

# Inclusive septic tank desludging services in small and medium towns of Maharashtra, India

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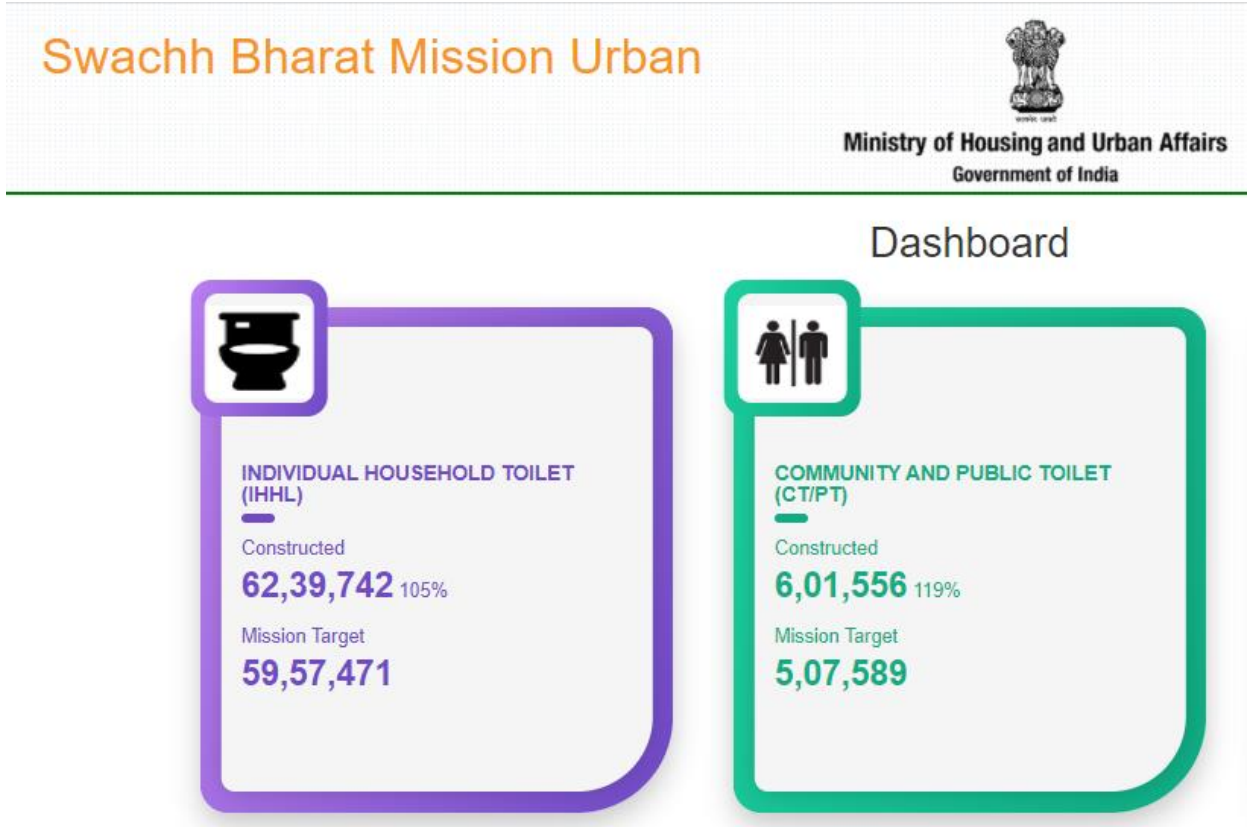
# Achievements under Swachh Bharat Mission (Urban) – A flagship programme

**4,360**  
ODF Declared  
100%



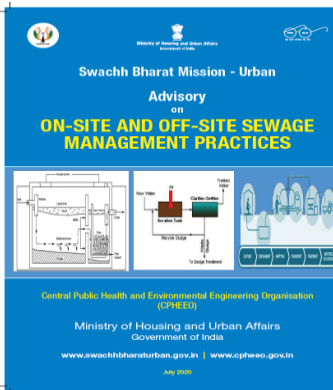
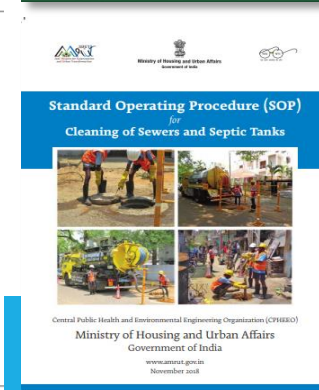
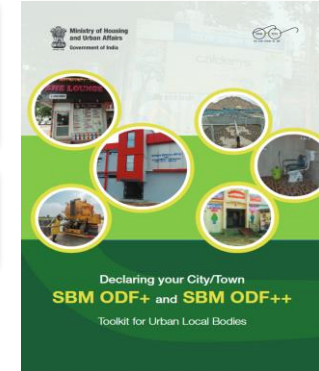
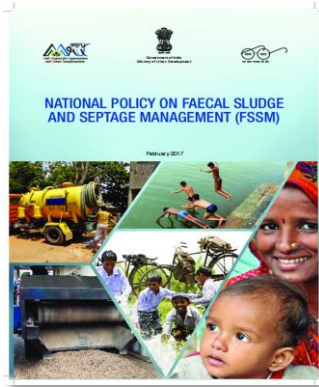
**4,291**  
ODF Verified  
98%

**Open Defecation Free**

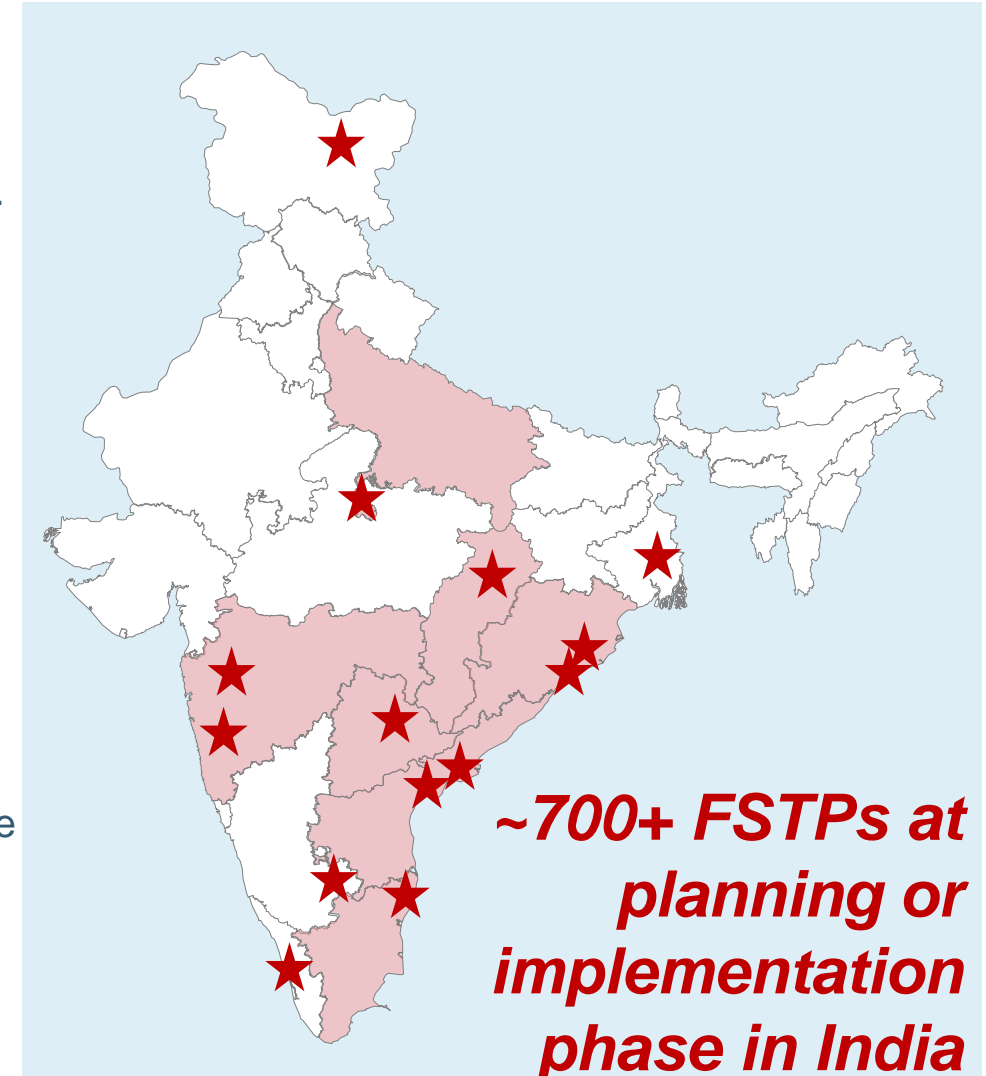


**The focus has now moved beyond toilets to ODF +/++ . . .**

Source : Retrieved on 22<sup>nd</sup> Feb, 2021 from Swachh Bharat Mission (Urban) website : <http://swachhbharaturban.gov.in/dashboard/?id=74aodhtfnao0mhjp>



- Over the past three years FSSM has received increasing attention and a national FSSM policy has been adopted.
- Government of India has undertaken several policy and programme initiatives like SBM , AMRUT, JJM.
- Many states have undertaken FSSM projects in their cities.
- A consortium of 30 national and international agencies working under the NFSSM Alliance to improve urban sanitation outcomes in India by incorporating FSSM as an approach

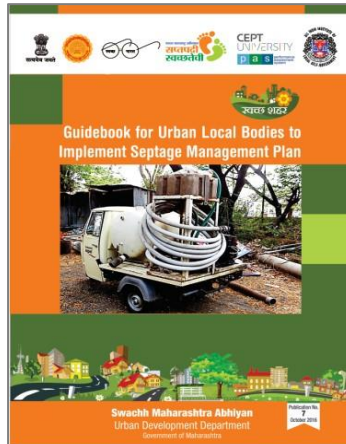


Increased focus on moving cities towards ODF+ / ++ (FSSM) after declaring Urban Maharashtra ODF on 2<sup>nd</sup> Oct. 2017

### Septage Management Guidelines



### Step by Step Guide for ODF+



## Government Resolutions

ODF, ODF+ and ODF++ framework

Utilizing Incentive grants and 14th FC funds for sanitation/ ODF+ / ++ activities

70+ cities Co-treating of FS at own or nearby STP

311 independent FSTPs Construction



**Maharashtra began with Citywide inclusive FSSM services in two cities in 2014 . . .**



Small & Medium towns in Maharashtra	Population Wai ~43,000 Sinnar ~72,000 ,	Declared ODF in 2016 - 2017	Declared ODF++ 2018-2019
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Comprehensive City Sanitation planning and municipal council resolution for FSSM



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

- |   |   |   |   |   |  |   |   |
|---|---|---|---|---|--|---|---|
| 1 | Scheduled emptying of septic tanks              | 2 | Involving Private sector for emptying operations            | 3 | Levying a Sanitation tax to support operations | 4 | Faecal Sludge and Septage treatment facility (FSTP) |
| 5 | Use of Own (DBO) / Philanthropy funds for FSTPs | 6 | Online monitoring systems for FSSM – emptying and treatment | 7 | Reuse of treated Waste Water                   | 8 | Municipal council commitment and leadership         |

**From URBAN LABORATORIES to LIGHT HOUSE cities . . . !!!**

Both Wai and Sinnar resolved to implement Citywide inclusive FSSM plan in their cities through an executive order....



The resolution covers aspects like:

- ❑ Citywide inclusive FSSM
- ❑ Involving Private sector
- ❑ Scheduled cleaning
- ❑ Land for treatment facility
- ❑ Taxes to be levied

1<sup>st</sup> Cities in INDIA to have passed such an executive order . . .

Current practice of desludging in Wai/Sinnar or any Indian cities is of complaint redressal and **NOT** a public service the way sewerage and SWM are!

**Low frequency of desludging**

On-demand desludging  
= only done when septic tanks overflow  
= frequency of 8-10 years+  
CPHEEO norm is 2-3 years

**Environmental impacts of poor quality effluent**

Low desludging frequency  
= poor efficiency of septic tank  
= poor quality of supernatant / effluent  
overflow being released in rivers

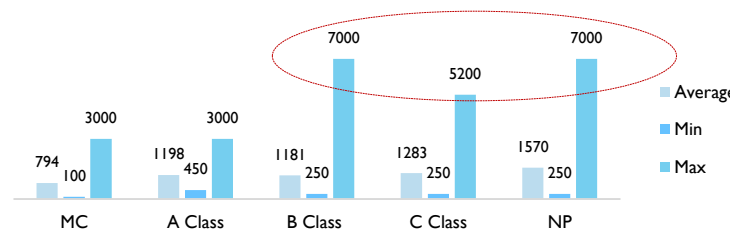
**Increased chances of Manual Scavenging**

Low desludging frequency  
= sludge hardens in the tank  
= requirement of manual labour to remove it

**High costs per desludging**

Not affordable to all  
Desludgers find it difficult to achieve economies of scale.  
Cannot optimize trips or have assured amount of business in on-demand service

**Small towns pay higher prices**



**High desludging charges may discourage HHs from using toilets**

Adversely affects ODF sustainability

The idea was to move from a consumer complaint redressal system to a scheduled service . . .

### 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 / Private operates the trucks 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

ULB 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.



### 1. Zones of Emptying cycle

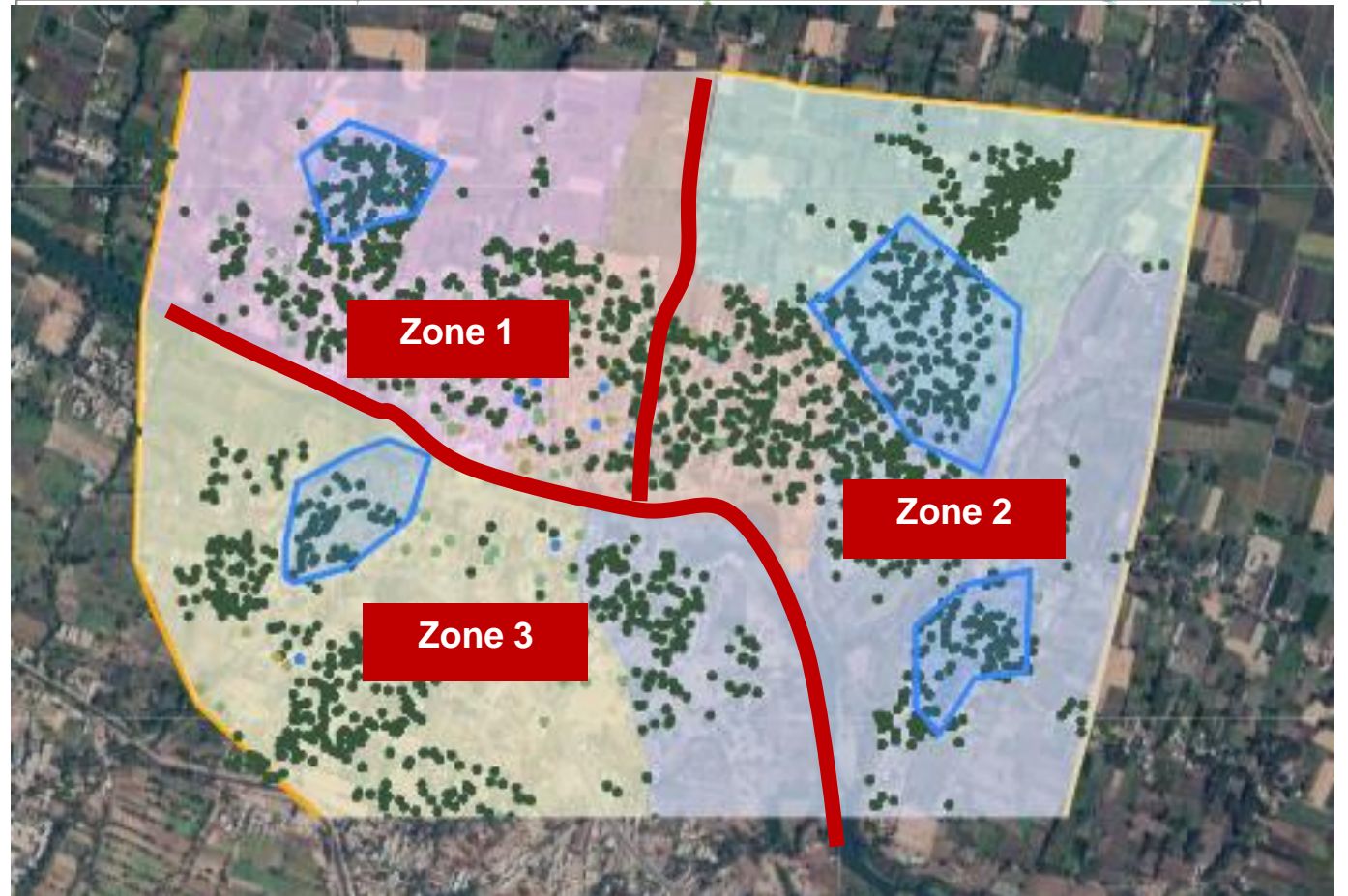
- The city was divided into 3 zones as per the citywide database on toilets and septic tanks.
- Vulnerable areas were mapped

### 2. Emptying Truck: Number and capacity

- Determine number and capacity of vehicles required for desludging operations.

### 3. Route planning

- Deciding the truck movement within the zone



# Wai and Sinnar LG decided to involve private sector for providing inclusive scheduled desludging services . . .

**Preliminary discussions with potential private providers to assess interest, concerns**

## **Ownership of assets**

The private party brings their own trucks for emptying and operate them for 3 years.

## **Performance linked payments**

Payments based on achieving agreed targets of septic tanks emptied

**Clauses to ensure safety standards - use of PPE and vigilance against manual scavenging**

Fines on non-achievement of targets

## **Escrow mechanism – reducing late payment risk**

An Escrow account is held by a third party bank.

ULB needs to maintain a fixed balance in it = 3 months of payment

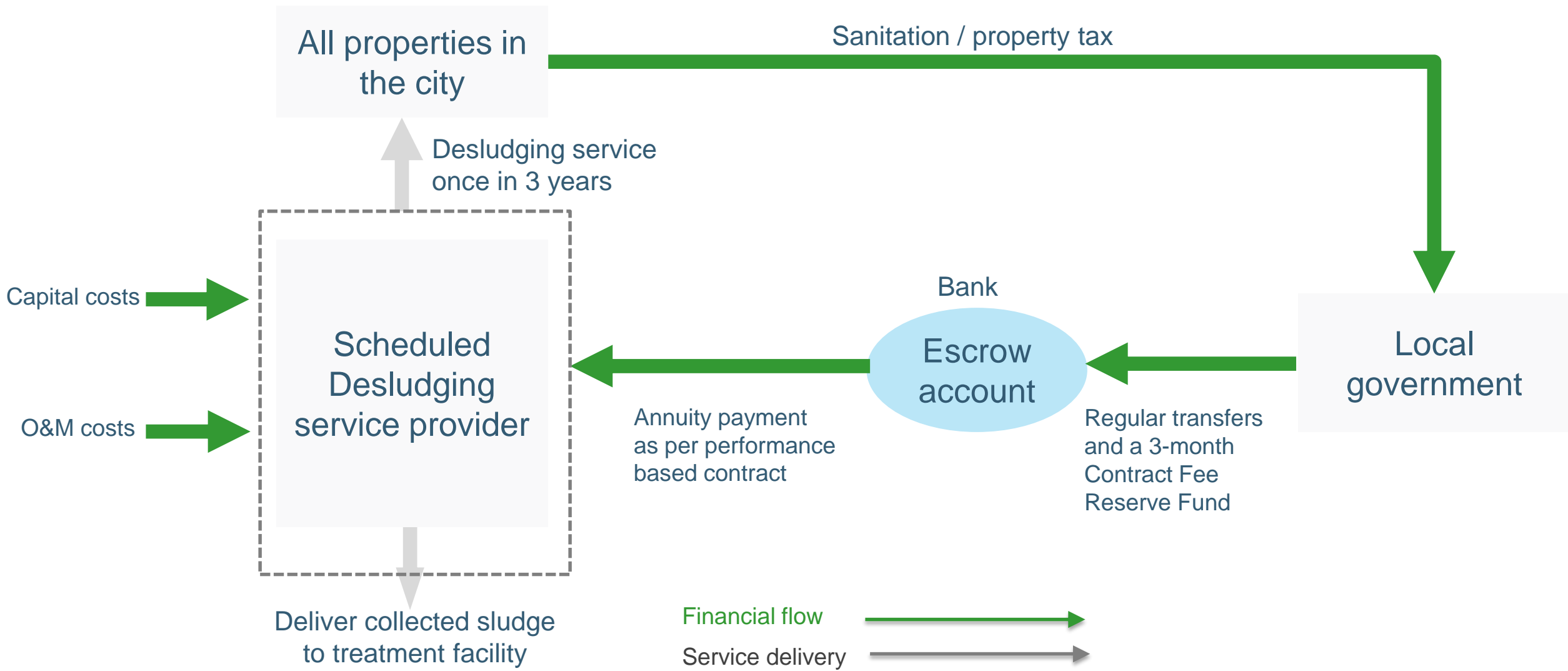
**Transparent bidding process through government approved process and websites**

**Awareness activities to be done by private service provider**

**Emergency emptying also included in contract**

**All HHs/Properties with septic tanks whether in slum/non-slum area are covered under this contract . . .**

# Performance Linked Annuity Model (PLAM) for Citywide inclusive scheduled desludging service



# Cities levied differential sanitation tax on all properties for financing FSSM services . . .

## Differential taxation rates

Residential Properties **with /  
without toilets**—  
\$ 4 / annum

Non Residential Properties **with  
toilets** —  
\$ 4 / toilet seat

**Non-residential** properties  
**without toilets**—  
\$ 1.5 / annum

## Executive order for taxation

सिन्नर नगरपरिषद, सिन्नर मे. विशेष सभा  
ठराव क्रमांक ६१ दिनांक २४/०३/२०१७

विषय क्रमांक ५) सिन्नर नगरपरिषद तर्फे आकारण्यात येणारा स्वच्छता कर, घनकचरा व्यवस्थापन कर व मैला व्यवस्थापन कर यांची पुर्न:रचना करणेबाबत चर्चा करून निर्णय घेणे.

प्रस्तावाचा मजकुर - कार्यालयीन टिपणीचे समागृहात चर्चा होयुन सिन्नर नगरपरिषदे तर्फे सद्या आकारण्यात येणारे विशेष स्वच्छता कर, विशेष घनकचरा कर व मैला व्यवस्थापन कर यांची पुर्न:रचना करून यापुढे सन २०१७-१८ या आर्थिक वर्षापासुन खालील प्रमाणे मैला व्यवस्थापन कर व घनकचरा कर म्हणुन आकारण्यात यावेत व त्याप्रमाणे बिल तयार करून मालमत्ता धारकांना देण्यात यावेत.

वार्षिक कराचे दर (रुपये)

अ.क्र.	कराचे नांव	निवासी मालमत्ता		बिगर निवासी मालमत्ता	
		शौचालय असलेले	शौचालय नसलेले	शौचालय असलेले	शौचालय नसलेले
१.	मैला व्यवस्थापन कर	३००/- (प्रति सिट)	३००/-	३००/- (प्रति सिट)	१००/-

वार्षिक कराचे दर (रुपये)

अ.क्र.	कराचे नांव	निवासी	बिगर निवासी
१	घनकचरा व्यवस्थापन कर	१००/-	३००/-

वरीलप्रमाणे कर आकारणी करणेस सदरची सभा सर्वानुमते मान्यता देत आहेत. त्याप्रमाणे प्रशासकीय कार्यवाही करण्यात यावी.

सुचक :- श्री. लोखंडे गो.वि.  
अनुमोदन :- श्री. चोथवे प्र.झुं.  
ठराव सर्वानुमते मंजूर



  
अध्यक्ष,  
सिन्नर नगरपरिषद, सिन्नर

Now moving towards levying **Sanitation tax as a percentage of  
property tax to make it more equitable. . .**

## FSTPs with solar panels have been setup in both cities and treated WW reused for urban forest and landscaping . . .



Sinnar, Maharashtra

**Capacity:** 70 KLD  
**Land:** 1547 sq.mt

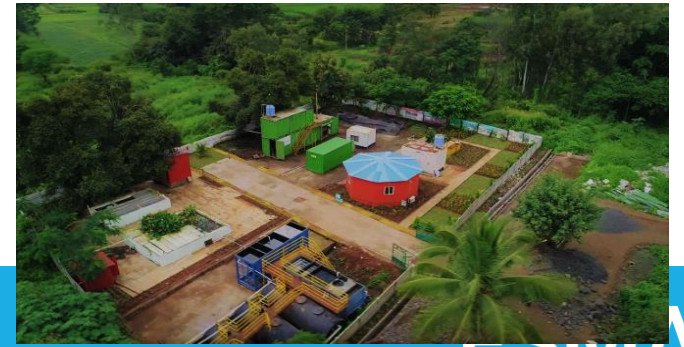
**Funded :** LG funds  
**Commissioned:** 2019



Wai, Maharashtra

**Capacity:** 70 KLD  
**Land:** 1200 sq mt

**Funded :** BMGF  
**Commissioned -** 2018



## Awareness generation a key feature for success of high uptake of FSSM services . . .

Paintings / banners in the city by LGs



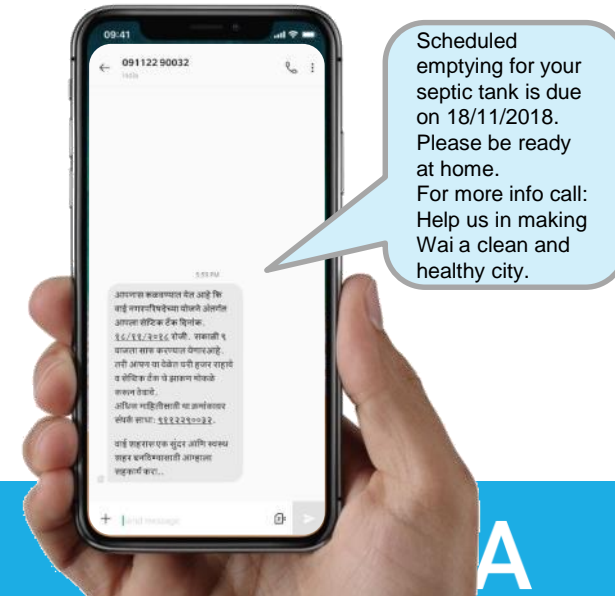
Household visits by desludger with info. leaflets



Cities circulated small videos



Intimation through SMS



Scheduled emptying for your septic tank is due on 18/11/2018. Please be ready at home. For more info call: Help us in making Wai a clean and healthy city.

## IT enabled monitoring systems for FSSM, especially to monitor safe and inclusive service delivery . . .

“Real time” monitoring  
No need to process data for results



Easy to Operate,  
Reduce paper work,  
Minimize human error



Monitors performance  
of FSSM services



Photo stamping,  
Geo stamping,  
Signatures



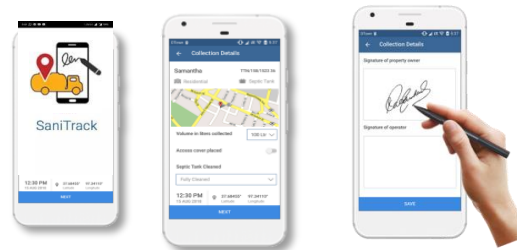
Unique database



### SaniTab



### SaniTrack



### SanQ



Logged in User: CEPT Logout

#### CONSOLIDATED PROGRESS REPORT

<b>3835</b> Septic Tanks Remaining To Be Desludged	<b>2165</b> Desludged	<b>1974</b> Scheduled	<b>191</b> Emergency
<b>2318</b> Service Visits	<b>184</b> Properties Refused	<b>4487</b> Properties Covered	<b>6552 KL</b> Volume Desludged

#### SPATIAL VIEW Cumulative

**Property Details**

- Nature of Service
- Type of properties visited
- Vulnerable areas covered

**Desludging Details**

- Last time ST was emptied
- Opened covers for service
- Problems faced during emptying
- Household plan to reveal ST

**Performance Metric**

- PPE usage
- Two-inch septage left

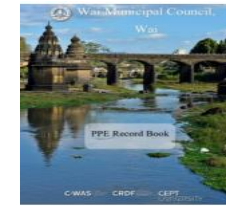
#### Charts: Nature of Service



Through these systems, we are able to map whether the vulnerable areas have been serviced and whether the FS is safely discharged and treated at FSTP . . .

## Sanitation workers safety ensured under these services . . .

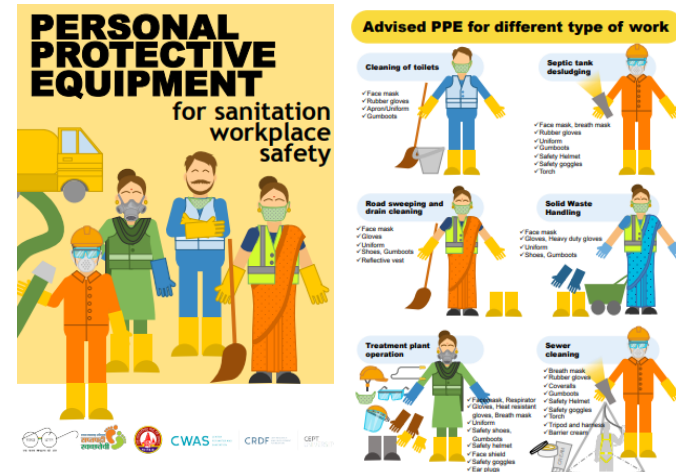
- Registers for PPE usage and replacement
- SaniTab / SaniTrack dashboard monitors the PPE usage of desludgers on daily basis.
- PPE flyer has been prepared for various sanitation activities and shared with stakeholders
- Training workshop along with a health camp was organized for all Sanitation workers. Also PPEs were distributed during this event.
- Council has introduced clauses related to provision, usage and monitoring of PPEs in all their upcoming contracts for Sanitation based on experience of this scheduled desludging contract



Name of the worker: \_\_\_\_\_

Helmet	Safety goggles	Nose Mask	Hand Gloves	Jacket	Safety Shoes	Gum-boots	Remark	Sign
Date	Date	Date	Date	Date	Date	Date	PPE set given	Sign
			Date				Hand gloves are torn.	Sign

Sample of formats prepared for capturing replacement and distribution of PPE in the PPE record book.





- Building capacities of Elected Women Representatives (EWRs) for effective functioning and participation in local governance focusing on FSSM.
- Celebrating Women Sanitation champions in cities and acknowledging their participation
- Sensitizing women at household level regarding the process of desludging



Center for Water and Sanitation Retweeted

NFSSM Alliance

**National Faecal Sludge and Septage Alliance @NFSSM...** · Nov 3, 2020 · ···

#AtTheFrontline #StoriesOfResilience

Snehal Bhosle from Wai, Maharashtra has made society re-think gender roles through her empowering story. This young girl, a Site-In-Charge at a Faecal Sludge Treatment Plant (FSTP) in Wai... (1/3)

Snehal, currently pursuing her Bachelor's degree in Engineering and due to her background, she was awarded the role of **SITE-IN-CHARGE** for an FSTP.

Center for Water and Sanitation and 8 others

CWAS

**Center for Water and Sanitation @pas\_project** · Mar 8

On this Women's day, celebrating our Sanitation Champions from Wai, Maharashtra #WomeninSanitation #WomensDay2020 #IWD2020 #EachforEqual @wai\_council @swachhbharat @SwachhMaha @NFSSMalliance @BMGFIndia @TNUSSP @mehta\_pani @DineshMehta100

**SANITATION CHAMPIONS OF WAI**

**Smt. Vidya Pot**  
Chief Officer  
Wai Municipal Council

**Dr. Pratibha Shide**  
President (Mugher)  
Wai Municipal Council

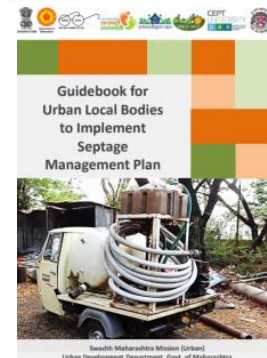
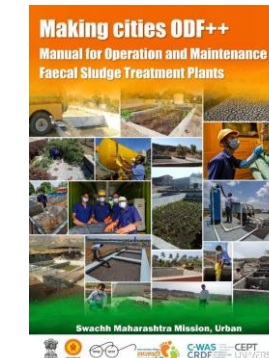
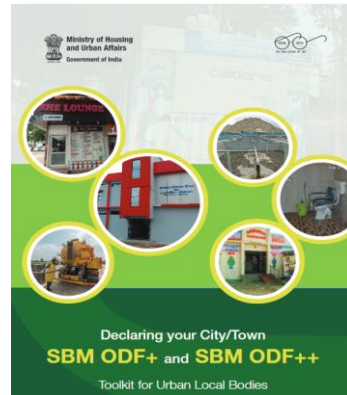
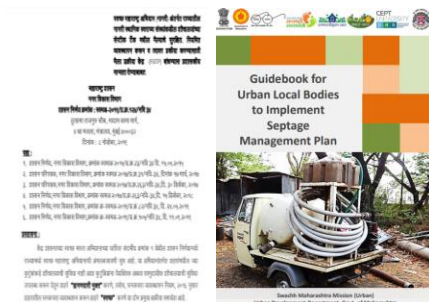
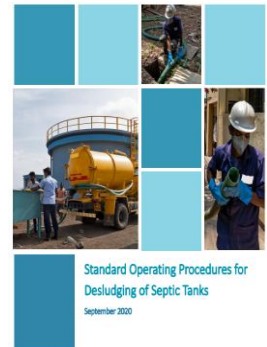
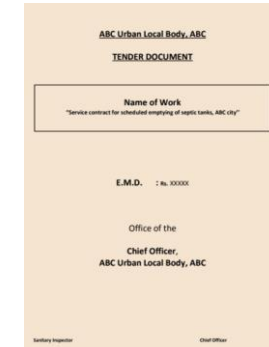
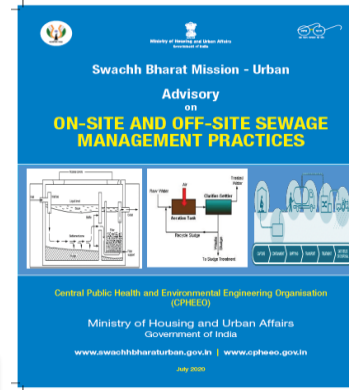
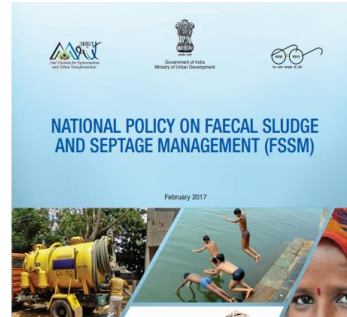
**Mrs. Rupali Vanarse**  
Chairperson, Sanitation Committee  
Wai Municipal Council

## What has been achieved after implementing citywide inclusive FSSM services in Wai and Sinnar....

- 4200+ septic tanks desludged by scheduled desludging services in both these cities covering 7400+ properties
- Vulnerable properties are being serviced through scheduled desludging services
- 28+ million litre septage delivered to both the treatment facilities
- 90-95% acceptance rate from HHs for scheduled service
- Sanitation workers now wear safety gear regularly
- Women being empowered for providing FSSM services
- Households pay sanitation tax instead of high user charges for desludging
- Both cities have been declared ODF++ by MoHUA, Govt. of India



## Scaling up of these interventions . . .



Scaling up across Maharashtra through policies and guidelines

Influenced National Policies and guidelines

Tools for training LGs across India

Model Tenders and SoPs for FSSM used by LGs

BILL & MELINDA  
GATES foundation

HSBC 



Government of  
Maharashtra



Department  
for International  
Development

CWAS  
CENTER  
FOR WATER  
AND SANITATION

CRDF  
CEPT RESEARCH  
AND DEVELOPMENT  
FOUNDATION

CEPT  
UNIVERSITY

  
NFSSM  
Alliance

## Summary of Benefits of Inclusive Scheduled Desludging service



**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 and ensures worker safety



**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** - Likely reduction in BOD in septic tank effluent, as well as lower likelihood of septic tank overflows

# Thank you

[cwas@cept.ac.in](mailto:cwas@cept.ac.in)  
[pas.org.in](http://pas.org.in), [cwas.org.in](http://cwas.org.in)

## About us

The Center for Water and Sanitation (CWAS) 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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[pas.org.in](http://pas.org.in)



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