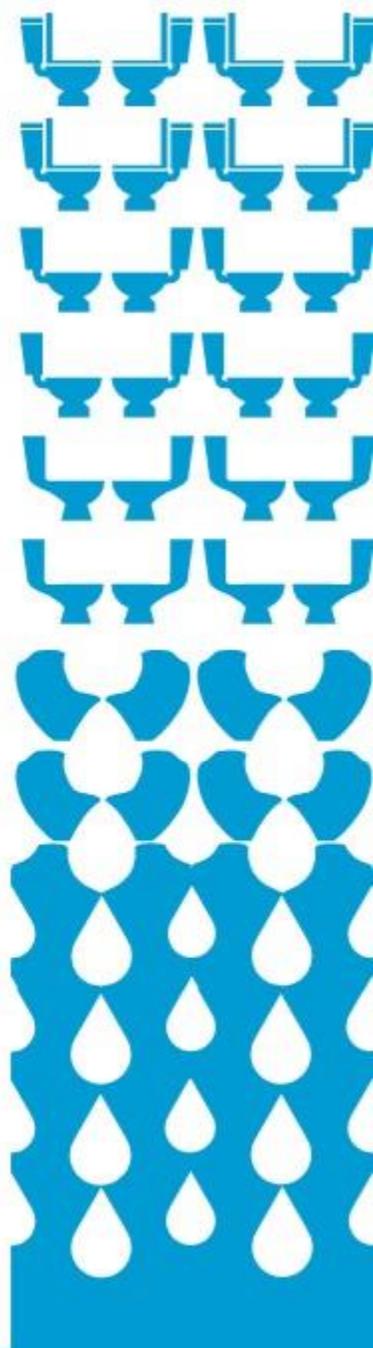


FSSM in Maharashtra

Center for Water and Sanitation
CEPT University



Government of
Maharashtra



Maharashtra with 50 million urban population and 384 urban local governments became ODF in 3 years



Urban
Maharashtra
was declared
Open Defecation Free
on
1st October 2017 in
the presence of the
Hon'ble President of
India

The focus now is to
attain **ODF+ / ++** status.

Maharashtra FSSM Strategy ...

Government of Maharashtra has issued a government resolution (GR), dated November 8, 2019 on setting up an independent FSTPs in ULBs of Maharashtra

73 Cities
already initiated
FS co-treatment
at/nearby
STPs/own FSTPs

311 Cities to
setup own
FSTPs

230+ Cities
have floated
tender for
FSTP

स्वच्छ महाराष्ट्र अभियान (नागरी) अंतर्गत राज्यातील नागरी स्थानिक स्वराज्य संस्थांकडील शौचालयांच्या सेप्टिक टॉक मधील मैल्याचे सुरक्षित, नियमित व्यवस्थापन करून व त्यावर प्रकीया करण्यासाठी मैला प्रकीया केंद्र (FSTP) बांधण्यास प्रशासकीय मान्यता देण्याबाबत.

महाराष्ट्र शासन
नगर विकास विभाग

शासन निर्णय क्रमांक : स्वमअ-२०१९/प्र.क्र.१२४/नवि ३४
हुतात्मा राजगुरु चौक, मादाम कामा मार्ग,
४ था मजला, मंत्रालय, मुंबई ४०००३२
दिनांक : ८ नोव्हेंबर, २०१९

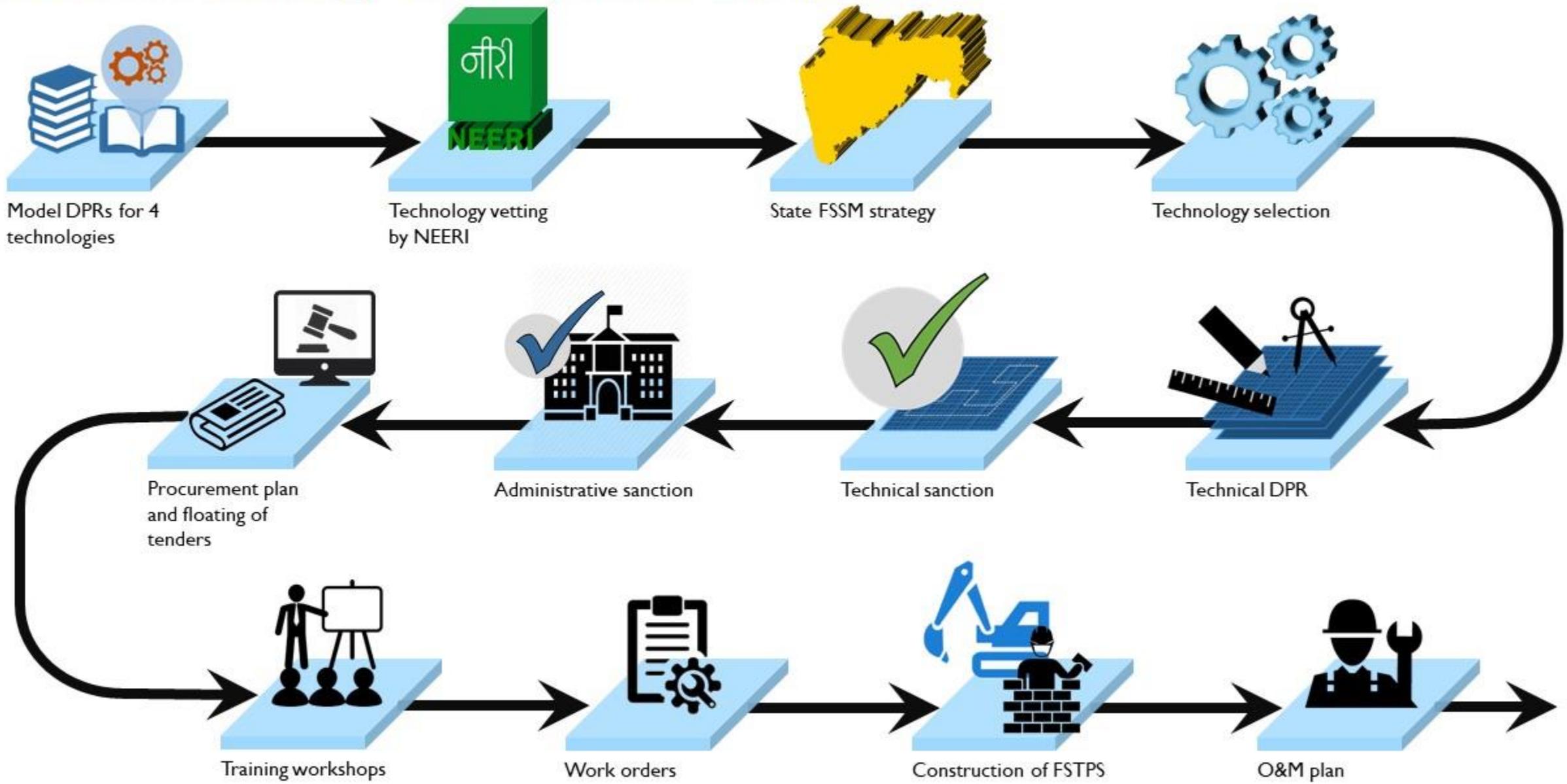
पहा :

१. शासन निर्णय, नगर विकास विभाग, क्रमांक स्वमअ २०१५/प्र.क्र.२३/नवि ३४ दि. १५.०५.२०१५
२. शासन परिपत्रक, नगर विकास विभाग, क्रमांक स्वमअ २०१७/प्र.क्र.३१/नवि-३४, दिनांक १७ मार्च, २०१७
३. शासन परिपत्रक, नगर विकास विभाग, क्रमांक स्वमअ २०१७/प्र.क्र.२६३/नवि-३४, दि. ३० डिसेंबर, २०१७
४. शासन निर्णय, नगर विकास विभाग, क्रमांक स्वमअ २०१७/प्र.क्र.२६३/नवि-३४, दि. १५ डिसेंबर, २०१८
५. शासन निर्णय, नगर विकास विभाग, क्रमांक स्वमअ-२०१९/प्र.क्र.८२/नवि ३४, दि. २४.०५.२०१९
६. शासन निर्णय, नगर विकास विभाग, क्रमांक स्वमअ-२०१९/प्र.क्र.१०५/नवि ३४, दि. ११.०९.२०१९

प्रस्तावना :

केंद्र शासनाच्या स्वच्छ भारत अभियानाच्या धर्तीवर संदर्भीय क्रमांक १ येथील शासन निर्णयान्वये राज्यामध्ये स्वच्छ महाराष्ट्र अभियानाची अंमलबजावणी सुरु आहे. या अभियानांतर्गत शहरांमधील ज्या कुटुंबांकडे शौचालयाची सुविधा नाही अशा कुटुंबियांना वैयक्तिक अथवा सामुदायीक शौचालयाची सुविधा उपलब्ध करून देवून शहरे "हागणदारी मुक्त" करणे, तसेच, घनकचरा व्यवस्थापन नियम, २०१६ नुसार शहरातील घनकचरा व्यवस्थापन करून शहरे "स्वच्छ" करणे या दोन प्रमुख बाबींचा समावेश आहे.

Statewide strategy development and process



Selection of a **Non-Mechanized FSTP**

Components of FSTP – **SDB + ABR + PGF + Disinfection unit**

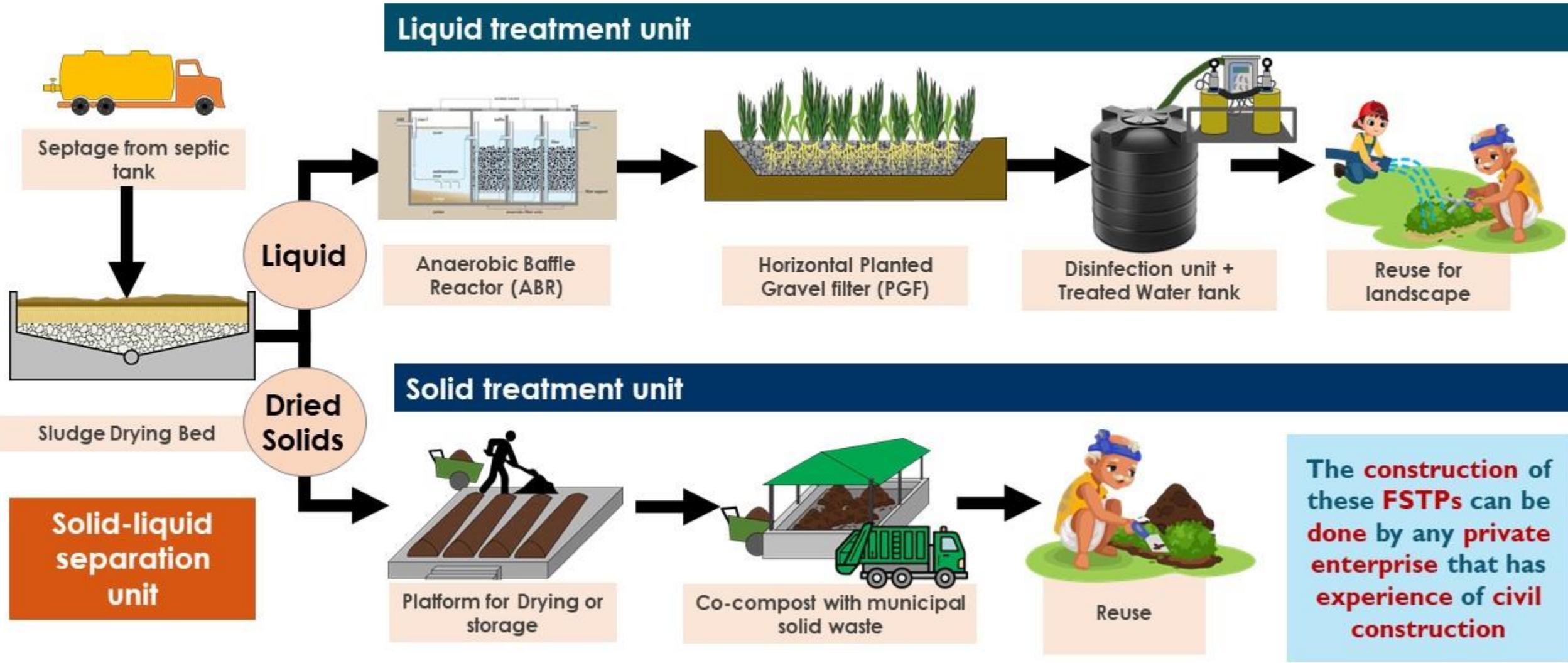
Total investment ~ 50 Cr

Population Range	Size of FSTPs	No. of ULBs
<15,000	3 KLD	99
15,000-25,000	5 KLD	70
25,000 – 50,000	10 KLD	87
50,000 – 75,000	15 KLD	26
>75,000	20 KLD	29
	Total	311

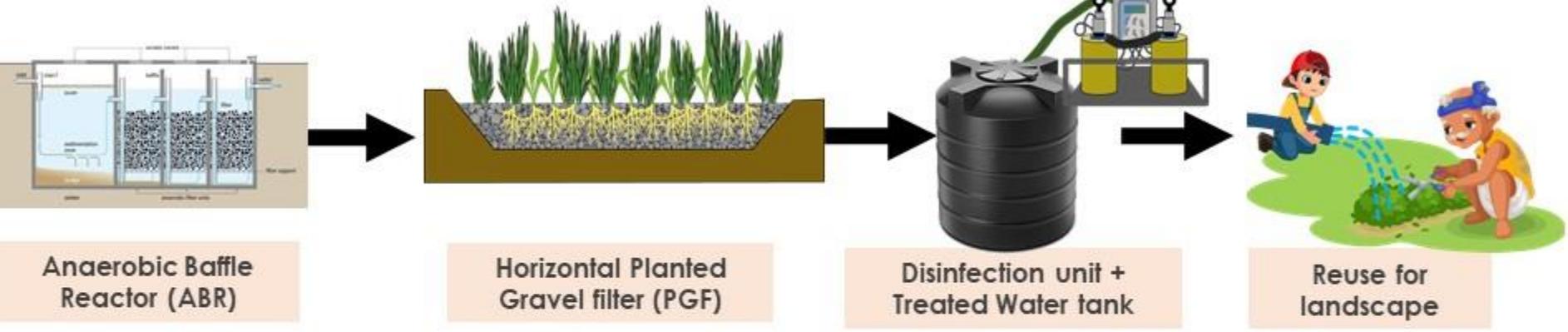
- Easy to expand the size of plant
- Easy to operate in unregulated flow conditions
- Simple to build FSTP by local contractors
- O&M – Easy to operate and manage (Even SHGs/ SWM operator would be able to manage the site)
- Lower electricity requirement
- Protective measures to be taken during rainy days

Conventional Non-Mechanized FSTP ...

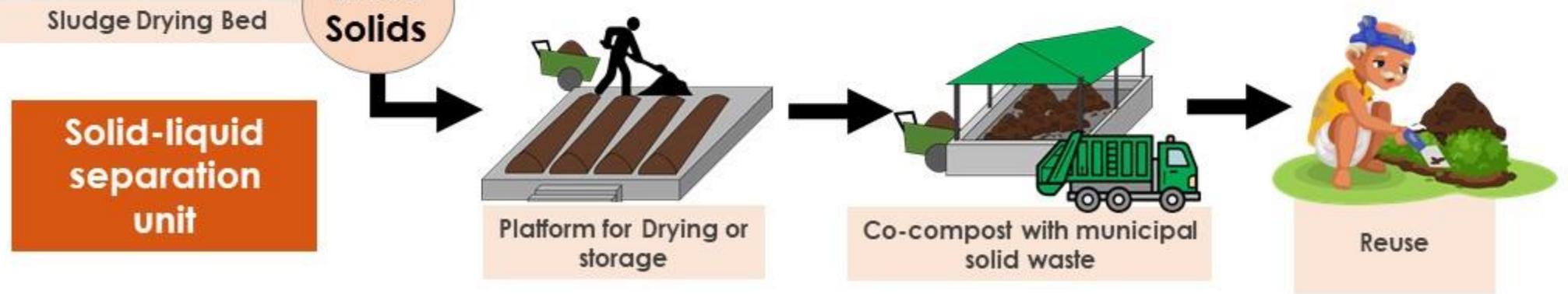
The focus of the State was that FSTP should be simple to construct and operate ...



Liquid treatment unit



Solid treatment unit



The construction of these FSTPs can be done by any private enterprise that has experience of civil construction

State level Mechanism for implementing FSTPs ...

DPRs and approval

Technical approval of “Type DPRs” by MJP

Model tender document with detailed BOQ and drawings shared with cities

3rd party technical audit to be conducted by ULBs

Procurement plan

Float percentage rate short tenders for civil works on LI basis

Minimum 3 bids are required. If received < 3 bids then extend the notice period and issue the work order to LI

Financing

Capital cost for FSTP- Financed through ULB's 14th FC funds

O&M for FSTP- Finance through ULB's own funds. ULBs can explore SHGs for O&M.

- **81 cities with land issues:** To initiate co-treatment with nearby STP / FSTP ; Directives were given for fast-track approval for procurement of land for FSTP construction

Procurement model for Maharashtra for 3 I I FSTPs

❑ Eligibility of contractor

- Bid capacity = $2NA - B$

N = Time limit for construction of works (in Yr)

A = Maximum value of civil works executed in last three years (In Rs)

B = Existing work commitment on going works (In Rs)

- The bidder should be civil contractor registered with Government of Maharashtra with required class.

❑ Earnest money: 1% of tender cost

❑ Security deposit: 2% of tender cost during tender submission + 7% deducted from running bill

❑ Payment mechanism: Monthly payments to be made against the proportion of civil works completed

❑ Collection and transportation of faecal sludge will be managed by a separate entity.

❑ O&M of FSTP will be managed by a separate entity and sale of reuse products is responsibility of ULB.

Third party technical audit (QA/QC check) for FSTP

State GR for 3rd party technical audit

नागरी स्थानिक स्वराज्य संस्थांकडून करण्यात येणा-या विकास कामांच्या दर्जाची त्रयस्थ यंत्रणेकडून तांत्रिक लेखापरीक्षणाची सुधारीत व्यवस्था अंमलात आणण्याबाबत

महाराष्ट्र शासन
नगर विकास विभाग

शासन निर्णय क्रमांक: संकीर्ण-२०१६/ प्र.क्र.३३५/नवि-३३

मंत्रालय, मुंबई-४०० ०३२
दिनांक: २८ मार्च, २०१८

संदर्भ:-

शासन निर्णय नगर विकास विभाग क्रमांक संकीर्ण-२००८/१३३८/प्र.क्र.१७९/०८/ नवि-२० दिनांक ०२ मार्च, २००८

प्रस्तावना

राज्यातील विविध नागरी स्थानिक स्वराज्य संस्थांमार्फत नागरी सुविधा पुरविण्यात येतात. त्यासाठी पायामुत सुविधा निर्माण करण्यासाठी नागरी स्थानिक स्वराज्य संस्थांकडून विविध विकासकामे करण्यात येतात. त्यामधून करण्यात येणाऱ्या कामांचा दर्जा अपेक्षित मानकाप्रमाणे नसल्याच्या तक्रारी येत असतात. अशा विकास कामांच्या दर्जाची त्रयस्थ यंत्रणेकडून तांत्रिक लेखापरीक्षण करण्याबाबतच्या सूचना संदर्भांकित दिनांक ०२ मार्च, २००८ च्या शासन निर्णयान्वये निर्गमित करण्यात आल्या आहेत. तथापि, वाढते नागरीकरण, नागरी करणाच्या प्रमाणात नागरी क्षेत्रात विकास कामांसाठी हजारो कोटींचा वितरीत होणारा निधी विचारात घेता त्यामधून होणारी कामे गुणवत्तापूर्ण पद्धतीने होत असल्याची सुनिश्चिती करणे आवश्यक आहे. त्याकरिता, अशा कामांचे त्रयस्थ यंत्रणेकडून तांत्रिक लेखापरीक्षण अधिक प्रभावी व परिणामकारक करण्यासाठी त्याबाबतच्या कार्यपद्धतीत मुलभूत सुधारणा करण्याची बाब शासनाच्या विचाराधीन होती.

List of empanelled institutes for 3rd party technical audit

प्रपत्र- अ

(शासन निर्णय नगर विकास विभाग क्रमांक: संकीर्ण-२०१६/ प्र.क्र.३३५/नवि-३३ दिनांक १२.०३.२०१८ सोबतचे)

अ.क्र.	नामांकित अभियांत्रिकी संस्था/ शासकीय अभियांत्रिकी महाविद्यालये
१	College of Engg Pune. (COEP)
२	Government College of Engg Karad
३	Government College of Engg Aurangabad
४	Government College of Engg Jalgaon
५	Government College of Engg Amaravati
६	Shri Guru Gobind Singh Institute of Engineering and Technology Nanded
७	Sardar Patel College of Engg Andheri
८	Dr. Babasaheb Ambedkar Lonere
९	Walchand College of Engg Sangli

प्रपत्र- ब

(शासन निर्णय नगर विकास विभाग क्रमांक: संकीर्ण-२०१६/ प्र.क्र.३३५/नवि-३३ दिनांक १२.०३.२०१८ सोबतचे)

अ.क्र.	शासकीय तंत्रिकेतने
१	Government Polytechnic Nagpur
२	Government Polytechnic Gadchiroli
३	Government Polytechnic Arvi
४	Government Polytechnic Chandrapur
५	Government Polytechnic Sakoli
६	Government Polytechnic Women's Yavatmal

शासन निर्णय क्रमांक: संकीर्ण-२०१६/ प्र.क्र.३३५/नवि-३३

७	Government Polytechnic Washim
८	Government Polytechnic Nanded
९	Government Polytechnic Latur
१०	Government Polytechnic Aurangabad
११	Government Polytechnic Beed
१२	Government Polytechnic Jalgaon
१३	Government Polytechnic Dhule
१४	Government Polytechnic Nashik
१५	Government Polytechnic Miraj
१६	Government Polytechnic Kolhapur
१७	Government Polytechnic Solapur
१८	Government Polytechnic Karad
१९	Government Polytechnic Bandra Mumbai
२०	Government Polytechnic Thane
२१	Government Polytechnic Ratnagiri

प्रपत्र- क

(शासन निर्णय नगर विकास विभाग क्रमांक: संकीर्ण-२०१६/ प्र.क्र.३३५/नवि-३३ दिनांक १२.०३.२०१८ सोबतचे)

अ.क्र.	नामांकित अभियांत्रिकी संस्था
१	IIT Mumbai
२	VJTI Mumbai
३	Visvesvaraya Engg College Nagpur (VIT)

FSTP operation and monitoring



Attendance workbook

Name | Date | Time | Designation



Septage load database sheet

Date | Origin of Septage load |
Operator | Volume



Operations of components in the plant

Details of SDB, ABR and PGF
Loading start date | Loading end date |
Cleaning date



Logbook for visitors

Name | Date | Designation |
Organization | E-mail | Phone no.



Logbook of vehicles

Driver's name | Date | Time | Vehicle
no. | Origin of load



Lab-testing results

Date | Time | Sampling location |
Temperature | pH | BOD | COD | TSS |
Total phosphate | Total & Faecal coliform

State recently organized 6 divisional FSSM Workshops to guide cities to take up FSSM activities in MISSION mode ...

Workshops attendance		
Division	ULBs Present	Total Participants
Nagpur	72	198
Amravati	57	125
Aurangabad	79	185
Nashik	60	104
Konkan	52	107
Pune	65	158
Total	385	877



State and Cities committed to FSSM in Maharashtra !!

Cities to initiate improvements in On-demand desludging and move towards Scheduled desludging ...

On-Demand Basis

Cleaning is done **on-call** by the household, who do not see the need for regular cleaning

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

The ULBs operates the trucks (either owned or borrowed) when the demand arises.

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 will educate households about the need for regular cleaning

Each town will require an additional **number of trucks to meet service standards** (which can be **operated by a private player**)

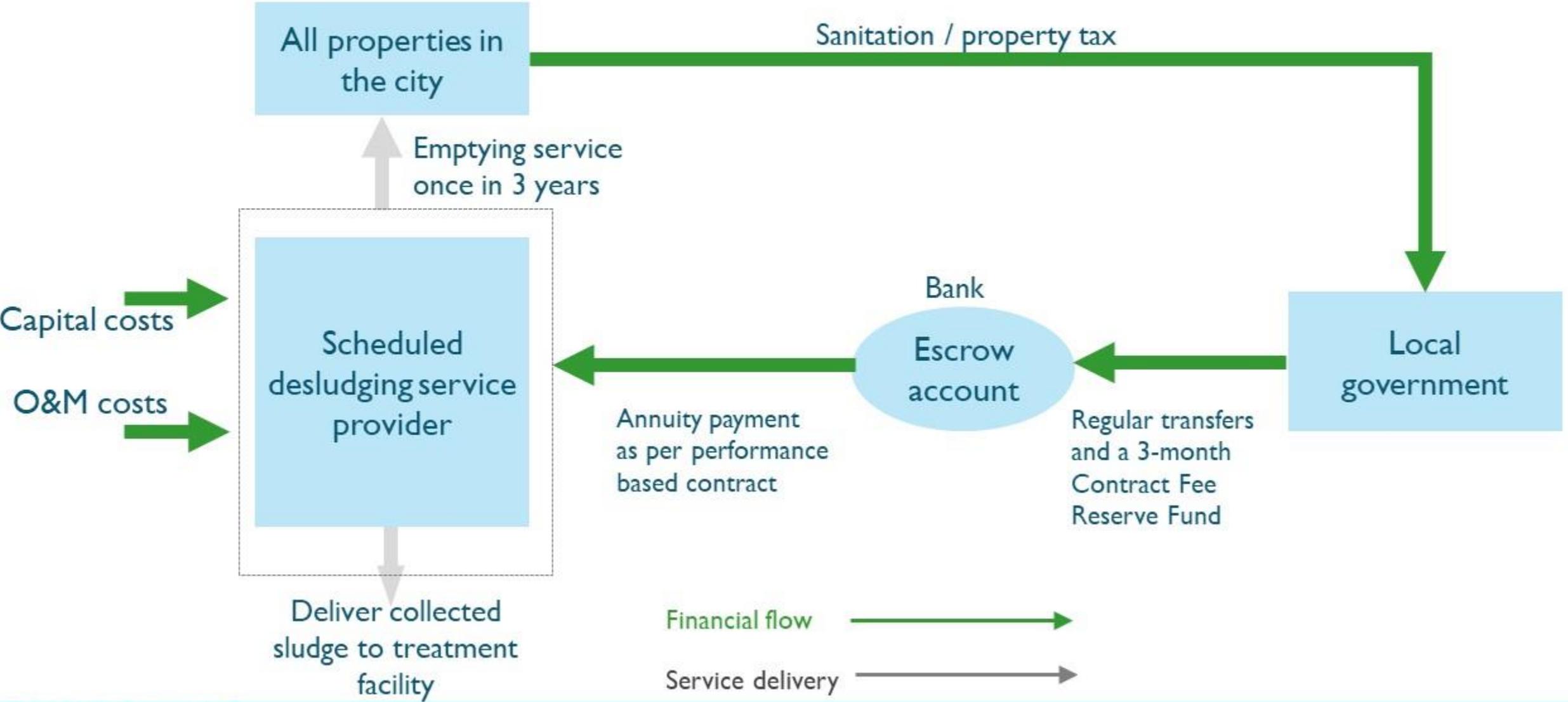
Local taxes levied by the ULB will be used to **recover the operating expenses** for regular cleaning.

Benefits of Scheduled Desludging ...

- **Equitable services** - all households / properties are covered by services
- **Lower Pricing** - services are offered at lower prices, due to efficiency gains
- **Behavior change** - Contribution to ODF sustainability as toilet usage can increase
- **Manual labour not needed** - Removal of need for manual labour due to regular emptying and healthy septic tanks
- **Infrastructure optimization** - More predictable loads for treatment facility and route optimization of trucks
- **Environmental benefits** - Likely reduction in BOD and coliform in septic tank effluent, as well as lower likelihood of septic tank overflows



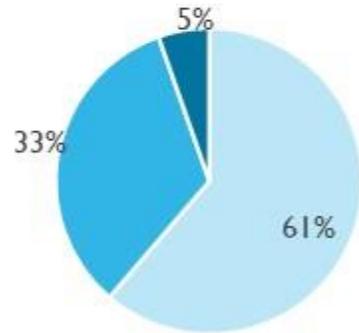
Performance Linked Annuity Model (PLAM) for scheduled desludging



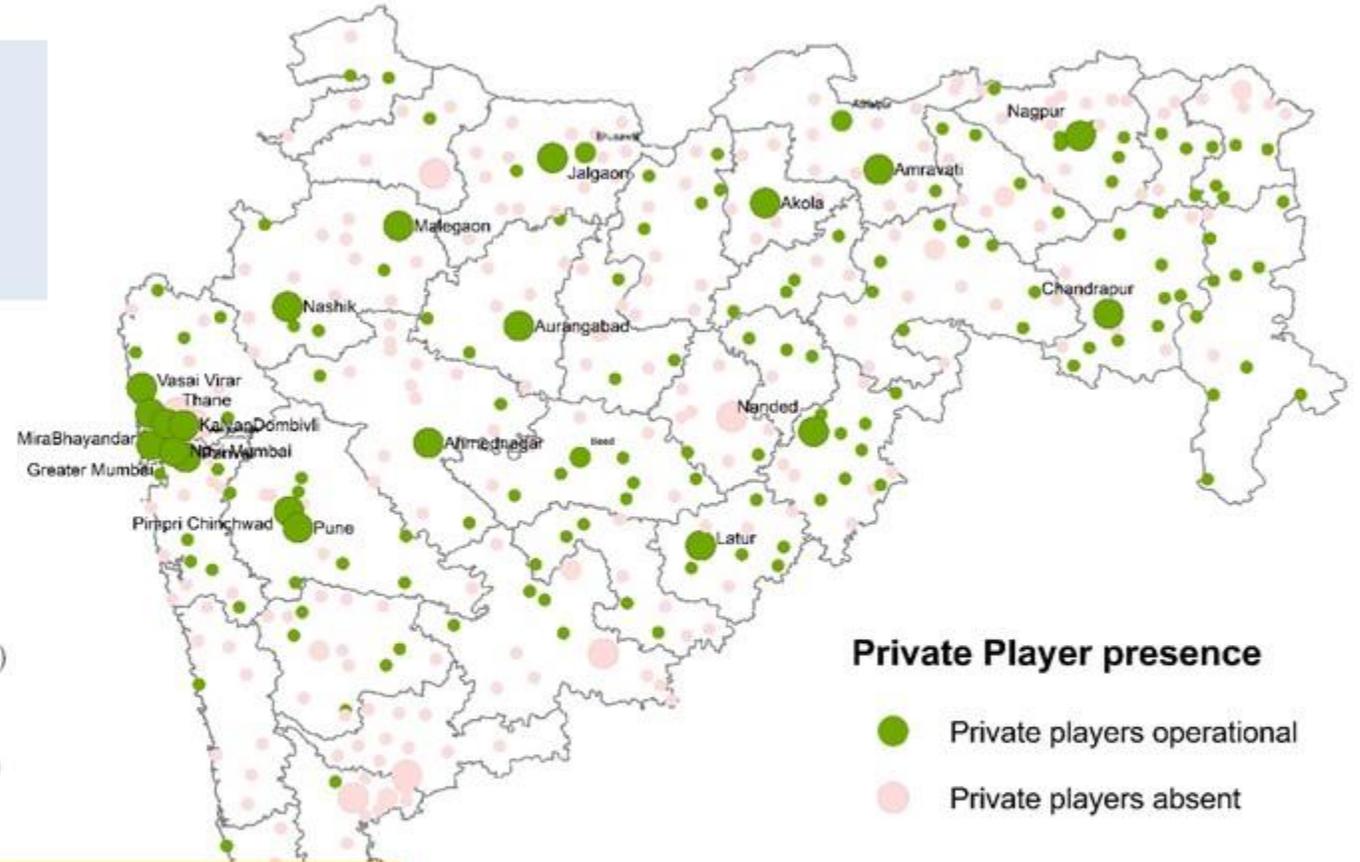
Private septic tank emptiers in Maharashtra ...

A large number of private service providers are providing emptying service

Type of Private players



- Small Players (Owner of 1 septic sucking machine)
- Medium Players (Owner of 2-3 septic sucking machine)
- Large players (Owner of >4 septic sucking machine)



GoM aims to develop plans for Scheduled desludging in about 25 cities of Maharashtra to begin with ...

- 350+ trucks operational - 500 litres to 12,000 litres
- Private companies operational in >2 cities : 20+
- Charges per emptying: INR 300-5000
- 60 Licensed players , 40 contracted players

To summarize . . .

- ❑ **Maharashtra government is committed to statewide FSSM**
- ❑ **Funding is available with cities to finance both treatment and desludging services**
- ❑ **Considerable scope for private sector to get involved in FSTP and desludging services**

Future for 300+
cities
in Maharashtra

Thank you ...



Sustainability Charter Launched by GoM emphasizes on FSSM ...



सप्तपदी
सातत्याची
Sustainability Charter

We are committed towards the vision of Swachh Bharat. We shall ensure ODF sustainability in Maharashtra by:

- #1. Achieving universal access to Individual Household Level Latrines (IHHL), which is a leading development priority.
- #2. Ensuring adequate, clean and reliable access to public/ community toilets across urban Maharashtra, wherever IHHL are not possible.
- #3. Ensuring ODF sustainability through effective participation of government, elected representatives, schools, donors, implementers, NGOs, SHGs, CBOs and the communities.
- #4. Continuing and institutionalizing rigorous ODF validation and monitoring process through "OD Watch" and "ODF sustainability tracker"
- #5. Auditing the performance of community/ public toilet and encouraging development of OD spots into usable public spaces.
- #6. Recognizing and awarding sustained performance
- #7. Moving towards ODF+ /++ by ensuring effective collection and adequate treatment of human fecal waste

Mr. Devendra Fadnavis
Chief Minister, Maharashtra

#7 Moving towards ODF+ /++ by ensuring collection and adequate treatment of human fecal waste



FSTP tender Status ...

Sr. No	Division	Total no. of ULBs to build FSTPs	Total tenders published	Bids opened till date	ULBs received 3 or more bids	No. of ULBs that have given work order
1	Amravati	50	38	37	17	5
2	Aurangabad	74	62	53	37	16
3	Konkan	38	19	19	6	5
4	Nagpur	60	30	25	18	6
5	Nashik	50	45	40	35	17
6	Pune	39	39	39	16	2
	Total	311	233	213	129	51

Scope for Private sector to bid for these tenders ...

Note : Status as on 4th December, 2019

Summary of FSTPs – Nos and Costs ...

No. of FSTPs						
Division	3 KLD	5 KLD	10 KLD	15 KLD	20 KLD	Total
Amaravati	10	13	15	8	4	50
Aurangabad	18	18	26	4	8	74
Konkan	21	9	3	4	1	38
Nagpur	33	8	12	2	5	60
Nashik	6	10	20	5	9	50
Pune	11	12	11	3	2	39
Total	99	70	87	26	29	311

Cost of FSTPs - INR lakhs						
Division	3 KLD	5 KLD	10 KLD	15 KLD	20 KLD	Total
Amaravati	91	145	256	173	102	766
Aurangabad	165	203	449	88	206	1111
Konkan	200	105	54	92	27	478
Nagpur	300	89	205	43	127	764
Nashik	55	113	347	110	233	858
Pune	104	139	197	68	53	562
Total	916	794	1508	574	747	4539

Total 311 FSTPs to be built at the cost of INR 45 Crore !!

Maharashtra began with scheduled desludging in two cities – Sinnar & Wai



Small & Medium towns in Maharashtra

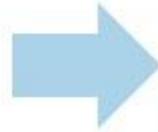
Population
Wai ~43,000
Sinnar ~72,000 ,

Declared ODF in 2016 - 2017

Cities certified as ODF++ in 2019



Comprehensive City Sanitation planning and council resolution for Integrated FSSM



1st cities in India to implement citywide scheduled emptying of septic tanks

1 Scheduled emptying of septic tanks

- ✓ Schedule for 33% septic tanks to be emptied every year.
- ✓ Awareness generation activities
- ✓ City level Regulations and training of masons for proper design of septic tanks
- ✓ Wai & Sinnar already operational

2 Involving Private sector for emptying operations

- ✓ Bids invited on Maharashtra govt e-tender website and private company selected through transparent process
- ✓ Escrow account to be maintained with 3 months' payment
- ✓ Performance based payments

3 Levying a Sanitation tax to support operations

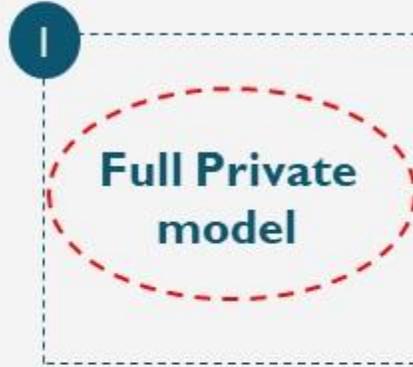
- ✓ Residents paying a small sanitation tax as a part of property tax instead of per-emptying charges

4 Faecal Sludge and Septage treatment facility (FSTP)

- ✓ Private company constructing FSTPs.
- ✓ Sinnar's FSTP constructed through DBOT tender, financed through Sinnar own funds. It has been commissioned on March 3rd, 2019
- ✓ Wai's FSTP funded by BMGF and is operational since June 2018.

For desludging services – Private sector role is critical in all business models

Demand
desludging
business
models



Scheduled
desludging
business
models

