

Wai

CityWide Inclusive Sanitation



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Wai CityWide Inclusive Sanitation

October 2019

Wai Municipal Council

Center for Water and Sanitation
CRDF, CEPT University, Ahmedabad



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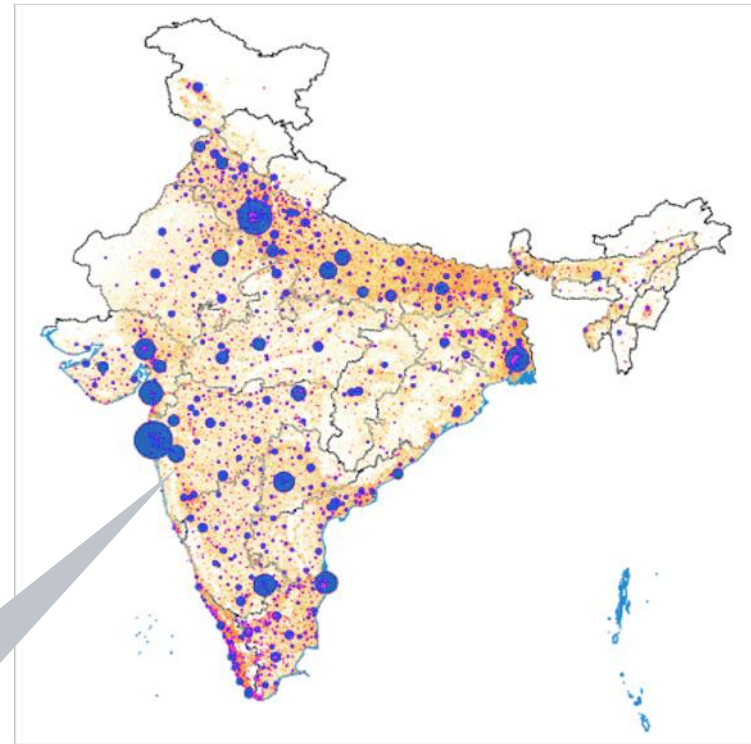
Wai - A city just like many others in India

Wai is representative of more than 7,400 small and medium towns of India, including 3600 Urban Local Governments and 3800 Census Towns. Approximately 40% of India urban population – 150 million people – live in these towns.

Like all other small and medium towns in India, the city of Wai has faced the same sanitation issues – open defecation, untreated disposal of faecal waste, financial constraints and growing environmental pollution.

Wai has overcome these problems and has emerged as a model for other cities in sanitation planning.

This city has shown that it is possible for a small town to deliver high quality, affordable, equitable and inclusive sanitation services to its citizens.

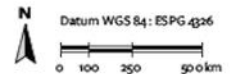


LEGEND



Bubble size is proportional to population

Source: Census of India, 2001; IIHS Analysis, 2015



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वाई नगरपरिषद, वाई
(आयुक्त विभाग)
जाहीर भुचना
महापालिकेबाबत माहिती देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे. जाहीर भुचना देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे. जाहीर भुचना देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे.

वाई नगरपरिषद, वाई
या जाहीर भुचनाबाबत माहिती देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे. जाहीर भुचना देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे.

वैद्यकीय सेवांचे जाहीर भुचना
या जाहीर भुचनाबाबत माहिती देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे. जाहीर भुचना देण्यासाठी येथे जाहीर भुचना देण्यात आले आहे.

वाई नगरपरिषद वाई

वाई नगरपरिषद वाई





Wai Municipal Council – CEPT partnership

In 2012, CEPT, through a BMGF grant, was working on making a case for non-networked sustainable sanitation for small and medium towns. The city of Wai was chosen as one of four cities, where City Sanitation Plans would be prepared. This was done in consultation with Water Supply and Sanitation Department (WSSD) of the State Government of Maharashtra and Maharashtra Jeevan Pradhikaran (MJP).

In 2013, after a consultative process, the CSP was prepared and the city government came forward to ask CEPT for implementation support. Based on the city's priorities, two main proposals were selected and the city set about making itself Open Defecation Free with safety managed faecal sludge.

The ODF campaign received a push with the launch of Swachh Bharat Mission, for which CEPT provided implementation and monitoring support to the local government. It was declared ODF in 2016 and has since then sustained this status according to regular revalidations.

With the implementation of the Integrated Faecal Sludge Management plan, the city became the first in India to implement scheduled desludging of septic tanks and one of the very few to have a Faecal Sludge Treatment Plant. The city was now been declared ODF++. Lessons in sanitation planning from this small city were disseminated across all urban centres across the state of Maharashtra, under the Swachh Maharashtra Mission for Urban Areas.

In 2018, Wai was chosen as one of eight cities across the globe for the CityWide Inclusive Sanitation Programme funded by the BMGF. With this, the city continues its journey in proving itself to be a model city in the sanitation sector.



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Swachh Maharashtra Mission

aligned with the

Swachh Bharat Mission












Government of India in 2014 has launched Swachh Bharat Mission (SBM) to make India “open defecation free” (ODF) by 2019. Under SBM, emphasis has been put towards toilet construction. These toilets will be connected either to sewer networks or onsite sanitation systems. So while toilets are an essential part of overcoming the sanitation challenge, they are the means not the end. They will only deliver the results we want if coupled with measures to reduce the amount of untreated waste. Government of Maharashtra aims to move towards improved sanitation by encouraging access to own toilets with safe management of faecal waste, for which they have developed a concept of ODF, ODF+ and ODF++ cities for the first time. Later on this concept was adopted by the Government of India for the whole country. The state has also introduced an incentive scheme wherein the cities that are declared ODF are provided incentive grant based on the size of city. The cities can use this fund for attaining ODF+/++ status.

Mission Objectives

- ✓ Elimination of open defecation
- ✓ Eradication of Manual Scavenging
- ✓ Modern and Scientific Municipal Solid Waste Management
- ✓ Behavioral change regarding healthy sanitation practices
- ✓ Awareness about sanitation and its linkage with public health
- ✓ ULB capacity for enabling private sector participation

Key reforms

-  Framework for ODF, ODF+/++ cities with three tiered validation mechanism
-  Incentive funds for performance. Convergence of funds with 14th FC grants
-  Demand driven, beneficiary led toilet construction. Emphasis on good quality.
-  Sustainability Charter and 'Mission OD Watch' to restrict slippage back to OD
-  Unique, decentralized institutional setup for implementation and robust monitoring
-  Moving beyond toilets with safe and sustainable management of septage and wastewater
-  Guidelines for ODF, Sustainability and FSSM Planning. Capacity building workshops for cities
-  FSSM strategy for achieving complete treatment across all cities. Adopting co-treatment as a solution
-  Vetting of technologies for FSTPs. Funds for DPR preparation

Ceremony for declaration of Urban Maharashtra
as ODF in presence of Hon. President of India
2nd Oct 2017



Citywide Inclusive Sanitation

Initiative by the Bill and Melinda Gates Foundation

A state of urban sanitation, where all members of the city have access to adequate and affordable sanitation services through appropriate centralized and decentralized systems, without any contamination to the environment along the sanitation value chain.

EQUITABLE SAFE SANITATION

Everyone in an urban area, including the urban poor, benefits from equitable safe sanitation services

GENDER AND SOCIAL EQUITY are designed into planning, management, and monitoring

SAFE MANAGEMENT

Human waste is safely managed along the sanitation service chain, starting with containment

MUNICIPAL ACCOUNTABILITY

Authorities operate with a clear, inclusive mandate, performance targets, resources, and accountability

POLITICAL WILL AND ACCOUNTABILITY

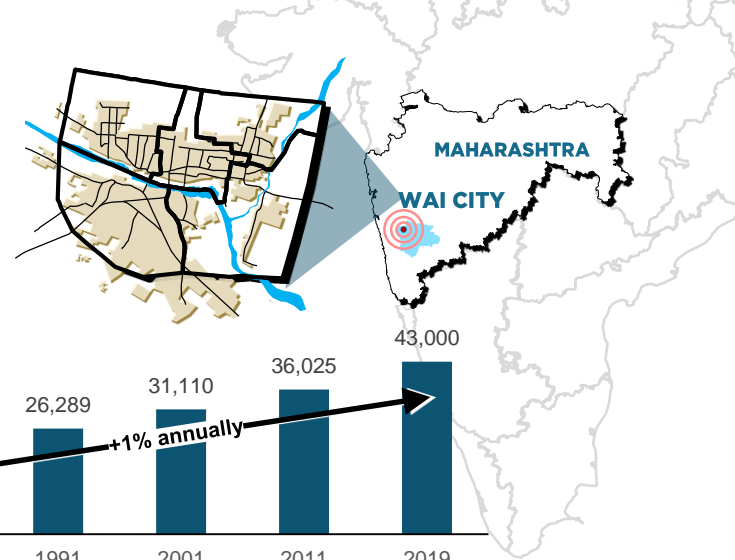
systems incentivize service improvements in planning, capacity, and leadership

COMPREHENSIVE LONG-TERM PLANNING fosters demand for innovation and is informed by analysis of needs and resources

RANGE OF OPTIONS

Authorities deploy a range of funding, business, and hardware approaches—sewered / non-sewered—to meet goals

Wai - A small town in the Satara district of Maharashtra . . .



95km south of Pune;
35km from Satara



River Krishna



43,000 population
4% slum population



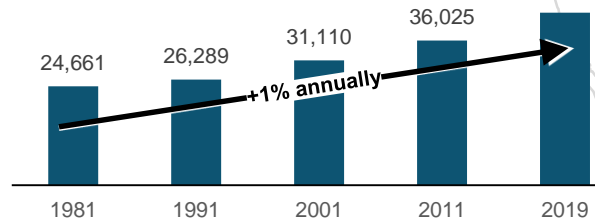
8,991 households



3.54 sqkm



81% literacy



- Pilgrimage town – “Dakshin Kashi”
- 250 temples and famous ghats
- Bollywood movie shooting location



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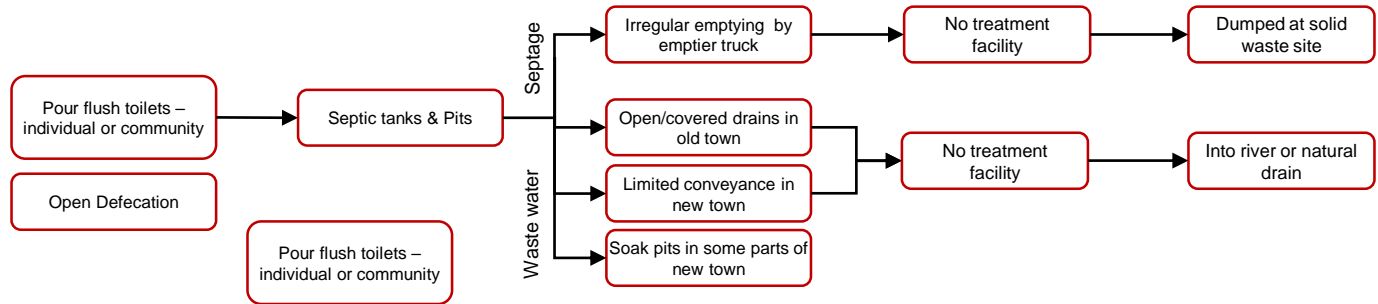
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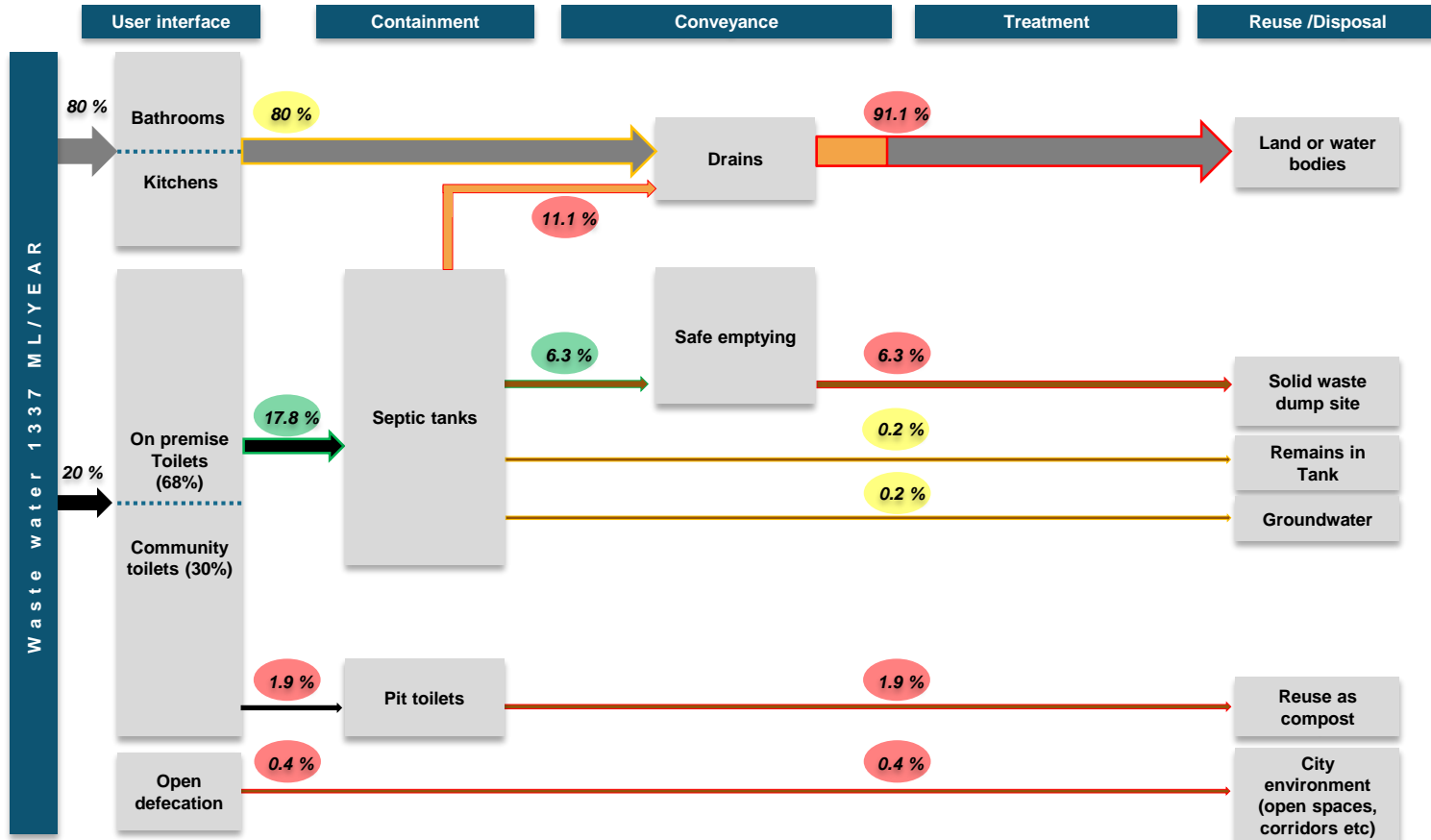
Sanitation situation in 2012



- 2% open defecation
- High dependency on community toilets
- Community toilets non- functional
- Majority of toilets are connected to septic tank
- Septic tanks 2-3 chambered
- Septic tanks were oversized and only few had access covers
- Only 2-4 % of septic tanks cleaned annually
- ULB provided emptying services on demand basis
- Levy user charges from 400 – 1000 / trip for emptying
- No facility for treatment of fecal sludge or drain wastewater
- Septage disposed off on dumping site without treatment
- Drain water going into river



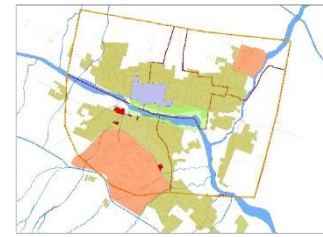
Initial wastewater flow assessment



Source: City Sanitation Plan of Wai , PAS Project – CEPT University

Grey water
 Black water
 Effluent
 Septage

City sanitation plan for Wai

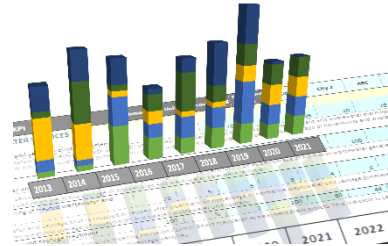
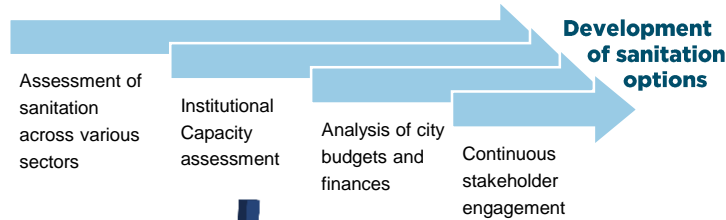


In 2012, the Government of Maharashtra via the Water Supply and Sanitation Department (WSSD) and the Maharashtra Jeevan Pradhikaran (MJP) chose the city of Wai along with 3 other cities for developing City Sanitation Plans (CSPs) with support from CEPT University and AILSG.

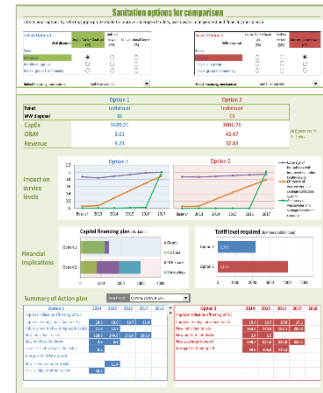
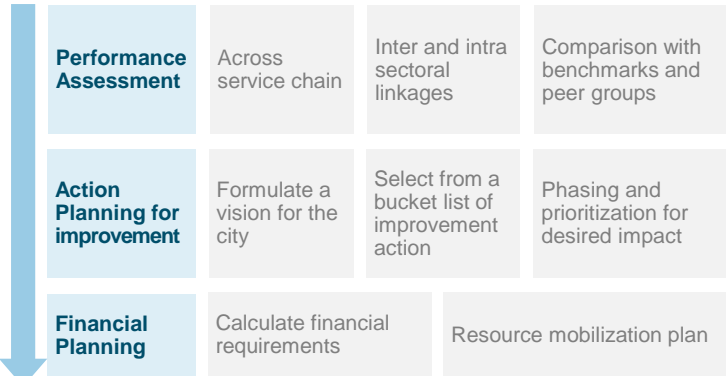
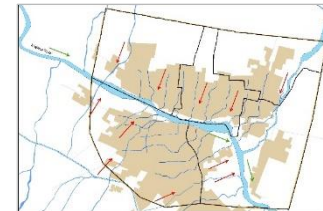
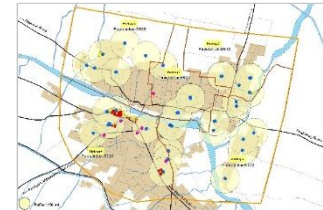
The aim was to prepare a City Sanitation Plan which focused on universal access to sanitation through outcome based options rather than technology based options. Further, the proposals had to be financially feasible for the ULBs of the two cities.

Development of the plan was accompanied by 18 months of stakeholder engagement with the WSSD, MJP and the local city government.

After a thorough assessment process and development of multiple sanitation options, the city government focused on 2 main solutions based on its priorities. As further support, CEPT remained a partner to the WMC for implementation of the project.



SaniPlan - Tool for analysis and development of options



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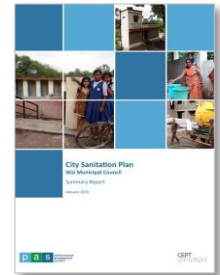
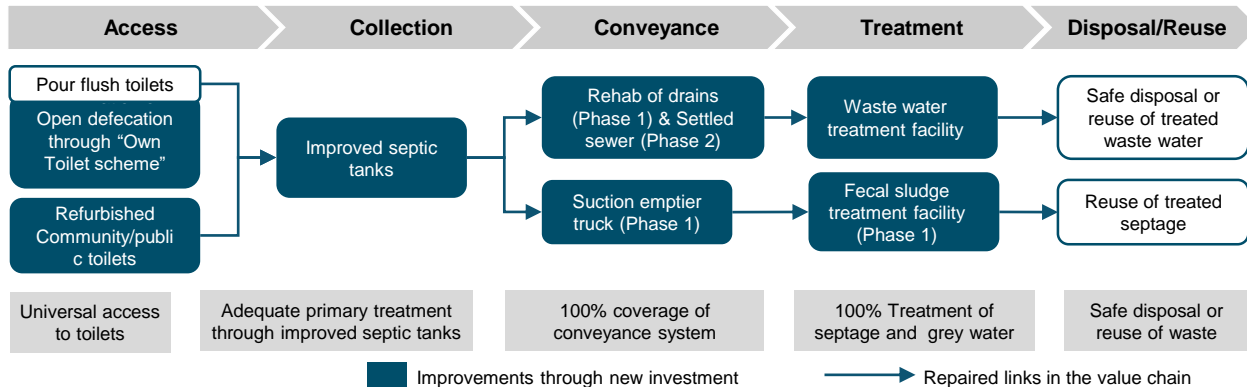
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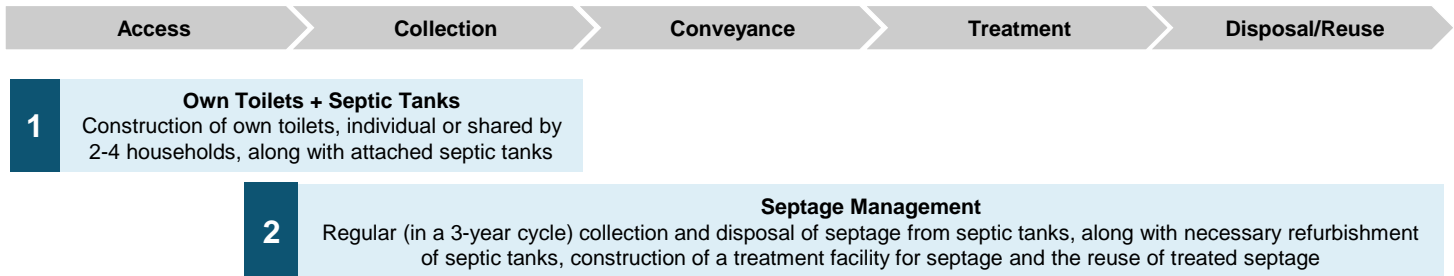
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Proposals and solutions



However, based on local priorities, in 2013 WMC decided to focus on two high potential solutions in the near term



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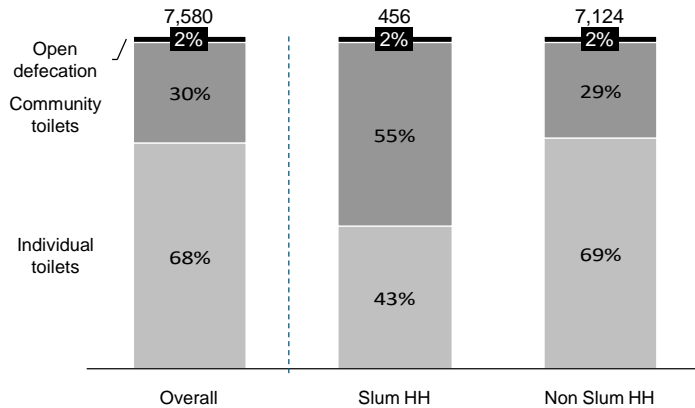




1

Making Wai Open Defecation Free

Initially only 68% of households in Wai had access to individual toilets

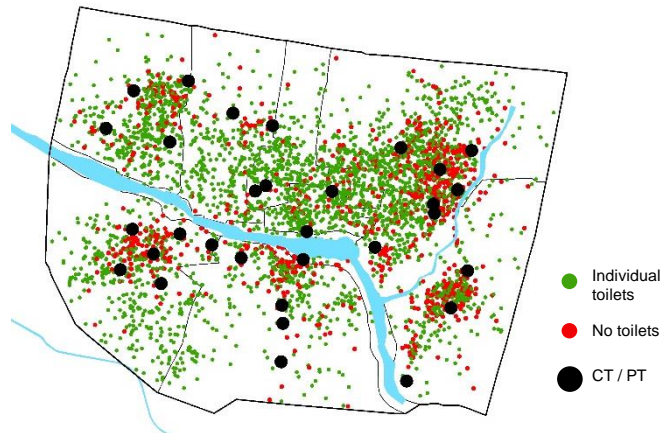


Open defecation



- Lack of availability of finance, space constraints and legal clearances are cited as the main barriers to adoption of individual toilets
- As a result, even non-slum households rely on community toilets

High Dependency on community toilets which were poorly maintained



- Have 4-5 seats, built side by side with no electricity supply in older blocks
- Lack water supply within the toilet. Water is supplied outside the toilet
- However newly constructed toilet blocks were adequately equipped

WMC launched "Own toilet scheme" Later aligned with Swachh Bharat Mission

A resolution was passed by the city council which pledged to make available a subsidy of Rs 5000 for households without toilets. Wai was the first city to pass such a resolution.

Funds for this subsidy were to be sourced from ULB's 14th FC grants.

This received further support when the Swachh Bharat Mission was launched and households received further subsidies from the center and state governments.



Swachh Bharat Mission

Subsidy : INR 4,000

+

Swachh Maharashtra Abhiyan

Subsidy : INR 8,000

+

Urban Local Body

Subsidy : INR 10,000

=

Total Subsidy for toilet

INR 22,000



Processing applications for toilet subsidy



SMS to targeted individuals inviting applications for subsidy. Forms distributed through various channels

Application submission

Online processing of applications and offline database

Site inspection

SMS about progress and approval of application, invitation to collect work orders

First instalment of subsidy to beneficiary bank account

Toilet construction

On ground inspection of completed toilet

Second instalment of subsidy to beneficiary bank account



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Ensuring success through strong communications and monitoring

Generating awareness about the subsidy scheme, benefits of individual toilets, and ill effects of open defecation

1. Posters designed to share scheme information, displayed prominently across the city - near temples, in residential areas, at road crossings and in market places.



बाईंच्या नागरिकांना स्वतःचे शौचालय मिळावे म्हणून बाईं नगरपालिकेने खास लोकाग्रहास्तव आपली आहे "वैयक्तिक / गट शौचालय योजना"

तुम्हाकडे स्वतःचे शौचालय नाही का ?!
बाईं शहरामधील काही थोडक्यात कुटुंबाकडे स्वतःची शौचालये नाहीत...
काय तुम्ही स्वतःचील एक आहात ?!

पण का ???

घराबाहेर बाधा नाही म्हणून...??? की अधिक परिशुद्धी नाही म्हणून ???

एकदाचण पाहून वेदना कुठे येणू?

स्वच्छ भारत अभियानाच्या माध्यमातून बाईं नगरपालिकेने आपली "वैयक्तिक / गट शौचालय योजना" च्या माध्यमातून निशुद्धतेचा मार्ग दाखविला आहे.

माध्यमेतून, स्वतःचे शौचालय नसल्या-चा सर्वत्र कुटुंबांना वा योजनेचा नाव घेता वेट केला.

स्वच्छ भारत अभियानाच्या माध्यमातून बाईं नगरपालिकेने आपली "वैयक्तिक / गट शौचालय योजना" च्या माध्यमातून निशुद्धतेचा मार्ग दाखविला आहे.

शारदेशील पहिल्या १०० शौचालयांसाठी सहाय्यातर्फे निशुद्धतेचा वेळीस रु. १२,००० चे अनुदान !!
व्यक्तिगत बाईं नगरपालिकेकडे शौचालय नसल्या-चा माग कुटुंबात तेच-चा अनुदानाची रक्कम रु. ५,००० येवढ्यात रु. १०,०००!!

या मादारीत अधिक माहिती मिळविण्यासाठी व जायते विवरण घ्याय-यावे नगरपालिकेचा आयोजना विभागाला व माग्या.

— आरटी व राईट माला



तुम्ही जेव्हा उघड्यावर शौचास जाऊन पर्यावरण दूषित करता...
तेव्हा तुम्ही स्वतःचाच जीव धोक्यात टाकता !!!

हगणदारी थांबवा....
शौचालयाचा वापर करा!

स्वच्छ भारत अभियान आणि स्वच्छ महाराष्ट्र अभियान: **रु. १२,०००**
+
नगरपरिषद: **रु. ५००० ते १०,०००**
अनुदान

अनुदान मिळाल्यानंतरही शौचालय बांधायला परेसे पैसे नाहीत?

शौचालय बांधण्यासाठी पुरेशी जागा नाही?

शौचालय कर्ज

गट शौचालय

आजच नगरपालिकेत याबाबत चौकशी करा व अर्ज भरा !!



2. Day and night announcements and jingles on rickshaw hired to go around the city

खुशखबर ! खुशखबर ! खुशखबर !!!

स्वतःचे शौचालय नसलेल्या कुटुंबांना वाई नगरपालिकेची विशेष भेट...



स्वच्छ मातृ व बचिवांनाच्या माध्यमातून वाई नगरपालिकेने आपली

“वैयक्तिक / गट शौचालय योजना”

नव्या रूपात राबविण्याचे ठरविले आहे



वाई मधील पहिल्या १०० शौचालयांसाठी शासनातर्फे मिळणार आहे

रु.१२,००० चे अनुदान !!

याशिवाय वाई नगरपालिकेतर्फे

शौचालय नसणाऱ्या पाच कुटुंबांस देण्यात येणाऱ्या अनुदानाची रक्कम

रु. ५,००० नवून तब्बल रु. १,००,००० !!

काय म्हणायलाय ?

तुमच्याकडे वैयक्तिक शौचालय बांधण्यासाठी पुरेशी ज्ञाना श्रमवा निधी नाही ??
तर मग अधिक फिटवयतशीर “गट शौचालया” चा पर्याय निवडा

- गट शौचालय -

या कुटुंबांना वैयक्तिक शौचालय बांधणे शक्य नाही, अशी एकच परिस्थिती दिसते. एकमेकांना बांधणे सोडताचारी २ ते ५ कुटुंबे, जवळपास उपजलच अडलेल्या जवळच्या भागातही बांधणे गट शौचालय बांधू शकतात. यातुळे शौचालय बांधण्यासाठी प्रत्येक कुटुंबाला लागणाऱ्या निधीपेठेही कमी होईल. गट शौचालये ही वैयक्तिक कुटुंबांच्या बाबतीची उपचारीत आणि आंशिक उभार राबविण्याकरिता निविडित केला आहे. गट शौचालयाची देखभाल आणि पुरवणी गरजित कुटुंबांमधून घेता येईल.

शौचालय बांधण्यासाठी कर्ज घेण्याचे पर्याय

तुमच्याकडे ‘स्वतःचे शौचालय’ आहे का?



नाही!!!

का?

पैसे नाहीत ???



जर तुमच्याकडे पैसे नसतील तर तुमचे स्वतःचे शौचालय बांधण्यासाठी तुम्ही कर्ज घेण्याचा विचार केला आहे का?

आपण पर, आरोग्य, शिक्षण, वाहतूके द्यादीसाठी कर्जे घेता...पण शौचालयासाठी का नाही??

नसून मारुन शौचालय
अति उच्चमूल्यीय
प्रक्रियेत घेतात.
रु. १०,०००

तुम्हा कर्ज
रु. २५,०००



वाढत्या मूल्ये
कमी देणे
रु. २२,०००

शौचालयासाठी कर्ज का घेऊ नये?

आपल्याला कर्ज घेण्यातून मिळू शकते? काही पर्यायासाठी मागील जाणू पाहा:

शौचालय बांधण्यासाठी कर्ज घेतलेल्या व्यक्ती

नी. कुर्णा मोडणे वा मिळणारा पहिल्या
अनुदान रकमेत मिळणार्या अनुदान आठ.
आपण आपल्याच कसण्यासाठी एखाद
मासक्यांमधूनच इन्फ्रस्ट्रक्चरकडे गेल्या
केलेल्या एखाद बचत बंदीच्या रकमे २००८
तमून मारून आहेत. शौचालय बांधण्यासाठी
रकमी बचत घटवून कर्ज घेतून, आता
रकमी तमून काढणे पर्याय कमी आहे.

महाशुभ शासनानुसार रकमी शी-वेक्टर
२०१५ मध्ये ‘स्वच्छता युवा’ नमुन घेतलेले
संगे!

यांचे अहमशील ५ बचत खात्यांमधील महिल्यांना
खाती स्वतःची शौचालये बांधण्यासाठी वाई
अनेक को-ऑपरेटिव्ह बँकांकून कर्जे मिळाली
अहेत. प्रत्येक महिलेला रु. २०,००० एवढे कर्जे
मिळाल.

बर्जे २९९९ आरु बचत घेण्याची अडवा ती एक
बचत पंतन केलाकी आहेत. बचत खातींना
मिळाले एवढेकडाराती सुविधा आहेत. उभार
सामग्याती वाढा राखण्याची अडकरवता नाही.

खाश्या शौचालयांचे आंधकारा पाणू आहे.

3. Handouts and subsidy application forms given to targeted households



4. Local radio and TV spots for animated movies and jingles

5. Movies, talks and presentations during festival gatherings like Ganapati Utsav



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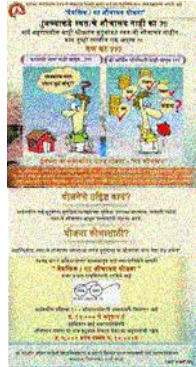
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6. Newspaper coverage



वाईत 'गुड मॉर्निंग' पथकाकडून चौघांना दंड

वाईत 'गुड मॉर्निंग' पथकाकडून चौघांना दंड ठरवण्यात आला आहे. पथकाच्या सदस्यांनी चौघांना उघडपणे शौच करताना काढले होते. पथकाच्या सदस्यांनी चौघांना उघडपणे शौच करताना काढले होते. पथकाच्या सदस्यांनी चौघांना उघडपणे शौच करताना काढले होते.

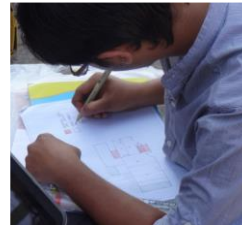


7. Community and ward level meetings with elected representatives leading the meetings to encourage households to opt for own toilets

8. Household level group discussions and surveys

9. Providing architectural design solutions for identified households with space constraints

10. Encouraging group toilets where 2-3 neighbors construct a common toilet for themselves



11. School activities – drawing competition, form distribution, presentation to parents and teachers



12. Good Morning Pathak – monitoring squads for common OD spots in the city during morning and evening hours.

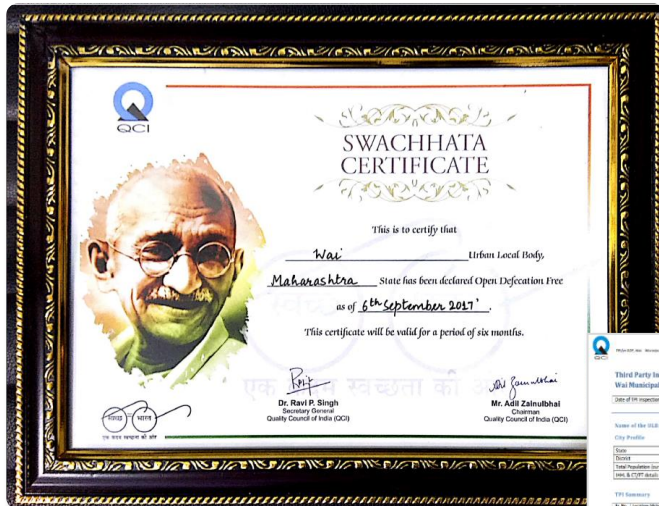
Those "caught" were not punished made to understand the importance of using a toilet over open defecation and given toilet subsidy forms



Wai was declared ODF in 2016

Wai was 1st declared ODF by the State Govt. followed by ODF declaration at National level by QCI in August 2016 & Revalidated ODF in September 2017 and April 2018

₹ The city received a sum of Rs 1 crore as incentive funds after becoming ODF which was to be used towards becoming ODF+



Next step: Ensuring sustainability of the ODF status according to Govt of Maharashtra's charter



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 is not possible.
- #3. Ensuring ODF sustainability through effective participation of government, elected representatives, schools, donors, NGOs, SHGs, CBOs and the communities.
- #4. Continuing and institutionalizing rigorous ODF validation and monitoring process through "OD Watch" and "ODF Sustainability Tracker".
- #5. Encouraging development of OD spots into usable public spaces.
- #6. Recognizing and awarding ULBs for their sustained performance.
- #7. Moving towards ODF+/++ by ensuring effective collection and adequate treatment of human faecal waste.

Shri. Devendra Fadnis
Chief Minister, Maharashtra



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ODF sustainability

Moving towards universal coverage by mobilizing more applications for individual toilet subsidy

1. Exploring sanitation credit and the role of self help groups.

After achieving 85% individual toilet coverage, the city decided to move towards universal access to toilets by mobilizing applications and facilitating access to loans for those with financial constraints even after subsidy.



3. Toilet and lender fair to bring together potential applicants, financial lenders, sanitation technology providers and sanitary-ware vendors



Self help groups (SHGs)

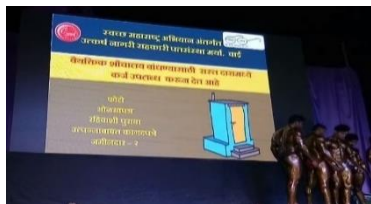
Micro-finance institutions (MFIs)

Credit societies

Commercial banks

Housing finance companies (HFCs)

2. Awareness activities for encouraging sanitation credit for individual toilets. Jingle and video at local event. Pamphlets giving information about sanitation credit.



श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय

सुम्न्यासदे 'स्वच-बे श्रीधरपुर' कोहो बने?

नाही??

पैसे नाहीत ???

सर सुम्न्यासदे वि. नालिन सर सुम्न्यासदे श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय विद्यालय को कोहो बने?

आम वर. आ.म. विद्या. सुम्न्यासदे वि. को. आ श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय

श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय

श्री. सुम्न्यासदे वि. विद्यालय विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने?

श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने?

श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय

आधारमा वरिष्ठ विद्यालय विद्यालय को कोहो बने??...

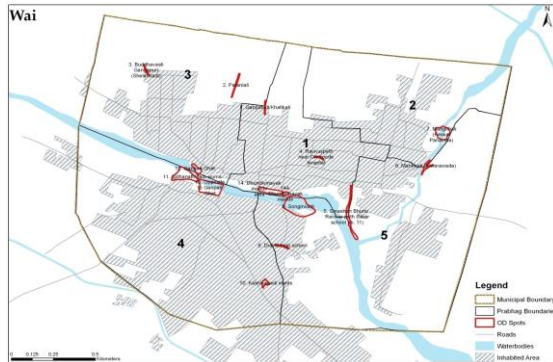
वर्गक्रम (No)	वर्गक्रम (No)	वर्गक्रम (No)	वर्गक्रम (No)
1	2	3	4
...

वर्गक्रम वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने? श्रीधरपुर नगरपालिका वरिष्ठ विद्यालय को कोहो बने?



Cleaning and developing old OD spots into beautiful public spaces to discourage reverting to old habits

Form of development : Level the spot, plant trees, lay paving blocks, illuminate the spot, put benches and protect the area with fence



Assessment and upgradation of Community and Public Toilets

- CT/PT audit across the city
- Refurbishments according to CSP recommendations
- One new PT constructed at strategic location which can serve main temple visitors as well as the nearby slum
- Contract with Nirmal Bharat foundation for toilet maintenance
- Refurbishments according to Swachh Sarvekshan requirements and ODF++ compliance



School sanitation investment requirement

12 Public Schools

Girls- 1247	Boys- 1479
Toilets- 11	Toilets- 12
Urinals- 47	Urinals- 59

Staff - 96

New toilets

Rs 17 Lakhs
(44 Toilets + 38 Urinals)

Refurbishment

Rs 6 Lakhs

Annual O&M

Rs 3.2 Lakhs



14 Private Schools

Girls- 3157	Boys- 3406
Toilets- 36	Toilets- 24
Urinals- 75	Urinals- 82

Staff - 251

INR 55 Lakhs
(103 Toilets + 192 Urinals)

INR 12 Lakhs

INR 7.8 Lakhs





Safe Management of Faecal Sludge

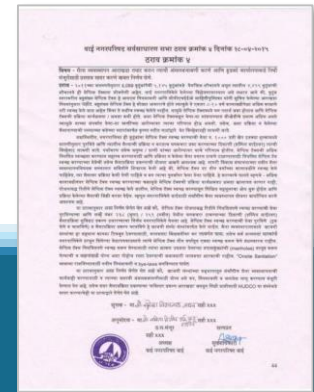


Wai Council signed a resolution to implement an integrated FSSM plan

Wai was the first city in India to have passed such a resolution

The resolution covered aspects like:

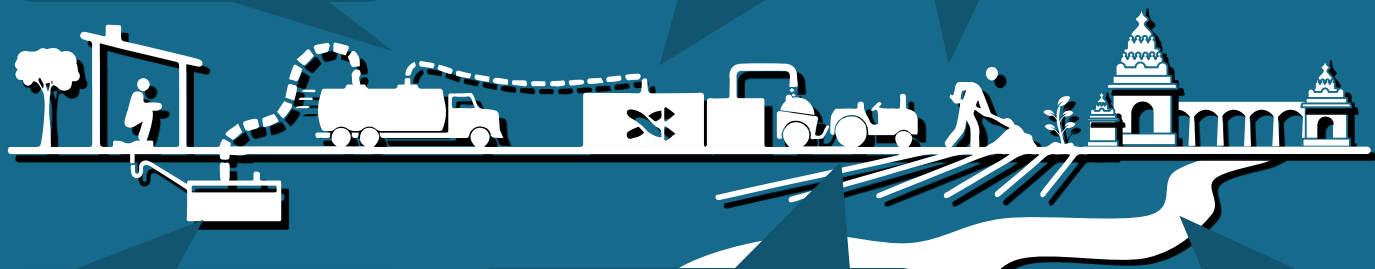
- Citywide FSSM
- Involving Private sector
- Scheduled cleaning
- Land for treatment facility
- Taxes to be levied



All septic tanks in the city emptied regularly. Affordable and inclusive emptying service.

All human faecal waste treated and made safe for disposal. A dedicated treatment facility for Wai.

Reuse of treated water and sludge.



All toilets connected to safe collection and disposal systems. Septic tanks built according to standards.

Safe disposal of treated waste. No pollution of soil or water due to open dumping of untreated septage from emptier trucks.

River is clean. Septic tanks function efficiently, drain effluent is of better quality.

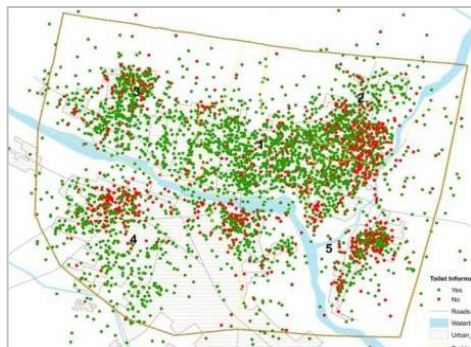
Citywide assessments across the service chain

Property level database of toilets and septic tanks

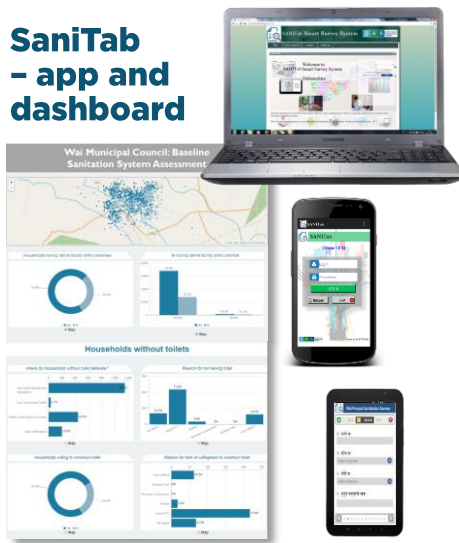


Assessment captures the following aspects

- Toilet availability
- Where is the toilet connected to
- Size and shape of septic tank
- Access covers to septic tanks
- Accessibility of septic tanks
- When was the septic tank last emptied
- Desludging frequency of septic tanks
- Problems encountered while desludging
- Reasons for emptying septic tanks



SaniTab - app and dashboard



A mobile app was developed for this purpose which was then used to do a 100% survey of households across the city. Data from the app plugs into a customized dashboard with charts and maps.

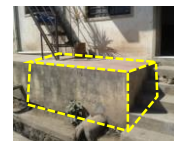
SaniTab allows for customized questionnaires and has since then been used for various surveys in Wai and other cities.



City level assessment using performance indicators

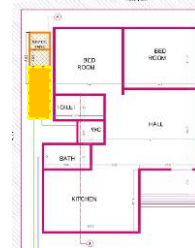


- Coverage of individual toilets in the city and especially in the slums
- Coverage of adequate sanitation system including sewage network and onsite systems
- Collection efficiency of the sanitation system
- Adequacy of treatment capacity
- Quality of treatment
- Extent of reuse and recycling
- Efficiency in redressal of customer complaints
- Extent of cost recovery
- Efficiency in collection of charges



Septic tank study

A detailed technical assessment was undertaken for sample properties in terms of design, construction, influent and effluent wastewater quality. The study also gave various design recommendations for well-functioning septic tank.

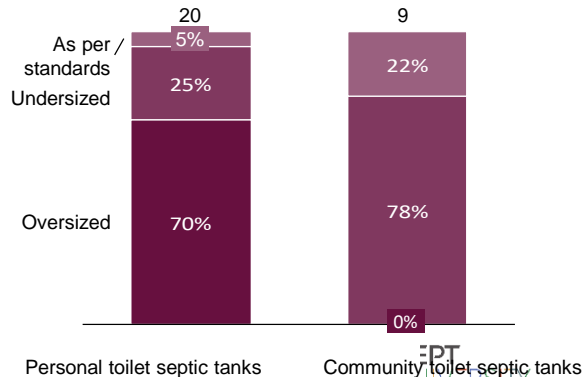
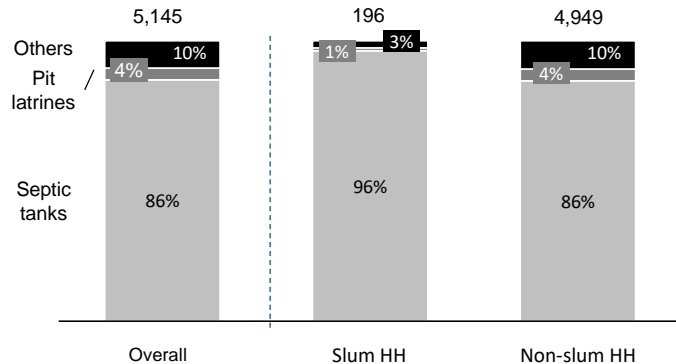


Safe containment

2

Major dependency on septic tanks

- Most personal toilets connected to septic tanks
- Septic tanks usually 2-3 chambered with properly constructed bases
- Access issues for some septic tanks
- Oversized tanks according to standards prescribed in IS codes and CPHEEO1 manual



Most personal toilets connected to septic tanks



Inaccessible septic tanks with sealed tops and no access covers

In old community toilets, septic tanks are behind the block making them difficult to access



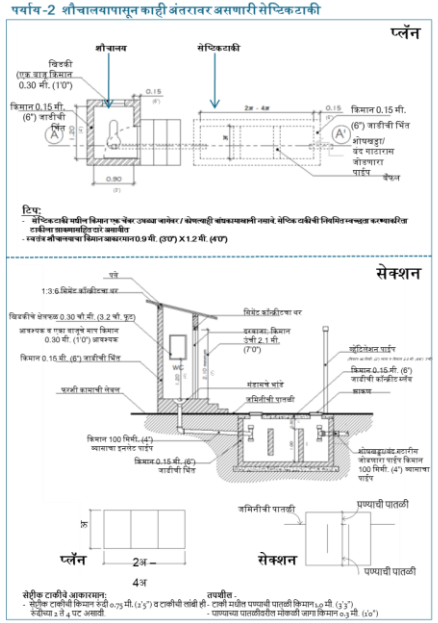
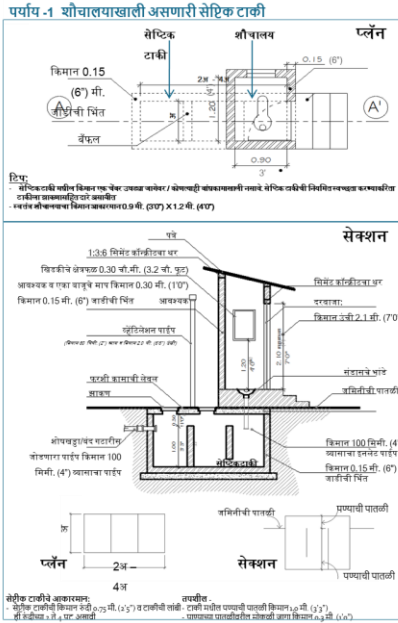
Septic tanks located near drains



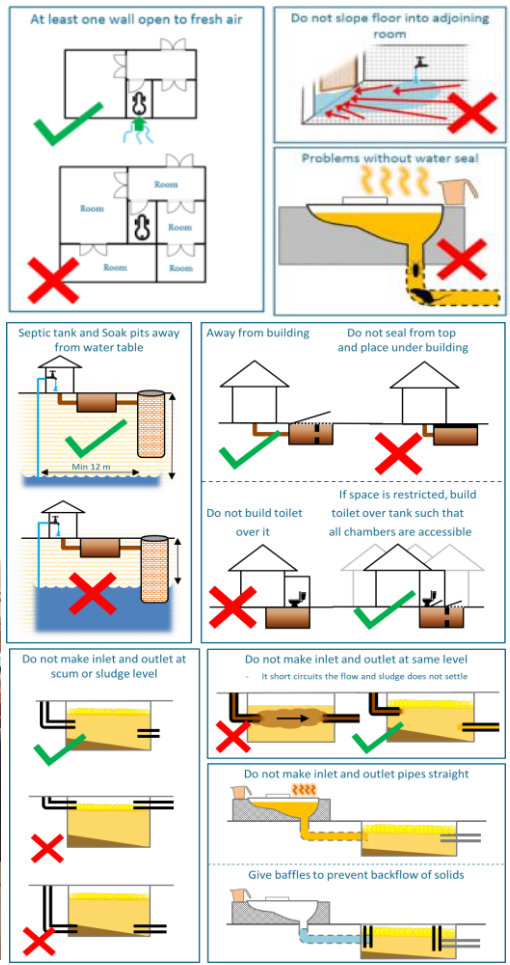
Improving containment systems

1. Guidelines for proper construction of toilets and septic tank shared with toilet subsidy applicants along with the work order and at the Toilet and Lender fair

	✓ हे करावे	मॅट्रिक टाकी बांधकाम	✗ हे टाळावे
<ul style="list-style-type: none"> मॅट्रिक टाकी किमान दोन कामगोळी असावी कामगोळीत विट ही टाकीचे एक इन्डिपेंडंट व दोन इन्डिपेंडंट कामगोळीत विटचालक नसणे आवश्यक टॉपशी कोयला खोलीच्या वर पावले असावे. कोयलाची खोलीतून मोडकाल, पावले असावे. कोयलाची खोली हे २५ मी.मी., फ्लॉर मीटर असावे 			<ul style="list-style-type: none"> एक कामगोळी मॅट्रिक टाकी सांगू नये कामगोळीत विट चुकीच्या ठिकाणी सांगू नये टॉप कामे बुकीच्या पद्धतीत असा विटगोळी कोयलावर केवळ टॉप येणे असावे. फ्लॉर टॉप
<ul style="list-style-type: none"> संपादनपत्राच्या बांधकामातुनंतर बांधकामे कोवळण करावे 			<ul style="list-style-type: none"> संपादनपत्रासाठी मोकळा आकाराचा मॅट्रिक टाकी बांधू नये
<ul style="list-style-type: none"> मॅट्रिक टाकी ही वेगळी खणणीतूनच दुरु असताना असावी टाकीच्या वर कामगोळी टाकीची कोवळणी 			<ul style="list-style-type: none"> टाकीच्या वर कोवळण सांगू नये मॅट्रिक टाकी चुकीचे कोवळणे टाकी वर असे
<ul style="list-style-type: none"> विट, घरी, बाथ, टवट, कोयला खोली वगैरे अन्वयन टाकीचे कोवळण करावे 			<ul style="list-style-type: none"> विट, कोवळणी वगैरे बांधकामाचा विट मॅट्रिक टाकी वरचूट बनवताना केवळ असे विट कोवळण घेऊ नये
<ul style="list-style-type: none"> मॅट्रिक टाक हा विट मॅट्रिक टाकीचे अन्वयन आकाराचे जोडू नये टाकीच्या विटच्या बाजूवरचूट अन्वयन बांधताना अन्वयन कोयला असावे 			<ul style="list-style-type: none"> टाकीच्या विटच्या बाजूला टाकी वरचूट बांधताना केवळ असे मॅट्रिक टाकी वरचूट बांधताना अन्वयन कोयला असावे
<ul style="list-style-type: none"> मॅट्रिक टाकी कोवळणीच्या बांधकामे व विटगोळीच्या बांधकामे हे वेगवेगळ्या पावडीत असावे मॅट्रिक टाकी कोवळणीच्या बांधकामे व विटगोळीच्या बांधकामे हे एकच पावडीत असावे मॅट्रिक टाकी कोवळणीच्या बांधकामे व विटगोळीच्या बांधकामे हे वेगवेगळ्या पावडीत असावे मॅट्रिक टाकी कोवळणीच्या बांधकामे व विटगोळीच्या बांधकामे हे एकच पावडीत असावे 			<ul style="list-style-type: none"> मॅट्रिक टाकी पावडी वरचूट बांधताना केवळ असे मॅट्रिक टाकी पावडी वरचूट बांधताना केवळ असे
<ul style="list-style-type: none"> मॅट्रिक टाकी पावडी वरचूट ही 20 मीटर व्यास चौकटाला असावी दोन इन्डिपेंडंट मॅट्रिक टाकी २ मीटरचे वर असावे 			<ul style="list-style-type: none"> मॅट्रिक टाकी पावडी वरचूट बांधताना केवळ असे मॅट्रिक टाकी पावडी वरचूट बांधताना केवळ असे



2. Training of local contractors for good construction practices for toilets and septic tanks.
 Illustrated guidebook in English and Marathi



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3

**Safe
conveyance of
septage**

Average desludging frequency was more than 8-10 years

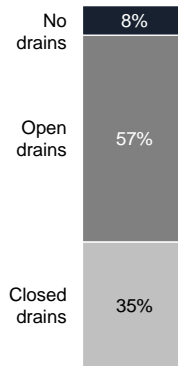
WMC owned 1 suction emptier truck of 5kL capacity for the cleaning of all septic tanks in the town.

Desludging of household tanks was demand based and chargeable at INR 1,000/ trip. Households called the ULB truck when their tanks overflowed.

This amounted to a desludging frequency of 8-10 years (or even more) instead of the 3 year CPHEEO standard.

The truck was also responsible for desludging septic tanks connected to all community and public toilets once a week.

“Yearly desludging of septic tank is desirable, but if it is not feasible or economical, then septic tanks should be cleaned at least once in two - three years, provided the tank is not overloaded due to use by more than the number of persons for which it is designed” - Pg 9-22, CPHEEO Manual

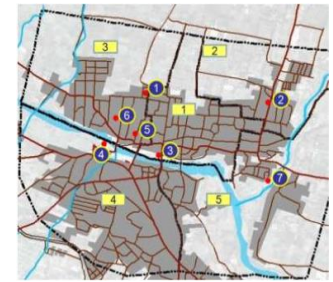


Effluent from septic tanks

Effluent was generally released into the city's roadside drain network along with greywater from bathrooms and kitchens and was ultimately being let out into River Krishna. Very few septic tanks were connected to soak pits

When tanks are not deslugged regularly, the efficiency of digesting faecal matter goes down over time leading to the release of untreated faecal matter from tank outlets. Similarly when septic tanks are not emptied before they overflow, untreated faecal matter goes into the drains as it has not been retained in the tank for the required amount of time.

Wastewater samples were tested from 7 locations across Wai and checked for the levels of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Faecal Coliform and pH level. Results showed that the quality of effluent was beyond the prescribed norms.



Innovative concept of scheduled emptying of septic tanks

Benefits of moving from **complaint redressal on-demand system** to **regular scheduled service**

Desludging frequency



Service on receiving call by HHs, who do not see the need for regular cleaning. Usually only when septic tank overflows in 8-10 years (2% annually).

Desludging done for all septic tanks on a fixed cycle of 3 years and predetermined schedule (33% annually) based on city zoning.

Infrastructure optimization, Efficiency, Equity and affordability



ULB has one truck for desludging individual as well as CT/PT septic tanks.

Private operator given contract for servicing individual tanks leaving the ULB truck free for CT/PTs.



Emptying charge of Rs 1000/trip levied by the ULB to cover the cost of operations. This was a high price to pay in an emergency situation for households.

A "sanitation tax" of Rs 50/year to be paid along with property tax and all provided service without emptying charge. Private operator quotes lower price per tank due to trip optimization with clustered service visits and assured business.



Any future treatment facility would receive septage of varying quality. Also cannot predict quantity of daily load.

More predictable load quantities for treatment facility. Better quality loads once desludging completes one cycle.

Regulation and monitoring



No monitoring mechanism and regulation esp. of private informal providers. Manual labour is needed as sludge hardens in tank due to not being emptied for a long time.

Regulated and monitored by ULB. Payments to private operator linked to performance and adherence to standards. No need for manual labour due to regular emptying.

Environmental benefits



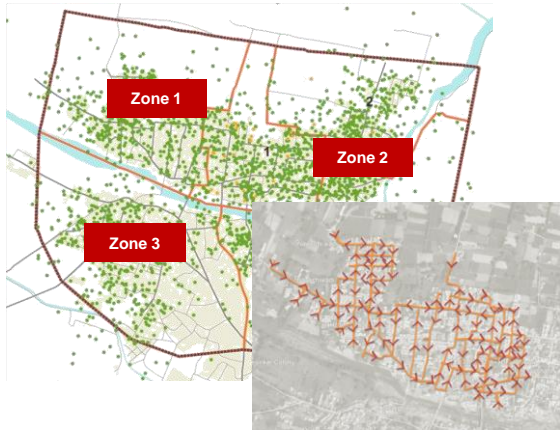
Low frequency of desludging results in poor efficiency of tank and low quality effluent. Overflow before emptying also pollutes environment.

Likely reduction in BOD and coliform in septic tank effluent due to better efficiency of tank. Also avoids solid overflow.

Planning for Scheduled emptying

Operational requirements

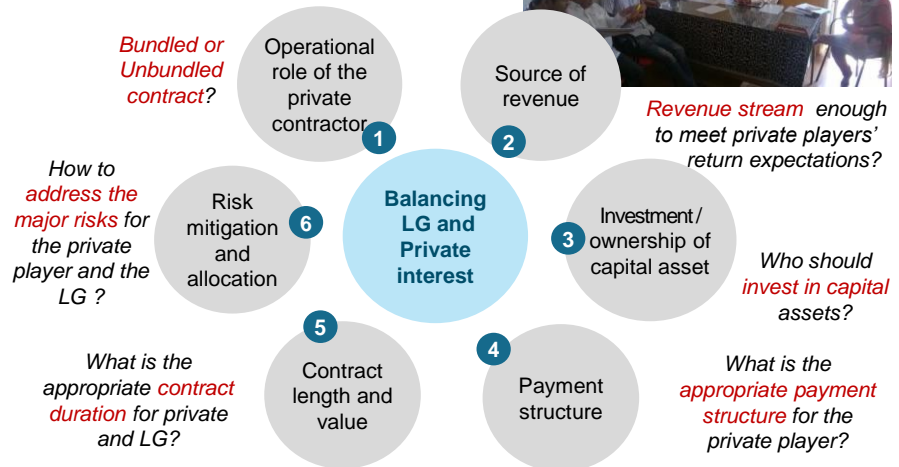
- Zones of Emptying cycle**
 - The city was divided into 3 zones as per the citywide database on toilets and septic tanks.
- Emptying Truck: Number and capacity**
 - 2 trucks to desludge ~ 2000 septic tanks annually. 300 days per year. Visits between 7am-5pm per working day
- Route planning**
 - Deciding the truck movement within the zone



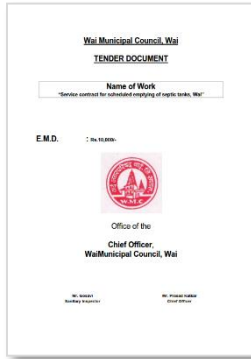
Engaging a private contractor

1. Consultations with various players to gauge interest. Landscape assessment of players.
Assessing ULB capacity and processes

2. Designing an appropriate contract document. Each contract option along with draft tender clauses was discussed with the private sector and ULB to understand their concern and requirements. The document was also vetted by legal firms



3. An e-tender was floated on the State government's MahaTenders website for a competitive bidding process



4. Out of all bids received, Sumeet Facilitates Private Ltd. was selected and awarded the contract for 3 years.



Performance linked payments

The contract is 'performance based' i.e. it specifies what the service provider must deliver in order to get paid, and not the inputs or material used. In order to receive full monthly payments, the private operator is required to produce proof (through signed forms) of having emptied the required number of tanks and safe discharge at the designated FSTP site. Thus each desludging is accompanied by a form with signatures from the truck operator and septic tank owner for proof of emptying and FSTP operator and truck operator for proof of safe unloading at designated treatment site. Four copies of this form are made – each for the records of the Household, Desludging company, FSTP and WMC.

Clauses in the contract enforce performance standards and safety compliance for septic tanks emptying such as the prohibition of manual scavenging, requirement of personal protective equipment for workers, quality of suction trucks, cleaning up of spillage and assigning responsibility for damage to septic tanks.



Desludging form

Emptying –

[Signature] Septic tank owner

[Signature] Truck Operator

Unloading at FSTP-

[Signature] FSTP operator

[Signature] Truck operator

LG's

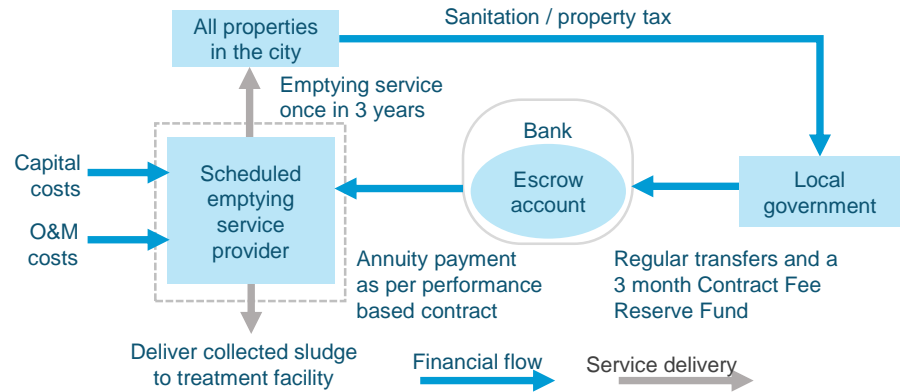
Private operator's copy

Property holder's copy

Treatment plant's copy

PLAM - Performance Linked Annuity Model for scheduled emptying

This model helps to mobilize capex for conveyance as well as day to day operations management from the private sector. Wai government signed an exclusive contract with the service provider where payments are done on annuity basis - in Wai's case monthly. This OpEx is backed by sanitation tax and property tax levied by the government on the citizens and thus is a sustainable model of finance. Payments are linked to performance – based on number of septic tanks emptied and adherence to standards. As no permit is given to another private operator, there will be an assured market. On the other hand, households are also willing to get their tanks emptied as no user charge is paid at the time of emptying.



Sanitation Tax

The Maharashtra Municipal Councils, Nagar Panchayats and Industrial Townships Act of 1965 allows for a 'special sanitary tax'. WMC also levied a sanitation tax to ensure adequate funds for OpEx.

In this arrangement, property owners pay a yearly sanitation tax to the government as a part of their property tax bills, as against current system of paying a charge/fee at the time of emptying services.

WMC also decided to use surplus from property tax collection for this purpose to keep the sanitation tax low. The citizens currently pay Rs60 annually as sanitation tax in addition to their property tax.

Escrow mechanism

In consultations with the private sector, it was found that the biggest risk they report in signing contracts with local governments is of delayed payments. To protect against this an Escrow mechanism was set up which is basically a tripartite agreement between WMC, the private contractor and an independent bank.

An account was opened with the bank where WMC will put funds to create a Contract Fees Reserve Fund (CFRF) at the start of the Escrow arrangement. WMC is to maintain a minimum balance of three months' payment to the contractor via transfers from property tax and sanitation tax every month.



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Awareness and communications to ensure success of scheduled operations

What is the concept of scheduled emptying?

Regular desludging is important for health and environment

Council is rolling out a service for everyone

There is no emptying charge for service once in three years

What do citizens have to do?

How to be ready for your turn?

What to expect when desludgers come to your house?

Providing good quality service which abides with laws and regulations

PPE is used and there is no manual scavenging

Transparency in operations and safe delivery - Sign the receipts

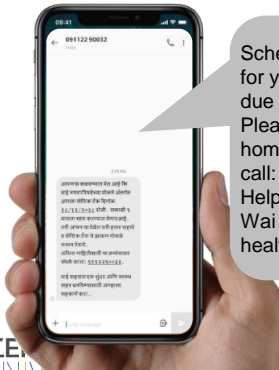
Closing the cover

Ensuring user satisfaction

1. House to house visits – interpersonal communication about the new service being provided by WMC.

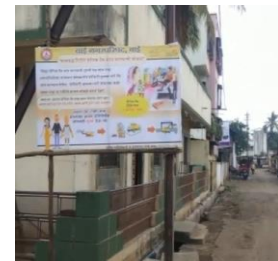


3. SMS sent to property owner 2 days prior to scheduled service. Households are expected to be ready with their access covers open







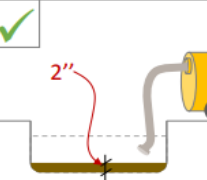
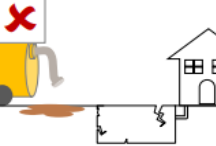







Scheduled emptying for your septic tank is due on 18/11/2018. Please be ready at home. For more info call: Phone number. Help us in making Wai a clean and healthy city.


2. Wall paintings and banners across the city announcing the service and its benefits




Remember!

		
<p>Service is available to each household once every 3 years</p>	<p>Contractor will visit between 7 am and 5 pm. Be present at home and ready! Keep Septic tank cover open for visit</p>	<p>When constructing new septic tank, do not seal cover and give proper access</p>
		
<p>Contractor will call 2 days before scheduled visit</p>		
		
<p>Cleaner should be wearing proper safety gear</p>	<p>No one should enter tank! Manual scavenging is prohibited by law</p>	<p>Leave 2 inches of sludge when emptying</p>
		
<p>There should not be any spillage or damage to septic tank</p>	<p>After emptying sign the receipt given by contractor</p>	<p>No payment is to be done to the contractor</p>
		
<p>Do not put acid/harsh chemicals, or solid waste in you septic tanks</p>	<p>There should not be any spillage in the city or disposal in drains</p>	<p>Septage should only be disposed at designated treatment plant</p>

4. Pamphlet distributed to households explaining what to expect on the scheduled day of service.



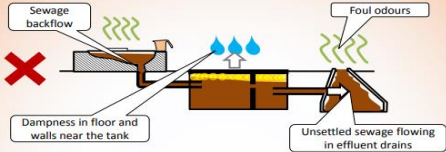
Wai Nagarpalika
has devised a unique



“Scheduled Emptying of Septic Tanks scheme”

A first of its kind in the country, under which septic tanks of each and every property of the municipal council will be emptied at least once in every 3 years


You clean your septic tanks only when it overflows...But are you aware of the side effects of not cleaning it periodically?



Septic tank should be emptied every 3 years Avail Nagarpalika services to empty!

And the good news is... Nagarpalika will get in touch with your regarding your turn for emptying as per schedule and you do not have to pay for this.

DON'T MISS YOUR TURN . . .



5. Short animated movie explaining the process was circulated on Whatsapp. The movie also contained a message from the Chief Officer of WMC





4

**Treatment and
safe disposal**

Earlier, sludge was being disposed off at the city's solid waste dump site without treatment



New Faecal Sludge Treatment Plant set up in Wai

Through a grant by Bill and Mellinda Gates foundation, an Indian company, Tide technocrats set up a septage treatment facility of 70,000 litre capacity on land allocated by WMC for this purpose. Both Capex and Opex for 2 year to be provided by Tide technocrats

The FSTP was inaugurated on the 30th of May 2018, along with the scheduled emptying service.

The plant first dewateres the sludge and then converts sludge comprising of 30-35% solids to Biochar using a thermal process. Wastewater removed from the sludge is then treated separately through Phytoid and MBBR technologies to meet CPCB norms.

The plant is also energy efficient such that the heat generated in the thermal process is put back into the system and used for further drying and power generation.



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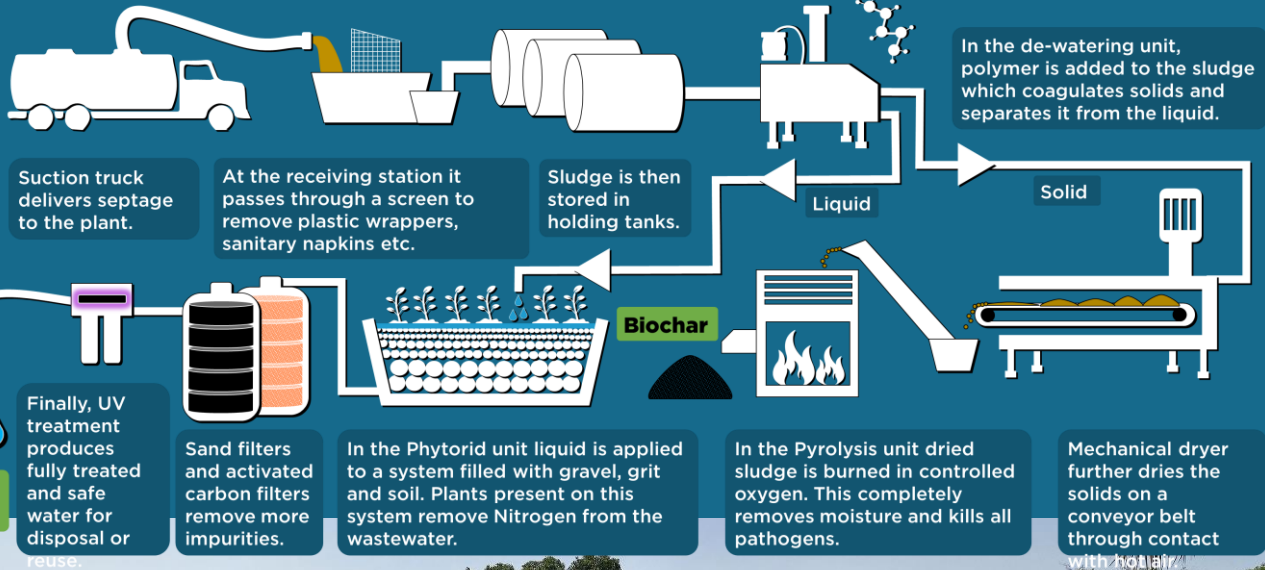
Source: Tide Technocrats

Thermal FSTP -
Pyrolysis plant

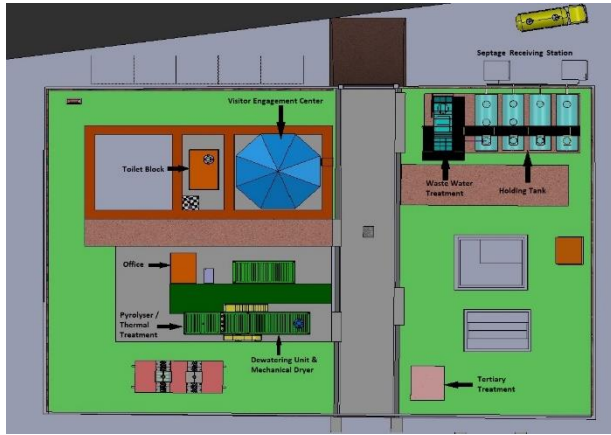
Input : Faecal Sludge and Septage (Excreta +
Flush water + Urine + Anal cleansing water)

Output : Treated Water
and Biochar

Capacity: 70 kilolitre
daily



Developing FSTP as a Resource Park



Source: Tide Technocrats



Landscaping



TOTAL AREA = 1900 SQM = 0.46 ACRE

INDEX FOR FECAL SLUDGE TREATMENT PLANT

NO.	LEGEND	NAME	NO. %
1	ASHOKA TREE	22	
2	MASSANGIANA	16	
3	GULMOSHAI	7	
4	LAVANGA TUBSI	41	
5	PLUMERIA	7	
6	ARECA PALM	21	
7	BOUGAINVILLEA	1	
8	GOLDEN DEW DRIP	26	

INDEX FOR PLANTATION PLAN

NO.	LEGEND	NAME	NO. %
1	ASHOKA TREE	22	
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4	LAVANGA TUBSI	41	
5	PLUMERIA	7	
6	ARECA PALM	21	
7	BOUGAINVILLEA	1	
8	GOLDEN DEW DRIP	26	

Field visits



Resource center building



5



Resource recovery and reuse

Biochar:

Exploring uses in agriculture / building materials / filters

Thermal Energy:

Being used internally for pasteurization / Drying / Power generation

Treated water:

Gardening and greening public places in the city: Landscaping at garden near vermicompost shed, on the road to FSTP and SWM site, at FSTP site and local Smashan Bhumi



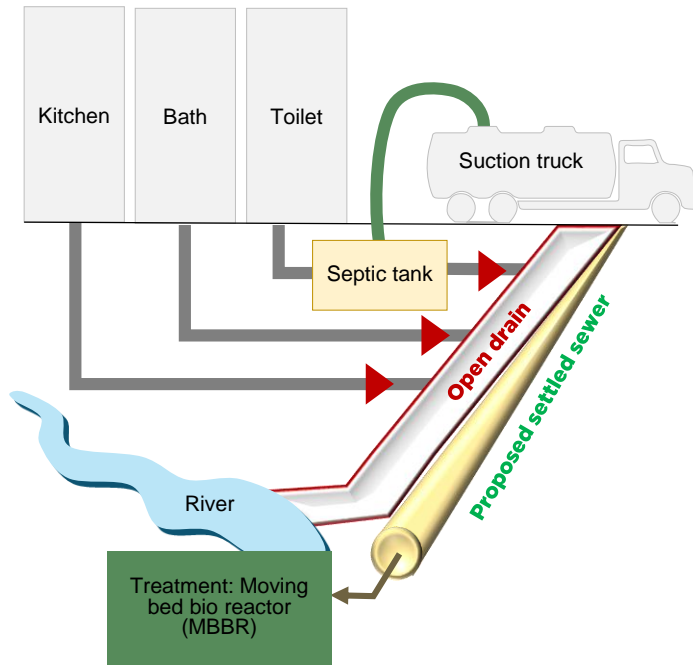
Demonstration in using water for fire fighting at SWM site

6

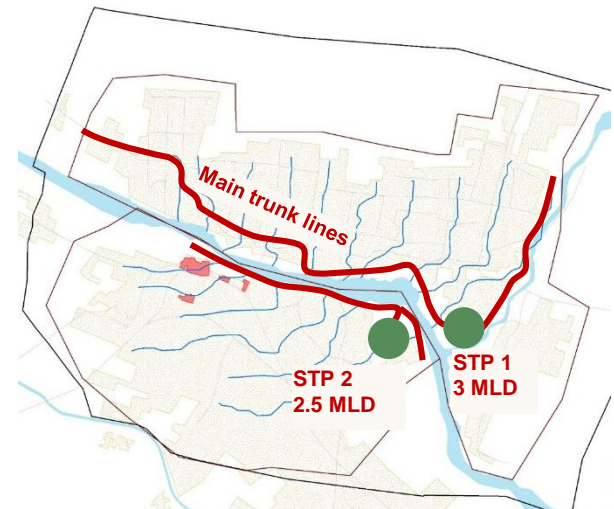


**Safe management
of effluent and
greywater in
drains**

In the long term, the city is interested in settled sewers as a low cost option to provide safe conveyance of waste water



- Small bore sewer system to convey wastewater from bathrooms, kitchens and septic tank effluent which will be treated through MBBR plants – one on the north half of the city and one on the south
- Sewer systems with a minimum diameter of 100 mm are proposed to be constructed over a period of 5 years.
- Detailed project report was prepared by a consultant in 2017



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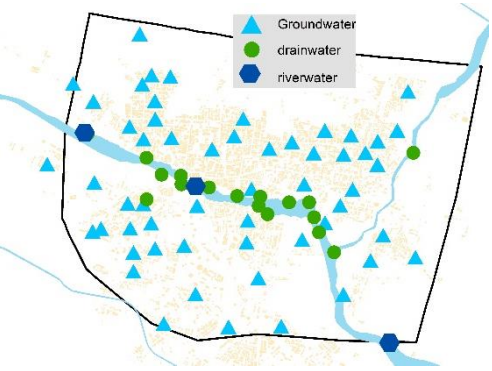
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Tracking environmental benefits

It is expected that regular desludging services and safe disposal at the FSTP will eventually improve the quality of effluents flowing in drains and therefore the quality of both river and groundwater.

To track this impact, a monitoring plan is in action wherein quality tests are being conducted for river water, groundwater, effluent flowing in drains and from septic tanks and septage. A baseline analysis was carried out in the first year. In the second and third year trendline monitoring and analysis will be done.

The monitoring regime developed for this identifies sampling locations, quality parameters to be tested and sampling procedure for collecting the samples based on the guidelines provided by the central pollution control board (CPCB) and the Maharashtra state pollution control board.



Sanitation worker safety



Contract with private sector reiterates prohibition on manual scavenging

Frequent emptying will remove need to human intervention in cases where sludge has hardened

Safety gear specified in contract and mandatory at all times

Developing guidelines for PPE and workplace safety

Initial assessment in progress for worker perception of PPE and their requirements

Training workshop cum medical camp for SanWorkers across all aspects of the service chain



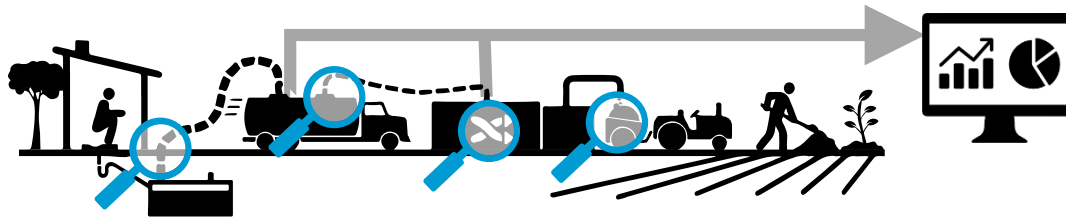
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9

Smart monitoring systems



Need to monitor FSSM systems



Ensure safe collection, conveyance and disposal of Faecal Sludge.

- 1** Desludging at regular intervals
- 2** Safe desludging following necessary protocol
- 3** Conveyance to designated treatment site
- 4** Treatment as per standards
- 5** Safe disposal / reuse
- 6** Performance linked payments where private sector is involved.

Benefits of SMART systems for monitoring



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



Easy to Operate,
Reduce paper work,
Minimize human error



Can view progress easily and process payments



Photo stamping, Geo stamping, Signatures



Unique database
SITY

Tools developed



SaniTrack

SaniTab

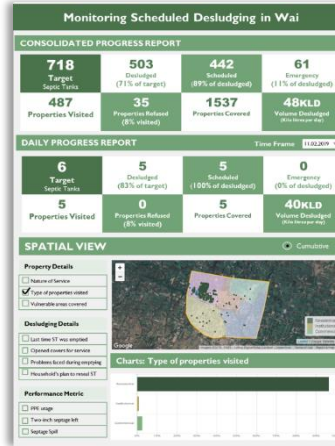
SaniTab - Creating a citywide database with desludging operations

Mobile app for initial citywide survey now used for monitoring safe desludging operations with customized form

Scheduled emptying as an opportunity to create a unique and detailed database of all onsite systems in the city as every septic tank is visited once in the cycle

Dashboard to show real time progress on CWIS principles

Municipal staff being trained to use the app themselves. Dashboard introduced to city managers.



SaniTrack - End to End Monitoring for FSSM

Amazon like delivery app to **monitor** desludging operations-

- service at property end
- safe decanting at FSTP
- treatment quality at FSTP

Can handle both scheduled emptying as well as demand based operations

Payment linked Mechanism

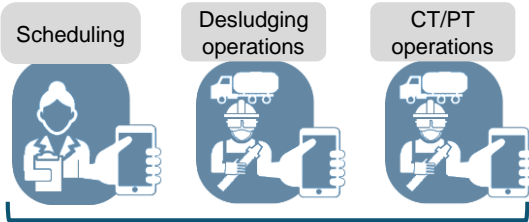
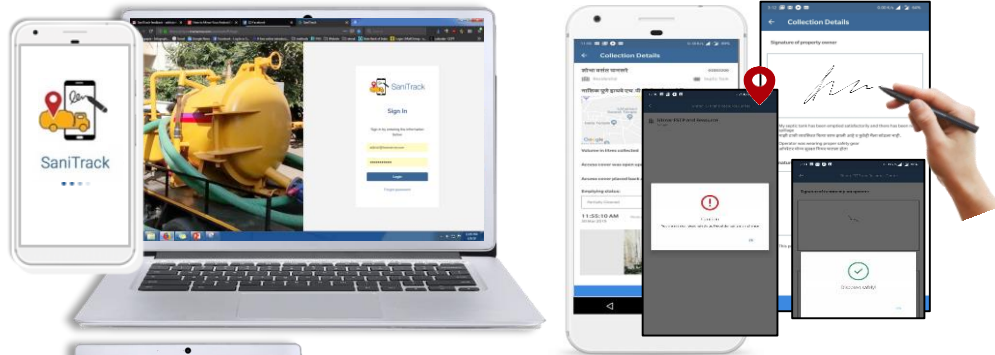
Payment can be linked to results from this system.

Payments can be done as per automatically generated reports.

Can also used as database creation tool.

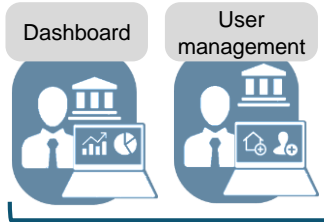
Modules catering to every stakeholder – truck operators, ULB Officials, administrators etc.

Integrated with quality monitoring hardware at FSTP for realtime quality data



Mobile based

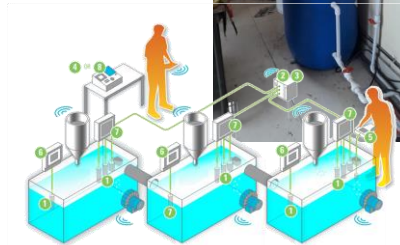
T
ERSITY



Web based



SanQ



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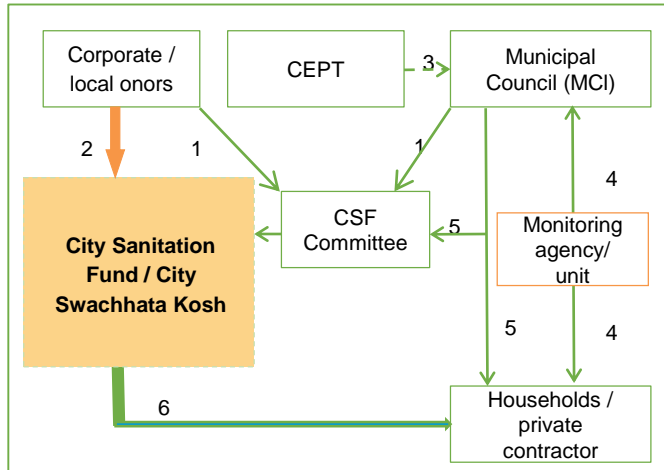


**Wai
Swachhata
kosh**

Setting up a “City Swachhata Kosh” to capture CSR or funds from the local donors

City Sanitation Fund mechanism will enable local industrialists and other donors to effectively contribute to development of improved and universal sanitation in the city

Account opened in April 2015 started receiving funds from July 2015.



City leaders and local industrialists/donors willing to contribute to the fund



Waste Shredder Machine Donated by Garware Wallropes



Plastic Baling Machine



What has been achieved in Wai city*

100% access to toilets

85% coverage of individual toilets

645 scheduled service visits

464 scheduled desludgings

1921 properties in the city covered

108 emergency desludgings

28 Community toilets serviced weekly

Unique database of **572** septic tanks in the city

85% prepared with access covers open

~5.5 Million litres of septage delivered safely to treatment facility

Wai Municipal Council

Third Party Inspection (TPI) report for Certification of ODF+++ Wai Municipality

Date of TPI: 22nd - 24th September, 2019

Name of the U.S.B. Wai Municipality

City Profile

Items	Majority
District	Sarawak
Constituency	BE0002
Total Population	28,215
Total Number of Wards	10
Fire Collection Mechanism (Yes/No)	Yes
Total No. of Community Toilets	11
Total No. of Public Toilets	0
Total No. of Beach Toilets	6
IMC & CT Users Target Achieved (Yes/No)	Yes
ODF+++ Achievement Point	Yes

TPI Necessary

1. USB Documentation: Complete

2. Treatment Plant

S. No.	Location Visited in the USB	Documentation Complete	Capacity of plant	Status
1	Pagar Brang Treatment Plant	Complete	10 MLD	Operational

3. Toilet Category

S. No.	USB	Total No. of Toilets Inspected	Category					
			Unusable	Usable but dirty	Clean	Very Clean	Excellent	Apprential
1.	Wai Municipality	9	0	0	0	2	3	4

As on September 24th 2019 Wai Municipality was declared as Open Defecation Free++.

Status : ODF ++



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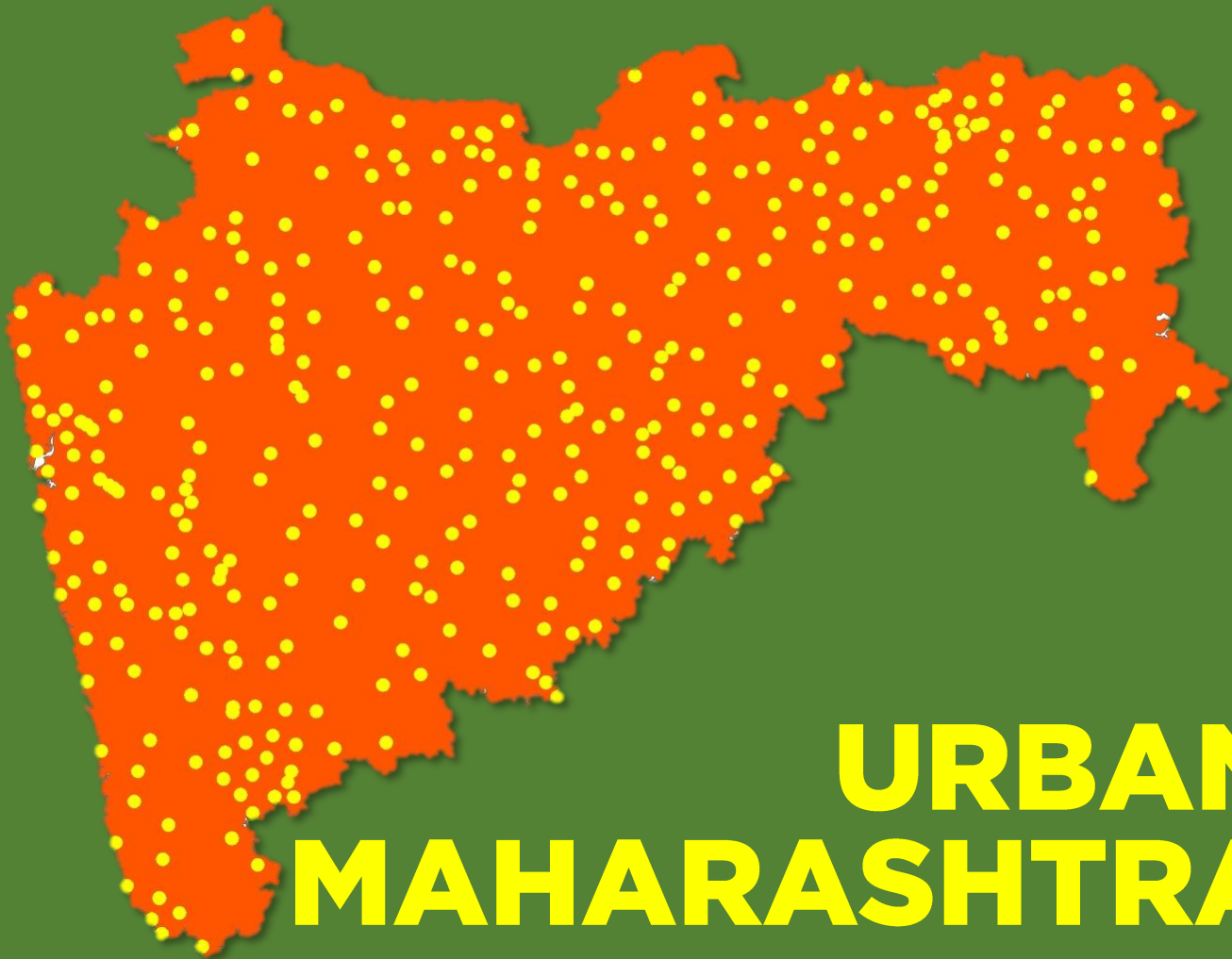
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* Numbers as of Sept 1st, 2019



URBAN MAHARASHTRA

Scaling up in Maharashtra

- Experiences and lessons from Wai have been translated into policies and guidelines at State and National level
- Concept of scheduled emptying is in process of being adopted statewide with a government strategy
- Training of first set of 130 ULBs selected from Maharashtra for developing FSSM plans – 90% cities report plans to take up same model to become ODF++
- Resource materials developed is readily available for other cities to use
 - Model tender documents for scheduled emptying and FSTP DBOT
 - IFSM assessment and planning toolkit
 - Toolkit for engagement of private operators
 - Case studies of Wai
 - Awareness materials for FSSM and ODF
 - Monitoring tool being prepared



City partners



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Government of Maharashtra

BILL & MELINDA GATES foundation



Department for International Development

SUMEET FACILITIES



RCUES Mumbai



Tech
enable empower
TIDE TECHNOCRATS

Transerve

CHF International India

Dalberg

URCON CONSULTANTS



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