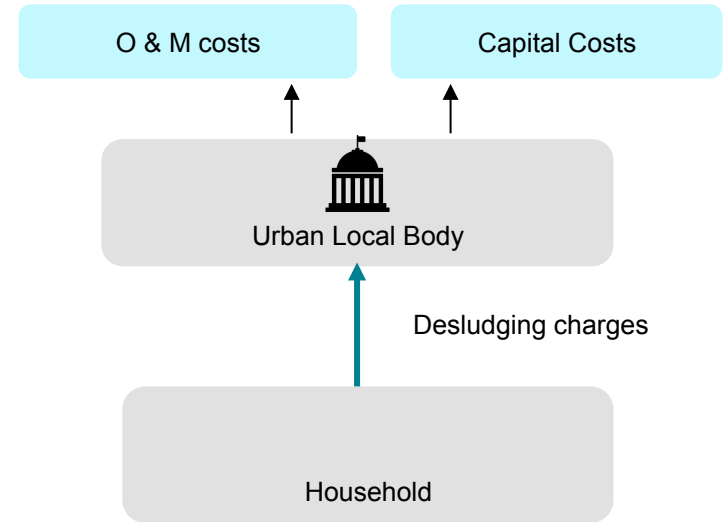
Challenges

High implementation capacity of the ULB

Capex and opex burden is on the ULB

Low service delivery levels of publicly owned trucks

Service:	Contract:	Capex:	Opex:
Demand desludging	Local govt. provides services	Local govt.	User charges



Case of Maharashtra- Local government demand based model



Large number of **medium and small size cities** in Maharashtra are dependent on local government for desludging services.



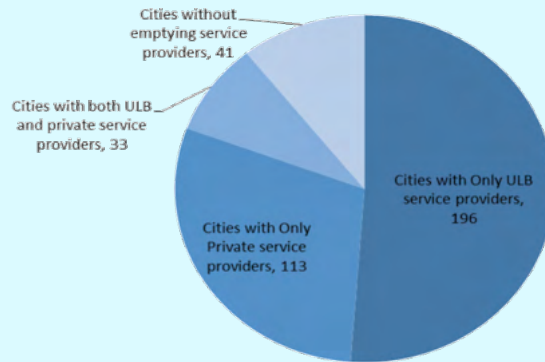
Local government mostly has 1-2 trucks which provide desludging service on the demand of HHs.



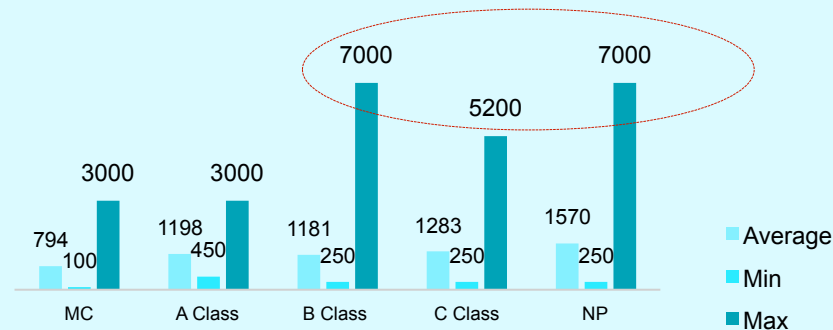
User charges are collected at the time of desludging services based on the **number of trips** and **distance covered**.



In some cities, private sector are also present but without any **licensing and registration process**. Currently only **9 cities** have private operators on contract basis.



Desludging user charges are higher in smaller cities



Conveyance prototype 3: Government-owned vehicles and leased to private players or SHGs for operations using demand based desludging

Model Description

- HHs request for desludging, typically only when tanks overflow.
- **Private enterprise or Self Help Groups lease vehicles** from the government and provide cleaning in response to service requests from HHs.
- **User charges** are either collected by **private operator/SHGs** or by **local govt.**

Applicability

ULB has good financial capacity and presence of private sector desludging operator is available.

Benefits

Commercially viable

Low ULB implementation capacity needs

High performance levels due to private sector operations and incentives

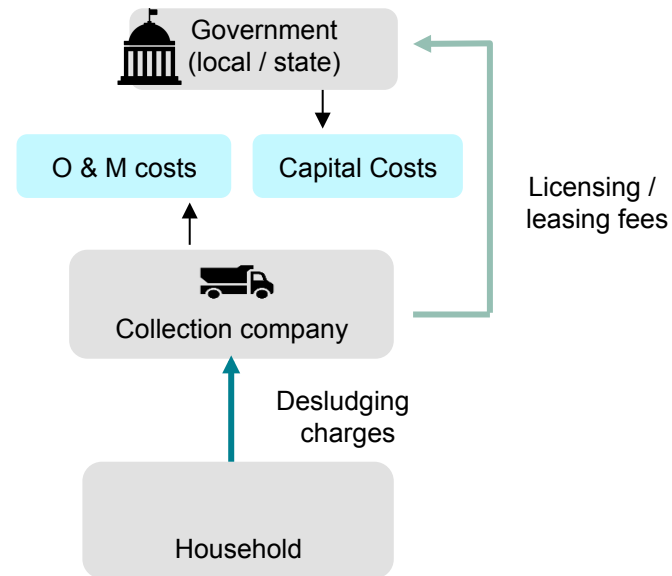
Challenges

Capex burden is on the ULB

Equity can be a challenge in the absence of rate cards

Requires high contract monitoring capacity within ULBs

Service:	Contract:	Capex:	Opex:
Demand desludging	Private player / SHG	Local govt.	User charges



Odisha, India - Government has adopted the model of owning emptier vehicles and leasing it to private operators for operations



OWSSB (State government agency) had purchased desludging trucks and allocated them to ULBs based on estimated sludge generation in their cities. The **OWSSB used OUIDF** funding to buy trucks.



Local Government had issued tenders for inviting private operators to operate these vehicles.



The **ULB has a contract with the private player**, where the private player will operate the trucks and carry out desludging services in the city and charge a cleaning fee from the households.



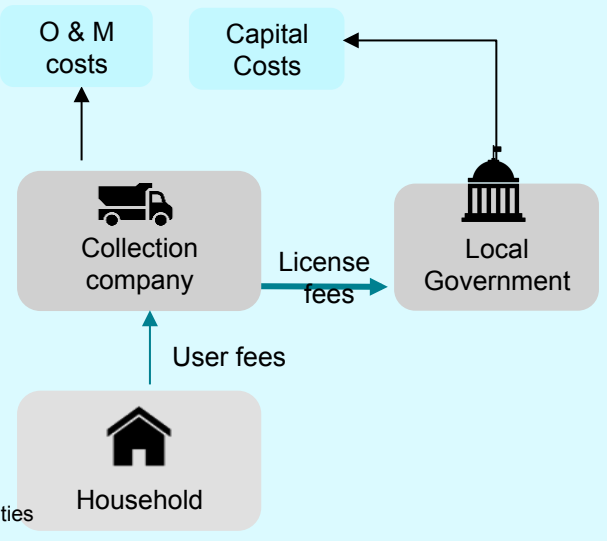
User charges (Rs. 900 per trip) are fixed by government and are collected from household either by ULB or private players depending on contract/ licensing terms



The operator does **6 desludging operations per vehicle per day**. Private agency are responsible for these activities for a period of **seven years**.



Local governments have to **monitor** the entire service and conduct various **awareness generation** programs through IEC modes.



Desludging Model of Odisha, India

Vasai Virar, Maharashtra - Engagement of SHGs in desludging activity



23 members from the City Level Federation awarded desludging contract by the ULB.



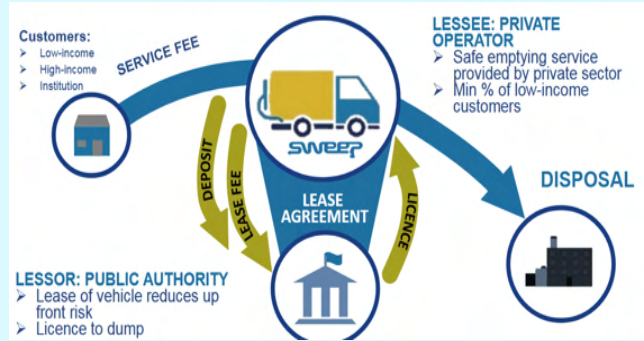
After completing the desludging activity, SHG members generate a bill and submit to the ULB based on which they are paid Rs 500 per tank.



Dhaka and Faridpur , Bangladesh

Dhaka, Bangladesh

- In Dhaka in 2015, **WSUP designed** a PPP to be delivered through a lease contract between **DWASA** and a **cleaning services business** with well-defined roles and responsibilities.
- Under this agreement, DWASA provided the company with two **2,000 litre vacuum tankers** to use under the **'SWEEP'** brand.
- Until recently, focus was on medium and large customers to establish commercial viability. New clause introduced in mid-2017 mandating **30% of customers from low-income communities**.
- For service fees to be paid by consumers, **differential pricing model** was introduced to **facilitate service** offering to low-income customers. Entrepreneurs have flexibility to set price and respond to the market accordingly



Faridpur, Bangladesh



Two groups of pit emptiers are formalised into cooperatives and lease equipment from the municipality. Cooperatives provide mechanical desludging for a fee.



Performance-based contract, with targets for quality control and safe disposal at a new treatment plant.

Positive results

- 11,122m³ FS safely managed
- 257,011 customers served
- US \$ 112,064 revenue earned
- US \$ 20,121 profit generated



Conveyance prototype 4: Call center with price negotiation model for demand desludging

Model Description

- After receiving request from HHs, the call center contacts the emptier in vicinity of households for quotations.
- The **emptiers send their quotation** to the **call center** which then sends the **lowest quotation** to the HHs.
- On confirmation of HHs, the center assigns the service to the private player.
- The center also checks the quality of service and HHs satisfaction.

Applicability

Large cities with multiple private players

Benefits

Easy access to desludging services

Creating consortium of emptiers

Likely high performance levels

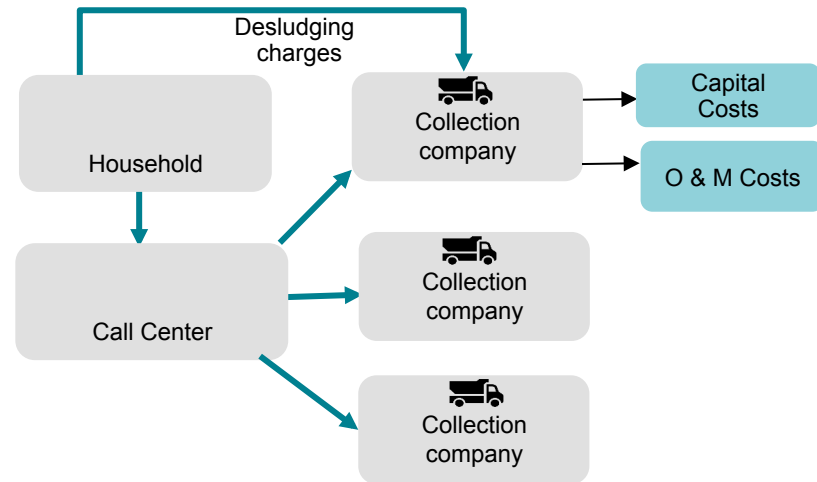
Provide more equitable and affordable desludging service

Can potentially reduce the desludging fee

Challenges

Requires high level of monitoring and implementation capacity

Service:	Contract:	Capex:	Opex:
Demand desludging	Private player	Private player	User charges with price negotiation

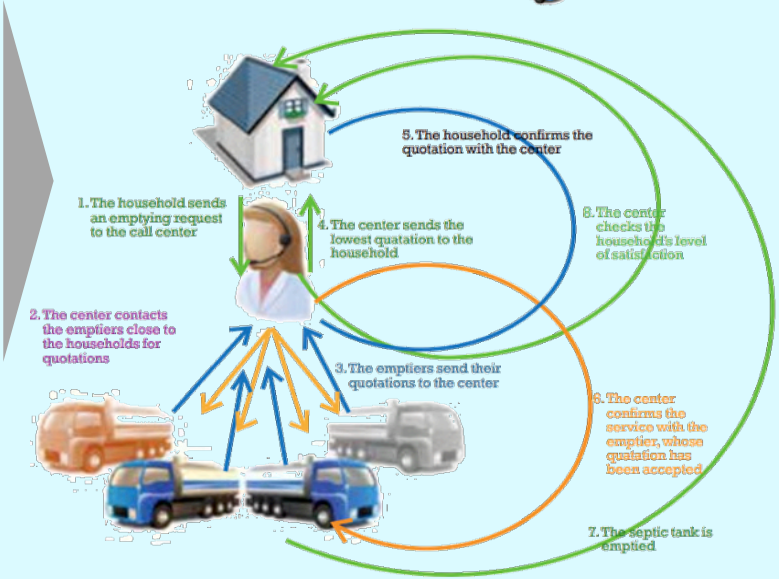


Case of Dakar, Senegal- Call center model for market based desludging services

The PSMBV (Program for Market structuring of faecal sludge management) has initiated innovative activities, including the establishment of a call center to connect Faecal sludge desludging operators to households in need on mechanical desludging.

What has been achieved:

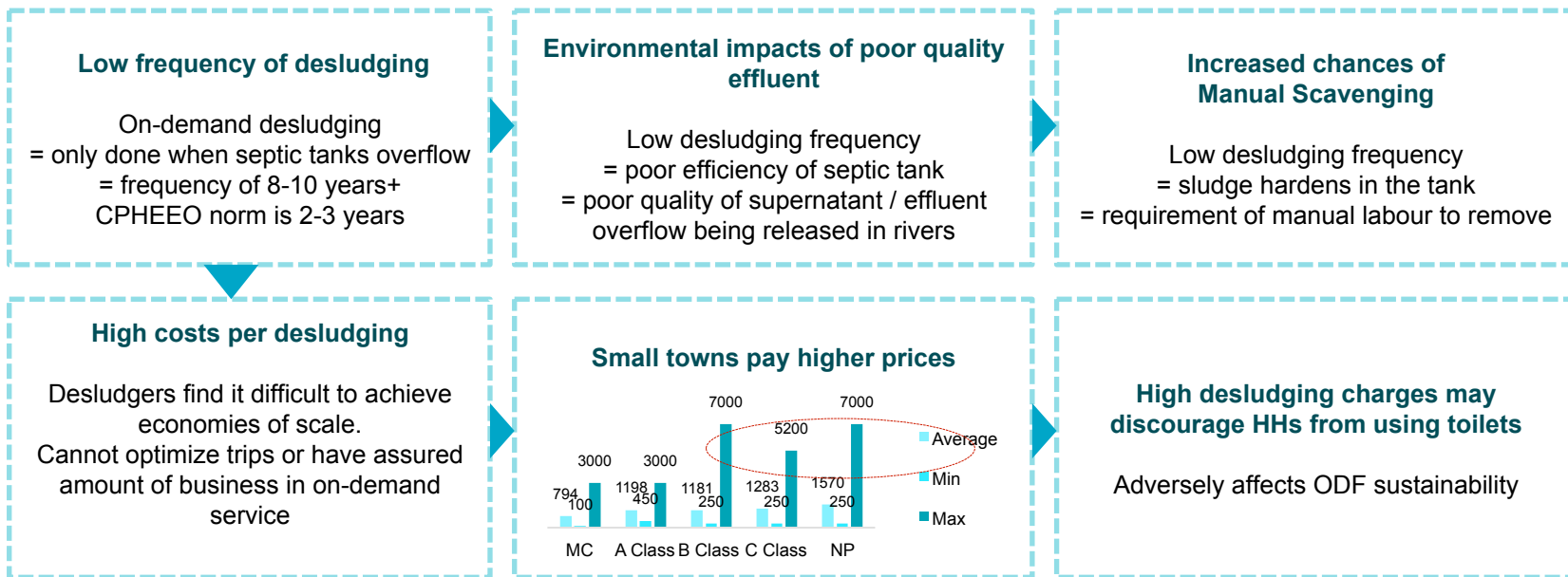
- ✓ **Easy access to desludging services-** Call center Services available all around Dakar
- ✓ **Creating consortium of emptiers** - 138 desludging trucks are listed in the call center platform database
- ✓ Transferred sludge volumes at stations have increased since the scaling of the call center
- ✓ The average price of the desludging service through the call centre has declined from USD 56 (before program) to USD 46 (between 2012 and 2016, a drop of 18%).



Case of Kampala

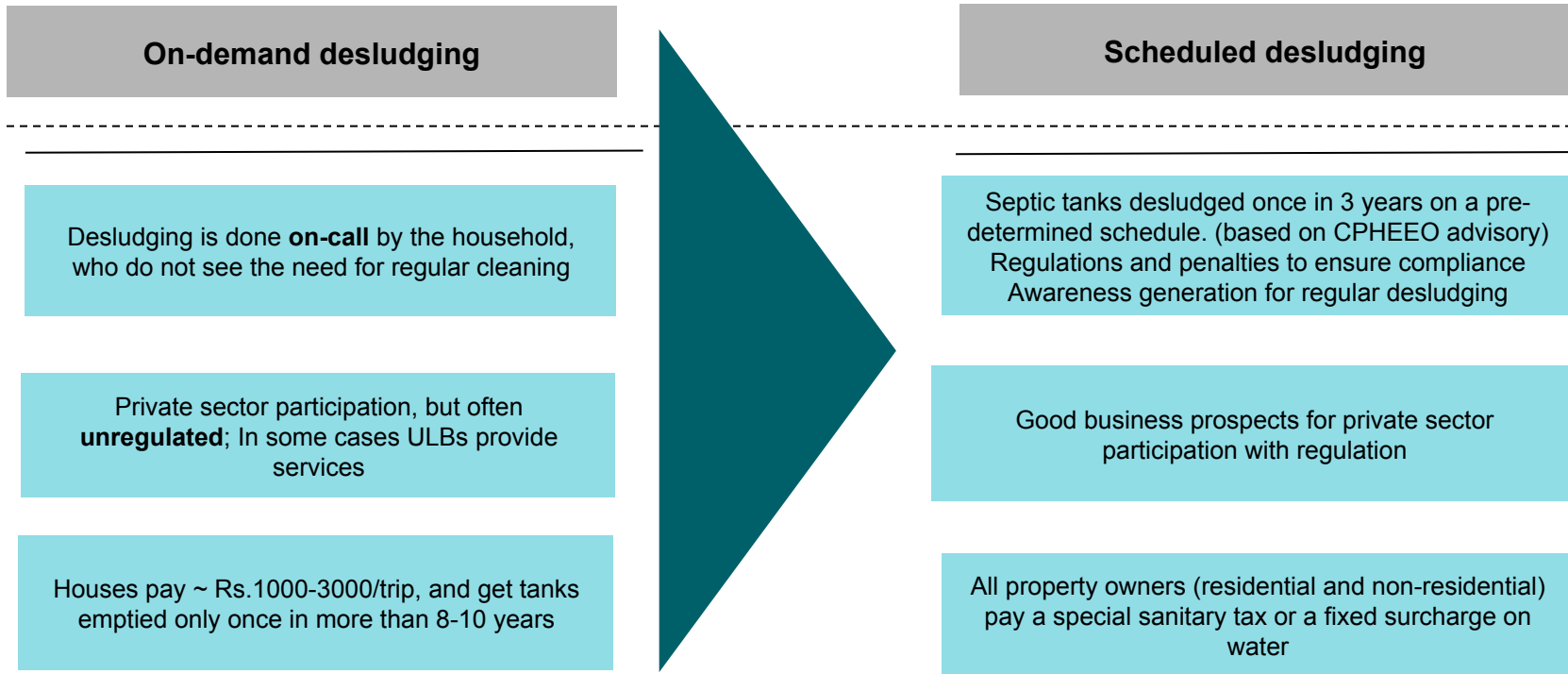
- In Kampala , a call centre links private sanitation service providers with customers.
- The city has been divided into FS desludging zones and FS operators have been designated for specific zones.

Despite its widespread use, demand based desludging poses many serious issues of equity and negative environmental impacts



- This is the common business model and is based on user charges levied at the time of desludging. In most cases charges are high ranging from Rs. 1000 to Rs. 1500. In some cities it is reported that a **very high fee of Rs. 7,000 is charged**. Desludging charges are generally higher in smaller cities and in areas outside the ULB jurisdiction.
- Households are generally willing to pay these high charges as they have no other recourse but to pay whatever the emptier demands.

Scheduled desludging can achieve regular desludging as recommended by CPHEEO



Source: Center for Water and Sanitation, CRDF, CEPT University (2019) "Good Practices for Desludging Services – Emerging lessons from national and international cases".

CPHEEO, MoUD, Gol (2013) Advisory note on Septage Management in Urban India. Retrieved from:

<http://cpheeo.gov.in/upload/uploadfiles/files/Advisory%20Note%20on%20Septage%20Management%20in%20Urban%20India.pdf>

Benefits of Scheduled Emptying



Equitable and inclusive services - all households / properties are covered by services. The payment is linked to property tax.



No manual labour - Removal of need for manual labour due to regular emptying



Pricing – Services are offered at lower prices, due to efficiency gains and the pricing is much less than the distress fee that households had to pay previously



Infrastructure optimization – Planned schedule and frequency for all. Clustered service visits. More predictable loads for treatment facility and route optimization of trucks



Behavior change - Contribution to ODF sustainability as toilet usage can increase



Environmental benefits - Lowered likelihood of septic tank overflows, increased efficiency of septic tanks resulting in lower pollutants (such as faecal coliforms) in drain effluent

Emerging Business Models of Conveyance System

Demand desludging business models

Full Private model

Truck capex by private and Operations by private

Full Government model

Truck capex by government and Operations by government

Government-owned vehicles and leased to private players for operations

Truck capex by government and Operations by private/SHGs

Call Centre with price negotiation model for demand desludging

Truck capex by private and Operations by private with call centre set-up by local government

Scheduled desludging business models

PPP Annuity model

Truck capex and Operations by private with performance based annuity contract with local government

PSP Annuity model

Truck capex by government and Operations by private operator /SHGs with performance based annuity contract with local government

Scheduled desludging on requisition

Online platform for Desludging requisition created by local government and services provided by either government or private operators or SHGs

Conveyance prototype 5: PPP Annuity model for scheduled desludging

Model Description

- Private service provider bring trucks and operate through a **performance based contract** to carry out scheduled desludging.
- The **city collects a special tax** or a surcharge on water/property tax to cover fees.
- For large cities and for metropolitan areas where **partial sewerage network** is present, scheduled desludging model can be explored for areas with **onsite sanitation systems**.
- These could be through **zonal contracts** with private operators.

Applicability

Presence and willingness of private sector to **invest in trucks capex** and take on contracts.
Local government has capacity to **monitor operations**

Benefits

Reduces the **capex burden** for ULBs

Generates revenue through taxes to pay for service

High service levels through performance based contract

Can induce **higher private sector participation**

Challenges

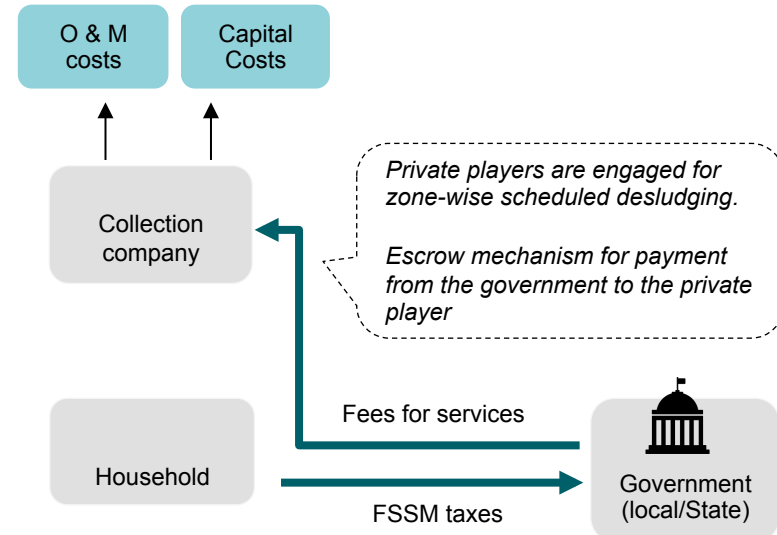
Requires **high-levels of monitoring** of private operations

Significant **behaviour change** needed to mobilize the tax

Requires **high levels of ULB capacity**

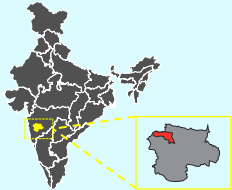
Limited Government Capacities to design & implement services

Service:	Contract:	Capex:	Opex:
Scheduled desludging	Private player	Private player	Local taxes



Case of Wai, Maharashtra-PPP annuity model for scheduled desludging (1/2)

- On May 30, 2018, Wai Municipal Council in Maharashtra became the first city in India to start a Scheduled Desludging service.
- ULB appointed the private player to carry out scheduled desludging service in the city.
- The Capex cost of the truck and Opex cost of the desludging service will be initially mobilized by the private player which will be paid back by the local government using annuity payments.
- The private player will be paid against performance linked to the number of septic tanks emptied.
- The household will pay sanitation tax to the local government, which will ensure that adequate funds are available to recover the cost of desludging service.
- The risk of late payment raised by private players is attempted to be mitigated through an escrow account mechanism.



Benefits

Performance Based Contract

High Quality Service Level

Low Prices of Sanitation tax

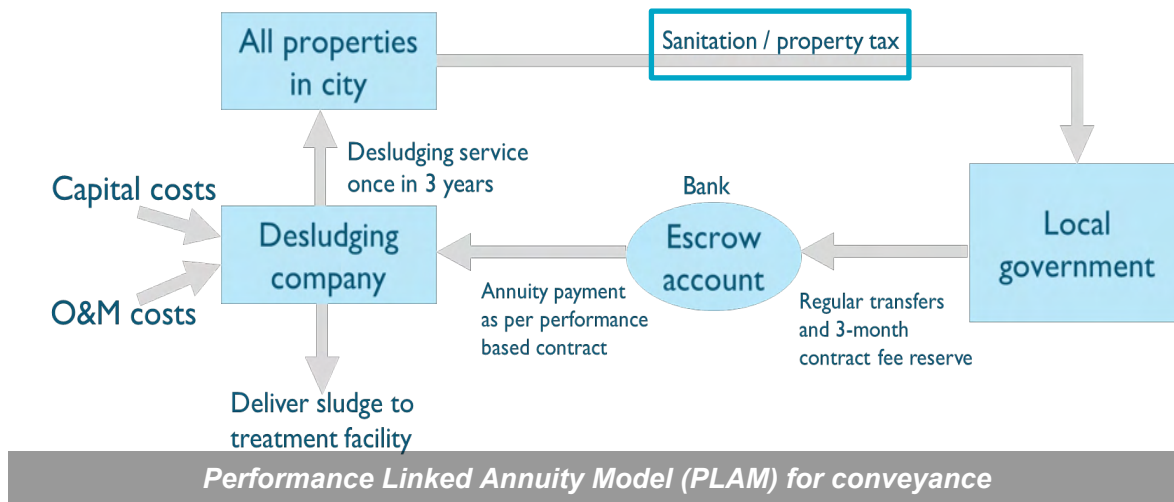
Low desludging Charges Per Individual

Performance Linked Annuity Model (PLAM)



Sanitation tax

- Unlike user charge, the payment for the service is not paid at the time of desludging but **through a sanitation tax (levied as a flat charge or as a % of property tax) paid annually**
- **Sanitation tax much less** than the cost incurred per household previously for emergency emptying due to trip optimization
- The sanitation taxes levied by ULB is for **recovering OpEx**. This could be graded to make it affordable for all.



Case of Wai, Maharashtra-PPP annuity model for scheduled desludging (2/2)

Positive impact of scheduled desludging in Wai

1300+
Septic tanks desludged in a year

2788
Properties covered

>10 ML
Septage delivered to FSTP

90%HH
Acceptance rate for scheduled service

7-8
Septic tanks desludged per day

1300+
Septic tanks
Unique database created

Eliminated manual scavenging

Regular use of safety gear by Sanitation workers

Households pay lower sanitation tax in comparison to user charges

Wai has achieved the status of ODF++

Philippines - Scheduled desludging by private concessionaires through environment tax

- Clean Water Act recognized the full service chain of sanitation and scheduled desludging cycle
- Private firms operate scheduled desludging under a concession agreement with the Metropolitan Waterworks and Sewerage System
- In Manila - Manila Water Company + Maynilad Water Services, Inc.
- In Dumaguete - Water District Authority (collection and transportation) + Dumaguete city government (treatment O&M)
- Tariffs to recover capex, opex, with some built in profit - Environment fee of 20% of water bill or a tariff linked to water consumption levied for desludging services.
- Charges and penalty norms for denial of desludging service
- Effective awareness programs and IEC activities
- Safe desludging practices like use of safety gears in place

Description	Baliwag	Veteran Village (Maynilad)	Dumaguete
Desludging cycle	5	5	5
Start year	2013	2012	2010
Responsibility of desludging	Baliwag Water District	Maynilad Water Services Inc	Dumaguete City Water District
Capex Funding	Baliwag Water District invested in 2 trucks of 5 m ³ capacity each	Maynilad invested in 27 trucks	Water district invested in 7 trucks of 3 m ³ size.
Opex Funding	10% of water bill	20% of water bill	Tariff of 2 PHP per cubic meter of Water Consumed



Scheduled desludging by private concessionary in Manila

Activity 3

Quiz on PLAM desludging service

Refer to exercise workbook

Conveyance prototype 6: PSP Annuity model for scheduled desludging

Model Description

- Private service **provider or SHGs leases or operates** local /state government trucks and carry out desludging operations on a performance based contract.
- Fees determined as per the bid to private operators **per septic tank or per trip emptied**.
- The city collects a special tax or a surcharge on water to cover the payment of fees.

Applicability

Private sector or SHGs presence, but low capacity to invest, while local / state government has financial and monitoring capacity

Government capex may incentivize private players or SHGs to participate

Benefits

Generates revenue through tariffs to pay for service

High service levels through performance based contract

Covers service gaps where there are few private players or players with low financial capacity

Challenges

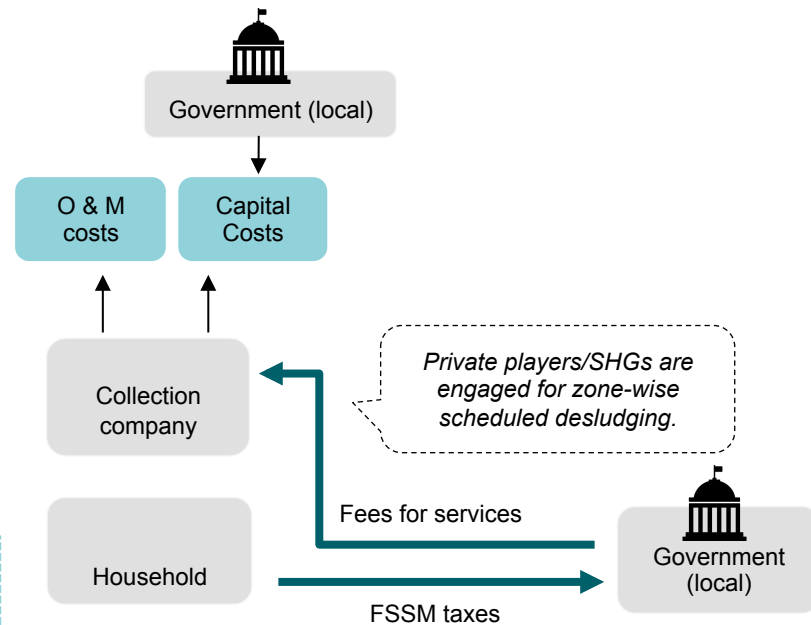
Requires **high- levels of monitoring** of private operations or SHGs

Significant **behaviour change needed** to mobilize tax






Monitoring private operations to prevent open dumping

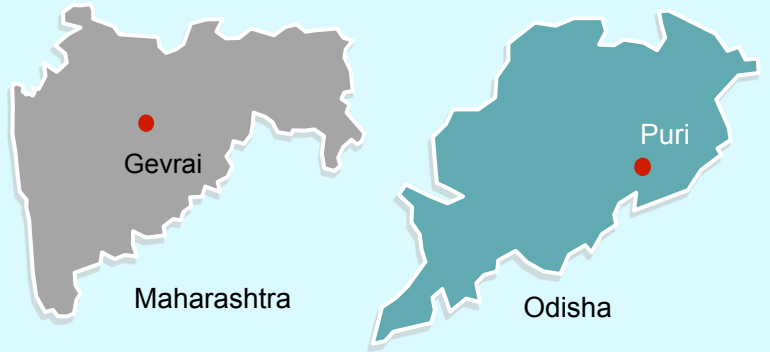
Govt. capex **may incentivize** more and smaller private providers to participate

Service:	Contract:	Capex:	Opex:
Scheduled Desludging	Private player	Local government	Local taxes



Gevrai, Maharashtra & Puri, Odisha - PSP annuity model for scheduled desludging

-  Both the cities are planning for scheduled desludging options for conveyance.
-  Trucks will be provided by government and private sector will be contracted for operations of scheduled desludging model
-  FSSM taxes (as part of property tax) will be collected by local government from households
-  Local government will monitor private sector activities and oversee to disposed collected sludge at treatment plant only.
-  Payment to private sector will be on performance or number of septic tanks emptied.



Vietnam- Scheduled desludging in Hai Phong with surcharge on water bill

- Hai Phong Sewerage and Drainage a state Company limited (Hai Phong SADCO) is responsible for provision of sanitation services
- Its GIS database has **86,501 septic tanks under scheduled desludging across 4 urban districts.**
- **Desludging interval** for household septic tanks is once in **5 - 6 years**, and for communal apartments once in 1 - 2 years
- Scheduled desludging is covered by the **city's budget and waste water fee of 15% surcharge on water bill**
- In the city of Hai Phong, scheduled faecal sludge desludging service for the communities is only through the surcharge.



Conveyance prototype 7: Scheduled desludging on requisition

Model Description

The desludging rates are fixed by the government on basis on demand desludging requisition or scheduled desludging requisition, with incentives to those preferring scheduled desludging models.

Benefits

Can be explored as a **potential model for transition from on-demand to scheduled desludging**

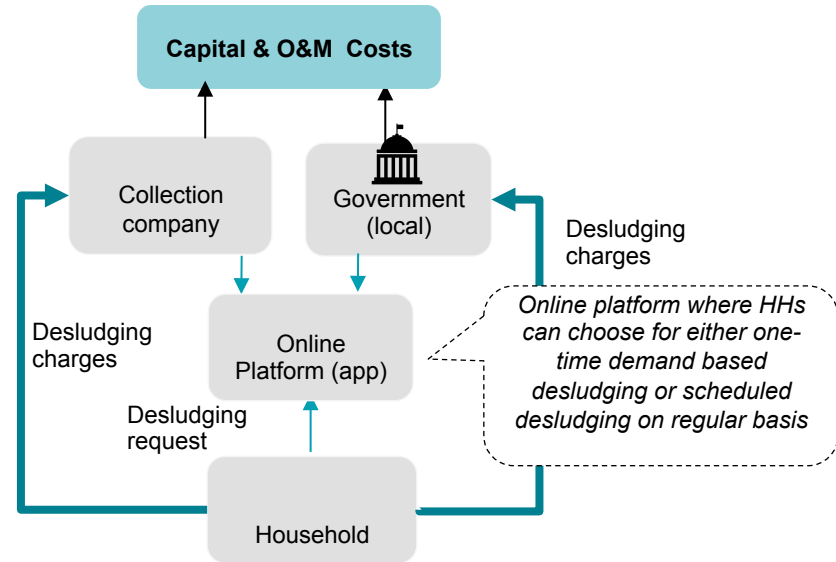
Challenges

Focus on IEC to generate buy-in by household /property owner

Applicability

Applicable in areas where there is considerable **variations across properties** in containment sizes in a given city

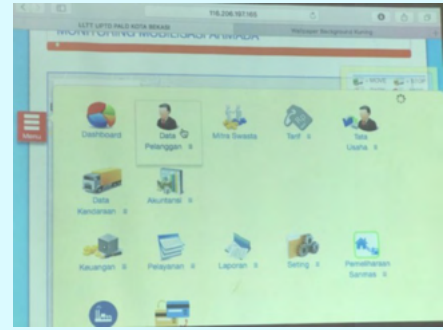
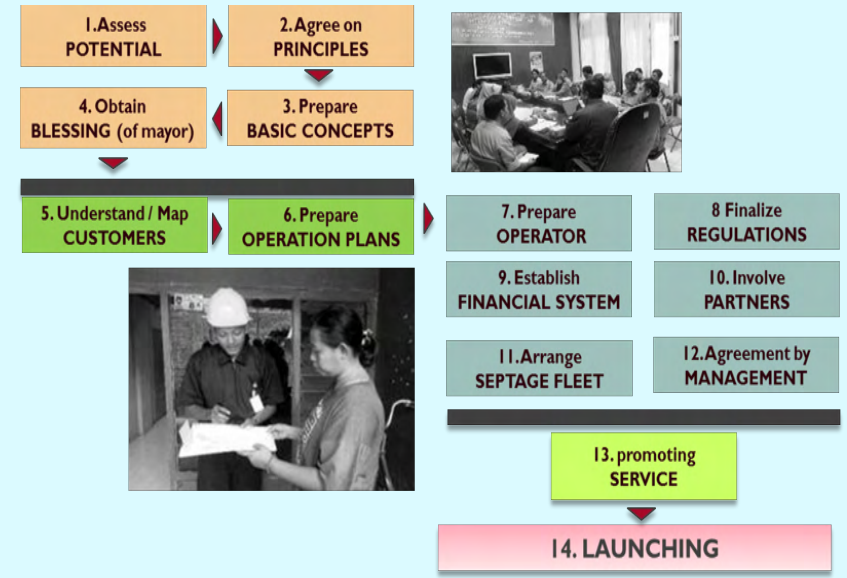
Service:	Contract:	Capex:	Opex:
Scheduled desludging on opt-in basis	Private player or Local government		



Bekasi city, Indonesia- Regular desludging on requisition

- **Android Based App** for households to request desludging services.
- A **single app** provides access to the **LG trucks** and **private trucks**
- **HH register** on the **on-line platform**, HHs inform their regular desludging period and based on their request service is provided
- A **dashboard** is prepared to monitor the activities of the desludging vehicles.
- The **LG monitors** the LG trucks as well as the private trucks
- **Access to the dashboard** is given according to the stakeholder.
- **Bar-code** is placed at every registered HH.

Steps followed in scheduled desludging process....



Source: Bustraan, F. (2018) "Introduction of Scheduled Desludging Services in Indonesia" Presentation at National Workshop Decentralized Sanitation Solutions at Mumbai – 18 November 2018. Retrieved from:

<https://niua.org/scbp/sites/default/files/Introduction%20of%20Scheduled%20Desludging%20services%20in%20Indonesia.pdf>

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1 What are Business Models?

Business Models For Conveyance

2

2.1 Demand Based Business Models

2.2 Scheduled Based Business Models

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Summary and Key Inferences



Conveyance Business Models - Summary & Key Inferences



High level of **private participation**

reflects high business opportunity in the FSSM value chain.



On-demand desludging most prevalent in India. However, **scheduled desludging** is needed to **ensure regular and timely desludging**,

achieve equitable services, including the poor; positive environmental impact; removes need for manual labour and help build a good database on real situation of onsite facilities.



SHGs can be involved in conveyance activities

like awareness generation for desludging; data collection, demand generation and mobilization; Monitoring of safe emptying services are provided and there is no manual scavenging; Operating the desludging vehicle; trained for emptying services



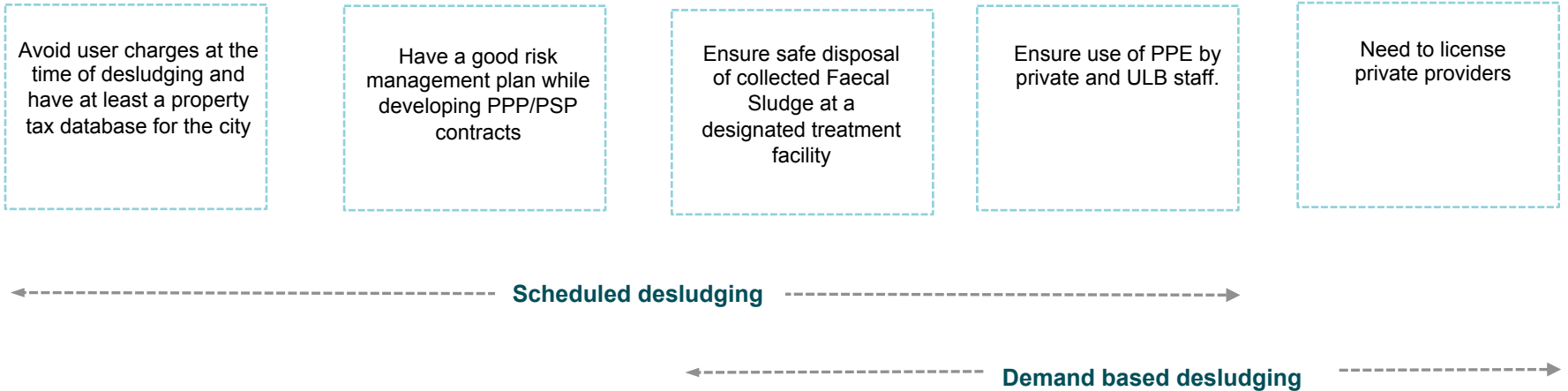
Appropriate regulatory and policy guidelines at the state level to minimize risks

In order to mitigate payment risks, there is a need for regulatory measures and formulation of guidelines at the state level for engagement of private sector. Possibility of guarantee fund also need to be explored.



Bundled contracts to offer larger conveyance contracts to induce larger operators and **Scheduled desludging models for zones in large cities** emerges as most promising models.

Precautions while using these conveyance business model prototypes



Activity 4

Building a model for a financially feasible desludging business in a city

Refer to exercise workbook



Session 3

Business Models For Treatment

CWAS CENTER FOR WATER AND SANITATION

CRDF CEPT RESEARCH AND DEVELOPMENT FOUNDATION

CEPT UNIVERSITY

Session Objectives



Introducing the types of models for building and running Faecal Sludge Treatment Plants (FSTPs)

This section will explain and describe the various types of business models for FSTPs. It will also talk about integrated business models combining Desludging and treatment activities.



Understanding benefits, challenges, applicability for each model as well as operational and financial roles

The key benefits, challenges and applicability of each model along with its operational and financial roles will be explained.



National/international Case studies of business models in treatment

Case studies and examples of various cities in India and across the world will be explained.

Center for Water and Sanitation (CWAS), CRDF, CEPT University carried out a study on Business models for Faecal Sludge and Septage Management as a part of the project on 'Financing FSSM Services' funded by the Bill and Melinda Gates Foundation (BMGF). This section of the module is based on this study. For detailed study refer -

https://pas.org.in/Portal/document/UrbanSanitation/uploads/Financing_and_business_models_for_FSSM_an_executive_summary_on_the_landscape_study_of_four_Indian_states.pdf



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- 1** FSTPs across India

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Summary and Key Inferences

Several Faecal Sludge Treatment Plants (FSTPs) are already functional in different states in India.

~700

FSTPs at planning or implementation phase in India

9

State are progressing with statewide FSTP roll out / co-treatment plans

Andhra Pradesh
76

Telangana
72

Tamil Nadu
48

Odisha
17

Uttar Pradesh
52

Chhattisgarh
159

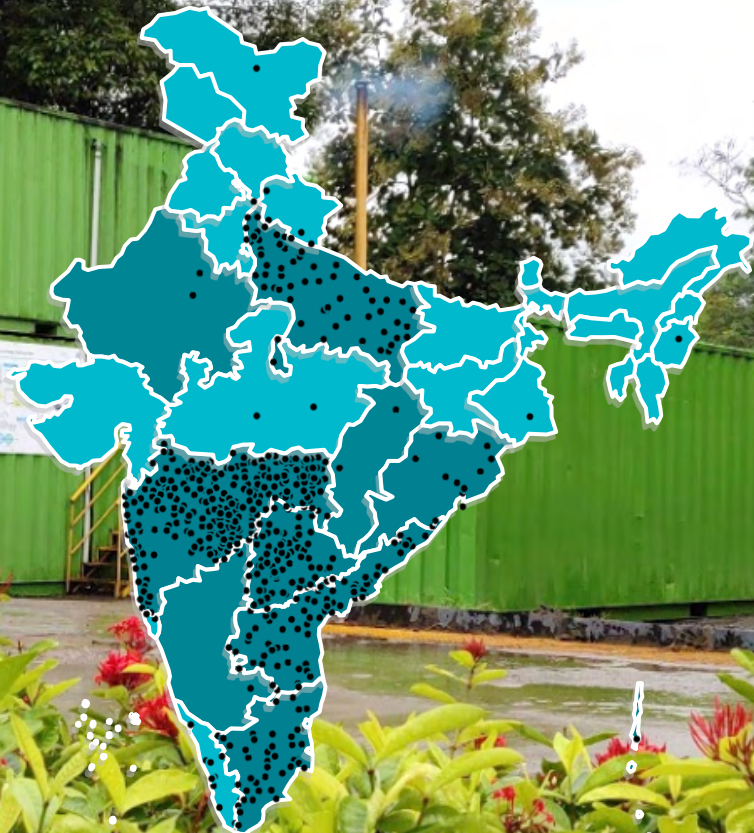
Maharashtra
~311

Karnataka
55

Rajasthan
3

4000

FSTPs are required to address country's need for FSSM





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FSTPs across India

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Emerging Business Models for Treatment

Treatment Models

**Bi/Multilateral
Philanthropic
funded
treatment facility**

*Treatment plant capex
and initial Opex by
philanthropic and
Operations by private or
SHGs*

**State government
funded through
national/ state
programs for capex
and opex**

*Treatment plant capex by
state government, Opex
by State or local
government and
Operations by private or
SHGs*

**Local Government
funded for capex
and opex**

*Treatment plant capex and
Opex by local government
and Operations by private
or SHGs*

**Partially funded by
private sector and
state government
and operated by
private**

*Treatment plant capex
by private and state
government; and Opex
by state government
and Operations by
private/SHGs*

Treatment prototype 1: Bi/Multilateral Philanthropic/ Non-profit funded treatment business models

Model Description

- **Philanthropy supports capex** requirements.
- Is **operated by a private player or SHGs**, working with the philanthropic funder to develop and test treatment technologies or models.
- **Opex recovery** from sources such as the **government** or **philanthropic** funders.
- The plant is **handed to city government** after successful pilot of project (after 2-3 years as per MoU with government)

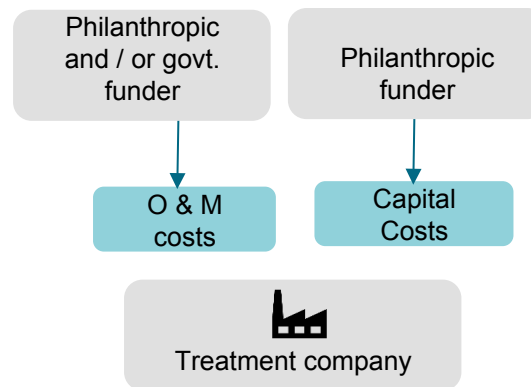
Benefits

Plugs the funding gap for new treatment technologies and models

No financial or implementation burden on governments

Challenge

Philanthropic funds are **not** a **sustainable** source of funds for the long term



Philanthropy funded plants in India

Coimbatore (2 towns)

- Plant **capex** is funded by **BMGF** but constructed by a private player.
- Plant will **initially be operated** by a **private player**, then handed over to ULBs. Operating costs initially funded by **BMGF**, and later guaranteed funding by the ULB
- Cluster approach** i.e. common FSTP for 2 towns



Wai

- Plant **capex** funded by **BMGF**. A private player will design, build and operate the plant (**DBOT**).
- Tide Technocrats has a 2 year O&M contract, funded by BMGF.
- Plant **O&M** is planned to be funded through **sanitation / property tax** in the future.

Narsapur

- BMGF** has provided a grant to Tide Technocrats for the FSTP.
- One year O&M** (funded by BMGF) is built into the contract with Tide Technocrats. The FSTP will be manned by five staff members, hired by Tide.
- Only **licensed operators** are allowed to deposit the faecal sludge at the FSTP.



Warangal

- FSTP using **pyrolysis technology** is being funded by **BMGF**, under a **DBOT model**.
- The plant will be operated by a private player. BMGF will provide opex for the FSTP for the initial year.



Others

- Devenahalli** uses a **mix** of funds, including capex funding and one year opex from CDD and BMGF.
- Dhenkanal** uses BMGF funds capex and 1-2 years of opex. Revenue generation options for the long term are being explored e.g. **reuse revenues**.

Treatment prototype 2: State government funded through national/ state programs for capex and opex

Model Description

- **State supports capex** requirements.
- Initial opex through either National or State level programs like AMRUT.
- Is constructed and **operated by a private operator or SHGs**.
- **Opex recovery** from **state government** in initial period & thereafter through local government.

Applicability

Relevant where **Government has some funding capacity** but **limited operating capacity** and where private sector participation or SHGs involvement is considered important from a operations perspective.

Benefits

Govt. participation in capex funding incentivizes private participation- **lower financial risk** for **private player**

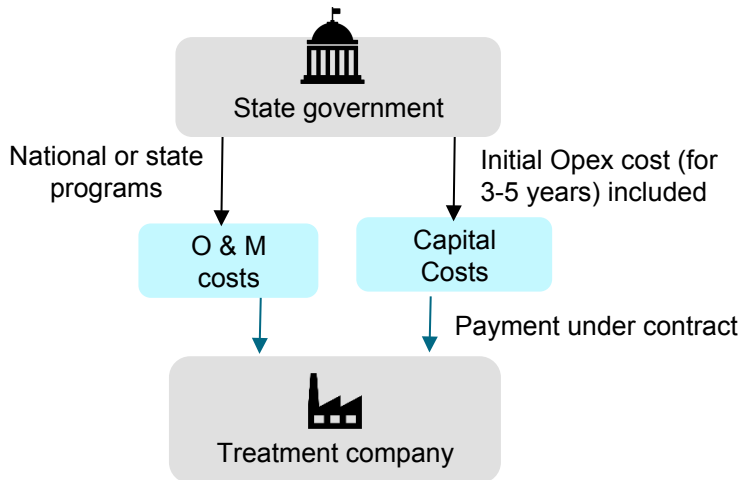
Sustainable plant operations since implementation responsibility is with the private operator or SHGs

Challenge

Requires allocation of public funds for **FSSM capex** which requires advocacy

Long term sustainability may be a challenge, as dependency on O&M financial support from state government

Need to **assess ULB financial capacity** for opex requirement



Odisha, India : State government funded plants



In Odisha, **AMRUT program** (National government program) funding was used to **build FSTPs** (septage management) in **9 cities**.



Odisha Water Supply and Sewerage Board (OWSSB) (State level agency) carried out **design, manage construction** and **O&M contracts for FSTPs**.



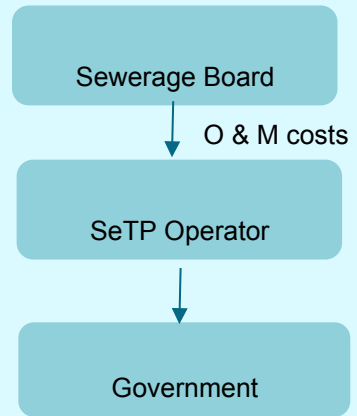
Allocation of land for FSTPs by ULB.



O&M cost for 5 years through **AMRUT** program.



OWSSB floated tender on lump-sum contract basis to invite private sector to build and Operate treatment plants.



Case Example: SHGs operated treatment plant in Odisha



FSTP operations, Odisha

- Jhadeswari SHG in Sambhalpur, Transgender group in Cuttack and Agrata Area Level Federation in Berhampur and Baripada in Odisha have been awarded contract for O &M of FSTP.



Treatment prototype 3 : Local Government funded for capex and opex

Model Description

- **Local government finances capex** requirements and **opex** both through own funds.
- Local government tenders out construction and O&M to private players/SHGs.
- **Opex recovery** from local government own funds. Also includes reuse options though its contribution is less.

Applicability

Relevant where Government has funding capacity but **limited operating capacity**

Benefits

Govt. participation in capex funding incentivizes private participation- **lower financial risk** for **private player/SHGs**

Sustainable plant operations since implementation responsibility is with private operator/SHGs

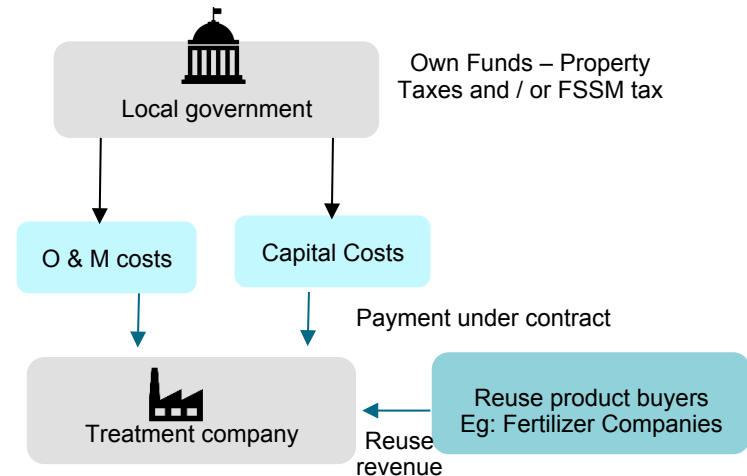
Low implementation burden on governments as private player is responsible for operations

Challenge

Requires **allocation of public funds** for **FSSM capex**

Reuse markets are **nascent**, market creation & linkages needed

Need to **assess ULB financial capacity** for opex requirement



Sinnar, Maharashtra - Local government funded plant



Sinnar is the first city in India to fund an FSTP through ULB own funds (14th FC funds).



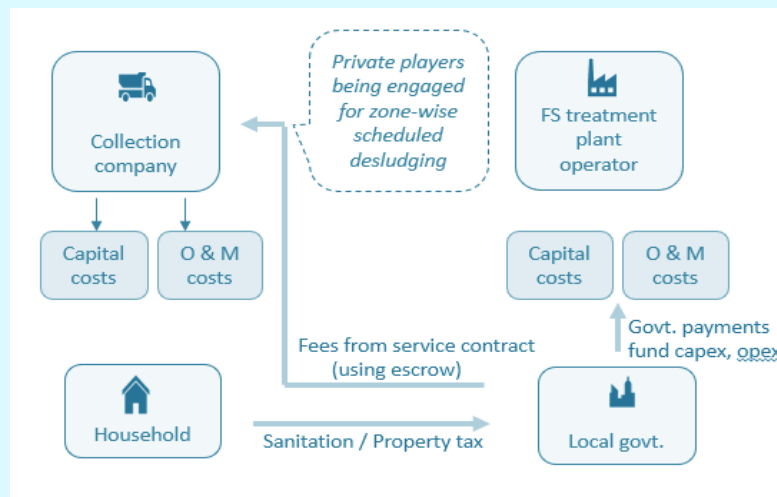
Key success factor is relatively strong ULB finances, to support this model



Private operator is selected through DBOT tender. Private operator is responsible for construction and/ or operation of treatment plant.



O&M funded by ULB through sanitation and property tax.



Maharashtra state - State-wide GR for setting up independent FSTP in 311 ULBs

In order to ensure that faecal sludge from septic tanks in those cities without STPs or FSTPs or co-treatment options is treated, this GR was passed to select an appropriate technology and adopt the same.



Capital cost for FSTP

14th FC funds (State already directed cities to use 50% of 14th FC funds for this)

O&M cost for FSTP

ULB own funds



Land

FSTP to be setup at SWM site

Treatment prototype 4 : Partially funded by private sector and state government and operated by private operator or SHGs

Model Description

- **Private enterprise** funds plant capex fully, undertakes construction, operation and maintenance of a treatment plant. Private operator can also involve SHGs for operation of treatment plant
- The **private sector capex cost** will be **repaid by the government** in the form of **annuity payment** over the O&M period.

Benefits

Reduces the capex burden for governments, since the operator bears upfront costs with subsequent recovery from the government

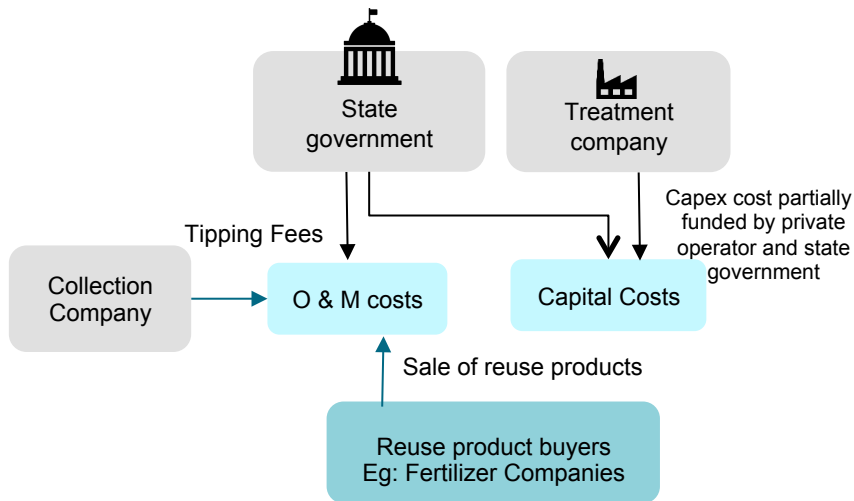
Sustainable plant operations since implementation responsibility is with the private operator

Funding by State government **alleviates concerns around individual ULB financial capacity** and payment risks

Challenge

Difficulty in finding medium-large players with the financial and technical capacity

Small players will be discouraged since their financial capacity will not be enough to finance the part capex cost



Applicability

Relevant in scenarios where **private sector participation and part funding is prioritized** and government support is needed to bridge viability gap funding and justify commercial return

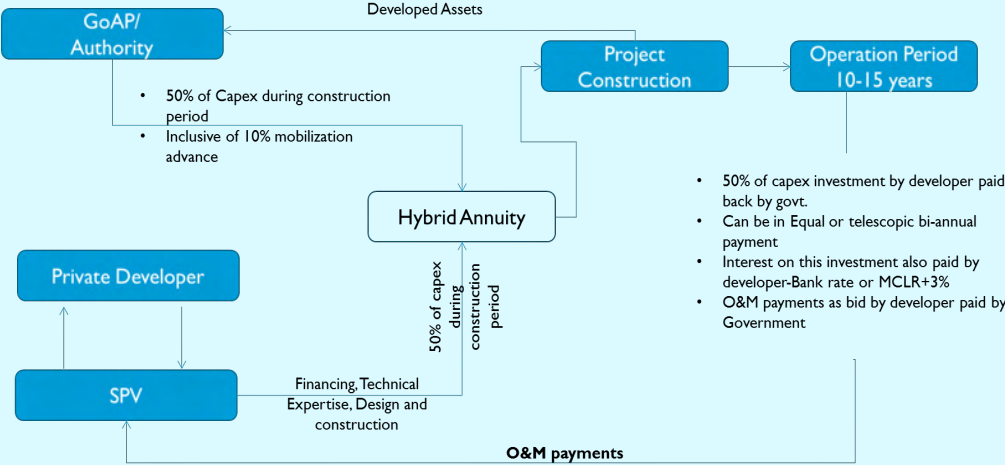
Andhra Pradesh and Telangana states - Hybrid Annuity Model for treatment

- Private companies - undertake construction, operation and maintenance on a DBOT basis. Cost determined by bidding
- CapEx – 50% by government , 50% by private company
- Funding by Swachh Andhra Corporation supported through the state budget alleviates concerns around individual ULB financial capacity and payment risks
- Private player clustering approach (multiple ULBs per partner) to achieve scale economies and a large contract
- Private player responsible for selling soil conditioner/bio-fertilizer/biogas and recycled wastewater. In the long term, part opex recovery planned through user charges.

HAM model proposed through city clusters for

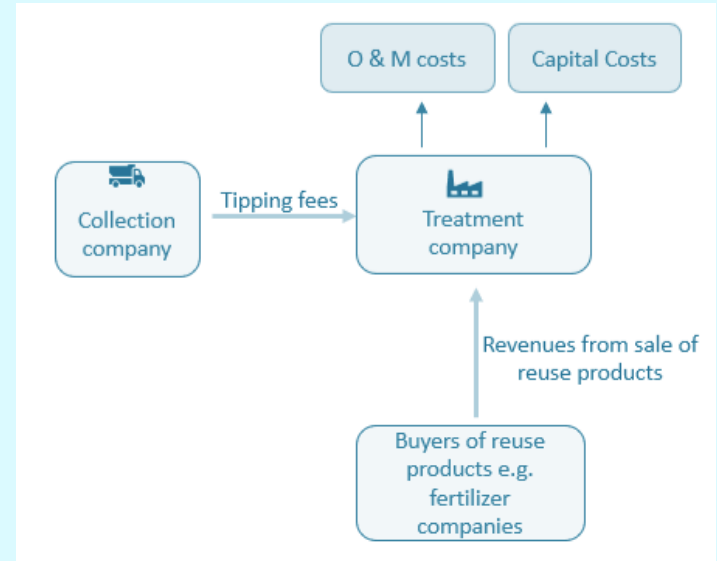
76 ULBs in AP

72 ULBs in Telangana



Vietnam- Privately funded treatment plant

- Built, owned and run by **Hoa Binh fertilizer company**.
- FS is **separated from wastewater**, and **dried into bio-solids** and **dried sludge**. The dried sludge is sold for fertilizing crops, while the biological sludge is sold to the wastewater treatment company.
- Desludging operators (both government and private) pay the fertilizer company for depositing FS about **USD 1.46 for each truck**.
- Current revenue limited due **to illegal dumping of sludge** by private operators.
- Relevant model where reuse markets are better developed.



Source: Viet Angh, N., et.al. (2011) "Landscape Analysis and Business Model Assessment in Faecal Sludge Management: Extraction and Transportation Models in Vietnam" Hanoi University Of Civil Engineering. Hanoi. Retrieved from: <https://rb.gy/53vuba>



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Integrated models for conveyance and treatment




- 

1 Integrated models **offer efficiencies, convenience and easier** contracting with the same player responsible for operations across the value chain
- 

2 **Interesting options for opex funding of conveyance** and treatment from households – as a bundled price can be implemented efficiently
- 

3 **Dependency on a single player** (1) compounds risk of non-performance, (2) crowds out existing smaller players, which can impact implementation
- 

4 Market information and subtle nudges along with **technical assistance might be required** to increase the number of players in the market
- 

5 Scheduled desludging may be more conducive for integrated players given that it offers **predictability of operations in conveyance.**

Prototypes

- 1 **Integrated model for scheduled desludging and treatment** : *Same private firm operates both desludging and treatment service for one city*
- 2 **Integrated model with a cluster based approach** : *Same private firm operates both desludging and treatment service for a group of nearby cities*

Prototype 1: Integrated model with scheduled desludging and treatment

Model Description

- Desludging charges from HHs are the source of opex funding for conveyance and Treatment.
- Charges are collected directly by the operator (user charges) or indirectly through the government (FSSM taxes) which then pays the operator.

Applicability

Relevant in areas where there are private players with capacity to manage both treatment and desludging operations.

Benefits

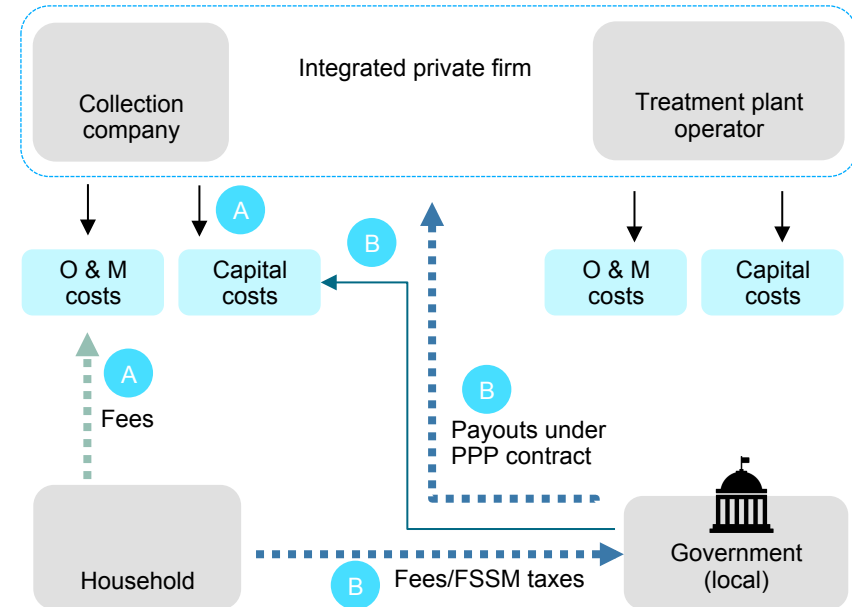
Integrated models offer **efficiencies, convenience, and easier contracting**, with the same private provider.

Incentives for the operator to bring all collected FS to the plant for treatment.

Challenge

Dependency on a single player

(1) compounds risk of non-performance, and (2) crowds out existing smaller players



Case Example: Integrated model at Leh, India



Blue Water Company (BWC) designed, financed, built and operates the FSTP on the land provided by the LDA

Municipality will give its suction truck which will be **operated by BWC** at its own costs

Municipality will collect user fees, with help from BWC

Five year contract (cleaning and treatment)

Inclusive Services: Cross-subsidize cost of FSM services to **poorer households** through higher fees from hotels and guesthouses

~2.6 Million litres faecal sludge collected & treated

Trips increase from 6-8 trips/ month to 80-100 trips/ monthly

Only 25% of septic tanks are easily accessible. Too many narrow streets

Prototype 2 : Integrated model with cluster based approach

Model Description

- Recovery is mainly from desludging charges and partial from the government (PPP contract).
- Charges are collected directly by the operator (user charges) or indirectly through the government (FSSM taxes) which then pays the operator.

Benefits

Cluster approach can provide efficiencies and cost recovery for treatment facilities

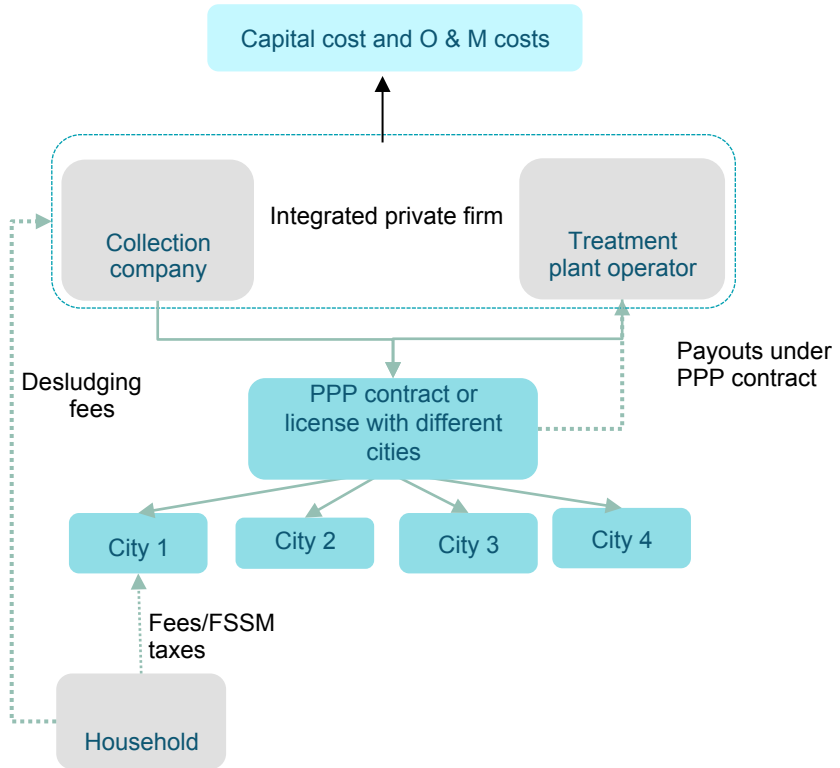
Challenge

Co-operation among cities, efficient road connections

Applicability

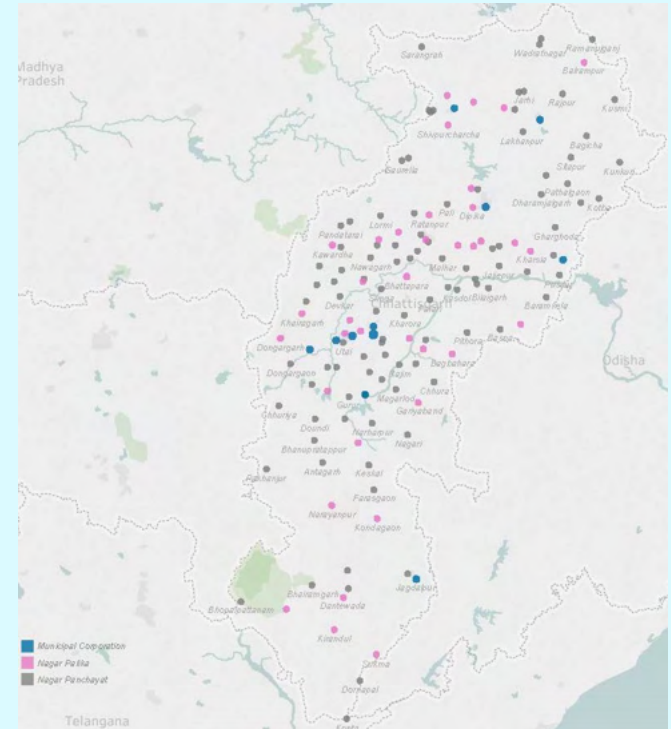
Relevant in areas where there are private players with capacity to manage both treatment and desludging operations.

Also where the nearby cities are willing to come together for a cluster approach.



Case Example: Integrated Cluster based approach in Chhatisgarh, India

- State has already started planning for cluster based faecal sludge treatment plant for **non AMRUT ULBs**.
- **Preparing clusters in 15 – 20 kms distance** and will also fix 3 – 4 non-mechanized treatment technology for non-AMRUT towns.
- State authority will rolled out tender to invite single private player for both desludging and treatment.
- **The capex and 10 years opex cost** will be inbuilt in bid and will be funded by **state government**.



Case Example: Cluster based approach in Thailand

Thongthawil Service Co. Ltd (TSCL) located in Rayong province provides services for septage desludging and treatment in two municipalities and 8 sub-district organizations.



Conveyance

- **Separate license for emptying and treatment** in all these municipalities under the 1992 Public Health Act.
- **15 trucks and average 10-12 trucks serve daily**, Services are provided for 365 days.
- Customers directly call TSCL for desludging services. They have a **QR code on each truck where customer can directly send an online request** for emptying services



Treatment

- Treatment plant is owned by the TSCL **private agency**.
- **Each municipality** provides an **annual license to TSCL**, and the company collects a license fee for providing treatment services.
- TSCL **charge only industrial domestic waste** for providing treatment services under Factory act. Around 40% customers are from industries.

Service Area

440 sq. km

Population

3,98,656



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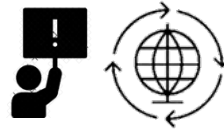
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Treatment Business Models- Summary & Key Inferences (1/2)



Since there is **limited commercial return** potential, **government funding** would remain the **dominant source** of funding for treatment facilities.



Opex funding for treatment is critical for **sustainability** and will need careful attention, as well attention on resource recovery for the future. This has to be partially funded by local government.



A **state level strategy for FSSM** treatment **at scale** will guide the ULBs and motivate private participation



Monitoring the system- It can also help enhance project quality through quality monitoring and zero energy systems as well as to develop these as resource centres.



Treatment operations are mostly outsourced, due to ULB's limited resources, financial and technical capacity



Government funding is important, but **philanthropic funding** can be useful in initial stages. Many technologies are in an early stage and inadequate experience exists, philanthropic or CSR funding can support pilots and demonstration projects.

Treatment Business Models- Summary & Key Inferences (2/2)



Reuse revenues require developed markets and market linkages. As these are at **relatively nascent** stage, more advocacy and innovation will be needed to develop these markets.



The option of **tipping fees** is also difficult in most cases, due to negative incentives to private operators to dump outside.



Opex costs will need to be mainly funded from **local government sources**. Plant selection (through tendering) can also emphasize low opex expenditure to the extent possible



SHGs can be involved in various activities like **Operation and maintenance** of FSTP; **Sale** of dry compost/sludge; **Landscaping** at FST; **Operating** Sanitation resource centre



Integrated Business Models- Summary & Key Inferences



Preferable option from government perspective

From the ULB perspective a single operator for conveyance and treatment may imply ease and simplicity of **reporting and monitoring**



Limited number of private player for integrated options

From the perspective of private providers, integrated contracts maybe difficult as very few private enterprises are in both areas of business, and thus they have to take on work which may not be their forte, or form consortia. In this process, it may **lead to crowding out of expertise of smaller independent service providers**.



Opex funding could be explored

An integrated contract offers interesting options for **opex funding of treatment from households** – as a bundled price can be implemented

Activity 5

FSSM business model canvas for identifying suitable service in a city

Refer to exercise workbook



Session 4

Private sector partnerships and contract management

Session objectives

In previous sessions we have already talked about business models for FSSM where private sector has roles to play.

In this session-

Understanding the benefits and role of private sector in FSSM

Understanding needs, interests and concerns from both ULB and Private sector perspective

Learn about processes for engaging private sector and understand key challenges and risks encountered in the procurement process and how to mitigate them

Learn about considerations for building successful contracts



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- 1** Introduction to private sector participation
- 2** Market opportunities for private sector in FSSM
- 3** Enabling environment, ULB capacity and experience
- 4** Market assessment and Procurement process
- 5** Developing balanced contracts, project structures
- 6** Addressing risks and payment delays

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Why are private partnerships needed / beneficial?



Urban Local Body

Mandate to ensure service provision



Private sector

Looking for business opportunities



Win-Win situation

FSSM challenges - Improper onsite systems that do not conform to standards; No treatment facility and unsafe disposal

Limited funds, human-resource, equipment

Low technical know-how

Have to focus on other sector responsibilities

Good access to technical knowhow

Competitive prices

Many times, already active in the field

Fast track implementation - agility and innovation

- ✓ Reduced burden on ULB staff
- ✓ Able to focus on monitoring and ensure better quality service
- ✓ Citizens get timely services at competitive prices
- ✓ Entrepreneurs get business opportunities

Need to address typical challenges faced by private players

Tech and experience requirements

Tenders don't have provisions for participation of players who have limited experience in the region but may have relevant experience outside.

Given that design specs have been pre-specified in some tenders, there need not be restrictions on prior technical expertise of the bidders such that pure civil contractors may be allowed to bid.

Technology in tenders should be left variable in order to accommodate more players and bring in more cost effective solutions.

Thinking of expanding to state A and B but discouraged due to more rigid tech criteria in these states.

Financing these FSTP projects is a big challenge. Unsecured lending interest rates are about 18%-19%. Typically only half of this is secured. This seriously affects our profitability. The only reason we are still focused on these projects is because we are currently prioritizing top line growth.

Financial constraints

In most cases, even though we have all of the technical know-how and experience, we need to consider entering into joint ventures for FSTP projects since we don't have the financial strength.

Modifications in bidder turnover requirement will allow start-ups and SMEs to apply for FSTP tenders.

High EMDs and security deposit requirements in FSTP tenders puts a strain on our working capital for the project.

We have approached a few banks and NBFCs for financing but have been turned down at the first instance since the ROI is low relative to other projects. Collateral is also a problem here.

Distrust in working with government

We would rather not deal with the ULB directly, there are always issues with internal politics. If there is a mediator in between then we would be interested.

Payment delays from the Government is one of the biggest discouraging factors for us to participate as well as for our ability to get lending support.

Ideally, bills should be cleared in 30 days, and for late payments, interest should be paid at the rate of 8% per annum."

The contract should have a clause defining a 3 month notification period in case of termination. It should also have a dispute resolution mechanism.

Issue with project structure

I have tried to do a regulated schedule on my route, but that has been difficult. People always say, "come back later", and it falls apart. I don't want my payment to suffer.

Escalation of fuel costs is an issue. The contract should clearly account for that."

Multiple components to catalyze private sector participation



Showcasing
market opportunity



Enabling
environment in
public sector

*Political will and legal
support*

*Public sector capacity to
engage the private sector*



Balanced
contracts and
project structures



Payment
assurance

Addressing risks



Finance options

Access to credit

Alternate revenue
models

Source:

Center for Water and Sanitation, CRDF, CEPT University "PSP Toolkit for IFSM"

Intelicap (2020) "Catalyzing private sector participation in FSSM in India: Contract Management – A Private Sector Perspective" Presentation at TSU-PMU convening

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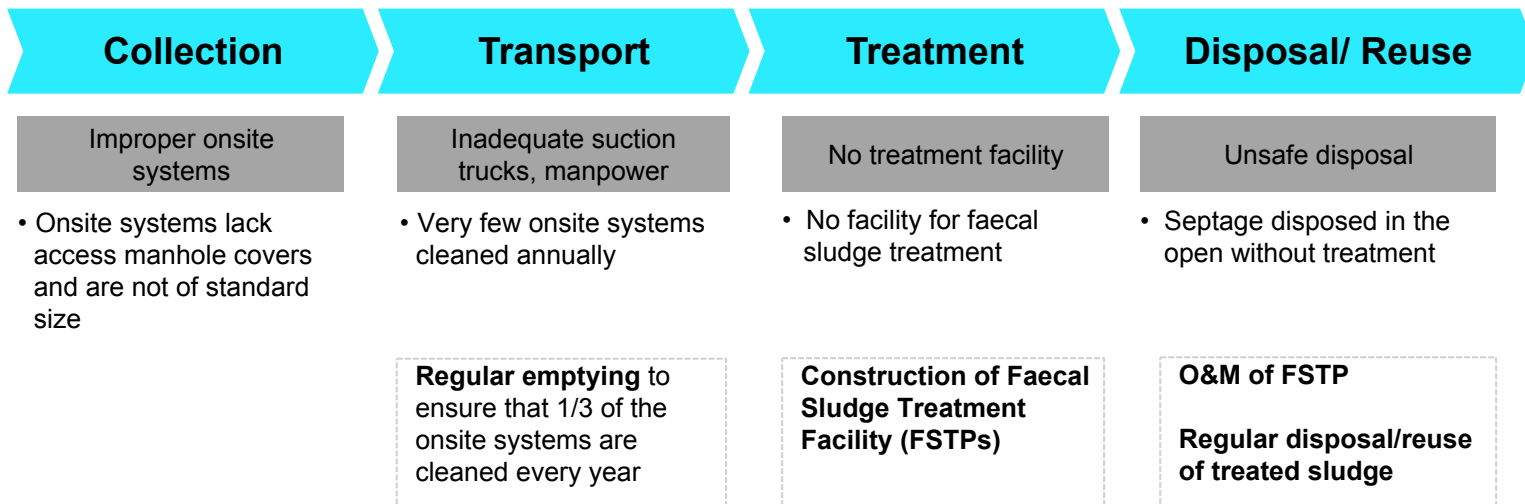
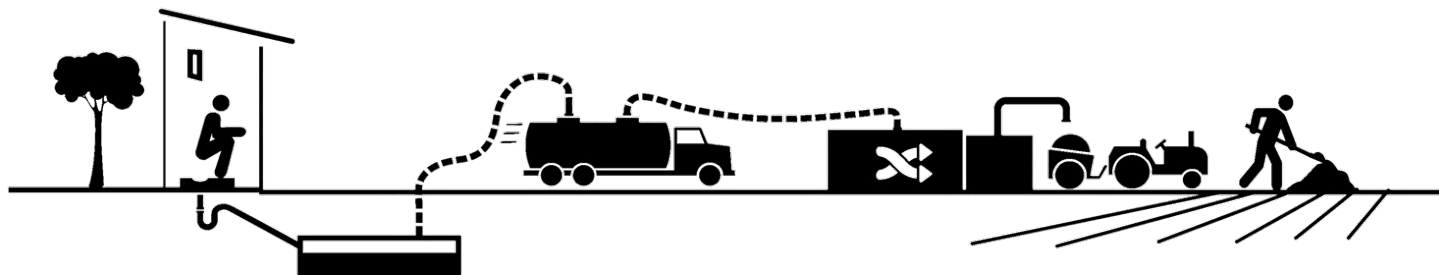
- 3** Enabling environment, ULB capacity and experience

- 4** Market assessment and Procurement process

- 5** Developing balanced contracts, project structures

- 6** Addressing risks and payment delays

Market opportunities for private sector across sanitation chain



Note: (i) As per MoUD guidelines, a household onsite system/onsite system must be emptied every 3 years hence 33% of all onsite systems/ onsite systems should be emptied annually

Possible PSP options

Conveyance



On call desludging contract

Scheduled desludging contract

License to private desludgers to carry out independent operations

Treatment



DBFO (Design, Build, Finance and Operate)

Build-Own-Operate-Transfer (BOOT)

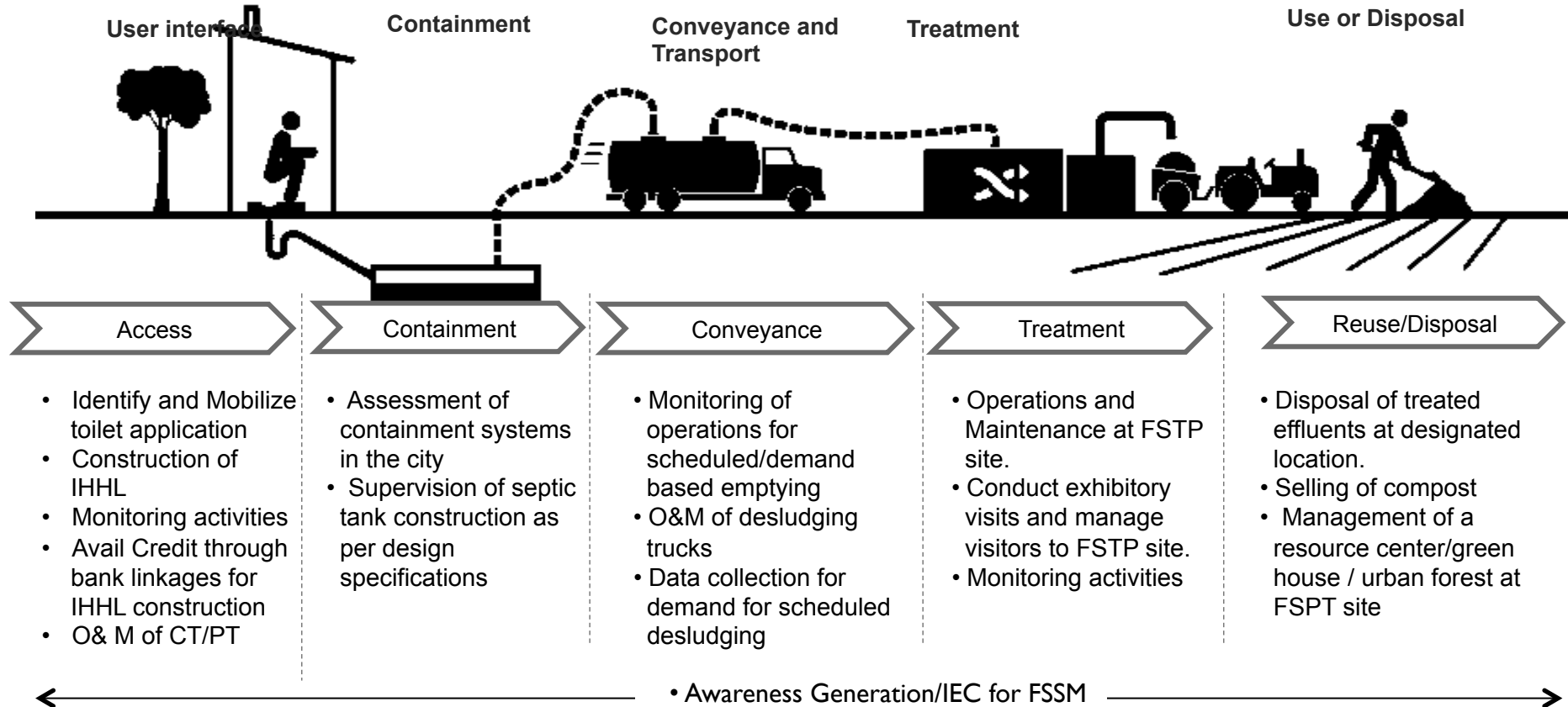
Build Operate and Transfer (BOT)

Build-Operate-Lease-Transfer (BOLT)

Build-Own-Operate (BOO)

Contract for O&M of existing FSTP

Possible options for SHGs involvement across sanitation value chain



Possible Challenges in linking SHGs to Sanitation enterprises



Requirement of capacity building program for enhancing the technical, and managerial skills

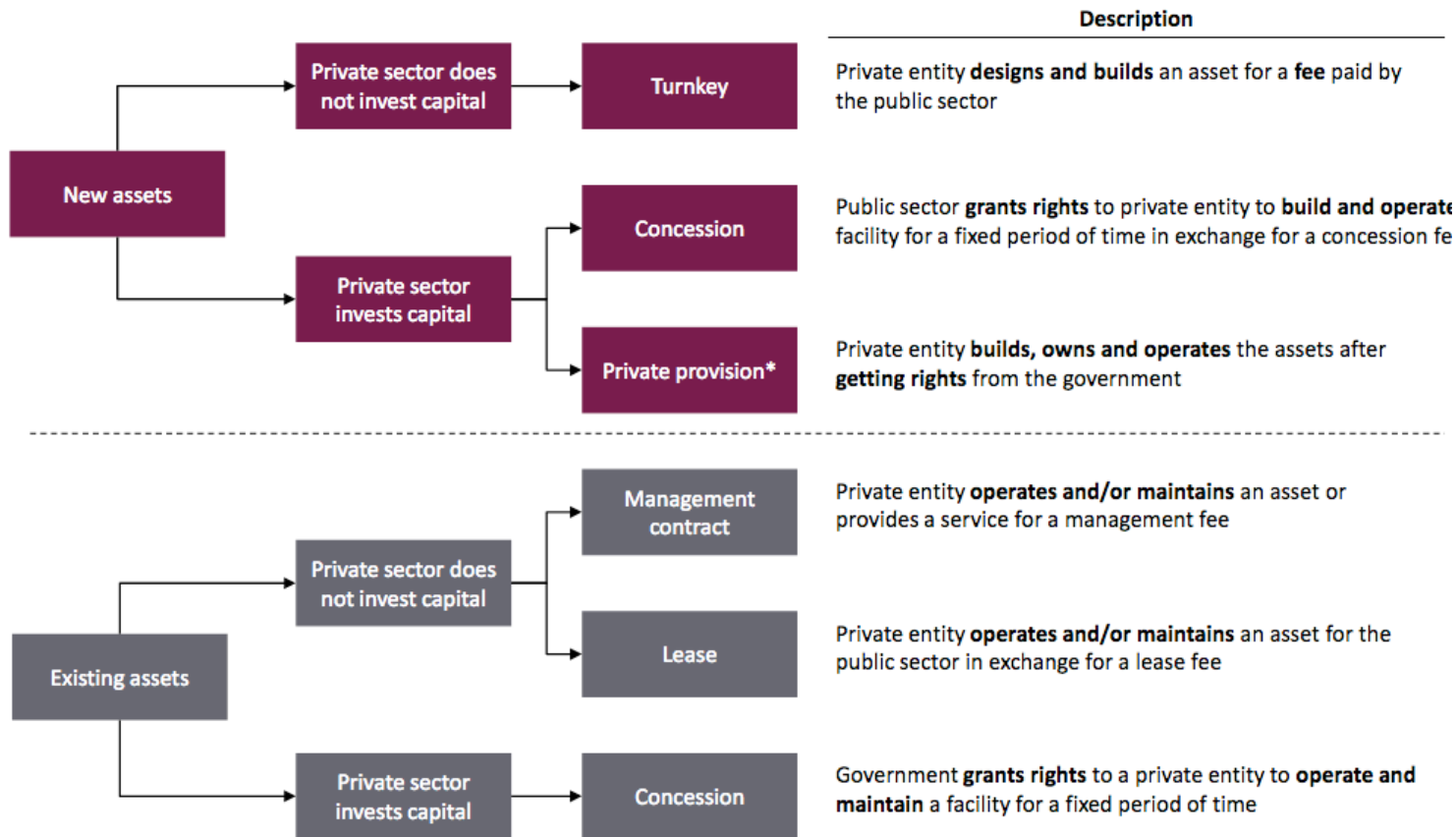


Support required to bear shocks of irregular ULB payment cycle



Model contracts, SOPs, training to SHGs

Private sector participation projects can be categorized into 6 types

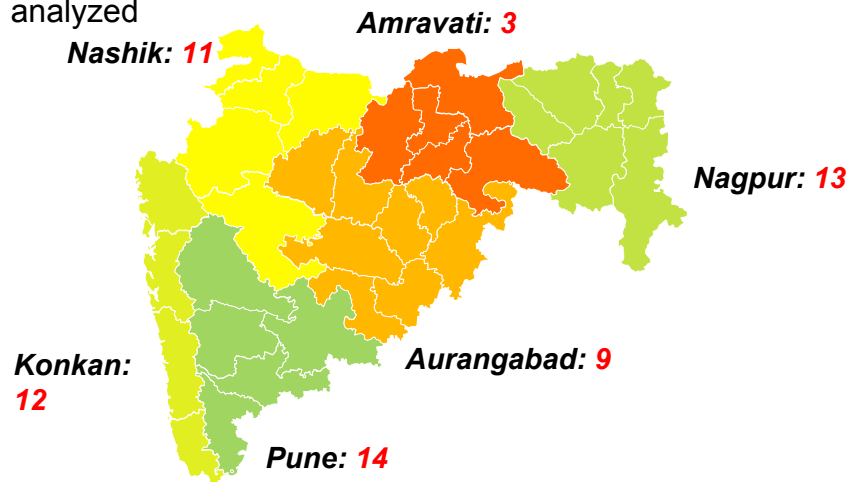


*Note: Not generally defined as a PPP in India; Similarly short-term outsourcing contracts will not be defined as PPPs as per the new 2011 Draft National Policy
Source: PPP toolkit – Ministry of finance – India, Toolkit for PPP in Urban Water Supply in Maharashtra – ADB, Department of economic affairs

What does the desludging market look like for private players?

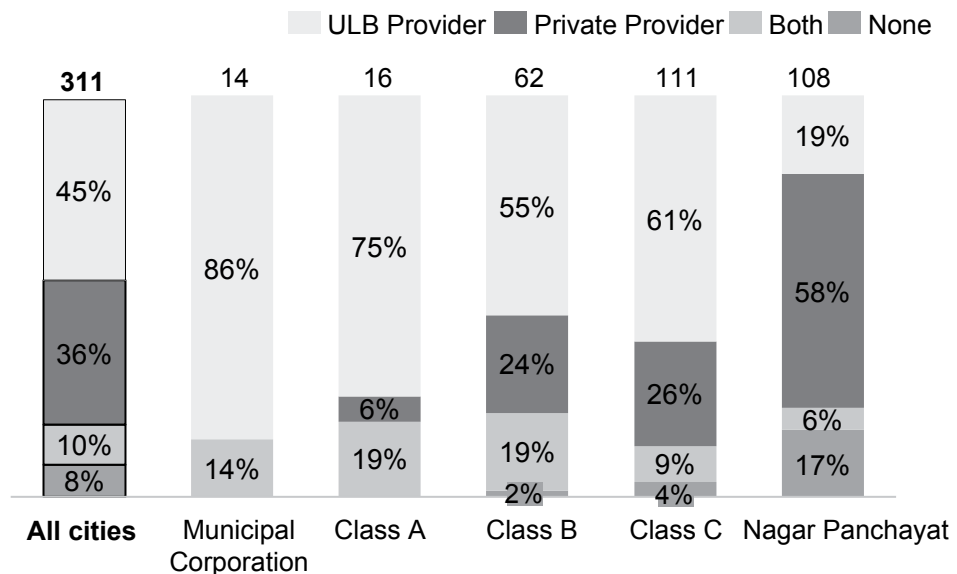
A case of Maharashtra – one of the most urbanized states in India

A research was conducted by Arete Advisors with CWAS-CEPT University on the private sector players across cities in Maharashtra – 62 pvt players interviewed across all classes of towns, PAS Project data from 311 cities analyzed



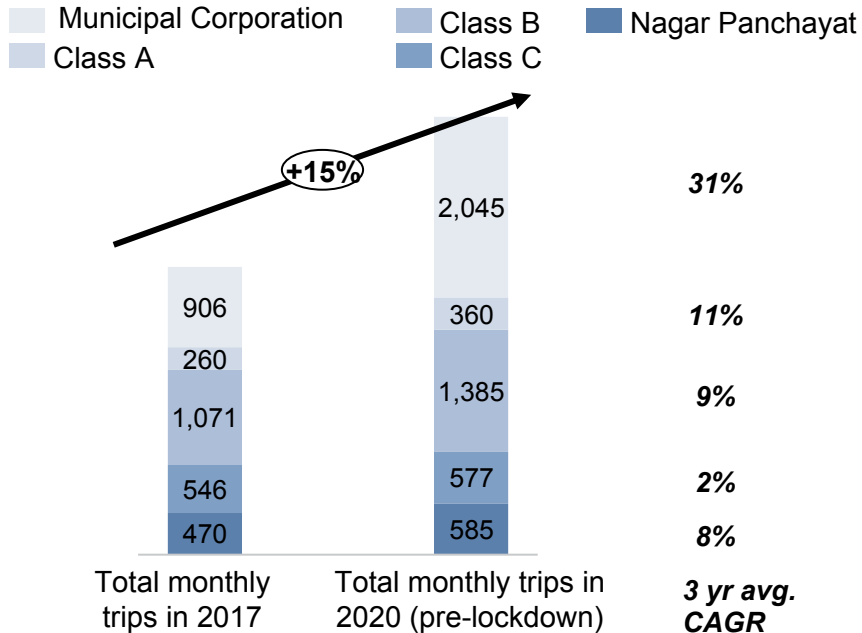
1. Private sector is already active, especially in smaller towns

Share of desludging operators – city class wise (%)



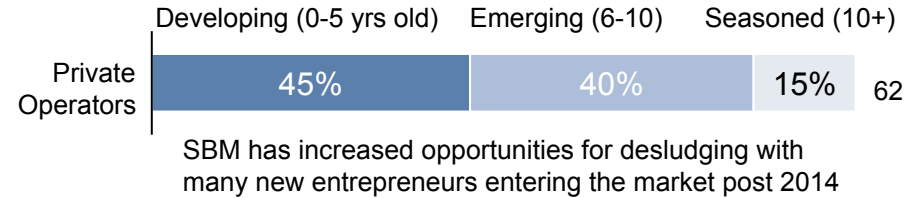
2. Big corporations are also seeing increasing demand for pvt. desludgers

Growth rate by City class

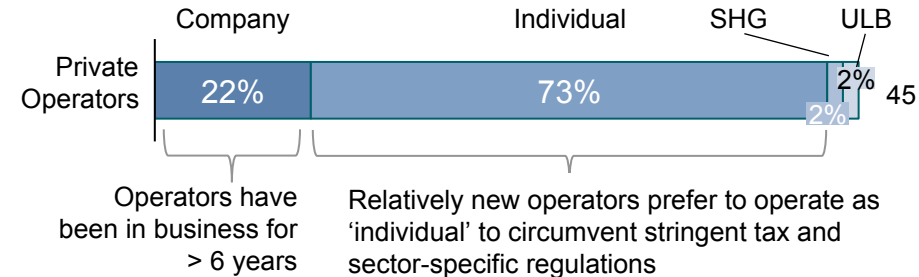


3. Desludging as a business is upcoming – Most entities are developing and individually owned businesses





Maturity of private operators



Type of registration by private operators



4. Four diverse customer segments

 <p>Individual</p>	 <p>Industries</p>
<p>About 50% of the private operators service only the individual residential household, these emptying are less frequent and generally would have a single trip</p>	<p>About 35% of the operators have industrial trips greater than 25% of their total trips, price points charged to industrial customers are relatively higher than other customers</p>
 <p>Event/ Site Toilets</p>	 <p>Tender/ ULBs</p>
<p>In larger towns, operators have started servicing desludging demand from construction sites, events, etc. as an alternate source of income</p>	<p>ULBs have started to give out one-year contracts to private operators for desludging operations, operator bids on monthly payment to be paid by the ULB per month for emptying</p>

What does the treatment market look like for private players?

1. Typical bidders for PPP model FSTP projects

Sanitation enterprises which are already working in the space and have experience in FSTP construction, O&M
Examples: BankabioLoo, Tide Technocrats, Tiger Toilets

Enterprise related information	
States/ districts of operations	States – 3,4 Districts – 8,10
Number of years of operations	05-10 Years
Promoter experience	12-20
Sector of expertise	Sanitation and Allied space
Customer information	ULBs, government clients

Operational Details	
No. of employees	50-100
No. of customers	12-20
Percentage revenue from top 5 customers	70%

Financial details	
Collateral availability	Available
Turnover	15 crore

2. Typical enterprises for Turnkey / EPC projects

Local contractors who work with ULBs/Government to implement construction projects like road, sewer etc.
Examples: DD Builders

Enterprise related information	
States/ districts of operations	States – 01 Districts – 2,3
Number of years of operations	05-10 Years
Promoter experience	8-10 Years
Sector of expertise	Construction activities
Customer information	ULBs, Private construction companies

Operational Details	
No. of employees	30-40 100 (temporary workers)
No. of customers	12-20
Percentage revenue from top 5 customers	90%

Financial details	
Collateral availability	Limited
Turnover	5 crore

3. Typical enterprises for FSTP service contracts

Since this model limits itself to operations, small enterprises, NGOs, Area Level Federations (SHGs) are the prominent bidders.

Example: Hand in Hand, Tamil Nadu ; Hasirudala, Karnataka

Enterprise related information	
States/ districts of operations	States: 10-15 Districts: 200-250
Number of years of operations	NGOs – 15 Years
Promoter experience	NA
Sector expertise	Waste Management
Customer information	ULBs, Donors

Operational Details	
No. of employees	8000-10000 (NGOs)
No. of customers	60-70
Percentage revenue from top 5 customers	50%

Financial details	
Collateral availability	Not Available
Turnover	NA

4. Typical profiles for integrated models

Truck operating enterprises with approximately 20-30 trucks participate in such integrated projects. Usually these enterprises are already engaged in Sludge transportation and/or Solid Waste Management.

Enterprise related information	
States/ districts of operations	01-State 02-Districts
Number of years of operations	04-05 Years
Promoter experience	~ 10 years
Entrepreneur type	Technical Entrepreneur
Customer information	ULBs and government clients

Operational Details	
No. of employees	100-200
No. of customers	04-05 clients
Capacity utilization	90%
Percentage revenue from top 5 customers	95%

Financial details	
Collateral availability	Available
Turnover	INR 40-50 Cr

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- 5** Developing balanced contracts, project structures
- 6** Addressing risks and payment delays



Assessing legal and political environment

Favourability toward PSP from a legal and political standpoint

Existing drivers that can propel a potential PSP



Feasibility and ease of engaging with contractors



Legal limitations

Do laws and regulations allow private contractor engagement?

Restrictions - ULB should reach out to state government for exception

Specific regulations - proactively seek early buy-in of state government

Land acquisition beforehand



Policy support

Does a policy for private sector participation in IFSM, or sanitation exist?

If no, clarify way forward through consultations

Policy issued by previous government - confirm current government's views



Political will

Is there political will in the local govt or a committed political champion?

No - proactively seek early buy-in of state government

Lower level political support exists - submit project proposal to higher-level authorities. Align with broader sanitation agenda







Community support

Local community actively opposed - targeted stakeholder discussions

Broader exercise (e.g. through newspapers) to state how community views have been taken into account.

Community not engaged - Seek feedback on project through local newspapers

Has the ULB engaged the private sector for FSSM or in other sectors previously ?

Sector	Type of the contract	LG responsibilities	Contractor responsibilities
	<ul style="list-style-type: none"> • Management contract for door collection of waste and cleaning of drains 	<ul style="list-style-type: none"> • Fixed monthly payment made to the contractor 	<ul style="list-style-type: none"> • Door to door collection of waste and cleaning to drains • Provision of labor required • Provision, Operation and maintenance of trucks
	<ul style="list-style-type: none"> • Management contract for the O&M of vermi-compost treatment plant 	<ul style="list-style-type: none"> • Monthly payment made to contractor for operation and maintenance of compost plant constructed by the LG 	<ul style="list-style-type: none"> • Provision of labor, equipment and utilities for the plant • Sale of compost, 50% of the proceeds of which, need to paid to the LG
	<ul style="list-style-type: none"> • Management contract for the O&M of community toilets 	<ul style="list-style-type: none"> • Monthly payment made to contractor • Payment for utilities 	<ul style="list-style-type: none"> • O&M of community toilets along with regular cleaning and repairs
	<ul style="list-style-type: none"> • Management contract for cleaning of pre-monsoon drain cleaning 	<ul style="list-style-type: none"> • Fixed monthly payment made to the contractor 	<ul style="list-style-type: none"> • Undertaking cleaning of drains • Provision of labor required • Provision of equipment required to undertake cleaning

What was the overall experience of the ULB in these engagements?

- What are the positive factors that enabled the ULB to undertake these engagements successfully?
- What are the key challenges the ULB faced during the process?
- Are private parties easily and locally available?
- Are there any private contractors the ULB uses to supply labor for various services in the WASH sector?
- Are the ULB officials satisfied with the services provided by the private player? How is the standard of service provided by the private player in comparison to that of the ULB itself?
- Has the ULB ever had to discontinue a private sector engagement model? What were the reasons?

“Our experience with these contracts has been quite good. The LG has not received any complaints so far. It is a relief for our staff.” - A city Engineer

*“We are paying more than we did when we did these activities ourselves. However, the service levels have improved and we have shifted a lot of our burden on to the private player. For example, we constantly faced issues with theft and vandalism in community toilets. That is now the responsibility of the private player to keep this toilets operational.”
- A city Sanitary Inspector*

What was the structure of these contracts?

Contract to be assessed on the following parameters

Features	Contract 1	Contract 2	Contract 3	Contract 4
Contract length	3 years	3 years	3 years	Annual
Automatic Renewal	✗	✗	✗	✗
Tender type	Open bid	Open bid	Open bid	Open bid
Payment duration	Monthly	Monthly	Monthly	Monthly
Item rate or Lump sum/ fixed fee	Fixed fee	Fixed fee	Fixed fee	Item rate
Rate per unit (INR)	1,90,000 per month	221,000 per month	1,55,000 per month	~1600-2000 per truck trip, ~350/manday
Penalty clause for non-performance	✓	✓	✓	✓
Number of bids received last year	5	3	3	4

- **Medium term** contracts allow for stability in services
- **Lump sum contracts** are not tied to inputs and avoid incentives for private players to inflate bills. Easier to monitor with fewer disputes.
- However, private players complain that the lump sum payments do not account for repair costs or price escalations
- **Payment should be clearly linked to monitoring and reporting requirements**
- Penalty clauses should be tied to monitored outputs or service levels and not be open ended
- Positive performance incentives tied directly to outputs or service levels should be considered

Performance penalty in contract for door-to-door collection of waste - *“If any complaint is received by this office that the collection vehicle has not visited the designated area, an appropriate amount shall be deducted from my monthly bill and I will have no objection to such deductions.”*

What were the terms for risk mitigation and dispute resolution in the contracts?

Priority contract clauses for effective engagements

Features	Door-to-door waste collection	O&M of vermi-compost plant	Cleaning of community + public toilets	Pre-monsoon drain cleaning
Redress of user complaints	✓	NA	✓	✗
Dispute resolution mechanism	✓	✓	✓	✓
Mitigating payment risk	✗	✗	✗	✗
Mitigating Termination risk	✗	✓	✓	✓

- **All contracts include a dispute resolution clause** that “Any dispute regarding the bills will be settled at City X and in the jurisdiction of City X court.”
- **All contracts should have a termination clause** in case of public and private termination.
- **Complaint redressal processes and** expected service standards should be clear with responsibility
- There should be clauses to **manage delays in payments** (e.g. interest paid to the private sector)

Complaint redress clause in contract for community toilet cleaning-“In case of any complaint or a conflict regarding the public lavatory, it would be my responsibility to solve the complaint and I will not involve the municipal council in the matter.”

Termination clause in contract for vermi-compost plant-“I agree that the Town Council has reserved the right to cancel this contract if the work is not satisfactory and the work is not improved after due notice and instructions.

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Landscape assessment of Private players

Are contractors available to provide the proposed services?

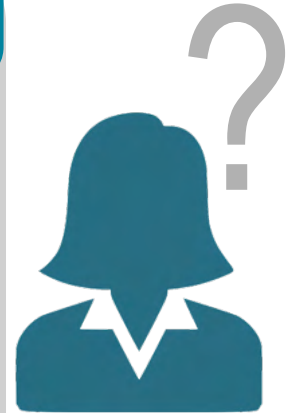
- Who are the relevant contractors for the proposed project?
- How can they be identified?

Do these players have expertise in delivering similar projects?

- Do the players possess relevant technical expertise and knowledge?
- Do they have prior experience in IFSM?
- Do they have prior experience of working with the public sector?

What are their key considerations or interests?

- What are the key interests of the private partner?



Inviting Expression of Interest (EOI) for scoping potential players

- The ULB should launch an Expression of Interest (EOI) to capture inputs from private sector operators.
- The EOI would require companies to provide information related to the following aspects relevant documents



Experience

- Years of experience in providing service in relevant sector
- Experience in working with public sector
- Certification / accreditation / registration with relevant agencies
- Past experience and future intent to provide relevant services



Technical fitness

- Base of operations and geographical spread
- Standard mechanisms for service provision / Expertise in types of technology
- Details of available physical infrastructure – technology, age and number
- Details of staff
- Typical team structure for projects
- Financial health – Tax returns



Interest

- Interest in working with public sector
- Willingness to invest and expected returns

Assess work profiles, interests and capacity of interested parties

Sample Company Profile

1. **Name:** Company X
2. **Geographic focus:** Maharashtra, Karnataka, Tamil Nadu, Goa and Delhi NCR
3. **Services offered:** Company X core business is the manufacture and supply of recyclable portable toilets, but they also offer commercial and residential septic tank cleaning and septage treatment
4. **Business model (conveyance):**

Scale: ~60 Mercedes Benz suction emptier trucks, each operated by a driver and a technician

Customers: Mostly residential, but also some commercial clients

Payment structure: Charges INR ~400 – 1000 per trip. Run trucks on a regulated “DHL – like” schedule, but also take emergency calls

Expected return: 20 - 25% EBITDA margin

5. **Interest in business opportunity**

“We have invested in high quality trucks so that our employees do not have to come into contact with the waste at all. We want them to feel proud of the work they do. Customers don’t care, they just want the job done. But we have a rule book, and it clearly tells the customers what we will and will not do”

“We would be interested in an integrated contract for faecal sludge management. In terms of profitability, the business is only viable if you’re doing at least a 20-25% EBITDA”

6. **Key Concerns**

Small scale players (<10 employees)

Labour contractors

Septic tank cleaning companies

Medium scale enterprises (>10-50 employees)

Pure play treatment players


Integrated FSSM service providers


Others


Buyers of septage


Willingness for engagement as per their competencies and interests

Activities required

- 

Refurbishment of septic tanks with access manhole covers
- 

Periodic cleaning of septic tanks along a regulated schedule
- 

Construction of treatment facility
- 

Operation and maintenance of treatment facility

Key  Interested, with previous experience  Interested, no previous experience  Experienced, not interested  Not interested, not experienced

Key	Company	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
Labor contractors	Company 1	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
	Company 2	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
Small-scale septic tank cleaners	Company 3	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
	Company 4	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
	Company 5	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
STP companies	Company 6	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
	Company 7	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
Integrated players	Company 8	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced
	Company 9	Interested, with previous experience	Interested, no previous experience	Experienced, not interested	Not interested, not experienced

Typical procurement process in local government

Expression of Interest and market research

- Officials may hold initial discussions with potential private players to understand their requirements
- Chief officers (CO) approves tender drafted by the Sanitary Inspector (SI)
- **Bids are then solicited in local newspaper or e-tender floated if above certain financial category**
- Pre bid meeting may be held to address questions and concerns of interested parties
- Refloat tender if corrections needed based on pre bid meeting

Draft tender document prepared Invitation for bids

Receive bids from private players

- Private players submit their bids including:
 - ✓ Business license and registration
 - ✓ Employee Provide fund details
 - ✓ Tax records
 - ✓ Previous work experience
 - ✓ Pricing quote
 - ✓ Tender fee / Earnest money deposit

Evaluate bids, select and sanction work order

- Received bids are evaluated by the council and negotiated by the officers
- Contractors meeting the minimum specified criteria and offering the lowest bid are selected
- If required, Detailed Project Report is prepared by bidding agency. This then goes for technical approval by relevant authority
- Administrative approval by State govt may be required for high value projects

Sanction work order

“Our old vermi-compost operator quit because of labor issues. We have learned from that experience and now assess feasibility by holding informal talks with the private sector contractors to make sure we are understanding their requirements as well.” - City Engineer

Pre-procurement challenges faced by private players

Challenge	Impact on private player	Recommendation
Bidder size (turnover) requirements	Minimum Average Turnover requirements are usually set at 25-33% of the project cost	While the minimum average turnover should be in line with the existing ULB norms, joint venture / consortium should be allowed.
Restrictions on partnerships while bidding	Consortium / Joint Venture not allowed Many new players are unable to meet the minimum criteria.	
Geographical presence requirements	Many tenders ask for an office set up in the region or experience in similar projects in the region, which disqualifies many bidders.	Experience in managing similar projects is critical. However the need for a regional player and an infrastructure setup for such small projects is unwarranted.
Fixed vs open technology for treatment	New technology solutions are not being tested and technology startups are not eligible for these contracts.	Its better to standardize output parameters rather than the technology. An open technology with due validation will allow more bidders to participate.
Earnest Money Deposit	The EMD amount of 1% of the project cost is an added financial burden on the private sector player.	Need to adopt the GOI guideline of exempting MSMEs from EMD.

No-procurement case: License to carry out independent desludging operations

In case private sector is providing independent services, **ULBs should certify and license private septage transporters to desludge and transport waste to the designated treatment facility**

- ✓ **Permission to run desludging operations**
- ✓ **Private player owns trucks**
- ✓ **Private player is collecting charges independently**
- ✓ **Private player to ensure safe disposal at designated site**
- ✓ **Permit to be renewed periodically**
- ✓ **Can be cancelled if violating and Acts, Rules and Regulations**

Septage Transporter Permit for _____ Municipality

In accordance with all the terms and conditions of the current _____ Municipality's Rates, Rules and Regulations, the special permit conditions accompanying this permit, and all applicable rules, laws or regulations of Government of Maharashtra, permission is hereby granted to:

NAME OF PERMITTEE: _____

ADDRESS: _____

For the disposal of septage from domestic septic tank or commercial holding tank at the _____ treatment facility.

This Permit is based on information provided in the Septage Transporter Permit application which constitutes the Septage Management Hauled Permit.

This Permit is effective for the period set forth below, may be suspended or revoked for Permit Condition Non Compliance and is not transferable. The original permit shall be kept on file in the Permittee's office. A copy of this Permit shall be carried in every registered vehicle used by the permittee.

EFFECTIVE DATE:

EXPIRATION DATE:

___ CHECK IF RENEWED PERMIT

Permit is liable to be cancelled in case of violations of any Acts, Rules and Regulations relating to the operation of Septage System or in cases of safety protocols not being adhered to or in case of non-permitted disposals.

No-procurement case: License to carry out independent desludging operations

In case private sector is providing independent services, **ULBs should certify and license private septage transporters to desludge and transport waste** to the designated **treatment facility**

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Conveyance prototype 1: Full Private Model

EFFECTIVE DATE:

EXPIRATION DATE:

CHECK IF RENEWED PERMIT

Permit is liable to be cancelled in case of violations of any Acts, Rules and Regulations relating to the operation of Septage System or in cases of safety protocols not being adhered to or in case of non-permitted disposals.

Activity 6A

Procurement plan

Refer to exercise workbook

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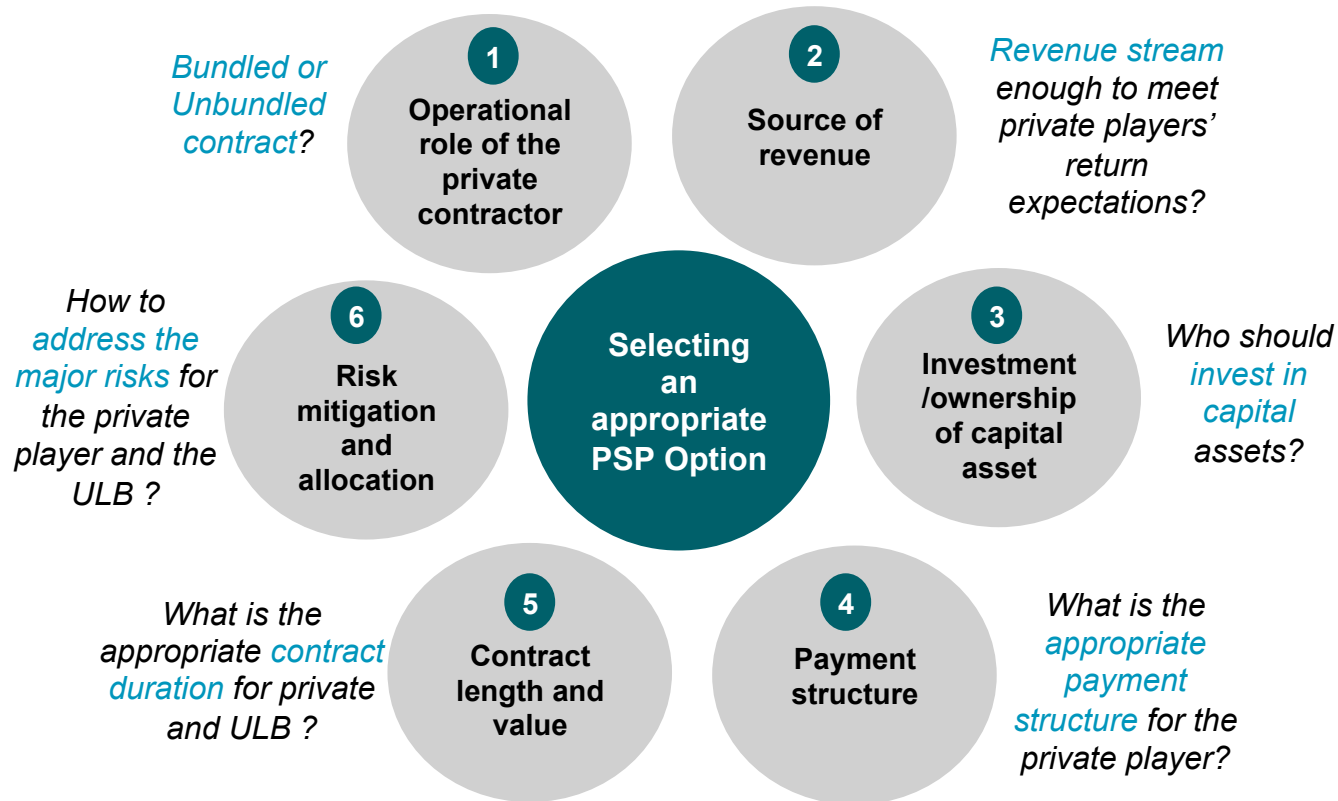
- 3** Enabling environment, ULB capacity and experience

- 4** Procurement process

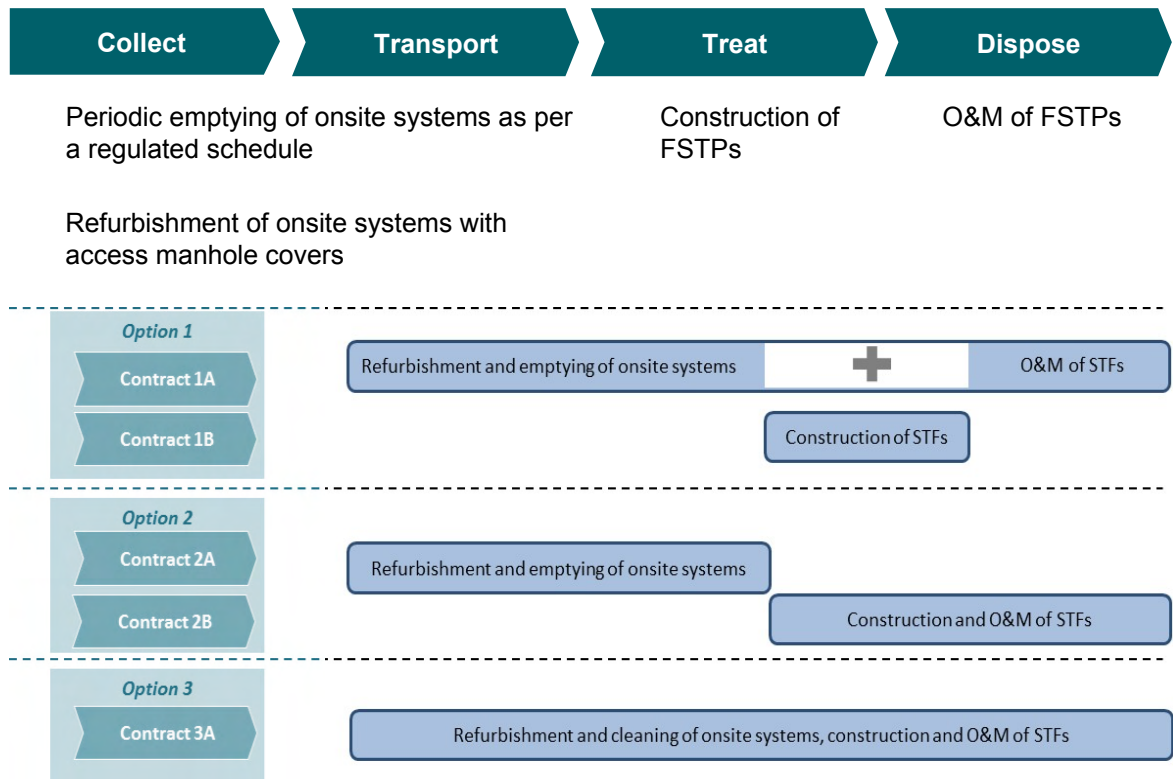
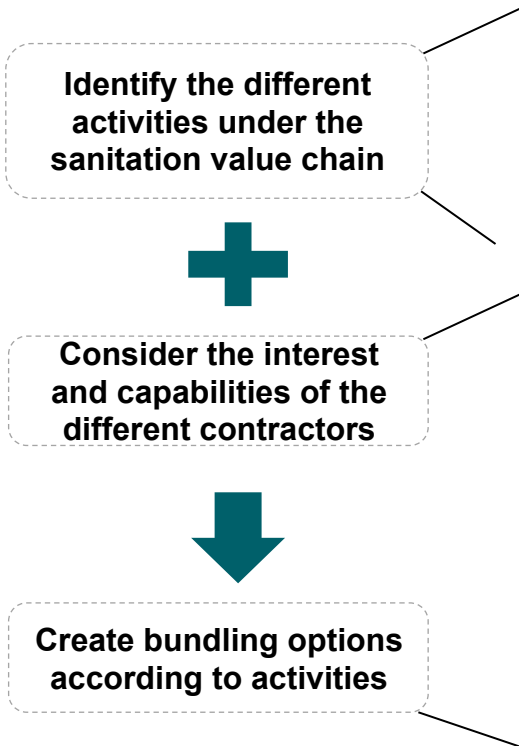
- 5** Developing balanced contracts, project structures

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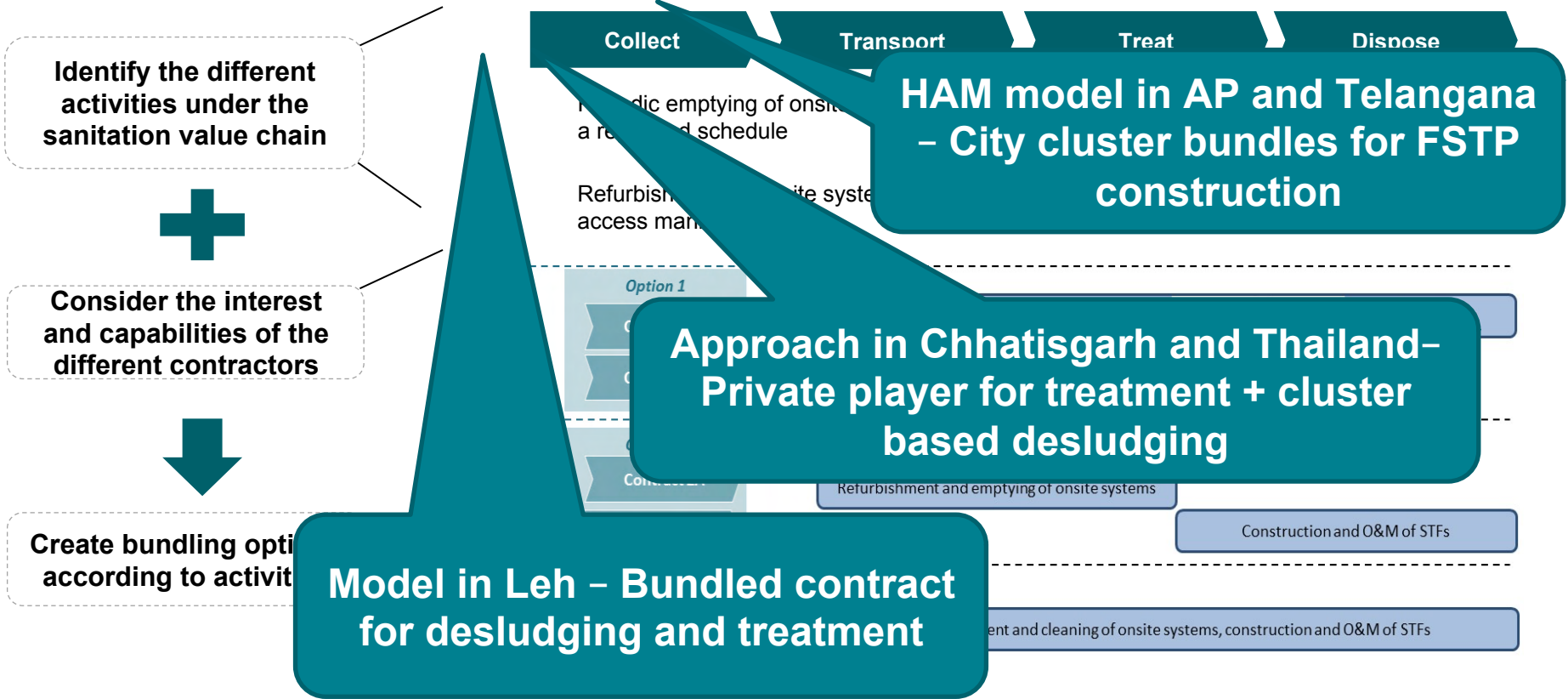
Structuring PSP option for FSSM - Six step processes in



1. Operational role of the private contractor – creating bundled contracts



1. Operational role of the private contractor – creating bundled contracts



Bundling contracts simplifies vendor management, and ensures greater accountability

Advantages of bundled contracts

- **Ensures greater accountability:** Having a single point of contact avoids the issue of players blaming each other for lapses in service
- **Aligns performance incentives:** Creates incentives for the private player to manage each element of the chain successfully
- **Simplifies contract management:** Reduces the number of transactions needed to co-ordinate with different players

Advantages of unbundled contracts

- **Diversifies non-performance risk:** With a bundled contract, non-performance puts all activities at risk
- **Takes advantage of player expertise:** Contracts can be awarded to the most qualified player for each activity

The elements of integrated faecal sludge management are highly connected and success of one element is closely tied to the success of the others. Hence, bundled contracts have tangible benefits over unbundled contracts for IFSM.

2. Identify revenue sources

Identify the different sources of revenues



Assess the different options on the basis of sustainability and reliability

ULB sources

Government sources

Miscellaneous sources

Can be used individually or in combination

Is fund available through the duration of the contract?

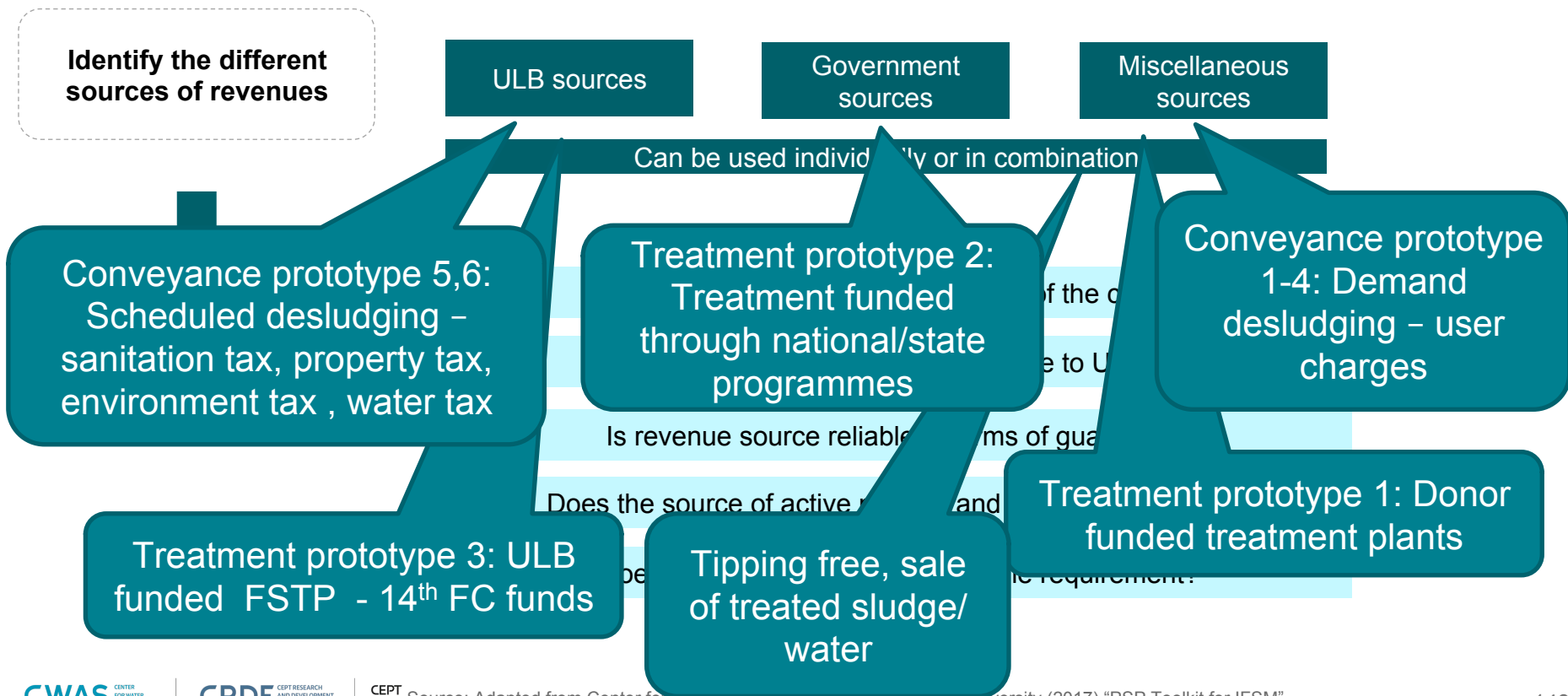
Are the financing terms acceptable to ULB?

Is revenue source reliable in terms of guarantee?

Does the source of active political and community support?

Does the cash flow timing match the requirement?

2. Identify revenue sources



Sanitation tax as a revenue source - Case of Wai and Sinnar

वाई नगरपरिषद, वाई
 नमुना ४८ (नियम नं. ७७ पहा) No. 6400
 १-४-२० ते ३१-३-२० रोजी संपणाऱ्या कालावधीच्या करांचे बील

घर नंबर _____
 नांव _____
 पत्ता _____ भागणी नोंदवहीतील अनुक्रमांक _____

समासाच्या वनच ३ मध्ये दर्जविलेला आलेले रुपये रकमेचे कर आपणाकडून _____
 १ ने दे बिल टिल्यापासून पंढरा _____
 पंढरास विनंती करण्यात येत आहे.

कराचे नाव	सालील शकवाकी	सालू भागणी	एकूण	पंढरा विभागाचा उक्त करणावधीत
१	२	३	४	अ) वा बिलगत भागणी केल्याची रक्कम वेगवेगळी न आल्यास किंवा
संकलित कर				ब) ती का वेगवेगळी पेटक वगैरे वाचविलेले शुल्क अधिकार्याची खात्री पटलेल असे कोणतेही कारण दर्शविण्यात यावे नाही तर किंवा
मुद्र कर				क) महाराष्ट्र नगरपालिका अधिनियम १९६५ चाअन्वय कलम नं. १६९ अन्वयात कोणतेही अर्पण दाखल करण्यात आले नाही तर उक्त रक्कम वेगवेगळ्याची आणवल्यास भागणी अटीतच वजविण्यात येईल.
शिक्षण कर				
रोजगार हक्की कर				
पाणी कर				
अग्नीशमन कर				
इतर कर				
एकूण				
१५ दिवसांतलंके ख्याज				
एकूण				

कार्यालयीन वाई नगरपरिषद दिनांक - _____ मुख्याधिकारी
 टीप - समासाच्या वनच २ मध्ये दर्जविलेली रक्कम सालू भागणीच्या रकमेबरोबर घेण्यात येईल.

Current taxes levied

The ULB can consider using its conservancy taxes to support the integrated faecal sludge management plan, and will need to compensate private players directly through a management fee

Sale of treated septage for reuse: source of revenue

“Larger farmers who export their crops are bound by restrictions on the use of animal and human waste. **Sludge can be sold mainly to small and marginal farmers, who lack access to synthetic fertilizers.**”

- Person X

“**Faecal sludge cannot be used in organic farming** due to concerns about e-coli and shigella infections. However, it is often used by small farmers as ‘son-khad’.”

- Person Y, Farming association

“We make compost from solid waste. The market is extremely seasonal. Creating a continuous market for this waste is tough. People say that you are creating compost from waste so we don’t want to use it. **Source is very important.**”

- Person Z, Entrepreneur

“I often have to pay farmers to dump sludge in their farms, I do not think the sale of septage is a viable revenue source.”

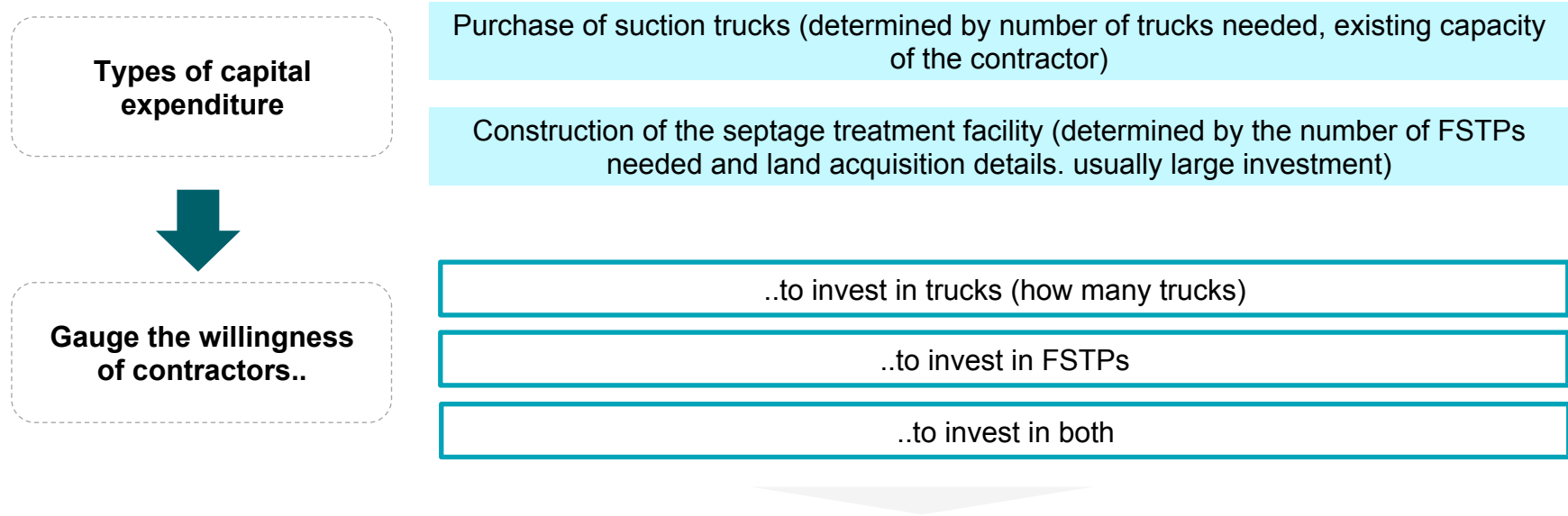
- X Enterprises

“It (sale of septage) is possible, **but will require investment in marketing and distribution, which we do not do.**”

- Y Enterprises

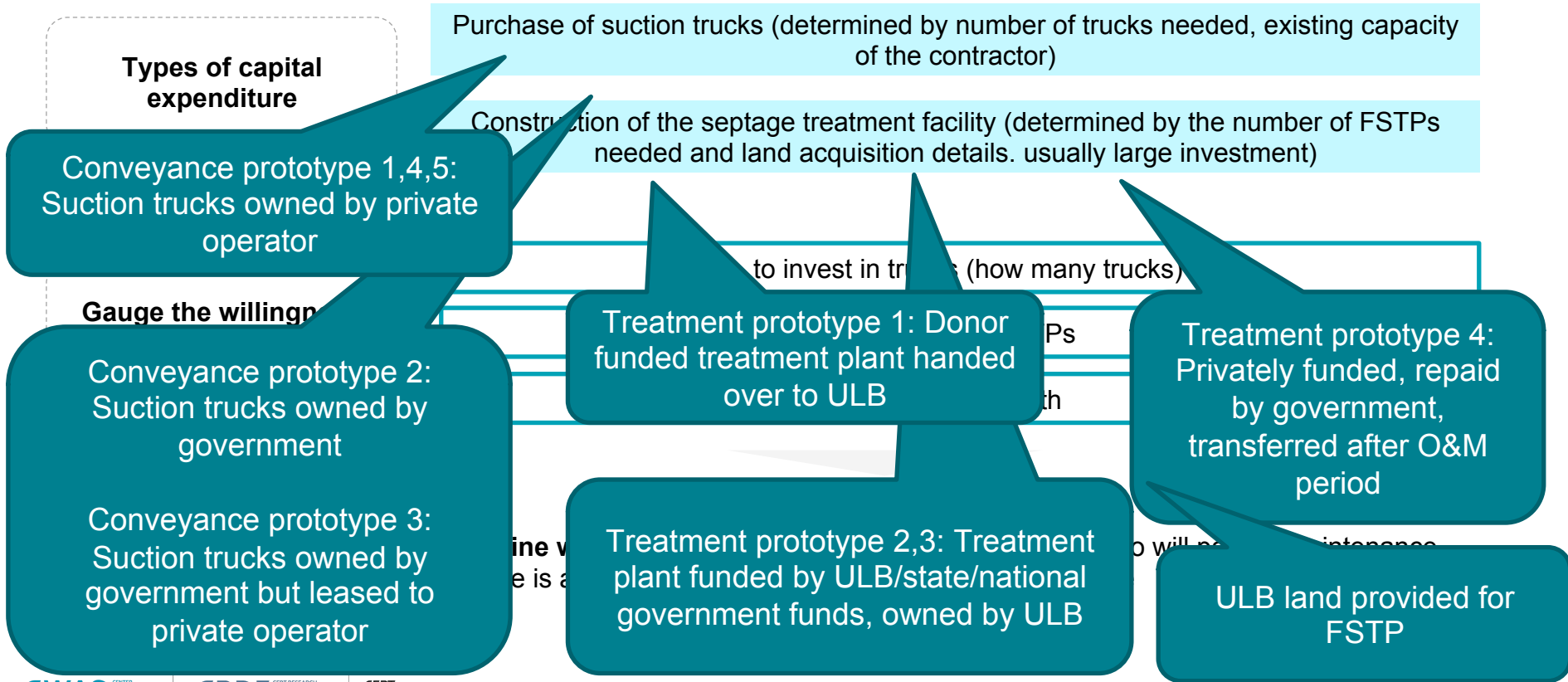
There is demand for sludge among small and medium farmers, but willingness to pay is unclear

3. Decide ownership of capital assets



The **PSP contract must clearly define who will purchase or pay for the asset** and who will pay for maintenance, and if there is a transfer of asset after a specified period of time

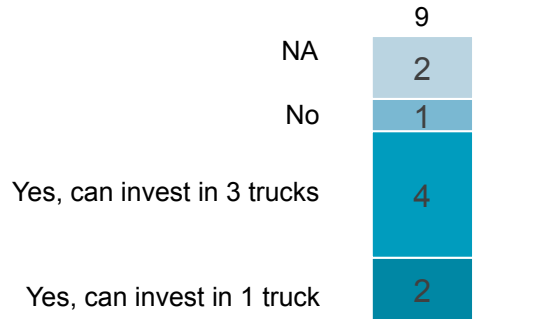
3. Decide ownership of capital assets



Assessment of contractors revealed that contractors were willing to invest in suction trucks, but do not want in on the construction of FSTPs

Willingness to invest in a suction truck

(Number of players)



“Yes, I can procure a truck and operate it on the regulated schedule ! I can use (the truck) for other business in case the contract does not work out.”

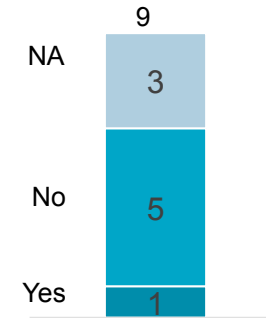
- X Enterprises

“I cannot afford to buy more than one truck. I have just ordered a truck, and faced financial troubles there too.”

- Y Cleaning Services

Willingness to invest in construction of FSTPs

(Number of players)



“Payment needs to be mile-stone based, ~40% up-front, 50% when materials are delivered to the site and 10% post-completion.”

- Z company

“It would be interesting to explore an integrated contract structured as a build-operate-transfer concession agreement.”

- V Enterprise

Private sector investment in trucks has significant benefits for the ULB

Benefits to public sector

- ✓ **Ease of procurement:** ULB procurement of the truck would require floating a tender, inviting, evaluating and negotiating bids. This is likely to be time consuming, and involve transaction costs that can be avoided if the private player purchases the truck.
- ✓ **Aligns private sector incentives:** Private sector investment in trucks incentivizes the player to use and maintain the truck well.
- ✓ **Allows investment in quality:** ULBs are often bound to minimize cost, while the private sector can invest in quality trucks with longer lifecycles and additional features like water jets.

Benefits to private sector

- ✓ **Facilitates access to finance:** Having a contract from the ULB can make it easier for the private player to raise capital for the truck and negotiate better financing terms.
- ✓ **Provides a platform for business expansion:** A contract with the ULB serves as a low-risk platform for private sector players to scale by providing access to guaranteed demand to recoup investment in a truck.

4. Define payment structure for different activities



Key activities	Payment structure	Rationale
Refurbishment of septic tanks	<i>Fixed fee per unit</i>	Refurbishment is a one time activity in which the cost per tank is known , but the number of tanks is not . Hence a fixed fee per refurbished tank is paid
Regular cleaning of septic tanks	<i>Recurring fixed fee</i>	Because of the ULB HH survey, the number of tanks to be cleaned and the schedule is well determined. Hence it is an ongoing activity for which a fixed monthly fee is paid given the schedule being followed and proper field reports are submitted by the private sector.
Emergency Cleaning of septic tanks	<i>Fixed fee per emptying service</i>	The emergency septic tank emptying service can be provided by the ULB using its own vehicle . The fee of this would be kept high as a deterrent for users to not opt out of regulated services
O&M of FSTPs	<i>Recurring fixed fee</i>	O&M of FSTPs is an ongoing activity for which the costs and procedures are well defined. Hence, a recurring fixed fee is paid
Construction of FSTPs	<i>Overall fixed fee</i>	Construction of FSTPs would be a one time activity . Since the design is specified by the ULB, the costs would be well known. Hence, an overall fixed fee can be given

4. Define payment structure for different activities



Key activities

Payment structure

Rationale

Conveyance prototype 1-3: Fixed user charges per tank / per trip collected on spot

Conveyance prototype 4: Lowest quotation by deslugger accepted by call center. Paid on spot

Conveyance prototype 5: Payment per tank/trip, paid monthly in bulk

Regular cleaning of septic tanks

Fixed fee

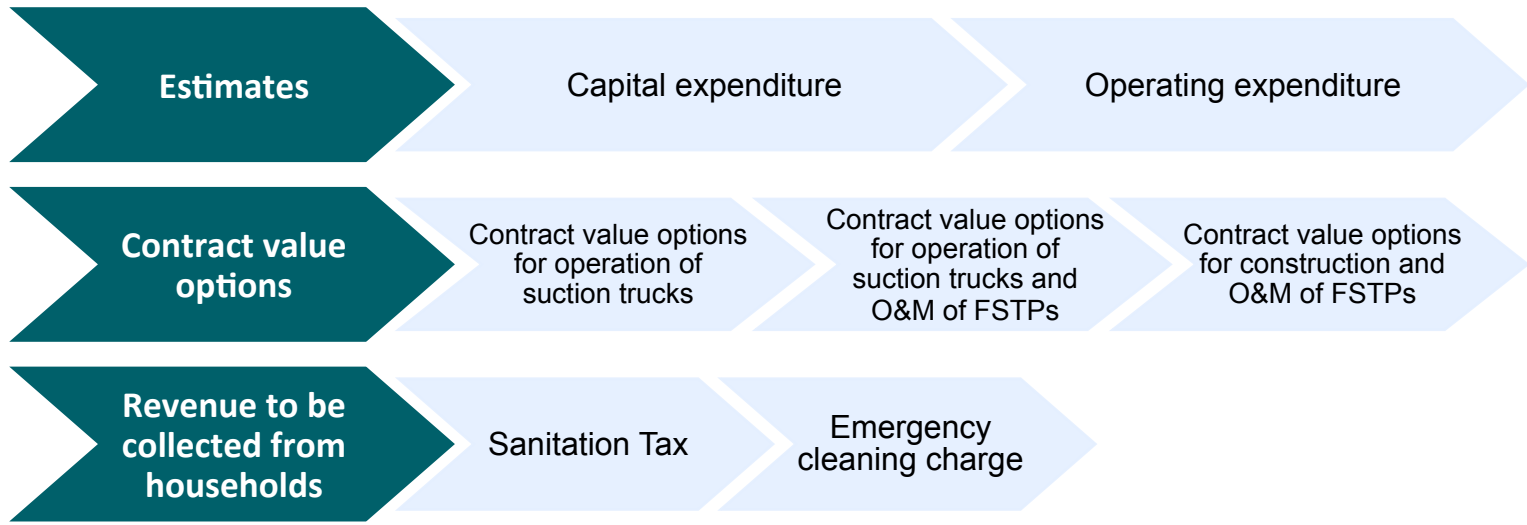
a **fixed monthly fee** is paid given the schedule being followed and proper field reports are submitted by the private sector.

FSTP construction – Fixed fee based on DPR estimates and drawings
Payment on milestone based invoices – eg: Excavation, Foundation, Plinth, Unit wise / Floor wise, functional structure

FSTP O&M – fixed monthly fee

FSTPs would be a **one time activity**. Since the design is ULB, the costs would be well known. Hence, an overall

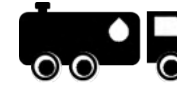
5. Define contract length and value



Sample structures

Contracts	Source of revenue	Ownership of asset	Payment method	Contract length and value	Tax / annum / property
Refurbishment and cleaning of septic tanks + O&M of FSTPs	LG	Private player	Recurring fixed fee with Fixed fee per unit for refurbishment	2-3 year, ~INR 32-36 lakhs in City Y and ~INR 15-17 lakhs in City X	Resi : 190-270 Non-Resi : 230-320
Construction of FSTPs	LG	LG	Overall fixed fee on a pre-decided schedule	~ INR 96 lakhs in City Y and ~71 lakhs in City X lasting the time period of construction	
Refurbishment and cleaning of septic tanks	LG	Private player	Recurring fixed fee with Fixed fee per unit for refurbishment	2-3 year, ~INR 27-32 lakhs in City Y , ~INR 11-13 lakhs in City X	Resi : 140-230 Non-Resi : 170-270
Construction and O&M of FSTPs	LG	LG	Overall fixed fee on a pre-decided schedule + recurring fixed fee for O&M	12-18 months, Construction cost plus ~5-6 lakhs annually for O&M in City Y and ~4-5 lakhs in City X	
Integrated contract - refurbishment, cleaning of septic tanks, construction and O&M of FSTPs	LG	Trucks – Private FSTP- LG	Recurring fixed fee for cleaning and O&M with Fixed fee for Construction and Fixed fee per unit for refurbishment	Payment for refurbishment, cleaning and O&M as in 1A above; payment for construction as in 1B above	Resi : 190-270 Non-Resi : 230-320

6. Risk Mitigation and performance monitoring



Project planning and development phase

Construction phase (FSTP Construction and ST refurbishment)

Operation phase (Cleaning of ST and operation of FSTP)

Commissioning risk

Performance risk

Cost escalation

Design risk

Payment delay and default

Termination (at cause and at will)

Legal risks, including dispute resolution

Force majeure risk

Summary: Key clauses in standard contracts

1 Obligations before signing contract

- Bank guarantee, performance guarantee by contractor
- Mapping, field visits, design specifications, IEC
- Setting up payment accounts

4 Payment terms

- Amount due
- Mechanism of payment
- Performance standards, milestones
- Procedure on delay
- Cost escalation

7 Force Majeure

Clauses to free all parties from liability or obligation when an extraordinary event or circumstance occurs which is beyond the control of the parties an event or effect that can be neither anticipated nor controlled

2 Obligations after signing, but before work begins

- Detailed project report
- Work order, commencement in 30 days
- Equipment and material purchase
- Permissions, utility connections
- Furnish insurance, driving license for drivers, business registration license, PAN card, affidavit of character

5 Penalties & Incentives

for instances when service standards are not met by the private player, as well as incentives to reward strong performance

3 Terms of work during contract, expected standard of service

- Visits as per schedule
- Use of safety gear
- Adequate emptying, safe transport
- No damage to property
- Construction as per design
- Construction milestones to be achieved
- Work hours / timelines / milestones
- Repair and maintenance

6 Termination of contract

- At will / at cause
- Seizure or forfeit of bank guarantee
- Compensatory payments
- Notice period

Contents

- 1 Introduction to private sector participation
- 2 Market opportunities for private sector in FSSM
- 3 Enabling environment, ULB capacity and experience
- 4 Procurement process
- 5 Developing balanced contracts, project structures
- 6 Addressing risks and payment delays



Risk Mitigation and performance monitoring



Project planning and development phase

Construction phase (FSTP Construction and ST refurbishment)

Operation phase (Cleaning of ST and operation of FSTP)

Commissioning risk

Performance risk

Cost escalation

Design risk

Payment delay and default

Termination (at cause and at will)

Legal risks, including dispute resolution

Force majeure risk

Protecting Private enterprise interests

Termination

“The contract should have a clause defining a 3 month notification period in case of termination. It should also have a dispute resolution mechanism.”

– X Enterprises

Delayed payments

“Ideally, bills should be cleared in 30 days, and for late payments, interest should be paid at the rate of 8% per annum.”

– Y Enterprises

Transparent procurement

“We would rather not deal with the ULB directly, there are always issues with internal politics. If there is a mediator in between then we would be interested.”

- Z company

Cost escalation

“For a fixed-fee contract for regulated schedule, we cannot offer 24 hour emergency service. We will only work 8 hours a day, otherwise it is likely that we will over-use our truck.”

- AA Enterprises

“Another key issue is the escalation of fuel costs. The contract should clearly account for that.”

– ZY Enterprises

Performance risks

“If we work on a regulated schedule, it will be difficult to get household signatures. That will become complicated, and I don't want my payment to suffer.”

– AB Septic Tank Cleaning Services

“I have tried to do a regulated schedule on my route, but that has been difficult. People always say, “come back later”, and it falls apart.”

– AX Enterprises

Risk mitigation: Commissioning risks

Risk	Mitigation	Allocation of remaining risk
<p>Delay in land acquisition - Escalation of project cost, opportunity cost; impact on the viability of the project</p>	<ul style="list-style-type: none"> • Land acquisition to be complete before project begins • Contractor should be compensated for the delay either through credits or penalties. • Right of Access should be made part of the land acquisition process. Access infrastructure can be included in the project cost if needed. 	
<p>Delay in construction/ commissioning related approvals</p>	<ul style="list-style-type: none"> • A streamlined process for approvals need to be incorporated defining timelines and responsibilities of both ULB and contractor 	<ul style="list-style-type: none"> • Penalty payments for delay time period
<p>Change in Law risk Project uncertainty</p>	<ul style="list-style-type: none"> • Contractor to be secured against this 	
<p>Force Majeure risk</p>	<ul style="list-style-type: none"> • Insurance • Risk to be shared between contractor and ULB 	

Risk mitigation: Performance and meeting contract clauses



Cleaning of septic tanks

Risk	Mitigation	Allocation of remaining risk
Private player uses manual scavenging for cleaning septic tanks or FSTPs	<ul style="list-style-type: none"> Requirement of safety gear for all personnel A clear description of activities that constitute manual scavenging 	<ul style="list-style-type: none"> Contract terminated if complaints of manual scavenging are received from HH or ULB staff
Private player does not clean septic tanks as per schedule	<ul style="list-style-type: none"> Portion of monthly payment tied to number of HH signatures collected whose septic tanks have been cleaned Undertaking random inspections of HH whose signatures have been submitted A complaint redress mechanism to be opened by the ULB for the HH In case of demand issues/service refusals - appropriate IEC to be done by the ULB 	<ul style="list-style-type: none"> Penalties imposed if number of cleanings is lower than specified in the contract, or if discrepancies found during random sampling, or if complaints not dealt with Large or persistent breaches can lead to termination
Private player damages tanks during cleaning	<ul style="list-style-type: none"> As above 	<ul style="list-style-type: none"> Work would have to be remedied within a specified days of complaint and the cost borne by the private player
Private player spills septage during transportation	<ul style="list-style-type: none"> A complaint redress mechanism to be opened by the ULB for the HH 	<ul style="list-style-type: none"> Complaints of spillage and illegal dumping must be addressed within a specified period, to avoid a fine
Private player dumps septage in the open	<ul style="list-style-type: none"> A portion of monthly payment is tied to signatures collected from the SDB operator 	<ul style="list-style-type: none"> If the number of complaints exceeds a specified number in a time period, the contract can be terminated

Risk mitigation: Performance and meeting contract clauses

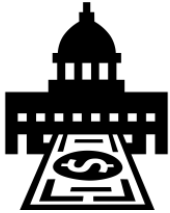
	Risk	Mitigation	Allocation of remaining risk
<p>■ ■</p> <p>Construction of FSTP</p>	<p>FSTP or ST does not meet specified design</p>	<ul style="list-style-type: none"> • Specify the design and materials to be used in consultation with town consultants • Payment made in installments on the completion of construction milestones • Regular reporting by the player and monitoring by the ULB 	<ul style="list-style-type: none"> • If work is found to be faulty at any stage, payment to be withheld until the corrections are made
<p>O&M of FSTP</p>	<p>Sludge recovered from FSTP is not sufficiently treated</p> <p>Inability to achieve the output parameters</p>	<ul style="list-style-type: none"> • Output parameters should be defined along with the estimation mechanism. • Regular checks to be undertaken by the sanitation department to measure sludge properties • X% of O&M payment to be conditional on the sludge meeting specified qualities 	<ul style="list-style-type: none"> • If specified standards not met, a warning to be given, followed by fines. • Persistent breaches may lead to termination

Source: Adapted from Castalia Partner 'Improving sanitation outcomes through service level agreements' ; Intellicap (2019) "Catalyzing private sector participation in FSSM in India: Contract Management – A Private Sector Perspective" Presentation at TSU-PMU convening

Risk mitigation: Payment and costs

	Risk	Mitigation	Allocation of remaining risk
Payment delays	<ul style="list-style-type: none"> ULB is unable to make timely payments towards the project 	<ul style="list-style-type: none"> Ensuring budgetary allocation for contracts before procurement Establishment of an escrow account for payment with a 3-6 month advance deposit 	<ul style="list-style-type: none"> ULB to pay interest for the payment, delayed by X months or more, at a negotiated rate of interest
Cost escalation	<ul style="list-style-type: none"> Cost of inputs increase over the course of contract 	<ul style="list-style-type: none"> Adjustment of contract value annually for inflation Inclusion of a cost re-negotiation clause 	<ul style="list-style-type: none"> Private player would be responsible for bearing the cost escalations within the negotiated period
Cost escalation	<ul style="list-style-type: none"> Incorrect estimate of project costs – Escalation of project cost, construction period 	<ul style="list-style-type: none"> RFP should indicate a cost as per existing estimates. However, the bidders should be encouraged and supported to undertake their own assessment of the project on of a cost re-negotiation clause For design issues, responsibility according to project structure 	

Why are payments delayed? – Local government perspective



Use of public funds requires multiple checks and balances

Administrative approval protocols have multiple levels and stakeholders- on-ground inspectors, executive wing, elected wing, accounting wing. Government bodies are required to follow fixed procedures



Availability of funds, ring-fencing

For projects being funded out of specific programmes, payments are subject to release of ring-fenced funds from state and central governments
For smaller urban centers, own funds and revenue generation is limited



Staffing, multiple charges and institutional issues

In smaller urban centers, staff is limited and more often than not hold charges in multiple departments.



Performance vetting

Correct invoice formats, performance assessments, adherence to contract clauses

Options to address risks of delayed payments by ULBs

Delayed payment monitoring portal – MSME Samadhan

1

Provision for MSMEs through state facilitation councils - Monthly compound interest to be paid if payment not done within 45 days. Online portal for lodging cases

Escrow account mechanisms

2

- Agreement between service provider, ULB and bank where ULB maintains mandatory reserve fund in Escrow account
- Option for automatic payment when fixed time passes after submitting invoice
- Payment guarantees by local government

3

Two part payments - Fixed amount paid immediately, variable/ performance based component after review

4

Bill clearance mechanisms and timelines specified in contracts and backed by an online bill monitoring system

5

Risk Mitigation fund through philanthropy / CSR which can be accessed at no or low interest rates for working capital

6

Mobilization advance for large projects

7

Trade Receivables Discounting System (TReDS) Platform - financial arrangement wherein a seller recovers an amount of the sales bill from a financial intermediary, after paying a discount/fee, before it is due



Risk mitigation: Termination

	Risk	Mitigation	Allocation of remaining risk
Termination at cause	<ul style="list-style-type: none"> ULB does not fulfill contract conditions 	<ul style="list-style-type: none"> Ensuring a clear monitoring mechanism for transparent contract execution Disputes to be handled through frequent communication and by an agreed upon third party mediator 	<ul style="list-style-type: none"> Private player compensated for investments, the cost of winding down and foregone profits
	<ul style="list-style-type: none"> Private player does not meet service standards 	<ul style="list-style-type: none"> As above A trial run and a defect liability period should be included 	<ul style="list-style-type: none"> Private player compensated for some portion of capital investments performance bank guarantee¹ seized
Termination at will	<ul style="list-style-type: none"> ULB terminates the contract for reasons unrelated to player performance 	<ul style="list-style-type: none"> Up-front discussions with key stakeholders to create buy-in for private sector engagement Frequent communication between ULB and private player 	<ul style="list-style-type: none"> X month notice period required Private player compensated for investments, the cost of winding down and foregone profits Performance bank guarantee returned
	<ul style="list-style-type: none"> Private player terminates the contract due to reasons unrelated to ULB compliance 	<ul style="list-style-type: none"> Frequent communication between ULB and private player 	<ul style="list-style-type: none"> X month notice period required Private player forfeits the performance bank guarantee

Following this six step process, bid documents have been rolled out in cities of Maharashtra

Scheduled desludging of Septic tank Tender document

Model DBOT tender for FSTP

Link document


Sinnar Municipal Council, Sinnar

TENDER DOCUMENT

Name of Work
"Scheduled cleaning of septic tanks, Sinnar"

Estimated Cost: To be given by the bidder

E.M.D. : 40,000/-



Office of the
Chief Officer,
SinnarMunicipal Council, Sinnar

Sunil S. Patil Vyanktesh R. Durvas Sanjay Navse Ashvini Deshmukh
Municipal Engineer Chief Officer Vice President President

CONTENTS

- Short Tender Notice
- Detailed Tender Schedule
- Notes
- List of documents to be submitted along with tender
- Detailed Tender Notice – General Conditions
- Detailed Tender Notice – Special Conditions
- Form Formats
- Details of suction enginer trucks available with the tenderer for the use of this work
- Details of work of similar type and magnitude carried out by the tenderer
- Details of technical personnel with the tenderer
- Year wise statement showing cost of completed works
- Opening of Tender
- Acceptance of Tender
- Declaration of the Contractor
- Financial Bid Form

Item Rate BoQ

PRICE SCHEDULE

BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only

TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	NUMBER #	TOTAL AMOUNT	TEXT #
Item Description	Quantity	Units	Estimated Rate	BASIC RATE IN FIGURES TO BE ENTERED BY THE BIDDER IN 'P'	TOTAL AMOUNT INCLUSIVE OF ALL TAXES	IN Words	
Schedule B	4	5	6	13	53	55	
Cleaning of 4000 septic tanks per year for three units of households/properties as per schedule and emergency cleaning with appropriate safety guards for septic tank emptying, cleaners and operators, transportation of seepage in GPS mounted suction enginer trucks owned by private sector and safe disposal of collected sludge in seepage treatment facility.	1.00	Per year			0.00	NR Zero Only	
Total in Figures					0.00	NR Zero Only	
Quoted Rate in Words					NR Zero Only		

Tender Issuing Authority: Sinnar Municipal Council, Sinnar Dist. Nashik

Name of Work: Turnkey project on Design, Construction, Commissioning and Operation of Fecal Sludge & Septage treatment plant at Sinnar Municipal Council, District - Nashik, Maharashtra

Contract No: _____

Bidder Name: _____

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER #	NUMBER #	TOTAL AMOUNT	TOTAL AMOUNT
Sl. No.	Item Description	Quantity	Units	Sl. No.	Sl. No.	Inclusive of all Taxes	In Words
1	Schedule A	2	4	5	13	53	
2	Design, drawings and all necessary approvals from various government departments etc. before start of execution of the project etc. up to start of construction and commissioning of Fecal Sludge & Septage treatment plant with all appurtenant structures and allied works including testing, trial run for 10000 m3/day and commissioning of the plant to the satisfaction of the Engineer-in-Charge	1.0000	No.				0.00
3	Schedule B						
3.1	Operation & Maintenance of Fecal Sludge & Septage treatment plant and allied works etc.	1.0000	No.				0.00

Table of Contents

- Section-1 Invitation for Bid
- Section-2 Instruction to Bidders
- Section-3 Qualification criteria and Bid Framework
- Section-4 Bidding Forms
- Section-5 Conditions of Contract
- Section-6 Scope of Work
- Section-7 Price Bid and Terms of Payment
- Section-8 Technical Specifications

Link document


DBOT Tender Document for Fecal Sludge & Septage Treatment Plant at Sinnar Municipal Council, Maharashtra

Sinnar Municipal Council, Maharashtra

TENDER DOCUMENT

Name of Work
A Turnkey project on Design, Construction, Commissioning and Operation of Fecal Sludge & Septage treatment plant of capacity 70 m3/day at Sinnar Municipal Council, District - Nashik, Maharashtra

The work includes (i) Design, Construction and Commissioning of Fecal Sludge & Septage treatment plant (FSSTP) with all appurtenant structures and allied works including all necessary approvals from various government departments etc. complete including testing, trial run for One Month and commissioning of the plant (ii) operation & maintenance of the complete works of FSSTP and allied works for a period of 3 years



Chief Officer,
Sinnar Municipal Council, Maharashtra

Municipal Engineer Chief Officer Vice President President

Activity 6B

Setting goals for drafting contracts

Refer to exercise workbook

Activity 6C

Options for overcoming case specific contracting challenges

Refer to exercise workbook



Session 5

Innovative Financing

CWAS CENTER
FOR WATER
AND SANITATION

CRDF CEPT RESEARCH
AND DEVELOPMENT
FOUNDATION

CEPT
UNIVERSITY

Session Objectives



Recognize potential to utilize public funds for leveraging innovative / blended finance to attract private and commercial funds and impact investors

Understand different innovative financing options like Blended finance, Development Impact Bond, etc. and how these can be used in FSSM sector.



Contents

- 1** Need For Innovative Finance Mechanism

- 2** Options of Innovative Finance Mechanisms

- 3** Summary of Innovative Financing

- 4** Detailed case studies for reference



Contents

1 Need For Innovative Finance Mechanism

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4 Detailed case studies for reference

Urban infrastructure has been generally financed through public funds but repayable finance is also an option

Own sources

Own sources of revenue of the local government or utility:

Taxes

Non tax income from Fees, user charges

Rental Income etc.

Grants

Transfers from higher level of governments:

State and Central (Tied or Untied)

Other Development Agencies and Partners

Grants and loans from Multi-lateral investment banks

Repayable finance

Commercial Borrowing

Loans from financial institutions, bilateral or multilateral international agencies, commercial banks, Municipal Development Funds (MDFs)

Market borrowing

Reasons to explore new financing mechanisms

1

Efficiency of private sector

Used to leverage additional private sector or commercial funds. Help in bringing great efficiencies of private sector operations.

2

Performance & Effectiveness

Innovative models provide incentives for improved performance and effectiveness by using performance linked approaches, particularly for public-private partnership (PPP) models

3

Social & environmental impacts

Emerging interest globally on impact investing for funding activities.
Help mobilize additional resources.

Emerging sources

Philanthropic Foundations / Donors/ Individuals/ Private Foundations and CSR

Improve effectiveness of their grants/ funding, or because of CSR requirements as in India

Social impact Investors

Beyond financial returns to social/
environment impacts, patient capital

New methods being used by other funders

1

Multilateral and bilateral agencies using **Output based Aid (OBA)** and **Program for results (P4R)**

2

Government programs using **OBA / Results based funding (RBF) approaches**

3

Blended finance to leverage private and commercial finance

4

Impact bonds as pay for outcome model



Contents

- 1** Need For Innovative Finance Mechanism

- 2** Options of Innovative Finance Mechanisms

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Innovative financing mechanisms

Results Based Financing and Annuity Based Models for leveraging PPP

Output based aid -performance based incentives

Blended finance- Annuity based models like PLAM and HAM

Development Impact Bonds

CSR and Philanthropic Funding

Corporate Social Responsibility Funding

Crowd Funding

Philanthropy and Individual Funding

Municipal Bonds, Pooled Bonds & Municipal Borrowing

Municipal Bonds and Water Sanitation Pooled Funds

Institutional and Market Borrowing for Capital Investments

Municipal borrowing from Banks under Priority Sector Lending

Emerging options to leverage PPP

Outcome based funding



Funder makes payments only if pre-agreed outcomes are achieved

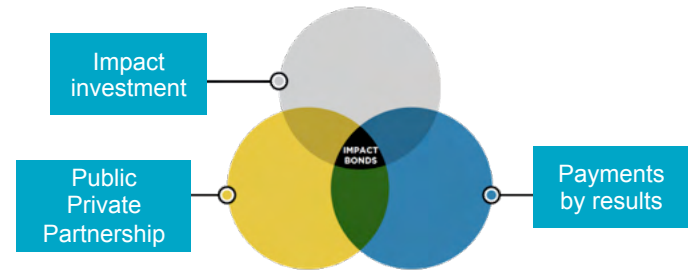
Blended financing



The combination of return seeking and philanthropic capital to achieve development outcomes

Development Impact Bond

Confluence of outcome based funding and blended financing and leveraging PPP.



Innovative financing mechanisms

Results Based Financing and Annuity Based Models for leveraging PPP

CSR and Philanthropic Funding

Municipal Bonds, Pooled Bonds & Municipal Borrowing

Output based aid -performance based incentives

Corporate Social Responsibility Funding

Municipal Bonds and Water Sanitation Pooled Funds

Blended finance- Annuity based models like PLAM and HAM

Crowd Funding

Institutional and Market Borrowing for Capital Investments

Development Impact Bonds

Philanthropy and Individual Funding

Municipal borrowing from Banks under Priority Sector Lending

Results Based Financing

Results based financing short video introduction-
<https://www.youtube.com/watch?v=1NMLRMbMdck>



Results based financing

What is 'Results Based Funding'?

Public funds or those from donors or social impact investors are made available not as “**inputs**” but only **on delivery of “outputs or agreed performance”**, generally for innovative approaches

Also referred as **Payment by Results (PbR)** particularly by DFID, UK

Government funding is often **insufficiently focused on results and performance** and more on outputs and fund utilization

Inadequate performance evaluation allows ineffective programs to persist

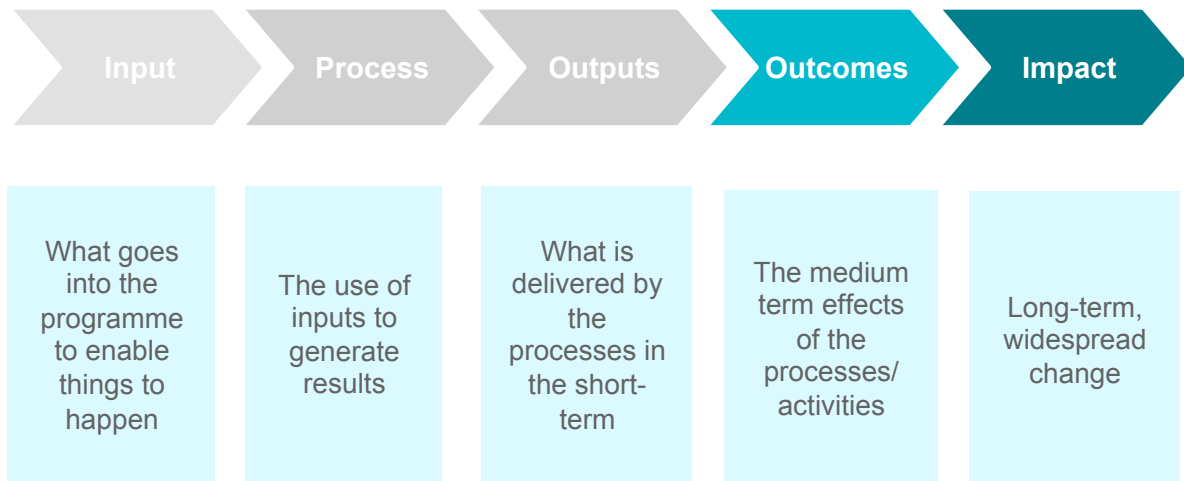
The **proof-of-concept process for social innovations is slow.**

Innovation is risky and public officials are wary of failure

BUT – Performance-based funding requires upfront investments and the ability to absorb risk

Why is it needed?

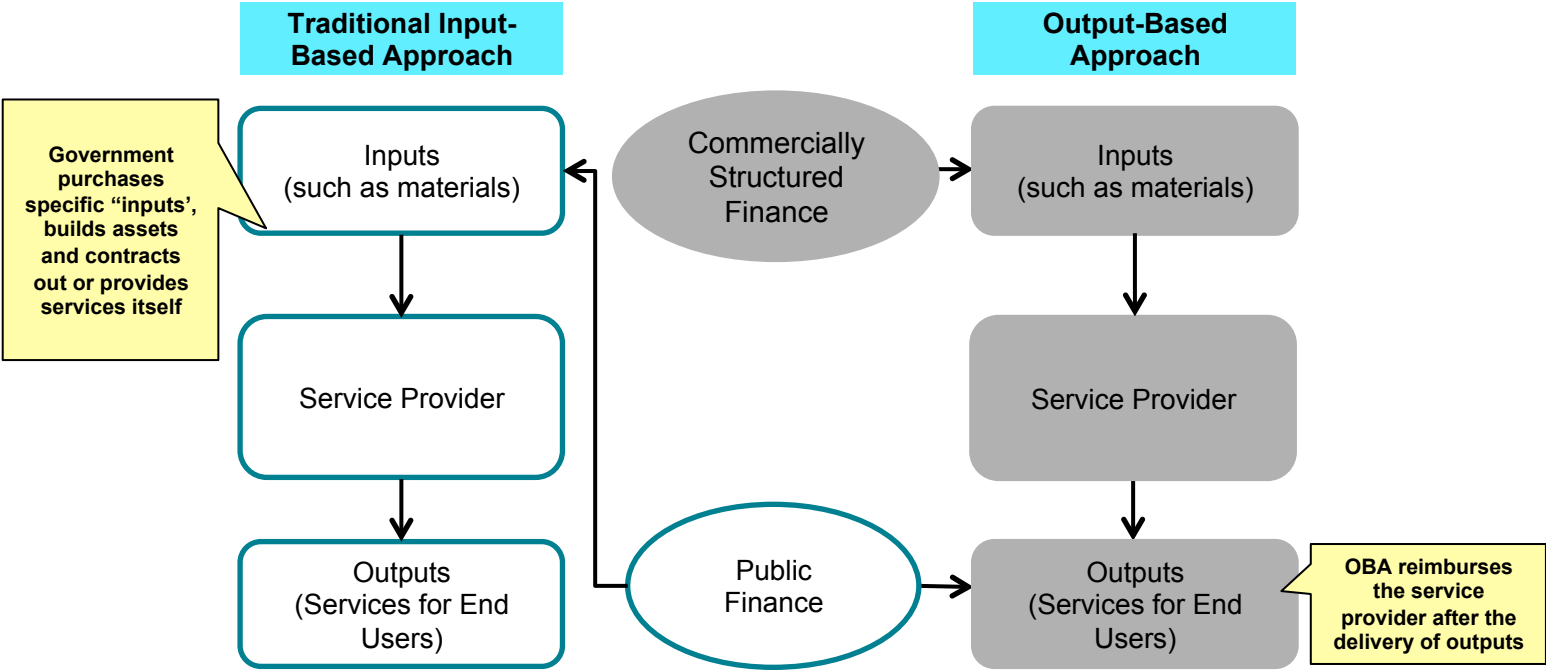
Results chain is critical



Different methods such as (RBA, RBF, COD, OBA, P4R etc.) reflect a combination of financier, recipient and results for payment. Some are linked to **outputs (OBA)** or some to **outcomes (COD, SIB, DIB, P4R, etc.)**

Extent of financing /funding linked to results can also vary.

Output Based Aid – OBA Approach

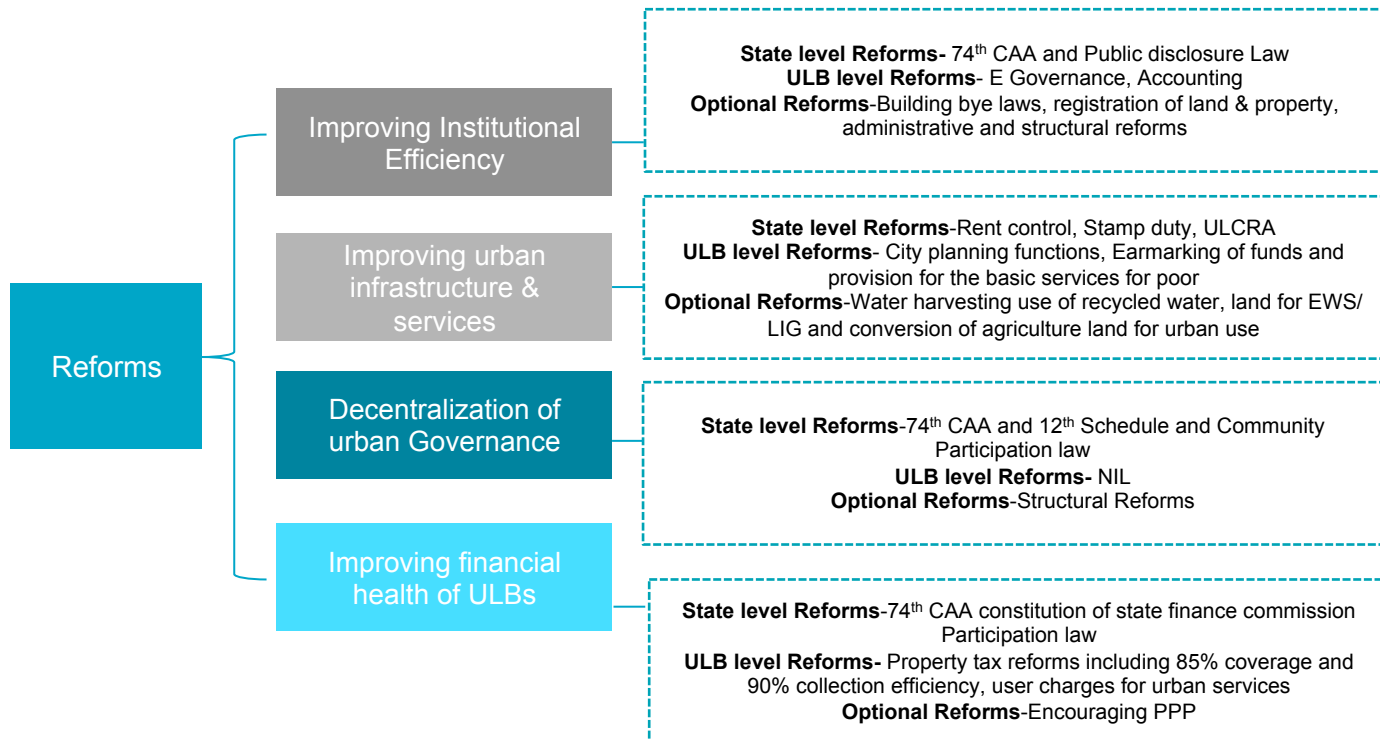


Government of Maharashtra : Incentive scheme for ODF cities - Utilisation of funds for sustainability and moving towards ODF+ and ODF++



	ODF Cities (Rs.)	Swachh Cities (Rs.)	Linked to Sustainability and ODF+
A Class	2 Cr.	2 Cr.	30% released on first State validation, if positive 30% released on national validation, if positive 40% released on 2nd State validation after a year, if positive
B Class	1.5 Cr.	1.5 Cr.	
C Class	1 Cr.	1 Cr.	

JNNURM – a reform linked program??



JNNURM is a reform linked program

Can JNNURM be referred as results based aid?

What would be needed to make it a results based program?

Source for chart: Grant Thornton Appraisal of JnNURM Volume1, available at <http://jnnurm.nic.in/wp-content/uploads/2012/06/Appraisal-of-JnNURM-Final-Report-Volume-I-.pdf>

Scale and effectiveness of RBF/OBA in WASH sector

India sanitation/SBM
60 million households

- Though effective, these are largely small scale
- Many are designed as pilots
- Need to scale up to assess sustainability at scale

Innovative financing mechanisms

Results Based Financing and Annuity Based Models for leveraging PPP

Output based aid -performance based incentives

Blended finance- Annuity based models like PLAM and HAM

Development Impact Bonds

CSR and Philanthropic Funding

Corporate Social Responsibility Funding

Crowd Funding

Philanthropy and Individual Funding

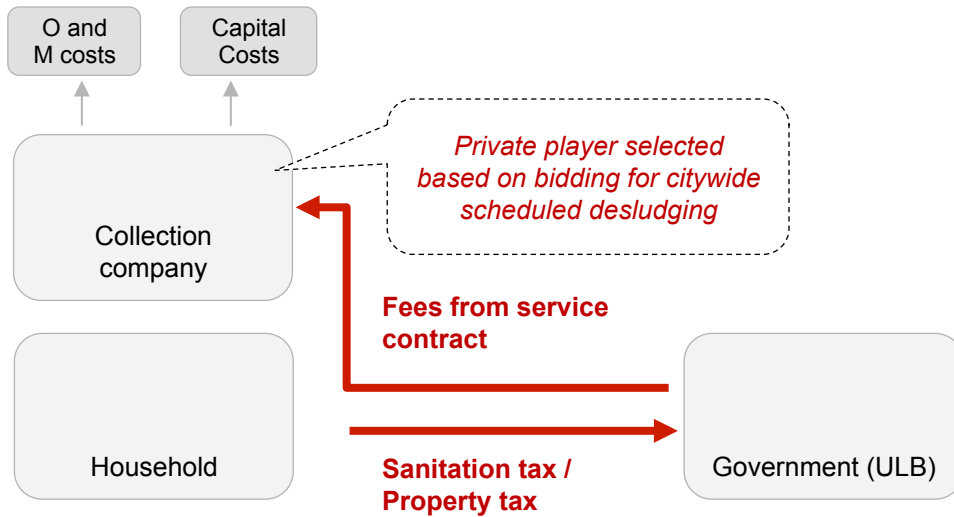
Municipal Bonds, Pooled Bonds & Municipal Borrowing

Municipal Bonds and Water Sanitation Pooled Funds

Institutional and Market Borrowing for Capital Investments

Municipal borrowing from Banks under Priority Sector Lending

Annuity based models for leveraging public private partnerships



Wai and Sinnar Municipal Councils in Maharashtra have **contracted a private company** to **provide citywide services**, and with **performance linked payment** – based on number of septic tanks emptied.

Each household pays a small fixed amount as sanitation tax, and **Sanitation tax + property tax** used to pay private company

- As no permit will be given to another private operator, there will be an assured market for the contracted player.
- It also ensures that the households will be willing to empty their septic tanks as no user charge is paid at the time of emptying.

Strong monitoring systems for performance linked annuity models

Performance linked annuity models requires strong and sustainable monitoring systems.

It requires performance assessment in terms of services delivery.



- ✓ For **conveyance contracts**, **performance is easier to assess** as number of septic tanks emptied, though attention will have to put on ensuring that all contract clauses are followed.



- ✓ Two contracts in Maharashtra for Conveyance, are strengthening their monitoring through **online GPS and app-based** systems.
- ✓ Implementation of scheduled desludging, backed by a concurrent monitoring system, will provide an opportunity to **create a database on existing septic tanks** which has otherwise been very difficult.



- ✓ In the case of **HAM for treatment** in AP, monitoring systems will need to **assess treatment performance** as well as a proper assessment of actual capital costs incurred. As the project is being implemented by a state entity, appropriate mechanism for participation of local governments will need to be developed.

Hybrid Annuity Model (HAM) model for treatment facilities

In this framework, the Government pays 40% of the capital cost of the project upfront during the construction period and 60% of the payment is paid as annuities along with interest over the operation period.



The use of hybrid annuity model for FSTPs, provides **opportunities to leverage public resources** to bring in **private sector funding for treatment**. This also **helps to reduce the initial public investments**, though the private sector must be repaid through **annuities using public funds**.



However, unlike roads, where there is a clear revenue stream of tolls from users that is used for annuity payments by governments, in FSTP, there are **no clear revenue streams**. So government will have to **budget for this payment**. The bidders are likely to add their cost of debt and returns on equity and this may raise the total cost of project as compared to an EPC contract.



The advantage of this model is that the since the annuity payment is **linked to the performance**, it will also help to **improve efficiency and effectiveness in operations**.



However, given the **higher cost of debt for private sector** and their **high return expectations on equity**, the **total investment requirement is likely to increase**.

Hybrid Annuity Models for FSTPs in Andhra Pradesh, India; STPs under National Mission for Clean Ganga

AP has launched HAM for FSTP, through Public Private Partnership (the “PPP”) on **Design, Build, Operate and Transfer** (“DBOT Hybrid Annuity”) basis for **76 towns** for which **7 packages** are created.

Private companies - undertake **design, construction, operation and maintenance** on a **DBOT** basis. Cost determined by bidding

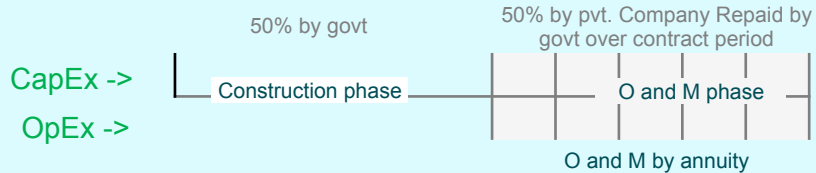
CapEx – 50% by government , 50% by **private company**

Annuity payments cover a) CapEx by private company repaid through annuity payments over contract period, b) and OpEx

Funding by State government alleviates concerns **around individual ULB financial capacity and payment risks**

Private player clustering approach (multiple ULBs per partner) to achieve scale economies and a large contract

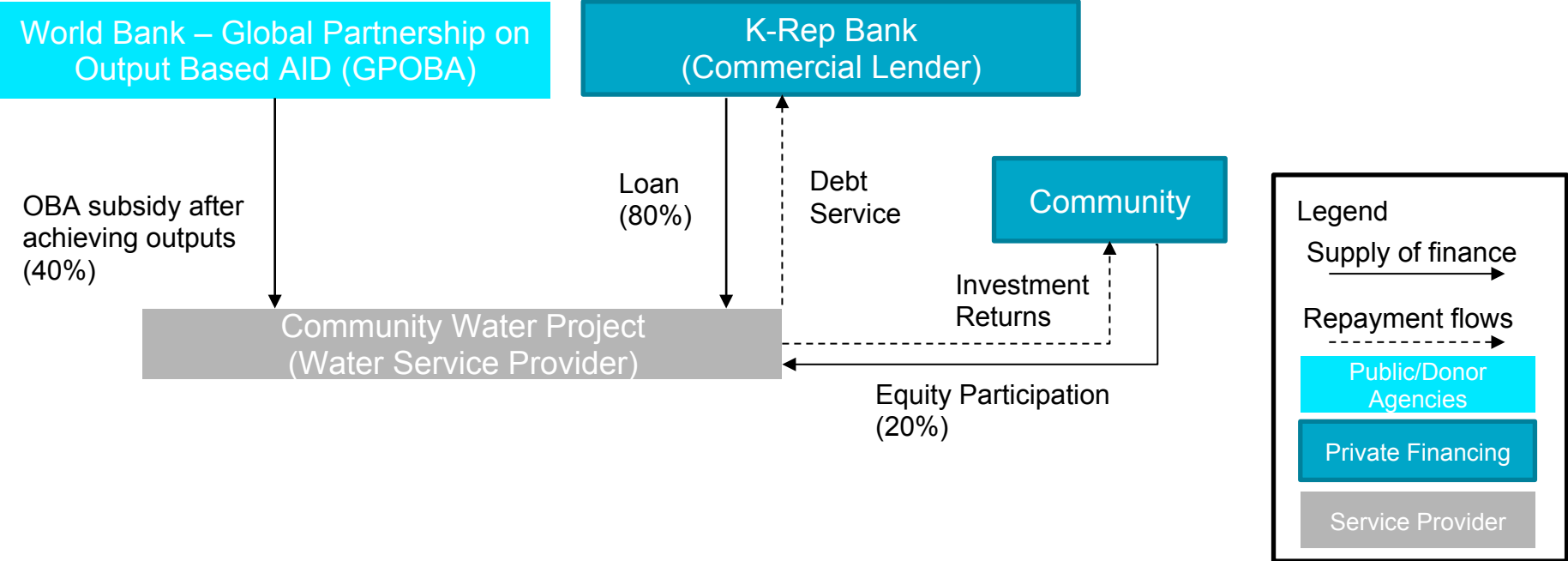
In the long term, part **opex recovery** planned through **user charges**.



Private player responsible for selling soil conditioner/bio-fertilizer/biogas and recycled wastewater.

Blended Finance: Mobilizing commercial finance with partial subsidies

Scaling up Blended Financing for Water and Sanitation in Kenya: Maji ni Maisha Financial Structure



Source: World Bank Group (2016), “Scaling up blended finance for water and sanitation in Kenya” in “Case studies in blended finance for water and sanitation”, p. 2.

Credit options for the private player

Existing schemes available to small and medium enterprises in India

Priority Sector Lending

Overview: RBI has mandated all the commercial and foreign banks to earmark atleast 40% of the Adjusted Net Bank Credit for priority sector which includes water and sanitation. Interest is charged at ~12-14%.

MUDRA LOAN

Overview: MUDRA loan is provided as a refinancing support to non-farming and non-corporate micro and small enterprises. These enterprises can avail loans up to Rs. 10 Lakh under the MUDRA (Micro Units Development & Refinance Agency Ltd.) scheme. Its on a non

Credit Guarantee Trust Fund for Micro & Small Enterprises (CGTMSE)

Overview: The corpus of CGTMSE is contributed by Government of India and SIDBI. 75% of the loan amount to the bank is guaranteed by the Trust Fund. Collateral free loan up to a limit of Rs. 100 lakh is available for individual MSE on payment of guarantee fee to bank by the MSE.

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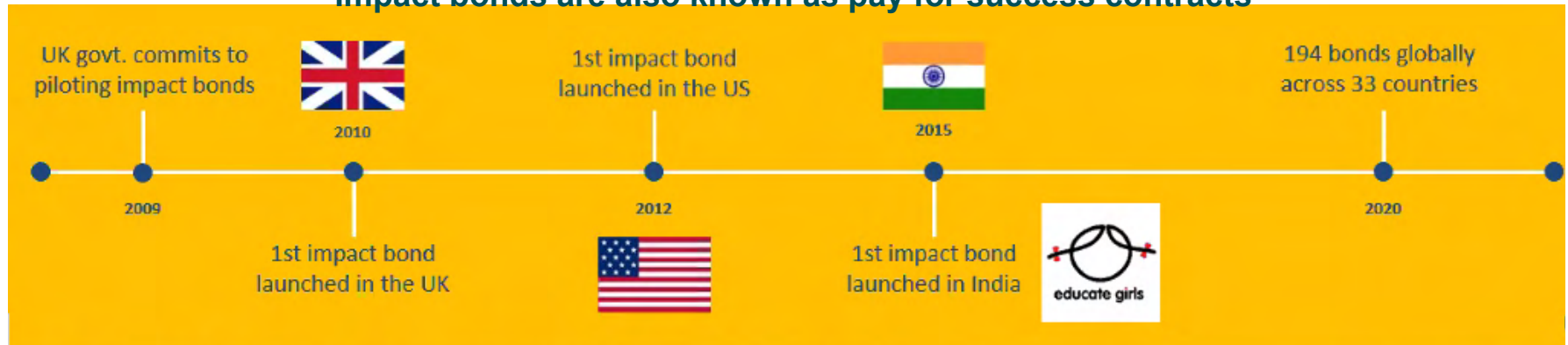
Municipal borrowing from Banks under Priority Sector Lending

What is an impact bond?

Impact bonds can be characterized under Results-Based Financing (RBF), focusing the allocation of money to social programs that yield effective results.

In an Impact Bond model,

Impact bonds are also known as pay for success contracts



Why Development Impact Bond?

Monitoring systems

Introduce a culture of good and strong monitoring systems



Attract new investors

Create opportunities to attract new impact investors for sanitation



Attract CSR funding

Attract CSR funding focusing on to results based outcomes and for sanitation- possibly as outcome payers



Focus on outcomes

Rather than only inputs or outputs

Collaboration

Collaboration and partnerships are critical

Structure to attract large and small investors

Create structures to attract both large impact investors (new generation of families/ Foundations) ones, but also smaller ones of the type that have invested in HDFC Cancer Debt Fund

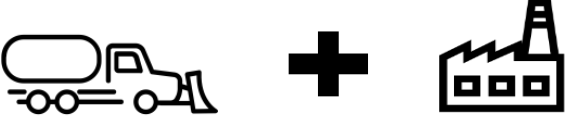
Possible options for a DIB in FSSM

1



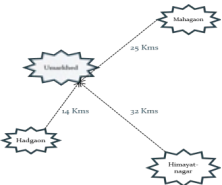
Scheduled desludging of Faecal Sludge/ septage

2



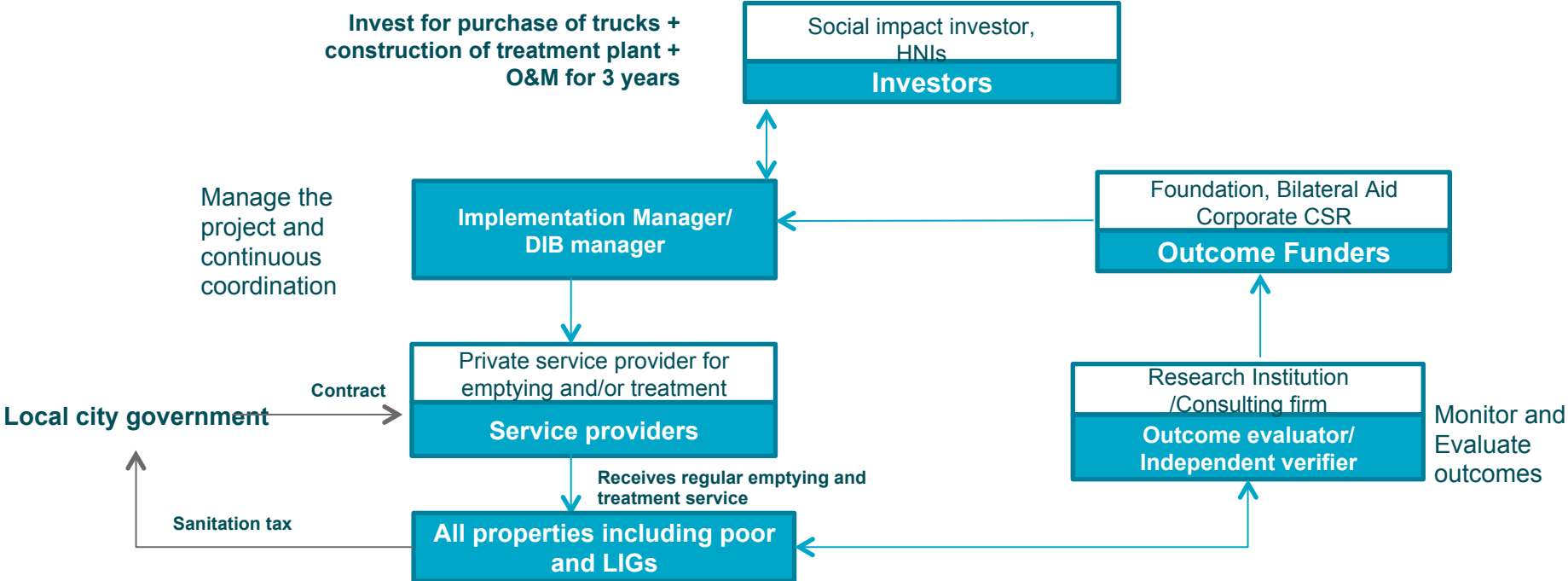
Integrated collection, transport and treatment of Faecal Sludge/septage

3



Integrated cluster model for scheduled desludging and treatment

Exploring a contract structure for a urban sanitation/ FSSM DIB



Measurable outcomes



Scheduled desludging of FS

Activities

- Procurement of trucks
- Operation and maintenance of emptying services for three year period
- Monitoring systems

Measurable Outcomes

- All Households covered for emptying services, especially poor and low income households

Social and environmental impacts

Health: Reduced diarrhea among children, reduce morbidity
Education: school attendance
Environment: Ambient water quality in rivers and other water bodies, improved ground water quality



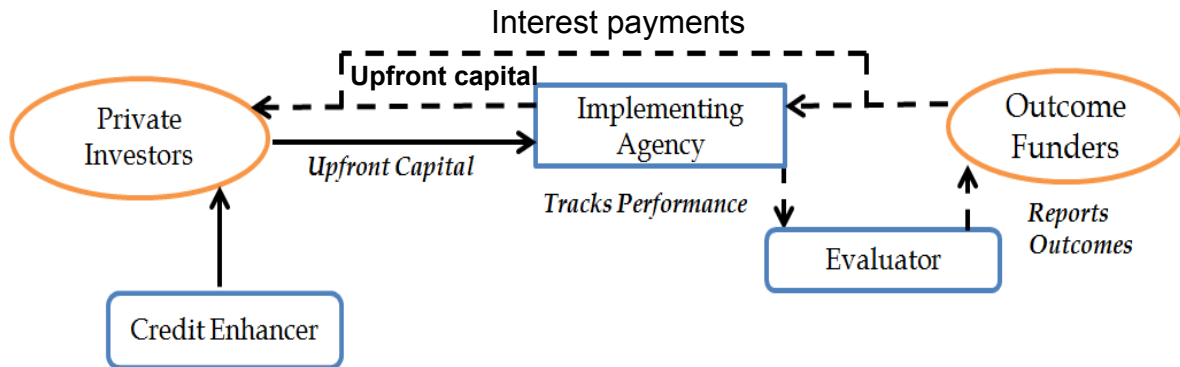
Treatment of FS

- Construction of treatment plant
- Operation and maintenance of treatment plant for three year period
- Monitoring systems

- Volume of collected FS that is treated
- Effluent characteristics of treatment plant meeting the environmental discharge standards (to be measured regularly for 36 months)
- Amount of treated wastewater and compost reused

Grameen capital DIB structure

Development impact bond in form of interest rate subvention could be another form of DIB which could be explored where for-profit organizations are involved as an implementing agency.



- In this DIB model, **investors will provide upfront working loans to for-profit implementing agency** and thereafter approach outcome funders to either waive off or reduce their interest rate/payment.
- An **independent Evaluator would track the performance of the Implementing** to quantify the impact and showcase progress of the Bond.
- **Outcome funders based on the feedback from the independent evaluator**, would serve the financial interest of the bond in case the implementing agency is a for-profit social enterprise. The for-profit social enterprise itself would be liable to pay back the upfront capital to the Private Investors.
- This may provide **access to funds for private enterprises**.

Outcomes rate cards are being used in UK

“Outcomes rate card is a menu of outcomes that government seeks to achieve and the prices they are willing to pay for each outcome achievement.”

OUTCOMES RATE CARD PROCESS



“They are used as a procurement and contracting tool with the ability to standardize performance-based financing, through Pay for Success, and drastically reduce the time such deals take to get to market. One rate card can result in multiple contracts with multiple providers, who must deliver against its pre-determined outcomes and prices, receiving payment only when the stated outcomes are achieved and participants’ lives are positively impacted”

Benefits of Result Based Financing



Better quality of services
because incentives are placed on
quality and timely delivery



Reduced corruption, due to
increased transparency in the
results-payment link



Change in culture, **from budget-
driven to results-oriented**



Closer supervision as this is a
necessary condition to issue
payments



Sustainability, particularly if the
indicators are tracked
throughout the project life



**Increased autonomy for the
implementing agency** as to
“how” to deliver the results

But, RBF also comes at a cost!!

High transaction costs

Developing the scheme requires large time investments during project preparation

Requires Pre-Financing

RBF, requires pre-financing! This comes at a high cost particularly for non-governmental entities

Monitoring & Supervision

Higher costs of monitoring and supervision

Risk

Risk of unintended distortions caused by ill-defined incentives

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Corporate Social Responsibility(CSR) and Philanthropic funding for sanitation

While both public finance and possible commercial resources are important, FSSM financing can also come through other emerging innovative mechanisms including CSR, philanthropy and funding by social impact investors.



Grants
+
Loans



This may comprise **grants or loans** depending on the specific sources. While the **CSR and philanthropy funds** will largely be as **grants and project support**, the **social impact funds** can be either as **grants or loans**, depending on the specific mechanisms used.



For both corporates and philanthropists, while sanitation has gradually emerged as an important area, **there is little understanding of FSSM and the need to look beyond toilets to making cities ODF+ by ensuring safely managed sanitation.**



Philanthropy has helped to fund a few pilot FSTPs such as those **in Devanhalli in Karnataka, Wai in Maharashtra, Trichi in Tamil Nadu, Warangal in Telangana and Narsapur in Andhra Pradesh.**



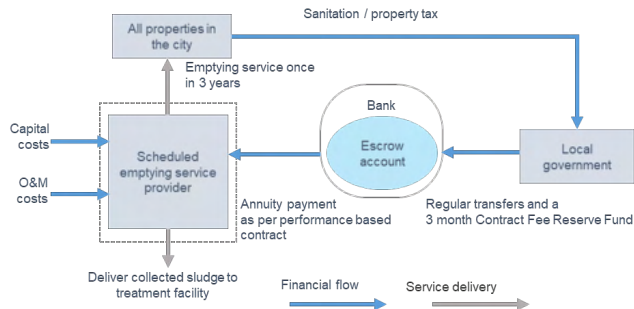
These have **showcased new technologies** and made it possible to make these concepts popular. However, it can be argued that this is not a sustainable source beyond initial demonstration of technologies.

Mobilizing CSR funds for FSSM

There is a possibility of mobilizing corporate funding using CSR for large companies as the Companies Act, 2013 mandates that large companies spend 2% of their three-year average annual profit towards CSR.

Mobilizing of CSR funds to support FSSM for different activities that would help the quality and effectiveness of investments.

For example, CEPT university has mobilized CSR funding from HSBC for Sinnar, a small city in Maharashtra. This supports activities related to ODF sustainability and for making the city ODF+.



CSR funds can also be mobilized for other such activities such guarantee funds to back up escrow accounts being used for annuity models. This arrangement would give private players greater comfort and would help in reducing bid prices.

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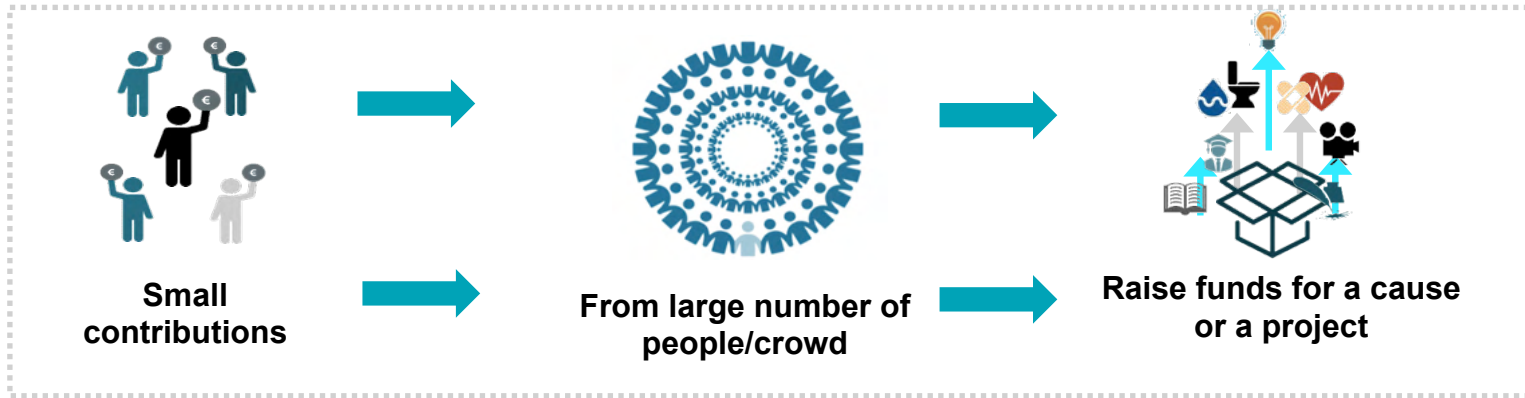
Institutional and Market Borrowing for Capital Investments

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What is Crowdfunding?

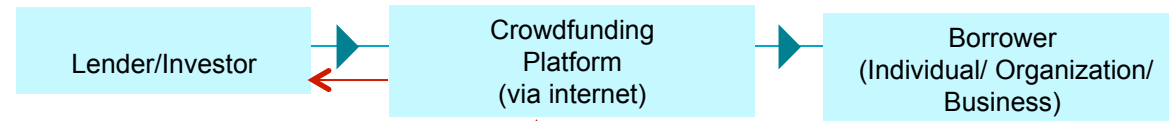


Types of Crowdfunding

Donation - based



Lending - based



[Loans repaid to the Lender/ Investor]

Crowdfunding for School Sanitation, Sinnar, Maharashtra



Campaign Organizer – Center for Water and Sanitation, CEPT University

Beneficiary – Students of Zila Parishad School, Sinnar, Maharashtra

Purpose – Construction, refurbishment and operation and maintenance of toilets.

Funds Raised – Rs 4,28,000 (USD 6700) in 2 months

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Municipal Bonds

- Though the idea of municipal bonds in India was introduced more than 20 years ago, despite the initial flurry of bonds, **ULBs have not used this route.**
- Recent issuance of municipal bonds by a few ULBs such as **Pune, Hyderabad and Indore** have raised interest in this. However, so far it is generally the large ULBs, mainly municipal corporations that have raised funds via this route, and for FSSM they are not likely to require funds for treatment as they can use co-treatment. Also, the costs of preparing for such debt mobilization are high and the smaller ULBs may find it difficult to use this route.

Pune Bond

- First Municipal Corporation to successfully raise Rs.200 crores on the BSE BOND platform!
- P M C Bonds received overwhelming response with 6 times of oversubscription.

Indore Bond

- First Municipal Bond to be listed on Debt Market platform of NSE
- I M C Bonds received overwhelming response with an oversubscription of 1.26 times

GHMC Bond

- GHMC has become the second ULB to raise Rs.200 crores on the BSE BOND platform
- G H M C Bonds received overwhelming response with 2 times of oversubscription

Municipal Development Funds

- Municipal Development Funds can provide a much needed **link between civic infrastructure financing needs and domestic capital markets.**
- MDFs usually **start as an intergovernmental approach to municipal credit supply**, structured as para-statal organizations, but then **evolve to become financial intermediaries focusing on municipal credit**

ULB

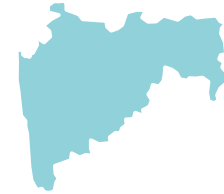
State MDF



ULBs can also borrow from the **State level Municipal Funds (MDFs).**

Tamil Nadu , Maharashtra and Andhra Pradesh have such funds.

However, besides TNUDF, the MDFs in **other states have not provided credit effectively to ULBs.** For TNUDF, it would be good to explore their interest in FSSM and support development of pilots.



The **MUNIFRA in Maharashtra** does not have a strong and effective portfolio. However, loans for those ULBs that are unable to meet their contributions for treatment facilities maybe able to approach MUNIFRA for loans.

Municipal borrowing for sanitation infrastructure

For some ULBs access to **additional resources maybe needed to meet the capital investments** for FSSM. One option can be debt mobilization by ULBs, through borrowing from banks and government institutions or through the capital market in the form of bonds.

Following options are available for municipal borrowing:

Scheduled Commercial Banks	<ul style="list-style-type: none">• Private sector banks• Public sector banks
Sector Specific Municipal Development funds	<ul style="list-style-type: none">• Tamil Nadu Urban Development Fund (State Specific)• Pan India Pooled Municipal Debt Obligation Facility (PMDO)
Capital marketing	<ul style="list-style-type: none">• Municipal Bond
Government Institutions	<ul style="list-style-type: none">• Housing and Urban Development Corporation (HUDCO)

Institutional borrowing from HUDCO

Housing and Urban Development Corporation (HUDCO) provides loans to public agencies and private sector for urban infrastructure. State Governments and ULBs can borrow from HUDCO to finance their FSSM related capital investments.



HUDCO offers loans at competitive terms



In 2015-16, it disbursed loans worth Rs. 8,250 crores for urban infrastructure and over the 6 years period from 2011 to 2016 it released loans worth Rs. 14000 crore per annum.

34% total HUDCO Assistance was given for Water and Sanitation sector for six years from 2010-16



Interest are about 10.35% and the loan tenor ranges from 7 to 15 years depending on the types of projects.



However, HUDCO requires a state government guarantee for lending to urban local bodies, which may become a constraint as such guarantees affects contingent liability of state governments. Also, under the new Fiscal Responsibility and Budget Management Acts of different state governments, many have a ceiling on total guarantees.



Of the four focus states of except Maharashtra all other states have such stipulated limits. However, HUDCO funding can be explored for treatment facilities by private providers in a PPP arrangement for FSSM services, if it is competitive as compared to other options for them.



Contents

- 1** Need For Innovative Finance Mechanism

- 2** Options of Innovative Finance Mechanisms

- 3** Summary of Innovative Financing

- 4** Detailed case studies for reference



Potential innovative financing options for FSSM

Performance Based Annuity Model

- Maharashtra experience of ULB level, performance based annuity model for conveyance and Andhra Pradesh experience of HAM for treatment in small cities will provide lessons for other states.
- An escrow account mechanism can be used to mitigate late payment risks of private sector.

Development Impact Bonds

- An impact bond for FSSM can be developed for scheduled desludging of septic tanks and treatment of FS.
- Measurable outcomes in them can be: All Households covered for emptying services, especially poor and low income households for desludging of tanks and volume of collected FS that is treated, effluent characteristics of treatment plant meeting the environmental discharge standards for treatment of FS.

Borrowings from Institutions/ Banks

- For capital investment for treatment plant, ULB can borrow from banks under the priority sector lending.
- Most banks may not have realized that lending for FSTPs of up to Rs. 5 crores will also be covered under the priority sector lending (PSL) requirements for commercial banks. This will make it attractive for banks to lend to ULBs for sanitation projects.

Activity 7

Video case study and quiz on new and emerging financing options

Refer to exercise workbook



Contents

- 1 Need For Innovative Finance Mechanism

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Municipal bonds of Pune, Indore and Hyderabad

City	Type	Bond size	Guarantee	Interest rate	Tenure periods	Credit Rating	Escrow	Purpose	Remarks
PMC	Unsecured Redeemable Listed Taxable Non Convertible Debentures	200 Cr.	No	7.59%	10 year	AA+	Revenues of the PMC	24 x 7 Water supply	Credit rating Agencies: India Ratings and Care Payment of Interest : Half yearly
IMC	Secured, Non convertible, Redeemable bonds in the	100 Cr. with Green Shoe	No	9.25%	7 Years	AA	Revenues of the IMC	Water supply	Credit rating Agencies: Brickwork, SMERA Payment of Interest : Half yearly
GHMC	Unsecured Listed Taxable Non-Convertible Redeemable Bonds	200 Cr.	No	8.90%	10 years	AA	-	Strategic road development programme.	Credit rating Agencies: India Rating, CARE Payment of Interest: Half yearly

Source: Pune's Path Breaking success in municipal bond: www.pmc.gov.in.

<https://www.financialexpress.com/market/rs-2264-cr-pune-municipal-bond-issue-without-maharashtra-government-backing-munibonds-face-testing-times/716782>, :

https://www.nseindia.com/content/press/PR_cc_05072018.pdf, Draft Information Memorandum on IMC Bond,

<https://economictimes.indiatimes.com/markets/bonds/how-indore-has-set-the-tone-for-municipal-bonds/articleshow/64873939.cms>

<https://www.bseindia.com/markets/MarketInfo/DispMediaRels.aspx?page=9de1ef1d-8c50-4dbc-9efe-7ef2eb8f036c>,

<https://www.bseindia.com/markets/MarketInfo/DispNoticesNCirculars.aspx?Noticeid=%7BCB94CDB2-F97E-4430-950C-1CA3435E9995%7Dandnoticeno=20180221-26anddt=02/21/2018andcount=26andtotcount=32andflag=0>

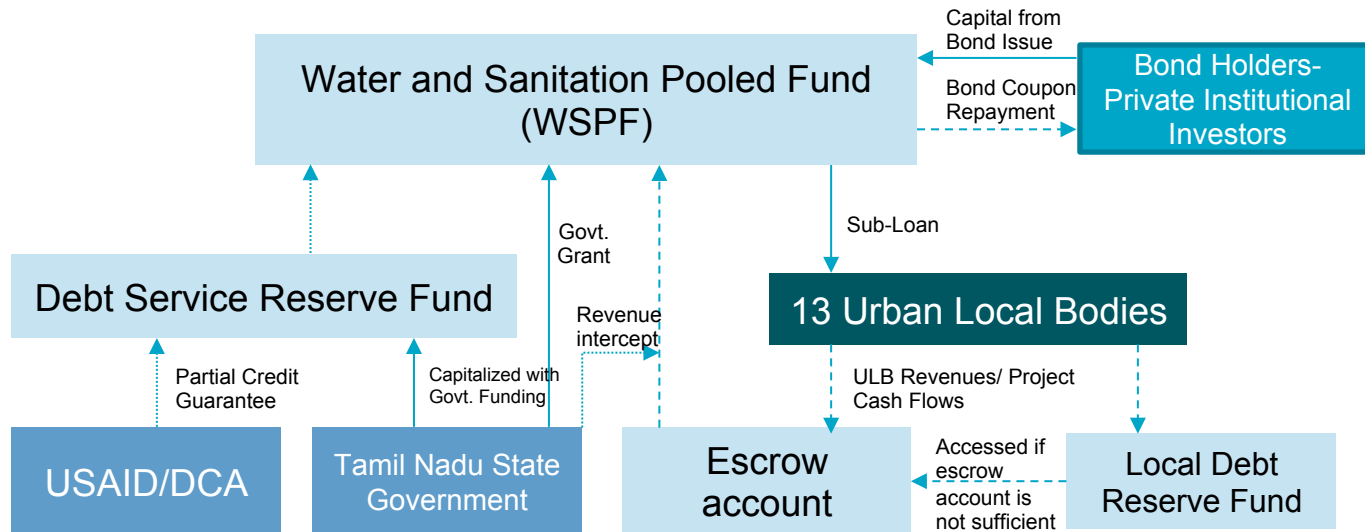
Water and Sanitation Pooled Fund – Tamil Nadu 1/2

The pooled bond mechanism has been successfully used by the TNUDF over the past 15 years for mobilizing market resources for water and sanitation investments by smaller ULBs in Tamil Nadu.

- The WSPF is one of a two innovative pooled funds in Tamil Nadu, the other one being TNUDF.
- The fund has **become a model and has inspired** other such structures, such as the **Karnataka Water and Sanitation Pooled Fund Trust**.
- This **approach allows small and medium sized ULBs** with **poor credit ratings** to **access debt markets**. Potential to crowd-in otherwise risk-averse private capital.
- However, this will require supporting TNUDF which has experience in this route, to consider FSSM projects within this. There is also a need for some regulatory clarity as TNUDF has not been to use this route under the new SEBI regulations for municipal bonds.

Water and Sanitation Pooled Fund – Tamil Nadu 2/2

- The **WSPF issues bonds to commercial investors**, with these bonds guaranteed by state government funds in an escrow account and a partial credit guarantee from USAID, in addition to a intricate web of credit enhancements.
- Money is lent out to small and medium sized ULBs.



Legend

Supply of Finance



Repayment Flows



Credit Enhancement



Public/ Donor Agencies



Private Financiers



Service Providers



Financial Intermediaries



Municipal borrowing from banks under Priority Sector Lending (PSL)

- ✓ ULBs can borrow from various banks – ranging from **scheduled commercial banks, small finance banks to urban cooperative banks.**
- ✓ Bank loans will be available for ULBs at relatively good terms though tenor will be short of up to **5 years.**
- ✓ It is important to point out that most banks may not have realized that lending for FSTPs of **up to Rs. 5 crores** will also be covered under the **priority sector lending (PSL) requirements for commercial** banks. This will make it attractive for banks to lend to ULBs for sanitation projects.
- ✓ However, this **requires awareness generation for both banks and ULBs.** It will also require **rigorous assessment of municipal finances to ensure their repayment capacities.** It would be useful to explore pooling of a few smaller ULBs that are interested to borrow from banks. This will help reduce their costs and make it attractive for banks to consider a larger project. Any borrowing from banks will also require permission from the State Government as per most state Municipal legislation.

“Bank loans up to a limit of **Rs. 5 crore per borrower for building social infrastructure for activities** namely schools, health care facilities, **drinking water facilities and sanitation facilities** in Tier II to Tier VI centres.”

RBI “Priority Sector Lending- Targets & Classification”

- i. Agriculture
- ii. Micro, Small and Medium Enterprises
- iii. Export Credit
- iv. Education
- v. Housing
- vi. Social Infrastructure
- vii. Renewable Energy
- viii. Others

Institutional and market borrowing for capital investments



- Institutional and market borrowing will require a **rigorous assessment of municipal finances**.



- It would be easier in states such as TN as the **ULBs have credit history through the TNUDF operations**, or in Maharashtra where the ULBs have **high own income through sources such as property and sanitation tax**, as well as various **land value capture mechanism** such as betterment levy, Transfer of Development Rights (TDR), etc.



- Till recently, the Municipal Corporations also enjoyed a very **buoyant source in Local Body Tax (LBT)**. It is worth noting that in **Maharashtra share of own income in total revenue income of ULBs is high at 50%** and **property tax comprises only 30% of own income**.

Institutional borrowing from HUDCO

Housing and Urban Development Corporation (HUDCO) provides loans to public agencies and private sector for urban infrastructure. State Governments and ULBs can borrow from HUDCO to finance their FSSM related capital investments.



HUDCO offers loans at competitive terms and can be a good source for ULBs for urban infrastructure as FSSM can be included in this.



In **2015-16**, it **disbursed loans worth Rs. 8,250 crores for urban infrastructure** and over the 6 years period from **2011 to 2016** it **released loans worth Rs. 14000 crore per annum**.



HUDCO's loans provide a good option for ULBs. The **interest rates are about 10.35%** and the **loan tenor ranges from 7 to 15 years** depending on the types of projects.



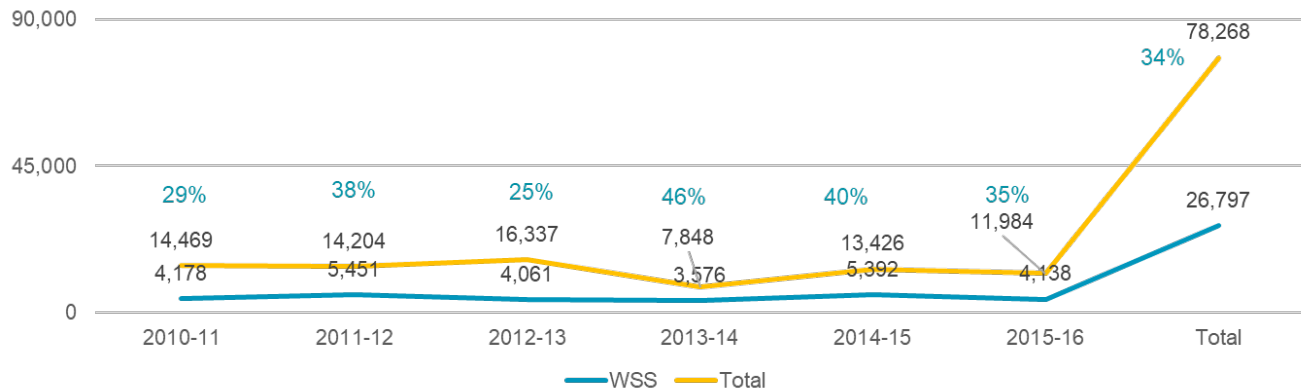
However, HUDCO **requires a state government guarantee for lending to urban local bodies**, which may become a constraint as such guarantees affects contingent liability of state governments. Also, under the new **Fiscal Responsibility and Budget Management Acts** of different state governments, many have a **ceiling on total guarantees**.



Of the four focus states of except Maharashtra all other states have such stipulated limits. However, **HUDCO funding can be explored for treatment facilities by private providers in a PPP arrangement** for FSSM services, if it is competitive as compared to other options for them.

HUDCO assistance to Water and Sanitation Projects in comparison with total assistance

HUDCO assistance to Water, Sewer and Solid Waste Projects



34% total HUDCO Assistance was given for Water and Sanitation sector for six years from 2010-16

Year	HUDCO Assistance (Rs. crore)						Total
	Water supply	Sewerage, Drainage and Solid waste	Transport	Area dvnt.	Social infrastructure	Others	
2010-11	2,721	1,457	3,263	115	176	6,737	14,469
2011-12	2,606	2,845	2,510	-	647	5,595	14,204
2012-13	3,089	972	4,925	-	2,202	5,149	16,337
2013-14	1,812	1,764	2,121	-	154	1,997	7,848
2014-15	4,919	473	3,787	-	213	4,034	13,426
2015-16	2,425	1,713	4,782	-	1,239	1,826	11,984
Total	17,573	9,224	21,389	115	4,631	25,337	78,268

Annexures



List of acronyms

ALF	Area Level Federations	FRBM	Fiscal Responsibility and Budget Management Act	PbR	Payment by Results
AMRUT	Atal Mission For Rejuvenation And Urban Transformation	FSM	Faecal Sludge Management	PLAM	Performance Linked Annuity Model
BMGF	Bill and Melinda Gates Foundation	FSSM	Faecal Sludge and Septage Management	PMC	Pune Municipal Corporation
BOD	Biological Oxygen Demand	FSTP	Faecal Sludge Treatment Plant	PMDO	Pan India Pooled Municipal Debt Obligation Facility
BOLT	Build-Operate-Lease-Transfer	GHMC	Greater Hyderabad Municipal Corporation	PPP	Public-private partnership
BOO	Build-Own-Operate	HAM	Hybrid Annuity Model		Program for Market structuring of faecal sludge management
BOOT	Build-Own-Operate-Transfer	HH	Household	PSMBV	
BOT	Build Operate and Transfer	HUDCO	Housing and Urban Development Corporation	PSP	Private Sector Participation
BSE	Bombay Stock Exchange	IMC	Indore municipal corporation	RBF	Results based funding
BWC	Blue Water Company	JMP	Joint Monitoring Programme	SBM	Swachh Bharat Mission
CapEx	Capital Expenditure	KLD	Kilo Liters per day	SDG	Sustainable Development Goal
CDD	Consortium for DEWATS Dissemination	KMA	Kumasi Metropolitan Assembly	SFD	Shit-Flow Diagram
CGTMSE	Credit Guarantee Trust Fund for Micro & Small Enterprises	KWSPFT	Karnataka Water and Sanitation Pooled Fund Trust	SHG	Self-Help Group
CLF	City Level Federation	LBT	Local Body Tax	SI	Sanitary Inspector
CO	Chief officers	LG	Local Government	SMERA	Small and Medium Enterprises Rating Agency of India Limited
COD	Cash-On-Delivery Aid	LPCD	Litre Per Capita Per Day	SOP	Standard Operating Procedure
CPHEEO	Central Public Health and Environmental Engineering Organisation	MDF	Municipal Development Funds	STP	Sewage Treatment Plant
CSR	Corporate Social Responsibility	MoHUA	Ministry of Housing and Urban Affairs	SWM	Solid Waste Management
CT/PT	Community toilets / public toilets	MoUD	Ministry of Urban Development	TDR	Transfer of Development Rights
DBOT	Design Build Operate Transfer	MSMEs	Micro, Small & Medium Enterprises	TNUDF	Tamil Nadu Urban Development Fund
DIB	Development Impact Bond	MUDRA	Micro Units Development & Refinance Agency Ltd	TSCL	Thongthawil Service Corporation Limited
DSCR	Debt service coverage ratio	MUINFRA	Maharashtra Urban Infrastructure Development Co. Ltd.	UDD	Urban Development Department
DWASA	Dhaka Water Supply and Sewerage Authority	NFSSM	National Faecal Sludge and Septage Management Alliance	ULB	Urban Local Body
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization	NGO	Non-Governmental Organization	VGf	Viability Gap Funding
EMD	Earnest Money Deposit	NMCG	National Mission for Clean Ganga	WASH	Water, Sanitation and Hygiene
EoI	Expression of Interest	NSE	National Stock Exchange of India	WMC	Wai Municipal Council
		OBA	Output based Aid	WMD	Waste Management Department
		ODF	Open Defecation Free	WSPF	Water and Sanitation Pooled Fund
		OpEx	Operational Expenditure	WSS	Water sanitation solid-waste
		OWSSB	Odisha Water Supply and Sewerage Board	WSUP	Water & Sanitation for the Urban Poor
		P4R	Program for results		

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The Center for Water and Sanitation at CEPT University carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services.



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