



Using Sani Tab for monitoring scheduled emptying operations in two cities in Maharashtra – Wai and Sinnar

December 2020





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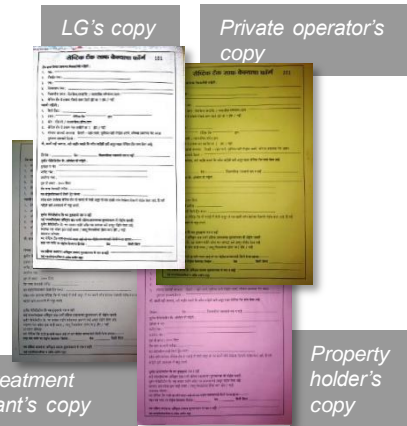
Annexure

Scheduled emptying service in two cities in Maharashtra and its monitoring using SaniTab

Wai and Sinnar are two medium-sized cities in the state of Maharashtra, India. In their sanitation characteristics and challenges, they are representative of most small and medium towns in India which are home to nearly 40% of India's urban population. These cities are dependent on onsite sanitation systems like septic tanks and are implementing citywide faecal sludge and septage management plans for safe collection, conveyance and treatment / disposal of faecal matter.

Wai and Sinnar were among the first cities in India to implement scheduled emptying of septic tanks. Both Wai and Sinnar Municipal Councils have entered a contract with a private service provider for carrying out scheduled desludging.

The contracts with the private provider for scheduled desludging include clauses for performance-based payments and monitoring. However, to make the process smoother and more transparent, SaniTab was introduced.



- The paper-based monitoring system consists of 4 copies, each shared with the local government, private operator, property occupant receiving service and the treatment plant operator.
- This paper-based system consists of brief information regarding the emptying service such as – i) property-related details, ii) volume desludged, iv) details of the emptying truck and v) volume received at the FSTP.
- SaniTab enables easier handling of data. This effectively results in quick analysis of the data points captured.
- SaniTab also allows a quick review of the progress and can be easily shared with all the stakeholders.



3800+ properties have been covered in Wai in the last 2 years and 2400+ properties in Sinnar in the last 1.5 years under scheduled operations

SaniTab can capture data related to properties, disposal system, types of emptying service - scheduled and emergency and emptying service performance. A dashboard has been implemented to reflect real time progress allowing for quick analysis of data.

Wai	Sinnar
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Operations start date
30 May 2018

Operation start date
27 March 2019

Acceptance Rate
90%

Acceptance Rate
93%

Volume of septage disposed at FSTP
12+ million Lts.

Volume of septage disposed at FSTP
10+ million Lts.

Septic Tanks emptied
1890+

Septic Tank emptied
1600+

Septic tanks that had never been emptied before
65%

Septic tanks that had never been emptied before
40%

Some of the parameters closely monitored using Sanitab are :-

Daily, monthly and cumulative target monitoring

1

Coverage of all properties inclusive of vulnerable areas

2

Problems faced during the emptying operations

3

Performance of the private service provider

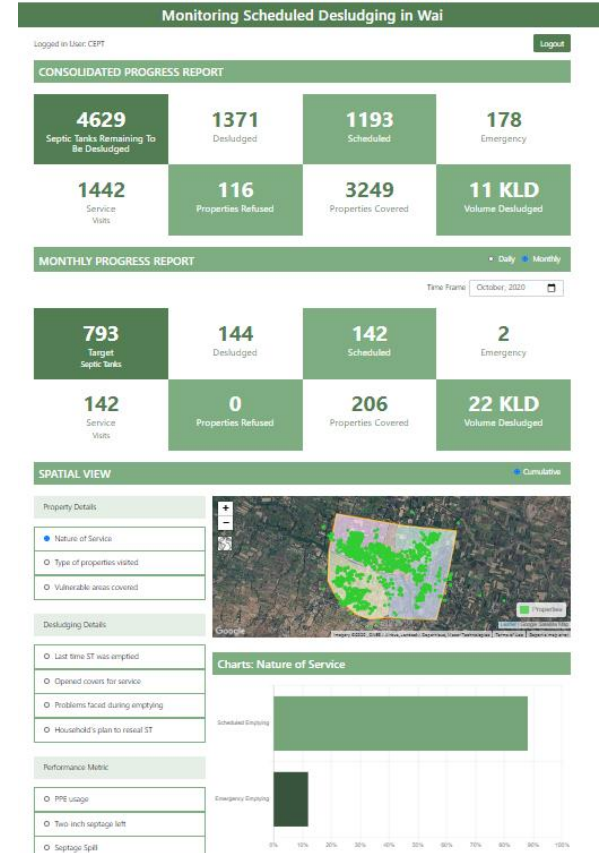
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Usage of PPE by the private service provider

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Households readiness to receive emptying service need for awareness

6



Scheduled emptying process followed in Wai and Sinnar

1



Households informed about the visit a day earlier. Expected to open covers of their septic tanks at the time of visit.

2



Properties visited as per the route plan.

3



The surveyors accompany the desludger to the properties where the SaniTab form is filled out in consultation with the property owner.

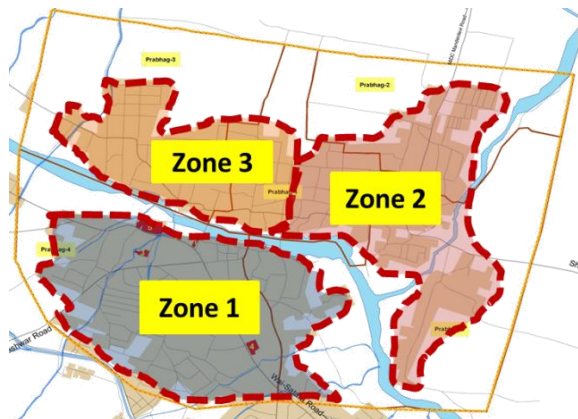
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On completion, the form is saved and submitted. Once submitted, the data gets reflected on the dashboard.

No. of septic tanks being emptied in Wai have increased from 7-8 per month to 10 daily under the scheduled operations model

- Scheduled desludging operations began in Wai from 30th May, 2018.
- The city was divided into three emptying zones.
- The private operator contracted to provide emptying services was given a target to empty 6000 septic tanks in 3 years.



City of Wai divided into three emptying zones

What has SaniTab captured?

*data till September 2020

2140
scheduled
service visits

90%
acceptance
rate of service

3860
properties in
the city
covered

96%
Residential
3%
Commercial
1%
Institutional

85%
scheduled
desludgings

15%
emergency
desludgings

28 Community
toilets and
3 Public toilets
serviced
monthly

1890+
septic tanks
emptied in
the city

12+ Million
litres of
septage
delivered
safely to the
treatment
facility

65%
Septic tanks had
never been
emptied before

90%
prepared
with access

The monitoring system allowed for interesting analysis –

65% of the septic tanks that received desludging service had **never been emptied before**, while 20% of the septic tanks had been **emptied more than 3 years before**.

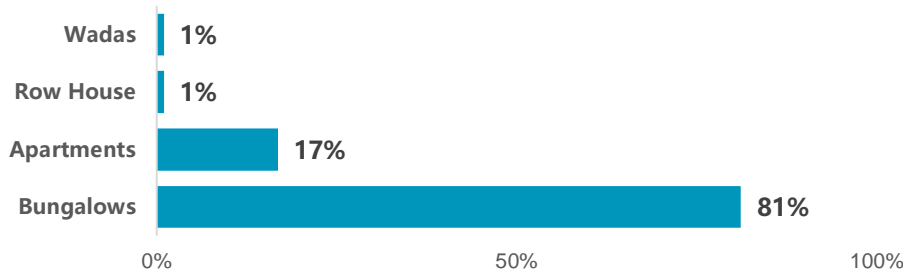
90% of the properties visited were ready to receive desludging service while the rest 10% that refused were visited by WMC staff to ascertain issues

Using the Sani Tab data the WMC staff can stay abreast of the properties that accepted or refused service, type of properties that have received service and the number of trips required to service a property.

Of the total properties covered, **96% are residential**. **81%** of the residential properties covered are **bungalows**.

Additionally, 100+ properties that received desludging service are located in the vulnerable areas of the city. These properties are BPL households or properties that have less than 3 mts. of approach road width.

Type of residential properties covered

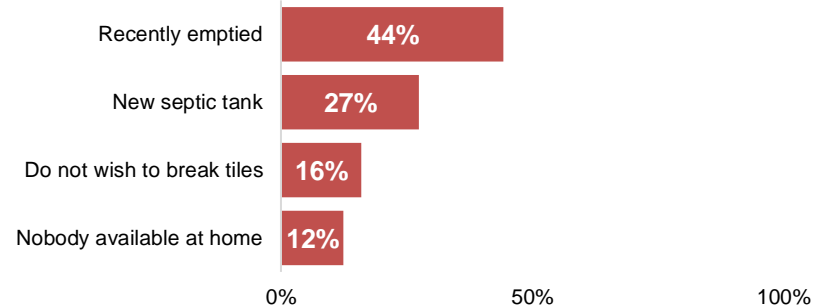


35% of the residential properties covered were apartments – which consisted of 1983 individual flats.

*data till September 2020

Reasons for refusal of service

The reason for refusal of desludging service as quoted by the **10%** of the properties are –



On sharing the data of the properties that refuse service, the municipal staff visits these properties to ascertain the issues. Certain measure were taken to ensure greater acceptance rate, such as –

- The residents were educated on the need of regularly emptying septic tanks.
- A mason was contracted by the WMC to break the tiles of the septic tanks to encourage HHs to receive service.

Sani Tab aided trip analysis of Wai scheduled desludging operations

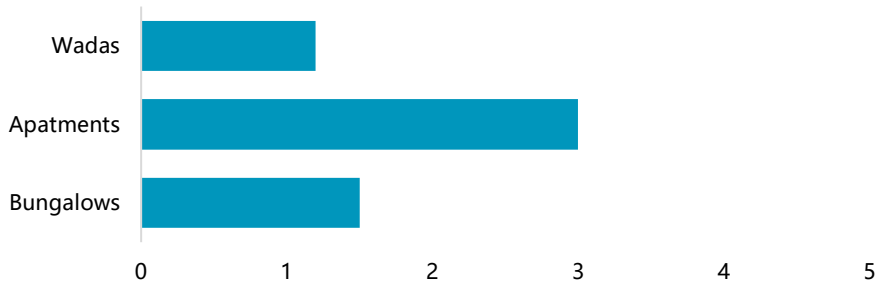
In addition to recording the properties that received service, Sani Tab also captures the number of emptying trips that are required to service a property.

On analysis number of trips per property it was found that **apartments required an average of 3 emptying trips** as against 1-2 trips for the rest of residential properties.

Around 13% of the apartments services had more than one septic tank.

The average volume of septage emptied from septic tanks of apartments is 3550 lts. which is typically more than that of independent houses i.e. 2400 lts.

Average No. of Trips



*data till September 2020



Dynamic target system established within the dashboard to keep track of the performance of the private service provider

The private operator in Wai had been given a target of desludging 6000 septic tanks in 3 years which translates roughly to 165 septic tanks every month. To make sure that the private operators were aware of the numbers they are supposed to chase on a daily basis, a dynamic target system was established as part of the dashboard.

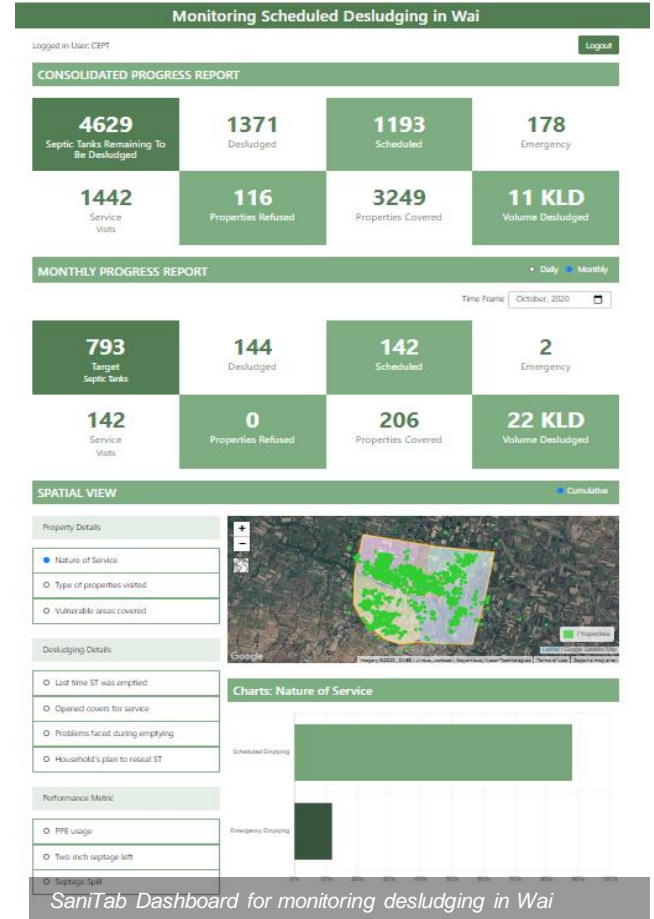
There were initial hiccups when the desludging operations had just been introduced in the city like vehicular problems that led to a slow but steady start of **20%** target achievement. FSTP operational issues and unforeseen human resource shortage also posed as challenges to increased efficiency.

Inability to chase targets efficiently also led to discussions regarding boosting the infrastructural support. A new emptier truck of 3000 lts was deployed to increase efficiency. Review meetings are held with WMC and the private operator periodically to pick up the operations.

To make up for the time lost due to FSTP operational issues the contract period has been extended by a year. This decision taken by WMC in discussion with the private service operator was on the basis of the SaniTab data analysis.

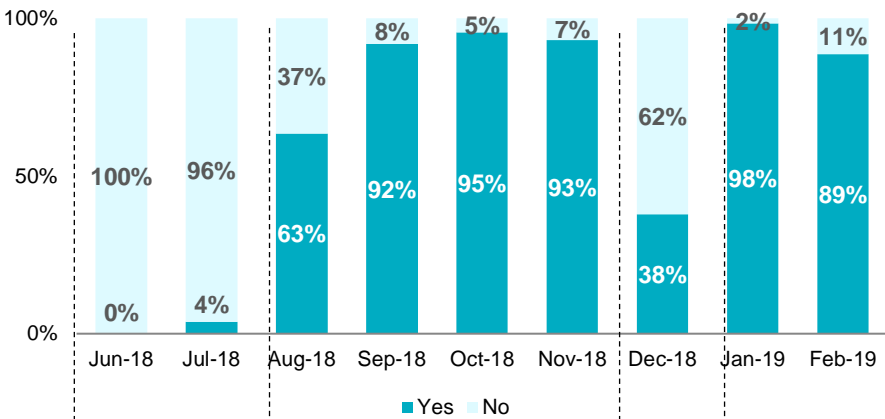
Currently **more than 12 Million litres** volume of septage has been deslugged and the target achieved stands at **31.5%**

Data till September 2020



PPE usage improved from 4% to 89% in the last 2 years in Wai

PPE Usage: From June 2018 to Feb 2019



Workers not used to wearing PPEs.

Rise in PPE Usage after CEPT Team engages with the workers and educates them.

New workers were hired.

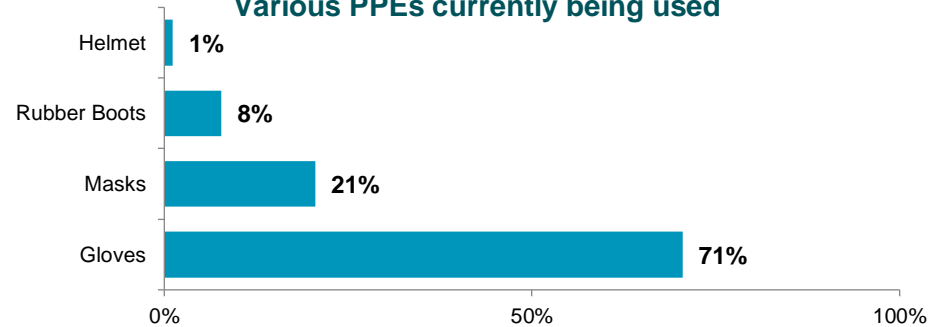
Rise in usage after another round of awareness

Data till March 2020

As per the contract conditions the private service provider is required to wear protective gear during the course of desludging operations such as – gloves, masks, rubber boots and helmet.

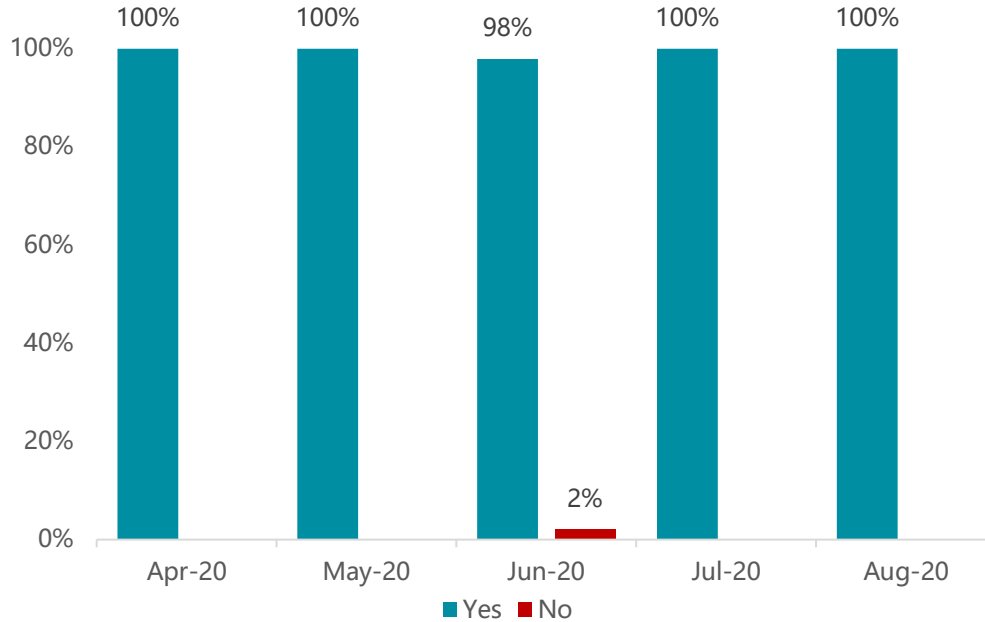
- In the beginning of the operations the truck operators did not wear as they were not used to wearing them. Major reason cited for not wearing PPEs was that it reduced their working efficiency.
- Example - Hot and humid weather conditions made it difficult for the workers to function with leather gloves on.
- After training, the workers started wearing PPEs. New workers are hired frequently, hence the trainings are conducted periodically.
- Currently the usage of PPE stands at **60%**.

Various PPEs currently being used



100% PPE usage during the period of lockdown due to the Covid-19 pandemic

PPE Usage: From April 2020 to August 2020



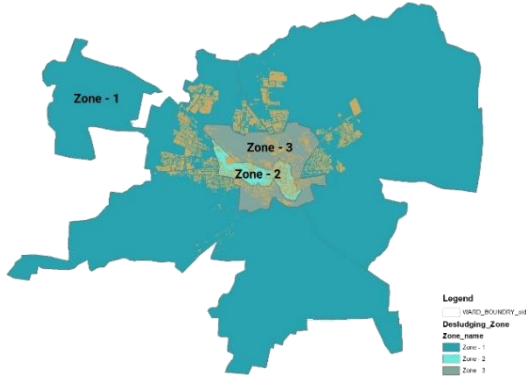
During the nationwide lockdown imposed on 22nd March due to the covid-19 pandemic, desludging service was provided as an essential service.

The PPE usage during this period was **100%**



On an average 4 septic tanks are emptied daily under the scheduled desludging model vs 8 septic tanks emptied in a month in the on-demand desludging model in Wai

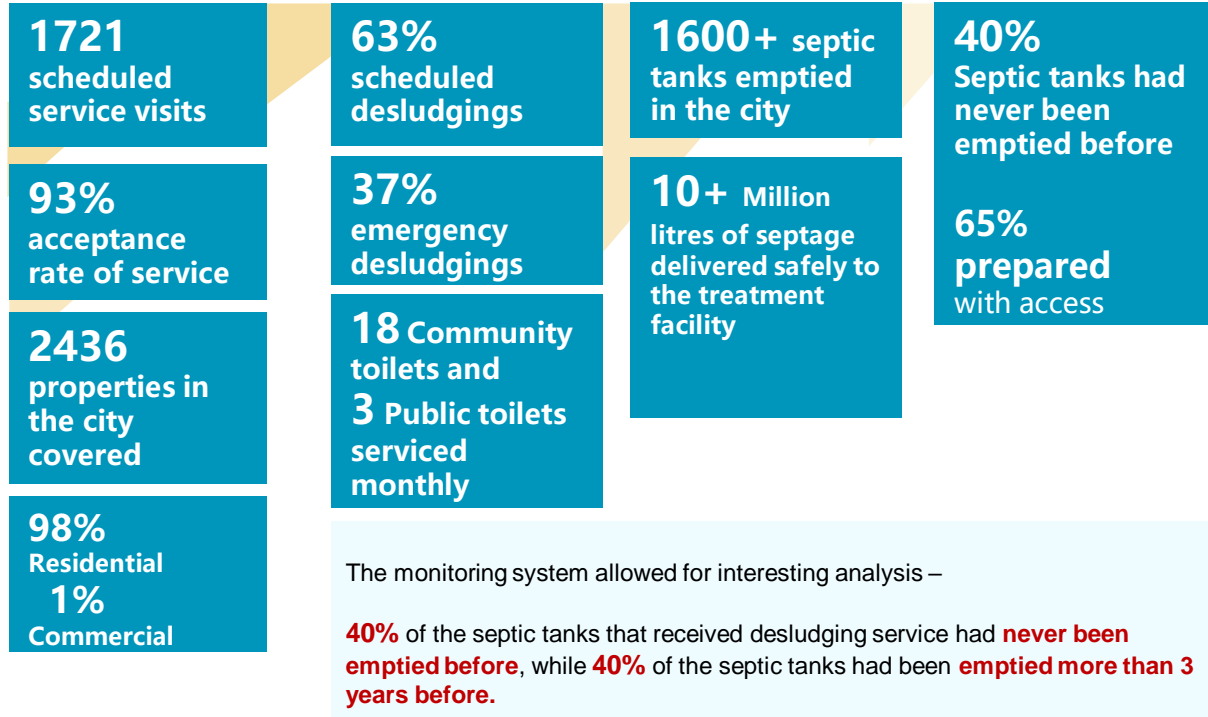
- Scheduled desludging operations began in Sinnar from 27th March, 2019 onwards.
- The city was divided into three emptying zones.
- The private operator contracted to provide emptying services was given a target to empty 12,000 septic tanks in 3 years.



City of Sinnar divided into three emptying zones

What has SaniTab captured?

*data till September 2020

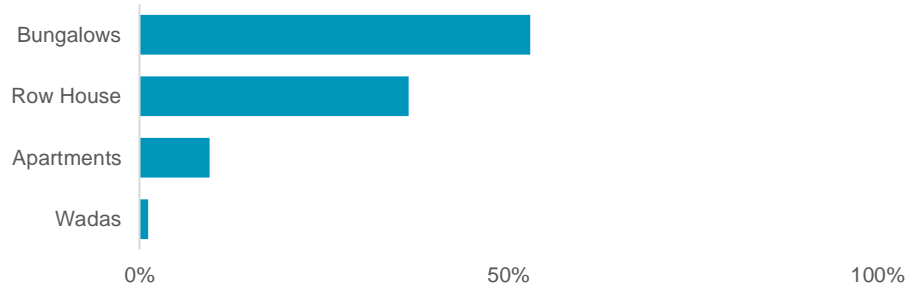


Details of the properties that refuse service are recorded in the database. These properties are then revisited by SMC after evaluating their reason for refusal to desludging service.

Like Wai, residents of Sinnar pay a sanitation tax as part of property tax to cover the desludging operations charges. Unaware of the already paid emptying service provided by the Council, certain households used to refuse the service. When these properties are revisited, they are made aware of the service.

Of the total properties covered, **99% are residential**. **50%** of the residential properties covered are **bungalows**

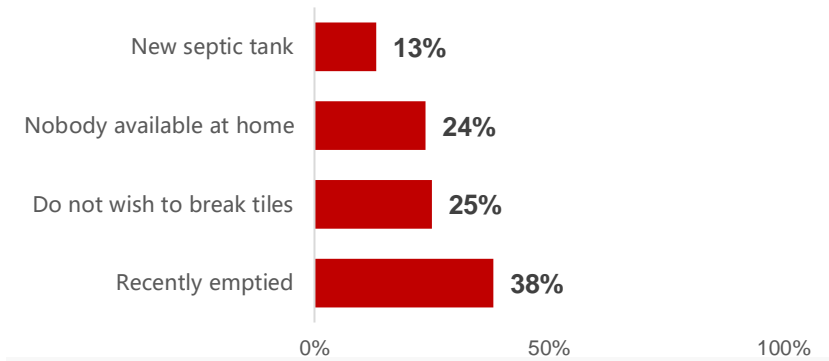
Type of residential properties covered



15% of the residential properties are **apartments** – which consists of **1050 individual flats**.

Reasons for refusal of service

The reason for refusal of service by **7%** of the properties were as follows –



On sharing the data of the properties that refuse service, SMC took the following steps –

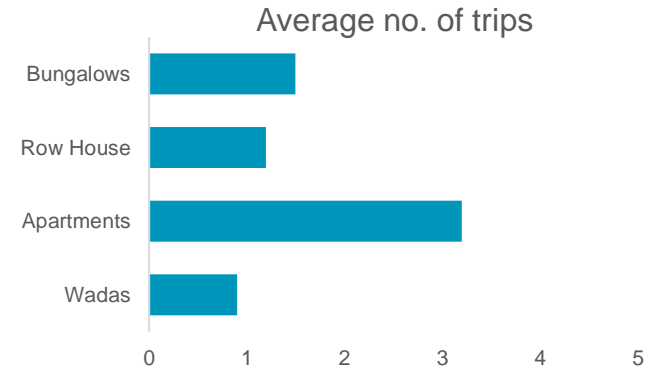
- The properties where no one was available at the time of emptying were re-visited in 10-15 days.
- The properties with tiles as access covers were educated to replace it with openable covers. This would make matters easier in the next cycle of desludging.

Trip analysis of Sinnar scheduled desludging operations led to a policy decision regarding no. of emptying trips per apartment

As experienced in Wai, the average number of emptying trips required to service apartments was 3-4. For the rest of the residential properties the average no of emptying trips required was 1-1.5.

As per the scheduled emptying contract the payment to private service operators is in accordance to the number of septic tanks emptied per day. This effectively meant that the private service operator was getting paid the same amount per septic tank regardless of the no of trips taken or the no of properties covered. This was discussed with the Sinnar Municipal Council which led to a policy decision.

An additional clause in the contract added in October 2019 stated that in the case of apartments three properties will be considered equivalent to a septic tank. This meant that for an apartment with 12 properties sharing a septic tank, the private operator will be paid for 4 septic tanks.



SaniTab database enables data-oriented review of the performance of the private service operator in Sinnar

In Sinnar, the private operator had been given a target of emptying 12,000 septic tanks in 3 years, roughly 333 septic tanks every month.

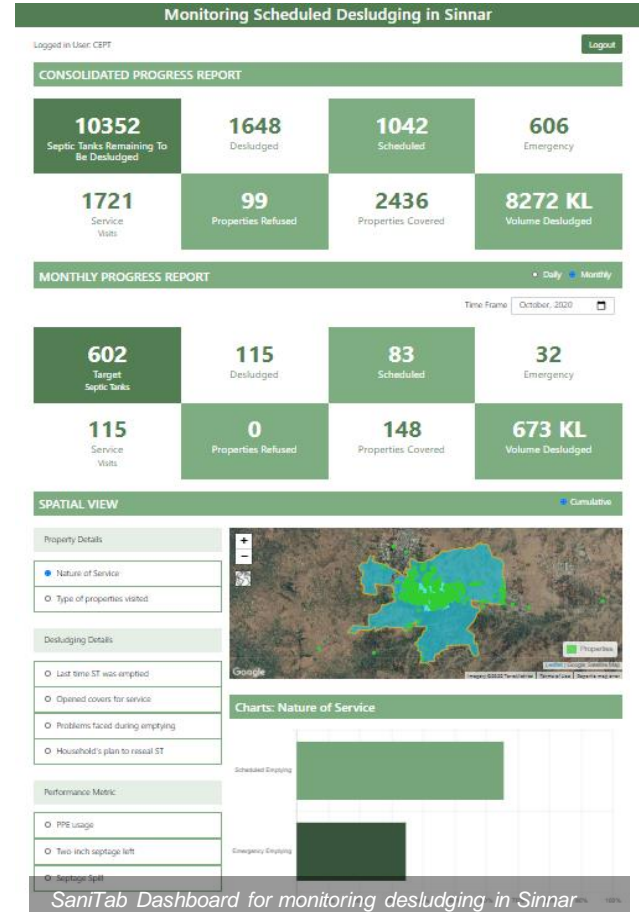
As the emptying operations had just been introduced there were initial hiccups like issues at the FSTP and vehicular problems that led to a slow start – **17%** of target achievement.

Learning from Wai’s experience additional trucks were deployed to ensure increased efficiency.

With the implementation of the dynamic target system in the dashboard, the private operators are now aware of the numbers they are supposed to chase.

Review meetings are held periodically with SMC and the private service provider to resolve any issues that occur during the course of the desludging operations. The dashboard reflects improvement areas as well.

With the deployment of a new emptier truck of 3000 lts in Sinnar to increase efficiency – the target now stands at **29%**. **More than 10 million litres** volume of septage has been emptied till now.



Training Wai and Sinnar Municipal Councils in using Sani Tab

The Sani Tab form used for monitoring scheduled emptying operations was prepared in consultation with the municipal staff.

The staff was also trained to enter data in the app. The forms have been made available in Marathi for ease of use.

The Chief Officer and Sanitary department of both the Municipal Councils were trained to use the dashboard.

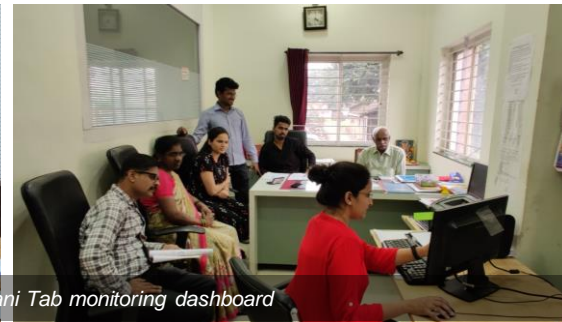
The city water supply and sanitation engineer was provided training in using the dashboard for day-to-day monitoring of scheduled operations.

Sani Tab dashboard has become a part of regular discussions and review meetings with the private service operator.

The performance of the private operator carrying out the desludging operations is now regularly monitored and assessed using the dashboard.



Wai Municipal Council staff being trained to use Sani Tab monitoring dashboard



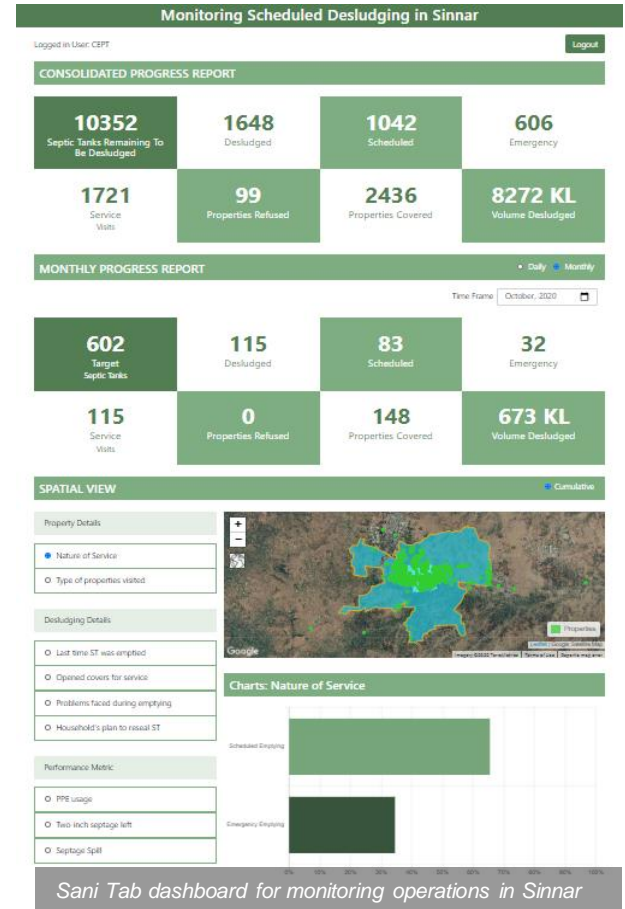
Review meeting with the chief officer and sanitation engineer of WMC to track progress of the private service operator

Usage of Sanitab by Wai and Sinnar Municipal Councils – leveraging monitoring emptying services database to improve efficiency and solve issues

The SaniTab dashboard makes for an easy data reference point for conducting meetings with the other stakeholders.

By leveraging the database the Chief officer and Sanitary Inspector of both WMC and SMC, the following has been achieved –

- **Ensuring coverage of properties in vulnerable areas** – Low-income settlements or properties with dense and narrow street network have been considered vulnerable for the purpose of delivering emptying operations. In Sinnar, a long pipe was made available for properties that had a road width of less than 3000 mts. In Wai a truck of 600 lt capacity was made available to carry out emptying operations in the denser areas.
- **Ensuring targets are met** – The daily / weekly / monthly targets can be seen on the dashboard. This allows the service provider to plan operations for a day / week or month resulting in improvement in target achievement.
- **Solve issues regarding emptying operations** – In Wai, few households refused service as they were unable to break septic tank covers.
- **Ensuring PPE usage** – As seen in Wai, the PPE usage pattern was inconsistent every time new workers were hired. The Municipal Council encouraged the service providers to use PPEs. A clause in the contract for penalizing the service provider was added on non-usage of PPE.



Way forward for using SaniTab in Wai

SaniTab is **easy to adopt** owing to its user-friendliness. Experiences and lessons from Wai and Sinnar give an insight into the usefulness and **benefits of generating a city level sanitation database** and an **emptying monitoring system**.

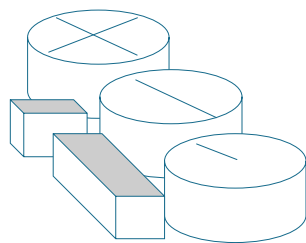
This tool can be applied to a range of activities across the sanitation value chain. Some of these activities are :-



Emptying of septic tanks of CTs and PTs – although already a part of the tool it is not regularly used by the ULB truck emptier/helper. Logistical planning



Solid Waste Management – SaniTab can be applied to generating a database as well as monitoring of door-to-door waste collection and disposal at the dumpsite.



Treatment – SaniTab can be used to capture details related to volume of septage treated and monitoring treated water quality.



Payment to private service providers – The parameters for monitoring the performance of private service providers can be linked to their payment as per terms of the contract.

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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.

