

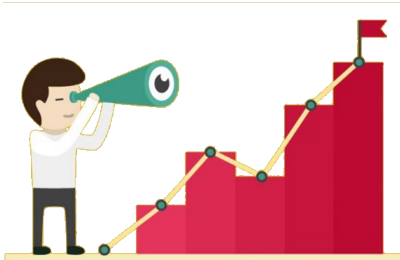


## Guidelines for designing MIS tools for Cities on FSM

**Presenter:** Ms Deepa Karthykeyan, Athena Infonomics

**Co-Authors:** Mr Kowshik Ganesh, Mr Amarsh Chaturvedi, Mr S.L.Sathiya Nesan, Ms Uzra Sultana

# Step Wise Approach



## STEP 1

Development  
priorities



## STEP 2

Mapping data  
ecosystem

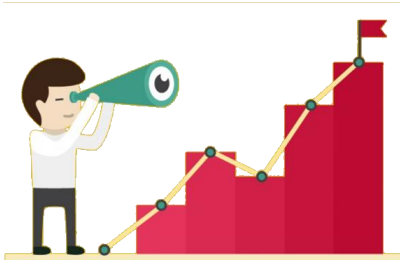


Enabling Environment



Implementation

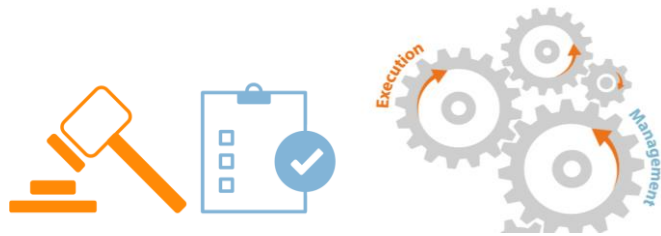
# Step Wise Approach



**1. City Priorities**



**2. Mapping Data Ecosystem**



**3. Enabling Environment**



**4. Implementation**

# 1. City Priorities



# Assessment Criteria

- Capital Expenditure Decisions
- Operating Expenditure Decisions
- Citizen / Political interest
- Statutory Requirement

# Mapping City's Priorities:

## *An Illustration of Namakkal Municipality, Tamil Nadu*

- Ensure compliance of onsite-systems with standards
- Regularize desludging behavior
- Ensure disposal at the designated STP

# 2. Mapping Indicators & Data Ecosystem



# Assessment Criteria

- Availability (Openness of availability)
- Data Reliability / Validity
- Gap with ideal frequency
- Level of disaggregation



# Data Gaps, Requirements and Sources

Developmental Priorities	Mapping Indicators	Availability of Indicators
<ul style="list-style-type: none"> <li>Ensure compliance of onsite-systems with standards</li> </ul>	<ul style="list-style-type: none"> <li>Classification of onsite sanitation systems</li> </ul>	Available
	<ul style="list-style-type: none"> <li>Compliance to design standards</li> </ul>	Not Available
<ul style="list-style-type: none"> <li>Regularize desludging behavior</li> </ul>	<ul style="list-style-type: none"> <li>Last Desludging Date</li> </ul>	Not Available
<ul style="list-style-type: none"> <li>Ensure disposal at the designated STP</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle Tracking</li> </ul>	Not Available

# 3. Enabling Environment



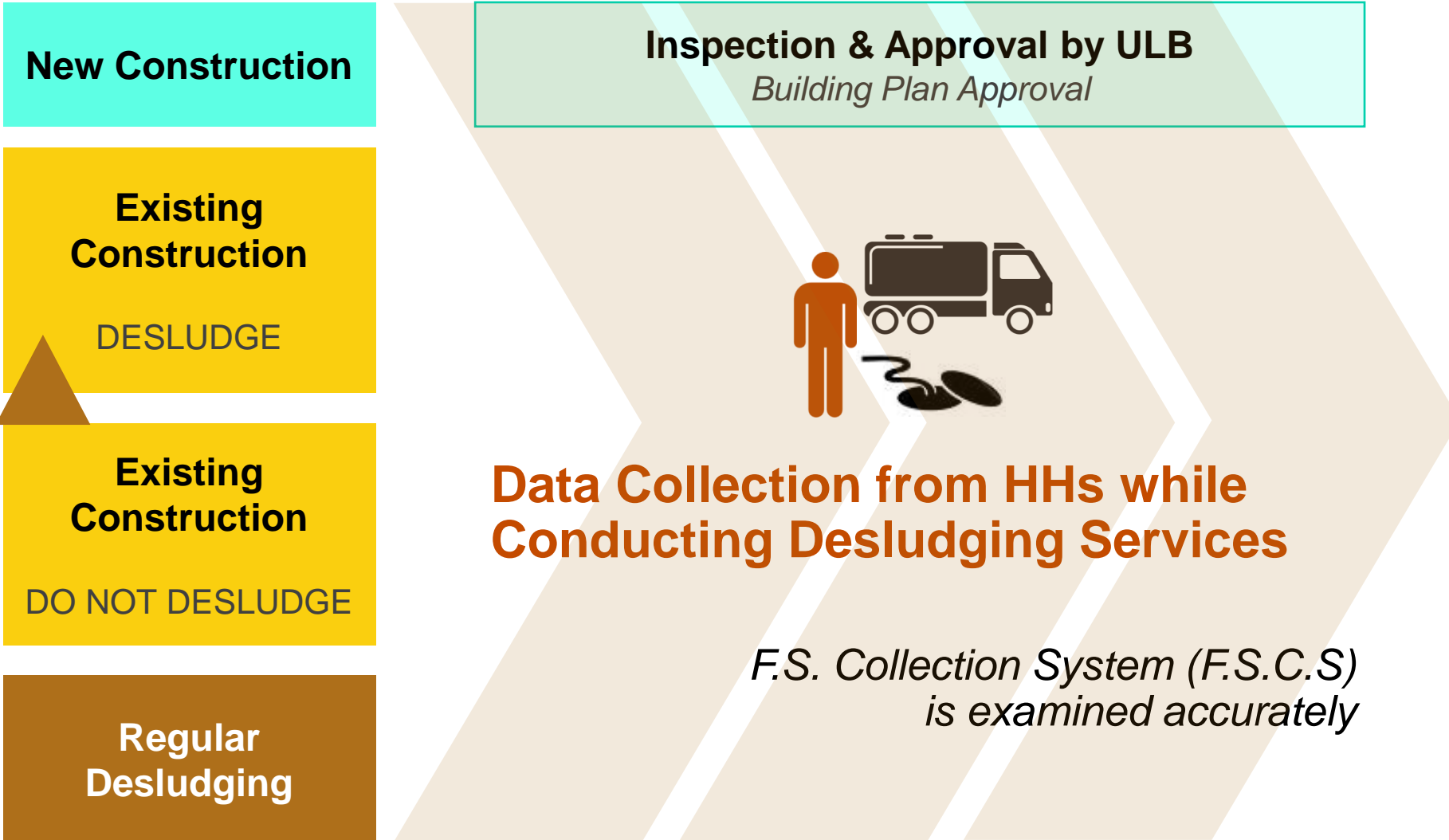
# Role of regulation & SOPs in supporting 'data creation'

Developmental Priorities	Mapping Indicators	Regulatory Backing	Standard Operating Procedures (SOPs)
<ul style="list-style-type: none"> <li>Ensure compliance of onsite-systems with standards</li> </ul>	<ul style="list-style-type: none"> <li>Classification of onsite sanitation systems</li> </ul>	✓	✗
	<ul style="list-style-type: none"> <li>Compliance to design standards</li> </ul>	✓	✗
<ul style="list-style-type: none"> <li>Regularize desludging behavior</li> </ul>	<ul style="list-style-type: none"> <li>Last Desludging Date</li> </ul>	✓	✗
<ul style="list-style-type: none"> <li>Ensure disposal at the designated STP</li> </ul>	<ul style="list-style-type: none"> <li>Vehicle Tracking</li> </ul>	✓	✗

# 4. Implementation



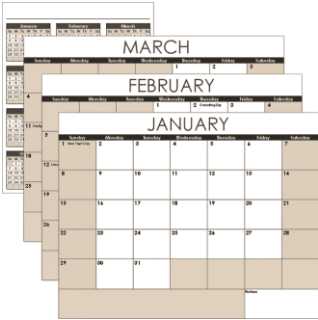
# Tracking Onsite Sanitation



GPS	HH Characteristics
Property Tax Number	Neighbourhood Assessment
Access by Road	Access from Road
F.S.C.S. Type	Access to F.S.C.S
Dimension of F.S.C.S	Commencement of Operations

F.S.C.S. Functional Status & Date of Desludging

# Standard Operation Procedure



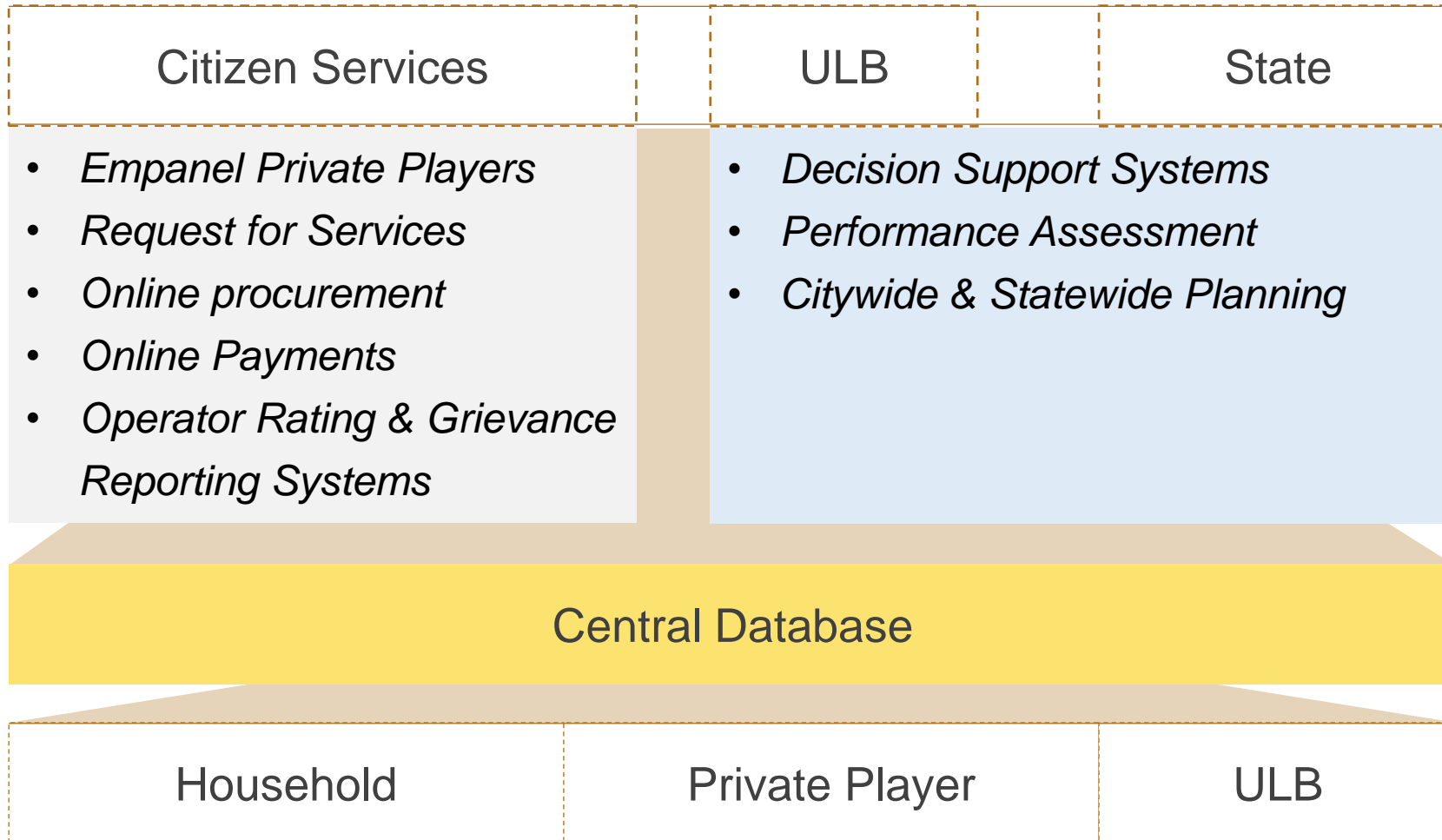
- Inspection Schedule
- Desludging Schedule

- Visit the Household
- Conduct Survey through mobile app

- Desludging service
- Inspects F.S.C.S and reports through mobile app
- Picture from site location

- Travel as per SOP
  - Vehicle Speed | Shortest route optimization | Deviation from expected path | Idle time | March Out time | March In time
- Disposal @ Designated Site

# System Modeling



# Blue Print Design



# MIS LAYOUT – General Page (Socio-Economical, Demographical & Basic Sanitation Details)



## Sanitation Management Information System

Dashboard

General

F.S Collection System

Desludge & Transport

Treatment & Reuse

Finance

Empaneled Professionals

Citizen Services

Population

13, 439

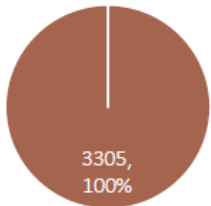
Households

3305

HHs with Toilet

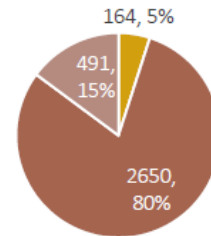
2105 (64%)

Location Type



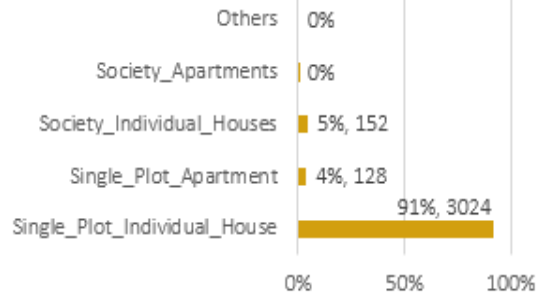
■ Slum ■ Non-Slum

Width of Streets



■ Less\_than\_3 ■ 3\_6\_m ■ greater\_than\_6

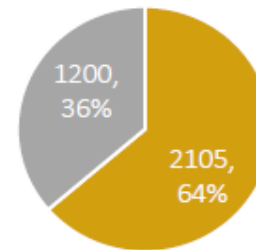
HH Type



Functional Toilet

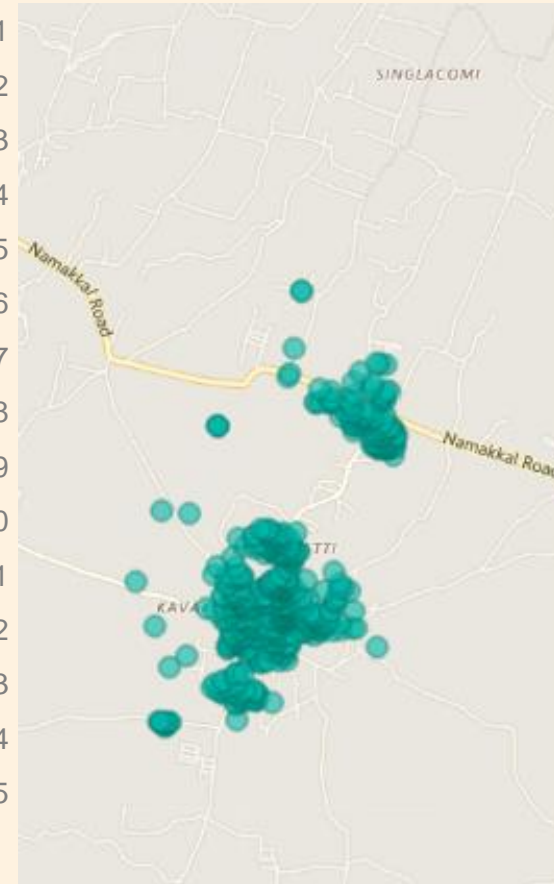
No Toilet

Functional Toilet in House



■ Yes ■ No

W 01  
W 02  
W 03  
W 04  
W 05  
W 06  
W 07  
W 08  
W 09  
W 10  
W 11  
W 12  
W 13  
W 14  
W 15



# Faecal Sludge Collection System - Layout



## Sanitation Management Information System

- Dashboard
- General
- F.S Collection System
- Desludge & Transport
- Treatment & Reuse
- Finance
- Empaneled Professionals
- Citizen Services

Septic Tank

**77 (4%)**

Single Pit

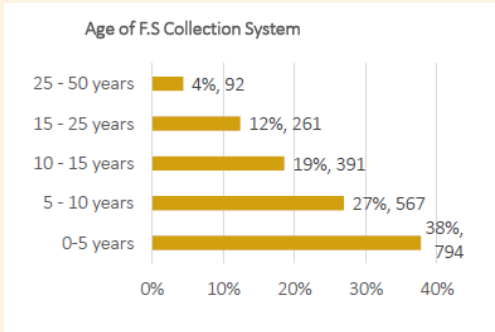
**2026 (96%)**

Twin Pit

**2 (0%)**

Others

**0 (0%)**



**Shared F.S Collection System - 51**

Type of F.S Collection Systems	Number of Shared facilities	Max number of HHs sharing the facility
Septic Tank	5	10
Single Pit	46	9
Twin Pit	0	0
Others	0	0

**Hydrogeological Data**

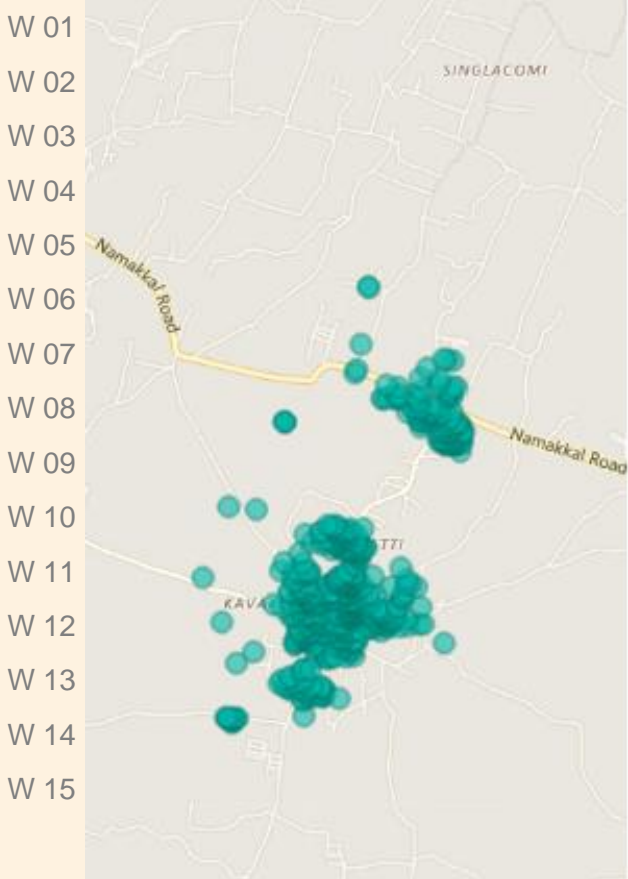
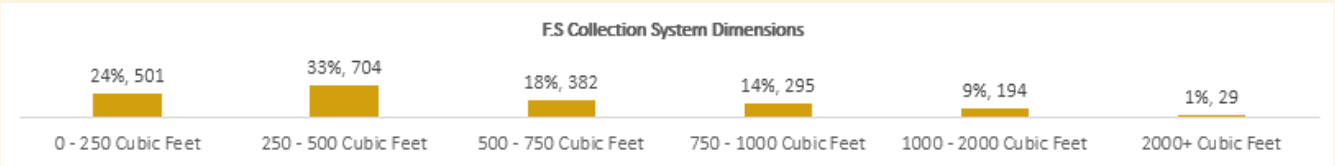
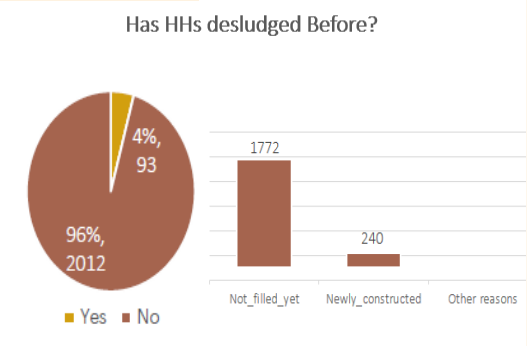
Fractured Rock | Clay Soil

Borewell Level: 16- 56 m

**Preferred F.S. Collection System**

Single Pit	Septic Tank
Twin Pit	Ecosan

Position of F.S Collection System – Underneath the toilet	Access to F.S Collection System	77 (6%)
	Accessible – 1170 (94%)	
1247 (59%)	Access from Road	
	Less than 50 feet – 1246 (99.9%)	
Position of F.S Collection System – Away from the toilet	Access to F.S Collection System	235 (27%)
	Above the ground – 623 (73%)	
858 (41%)	Access from Road	
	Less than 50 feet – 856 (99.7%)	



# Desludge & Transport - Layout

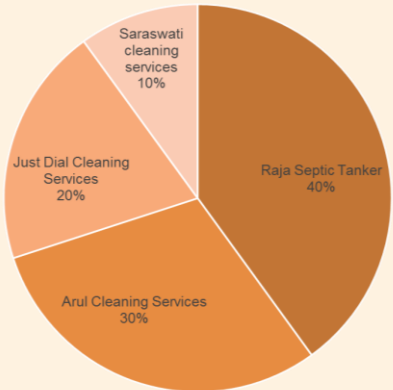
## Sanitation Management Information System



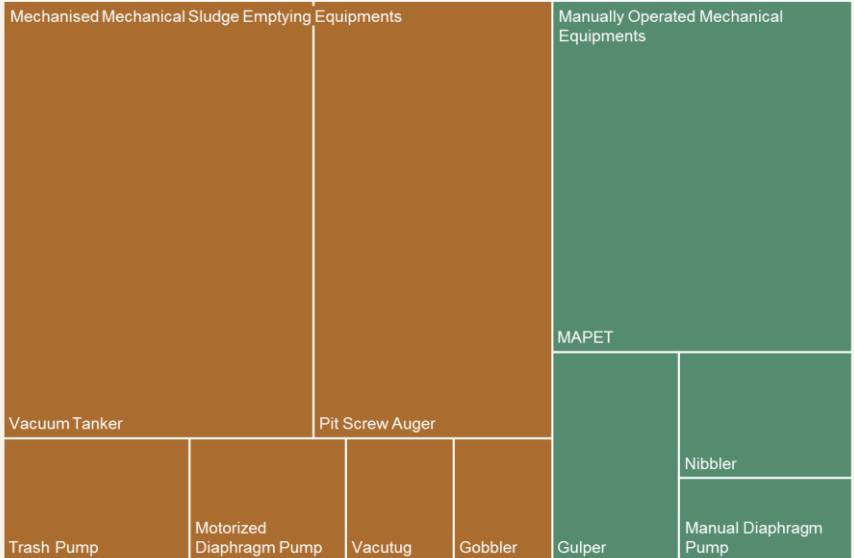
- Dashboard
- General
- F.S Collection System
- Desludge & Transport
- Treatment & Reuse
- Finance
- Empaneled Professionals
- Citizen Services

18 June 2016

Desludging Operators by Vehicle Volume



Desludging Technology Type



Vehicle Number	Operator	Vehicle Type	Capacity	Track Vehicle	Adherence to schedule	Vehicle Inspection
TN 40 5420	Arul Cleaning Services	Vacutug	1000 L	<a href="#">Click here</a>	Yes	Dec 8, 2016
TN 40 5487	Raja Septic Tankers	Vacuum Tanker	8000 L	<a href="#">Click here</a>	No	Jan 12, 2017

- Septic Tank
- Pit Type
- Other FSCS
- HHs not Desludged

House ID	W23
F.S Type	Septic Tank
Capacity	4.2 kL
Vehicle	TN 40 5420
Time	11:10 AM
Mobile	97910165..

- Desludging Schedule
- Inspection Schedule

# Thank You



FSM4