

SaniTab - Mobile Application for Sanitation Services Assessment in Cities

PAS

Assess service delivery in water and sanitation

profile for **400⁺** Cities

Performance Assessment System

in **2** States for **7** years

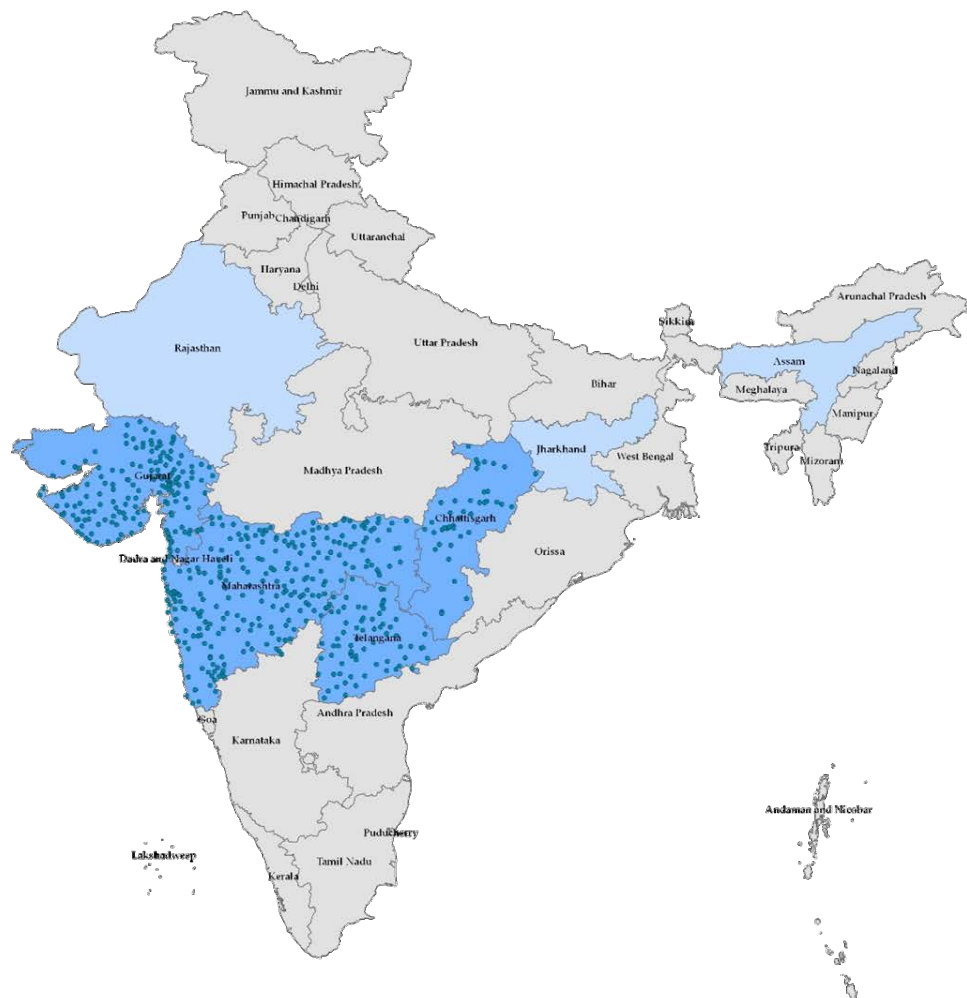
National database for 1800 cities
For 18 states for 3 years

www.pas.org.in

Water supply, Waste Water, Solid waste Management & Storm Water



PAS Journey from 2009...going strong



2009 – 416 Cities, 68 Million population

- 167 Cities of Gujarat
- 249 Cities of Maharashtra

.....continued for 6 years

2015 – 463 Cities, 72.8 Million population

- 168 Cities of Gujarat
- 259 Cities of Maharashtra
- 43 Cities of Chhattisgarh

2016 – 769 Cities, 88 Million population

- 168 Cities of Gujarat
- 364 Cities of Maharashtra
- 168 Cities of Chhattisgarh
- 69 Cities of Telangana

Forth coming – 323 Cities, 23 Million population

- 96 Cities of Assam
- 43 Cities of Jharkhand
- 184 Cities of Rajasthan

www.pas.org.in : The largest database on urban water sanitation in India

Location of Tool in IFSM Toolbox . . .



Location of Tool in IFSM Toolbox . . .

HOME > DEFINE NEED AND SCOPE OF STRATEGY

DEFINE NEED AND SCOPE OF STRATEGY ¹

I want to...



Understand the existing context

...by assessing the current FSM situation in a given area
FSM SITUATIONAL ASSESSMENT TOOL



Develop an inventory of key players

...by identifying & characterizing the potential stakeholders and their needs or perspectives
PRELIMINARY STAKEHOLDER IDENTIFICATION



Generate ideas on

...engaging stakeholders to sensitize them to the reality (current situation) & project objectives
PRELIMINARY STAKEHOLDER ENGAGEMENT / SENSITIZATION



Assess the potential impacts of the strategy

...by conducting an initial environmental impact assessment
SAMPLE PRELIMINARY ENVIRONMENT IMPACT ASSESSMENT

Tools Developed by partners



Analyze sanitation situation

By using an android based application for household/property level sanitation survey and creating a database for OSS
SaniTab Tool by PAS



Objective of the tool . . .

The objective is to help cities assess its sanitation scenario, while collecting the required information through household surveys and building a city level database based on which cities can make appropriate sanitation improvement plans for their respective cities.

“SaniTab”: Creating Database for Onsite Sanitation System



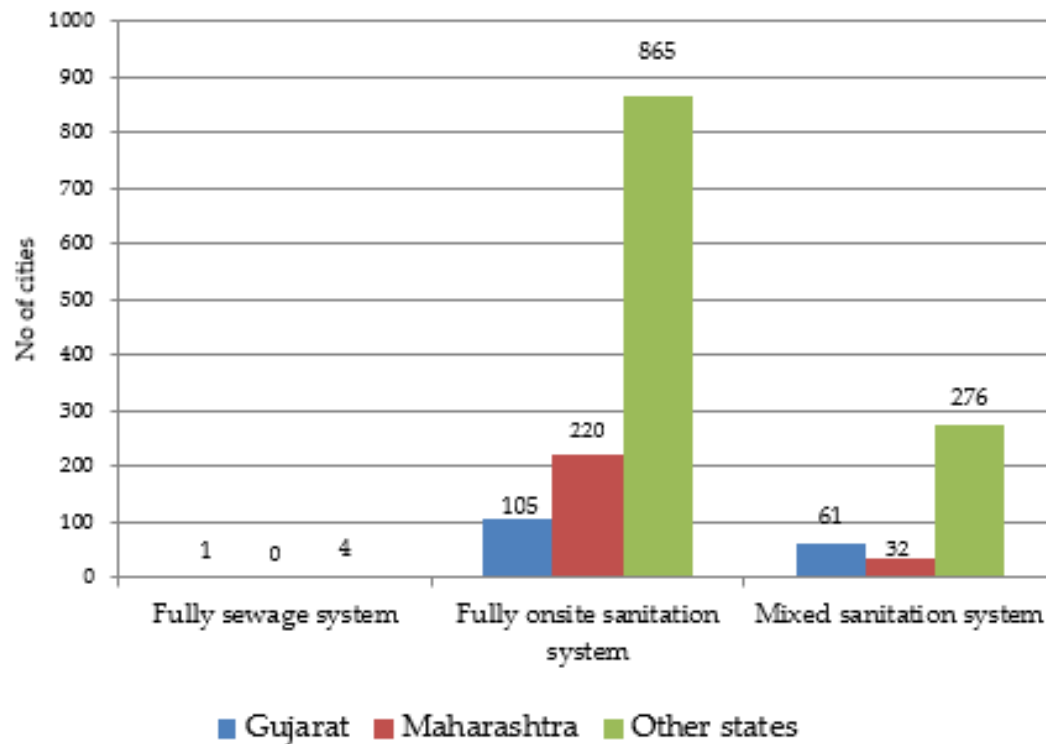
- CEPT has developed a generic Mobile Application - “**SaniTab**”
- To create database for Onsite sanitation system
- SaniTab can be used by any ULBs

“SaniTab” – Key Features:

- Citywide digital data collection tool
- Providing enabling environment for spatial analysis
- Quick and ease in survey, minimizing human error
- “Real time” monitoring of survey activity
- Survey at scale

Need for SaniTab . . .

□ Different types of sanitation systems in Urban India



India

- **90.1 % cities** are fully dependent on **onsite sanitation systems**
- **28.8 % of cities** are dependent on **mixed sanitation systems**

Gujarat

- **62.9 % cities** are fully dependent on **onsite sanitation systems**
- **36.5 % of cities** are dependent on **mixed sanitation systems**

Maharashtra

- **87.3 % cities** are fully dependent on **onsite sanitation systems**
- **12.7 % of cities** are dependent on **mixed sanitation systems**

MAJOR DEPENDENCY ON ONSITE and MIXED SANITATION SYSTEMS . . .

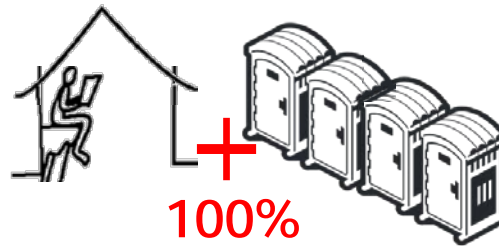
Absence of database related to onsite sanitation system

ODF, ODF + and ODF ++ concept for MAHARASHTRA . . .

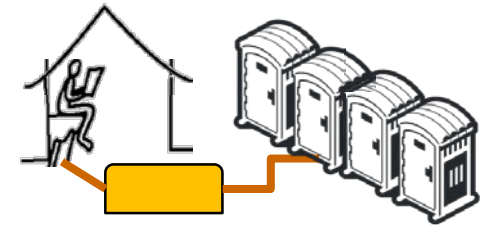
ODF



No visible OD, faeces



100% access to own/community/
public toilet

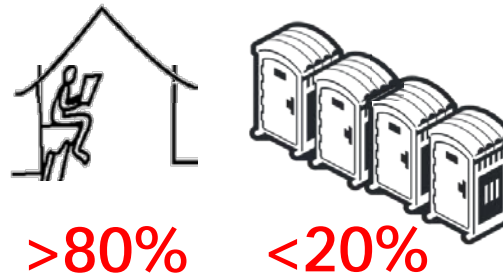


All toilets connected to disposal
system

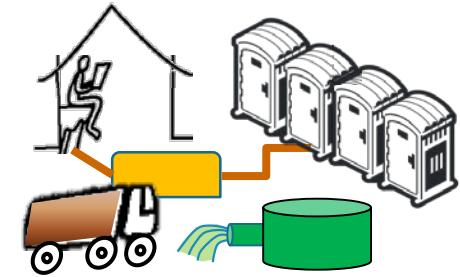
ODF+



No visible OD, faeces



At least 80% access to own
toilet; rest CT/PT

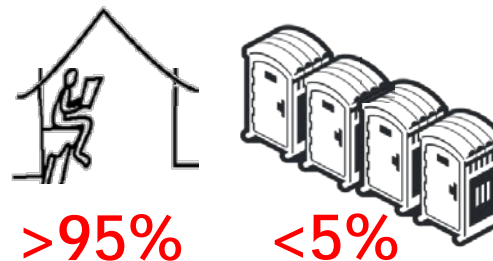


All toilets connected to disposal
system; safe collection conveyance
and treatment

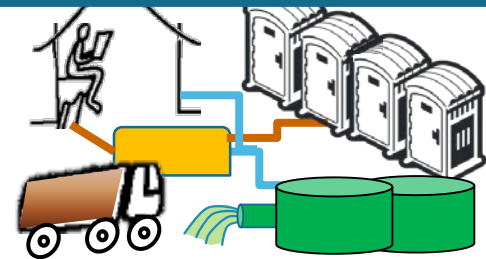
ODF++



No visible OD, faeces



At least 95% access to own
toilet; rest CT/PT



All toilets connected to disposal
system; safe collection conveyance
and treatment including
effluent/grey water

SaniTab Survey **questionnaires** . . .

SaniTab by default incorporates **four** different questionnaires:

- ▣ ODF: Open Defecation Free (ODF)
- ▣ FSM: Faecal Sludge Management (FSM)
- ▣ Integrated i.e. ODF + FSM (ODF+)
- ▣ Basic Information

Based on information required by the city. . .

ODF Questionnaire : Creating database on HHs not having toilets

Designed to **capture** and assess **information on households that do not have their own toilet**

- ❑ **Dependency** on CT or resorting to OD
- ❑ How many **members** in the family **use** what kind of toilet facility.
- ❑ **Willingness** to build own toilets / Shared toilet
- ❑ **Financial capability**
- ❑ **Reasons for not interested** in building toilets

Sample Questionnaire

Q No	Question	Options
12	What is the tenure status of this property?	1 Owner occupied 2 Tenant occupied
13	Please provide the name of the owner of this property: -	1 Name _____ 2 Don't Know
14	Please provide a mobile contact no. of owner	1 Number ____ 2 Don't Know
15	How many persons are there in this household? (for Commercial, Approximate numbers of toilet users)	children (less than 6 year): ____, Other Male: ____ Other female: ____
16	Do you have your own toilet on your premises?	1 Yes 2 No
17	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 Use a toilet shared with neighbours 2 Use a community toilet 3 Use a public toilet 4 Open defecation 5 Others, specify _____
18	How much do you spend per month for the use of other toilets?	-----Rs/month
19	Are you willing to construct your own toilet?	1 Yes 2 No
20	Can you explain why you are not willing to construct a toilet?	1 Can't afford 2 No Space 3 Tenant 4 Fear of eviction/demolition 5 Land tenure/ Ownership issues 6 Lack of water connection 7 Community Toilets are good 8 Don't feel the need 9 Others, specify _____
21	Are you willing to/ can you construct a common /group toilet or a common septic tank to be shared between you and your neighbours?	1 Yes 2 No
22	Please indicate an amount that you can contribute from your own savings or borrowings from friends/relatives etc. for construction of a toilet (Rs.) Do any members have a regular salaried job?	1 Rs. ____ 2 Don't know Yes: __ No: ____
24	Please provide details of institutions where any of the household members have accounts?	1 Commercial Banks 2 Urban Cooperative Banks 3 Credit Cooperative Societies 4 Others, specify _____
25	Do any women in the house belong to Self Help Group?	1 Yes 2 No 3 No women in the house
26	Do you think you can get a loan for building your toilet?	1 Yes 2 No because don't know any options to get such a loan 3 No - can mobilize the amount easily 4 Not sure/ Don't know
27	Please provide the Aadhar card no. of the head of the household	1 Number ____ 2 Don't have Aadhar card

FSM Questionnaire : Creating Database for Onsite Sanitation System

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 cleaned.
- ❑ Cleaning frequency of septic tanks
- ❑ Problems encountered while cleaning of septic tanks
- ❑ Reasons for emptying septic tanks

Sample Questionnaire

Q No	Question	Options
20	Please provide a mobile Contact no. of head of the household	1 _____ Last name _____ Number _____
21	What is the tenure status of this property?	1 Owner occupied 2 Tenant occupied
22	Please provide the name of the owner of this property:	1 Name _____ 2 Don't Know
23	Please provide a mobile contact no. of owner	1 Number _____ 2 Don't Know
24	How many persons are there in this household? (for Commercial, approx numbers of toilet users)	children (less than 6 year): _____, Other Male: _____ Other female: _____
25	Do you have your own toilet on your premises?	1 Yes 2 No
26	What is your own toilet connected to for disposal?	1 Sewer Network 2 Septic tank with soak pit 3 Septic tank connected to open/closed drain 4 Single Pit 5 Double pit 6 Directly to open/closed drains 7 Others, specify _____
27	No. of septic tanks in the property	1 1 2 2 3 3 4 Don't Know
28	Type of septic tank: 1. Individual 2. Shared	1 Individual 2 Shared
29	This property shares septic tank with: _____	
30	What is the shape of your septic tank	1 Rectangular 2 Circular 3 Don't Know
31	Provide dimensions: ("L" relevant only if rectangular) - _____ • _____	1 Don't know 2 Length (ft.) _____ 3 Breadth/Diameter (ft.) _____ 4 Depth (ft.) _____
32	Septic tank outfall is connected to	1 Soak pit 2 Open drain 3 Covered drain 4 Open land 5 Others, specify 6 Don't Know
33	When was the septic tank emptied the last time?	1 Last 6 months 2 From 6 to 12 months 3 12-24 months 4 24-36 months 5 More than 36 months 6 Never emptied 7 Don't know/Remember
34	Why was the septic tank emptied?	1 Blocked toilet 2 Overflow from access hole/manhole 3 Smell 4 Others, specify _____

Integrated Questionnaire : ODF + IFSM . . .

- Captures **both** the **aspects** that are covered in **ODF & IFSM questionnaire. . .**

Q No	Question	Options
1	Form id	
2	Locality type	1 Slum 2 Non-Slum
3	What is the name of the locality?	Locality Name _____
4	Ward no:	1 Number _____
5	Property number as per Council property tax records:	1 Number _____
6	Status of property during the survey	1 Open 2 Locked 3 Vacant
7	Type of Property	1 Residential 2 Institutional 3 Commercial 4 Mixed
8	Mark the house typology (only if 7 = Residential)	1 Bungalow 2 Apartment 3 Row House 4 Wada 5 Chawl 6 Hut 7 Others, specify _____
9	Select the type of institution (only if 7 = Institutional)	1 Hospital 2 Dispensary 3 School/College 4 Religious Institutions 5 Government Office 6 Others, specify _____
10	Select the type of commercial (only if 7 = Commercial)	1 Industry 2 Shop 3 Hotel / Lodge 4 Others, specify _____
11	Name of Apartment/Building:	
12	Number of Blocks	Number _____
13	Name of the respondent/ building secretary:	1 First name _____ Middle name _____ Last name _____
14	Contact no. of building secretary:	1 Number _____
15	How many flats are there in this apartment?	1 Number _____ 2 Don't know
16	How many toilets are there in this property?	1 Number _____ 2 Don't Know
17	Number of flats that are occupied	1 _____
18	How many households are there on this property?	Number _____
19	Name of the respondent/Head of the Household	1 First name _____ Middle name _____ Last name _____
20	Please provide a mobile Contact no. of head of the household	1 Number _____

Q No	Question	Options
21	What is the tenure status of this property?	1 Owner occupied 2 Tenant occupied
22	Please provide the name of the owner of this property:	1 Name _____ 2 Don't Know
23	Please provide a mobile contact no. of owner	1 Number _____ 2 Don't Know
24	How many persons are there in this household? (for Commercial, Approximate numbers of toilet users)	1 Male: _____ Other female: _____ 2 children (less than 6 year): _____, Other
25	Do you have your own toilet on your premises?	1 Yes 2 No
26	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 Use a toilet shared with neighbours 2 Use a community toilet 3 Use a public toilet 4 Open defecation 5 Others, specify _____
27	How much do you spend per month for the use of other toilets?	1 _____Rs/month 2 No
28	Are you willing to construct your own toilet?	1 Yes 2 No
29	Can you explain why you are not willing to construct a toilet?	1 Can't afford 2 No Space 3 Tenant 4 Fear of eviction/demolition 5 Land tenure/ Ownership issues 6 Lack of water connection 7 Community Toilets are good 8 Don't feel the need 9 Others, specify _____
30	Are you willing to/ can you construct a common /group toilet or a common septic tank to be shared between you and your neighbours?	1 Yes 2 No
31	Indicate an amount that you can contribute from your savings or borrowings from friends/relatives etc. for construction of a toilet (Rs.)	1 Rs. _____ 2 Don't know
32	Do any members have a regular salaried job?	Yes: No: _____
33	Please provide details of institutions where any of the household members have accounts?	1 Commercial Banks 2 Urban Cooperative Banks 3 Credit Cooperative Societies 4 Others, specify _____
34	Do any women in the house belong to Self Help Group?	1 Yes 2 No 3 No women in the house
35	Do you think you can get a loan for building your toilet?	1 Yes 2 No because don't know any options to get such a loan 3 No - can mobilize the amount easily 4 Not sure/ Don't know
36	Please provide the Aadhar card no. of the head of the household	1 Number _____ 2 Do not have Aadhar card
37	Do all family members use the toilet regularly?	1 Yes 2 No
38	Who are the non-users? (allow multiple selection)	1 Children under 6 years 2 Male members

Sample Questionnaire

Basic Questionnaire : Creating database of toilet and onsite sanitation facility

Designed to **capture** and generate **basic information** on sanitation system prevalent **in the city**

- ❑ **Type of toilet dependency** of the household/property
- ❑ Where is the **toilet connected to**
- ❑ **Number of septic tanks**

Sample Questionnaire

Q No	Question		Options
1	Form id		
2	Locality type	1 2	Slum Non-Slum
3	What is the name of the locality?		Locality Name _____
4	Ward no:	1	Number _____
5	Property number as per Council property tax records:	1	Number _____
6	Status of property during the survey	1 2 3	Open Locked Vacant
7	Type of Property	1 2 3	Residential Institutional Commercial
8	Mark the house typology (only if 6 = Residential)	1 2 3 4 5 6 7	Bungalow Apartment Row House Wada Chawl Hut Others, specify _____
9	Select the type of institution (only if 6 = Institutional)	1 2 3 4 5 6	Hospital Dispensary School/College Religious Institutions Government Office Others, specify _____
10	Select the type of commercial (only if 6 = Commercial)	1 2 3 4	Industry Shop Hotel / Lodge Others, specify _____
11	Name of Apartment/Building:		
12	Number of Blocks		Number _____
13	Name of the respondent/ building secretary:	1	First name _____ Middle name _____ Last name _____
14	Contact no. of building secretary:	1	Number _____
15	How many flats are there in this apartment?	1 2	Number _____ Don't know
16	How many toilets are there in this property?	1 2	Number _____ Don't Know
17	Number of flats that are occupied	1	Number _____
18	How many households are there on this property?		Number _____
19	Do you have your own toilet on your premises?	1 2	Yes No
20	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 2 3	Use a toilet shared with neighbours Use a community toilet Use a public toilet

“SaniTab” Training Module for surveyors

- Training module for surveyors capture:
 - **DOs and DONTs**
 - **Steps to install application** and Login process
 - **Field guide** / Training Manual
 - Question wise **points to remember**



SANITab

Manual for conducting Household Level Sanitation Surveys through Android based Mobile Application (Draft Report)

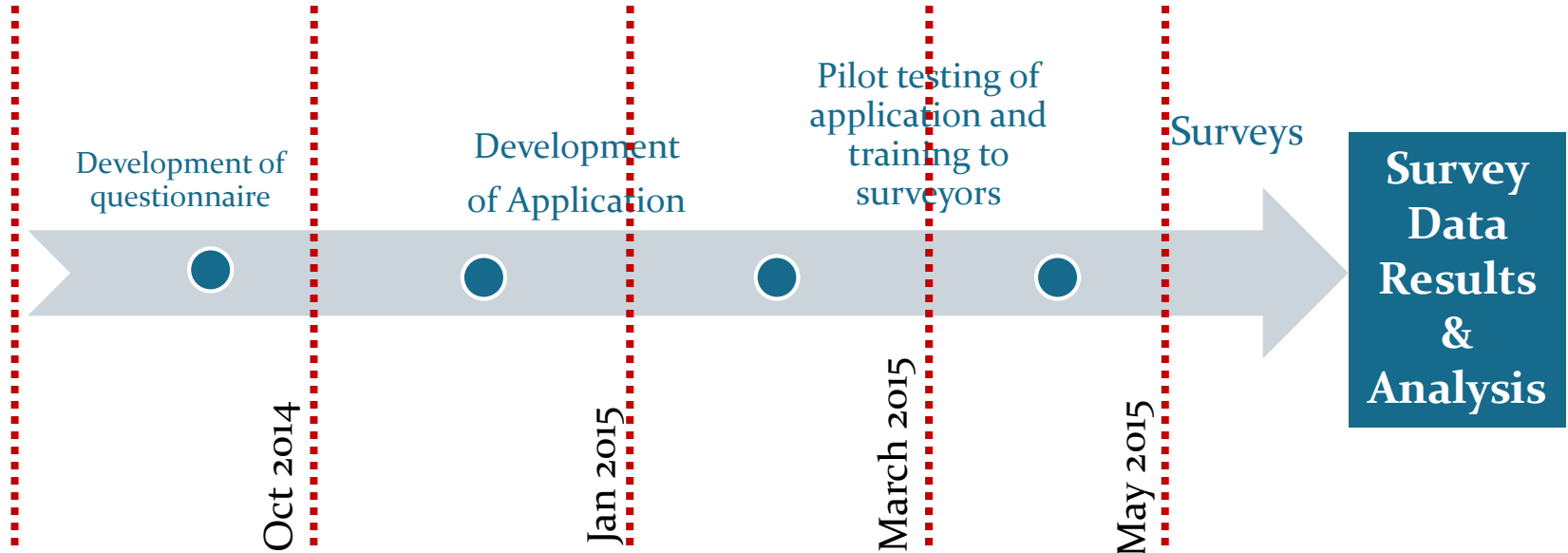
Prepared by:
CEPT University and AIIILSG
2015

Property Level Sanitation Surveys



SaniTab

To generate household level database for monitoring of various sanitation schemes



Key Survey Results

83% have own toilets - more than census figure (**68%**)

2.1% resort to OD which is more than census (**2%**)

“Can’t afford” is the key reason for not having toilet

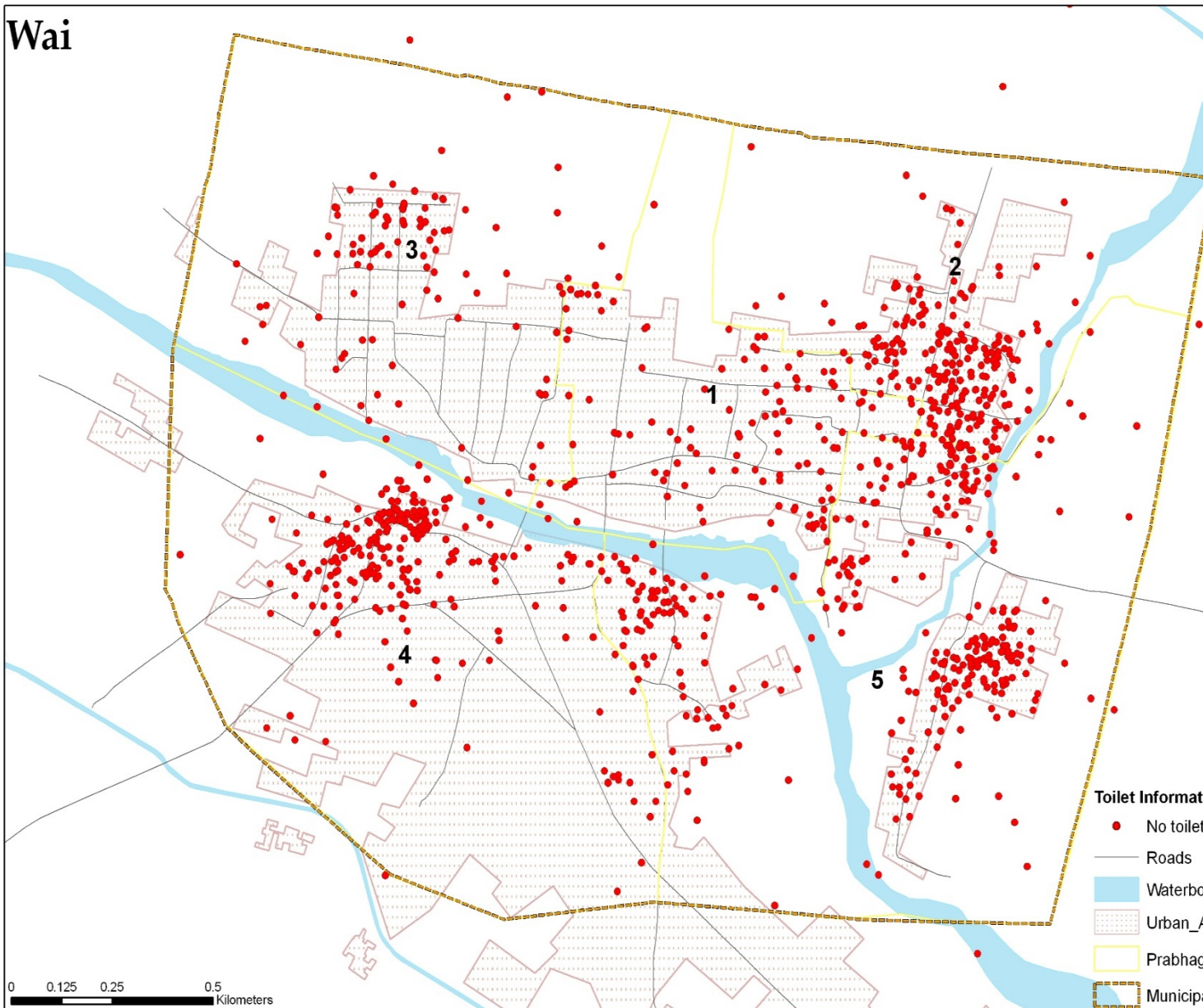
51% are willing to construct group toilet

40% are willing to take loan

99% toilets are connected to septic tank

Average frequency of cleaning of STs is **6 years**

Wai



Toilet Information

● No toilet

— Roads

Waterbodies

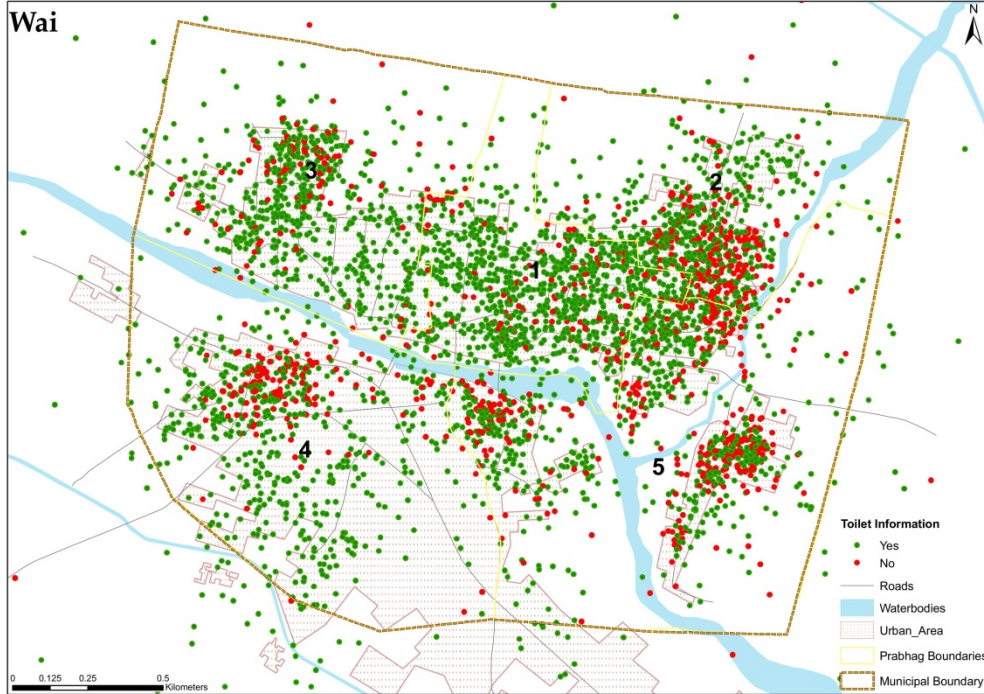
Urban_Ar

Prabhag B

Municipal

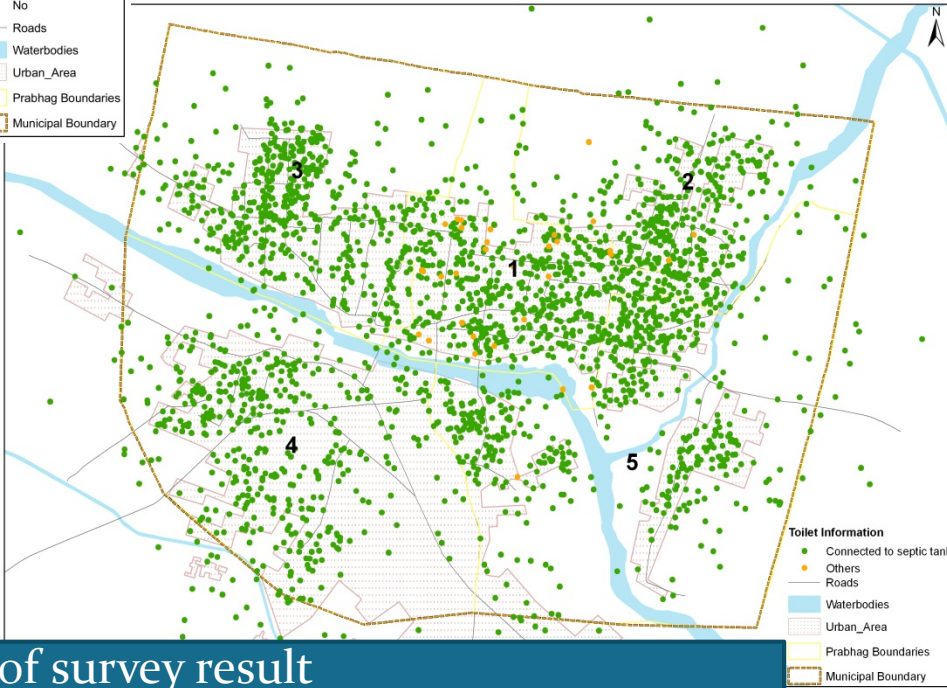
0 0.125 0.25 0.5 Kilometers

Key Survey Results



Map depicts HHs with toilets & Major areas where HHs don't have toilets

Map depicts HHs with toilets connected to septic tanks





SaniTab Online Dashboard

HOME

SURVEY TEMPLATES

REPORTS

SURVEY GIS

USER LOGIN



Welcome to CEPT / AILSG Smart Survey System

Login ID

Password

Create new account

Request new password

Log in



Mobile Survey Form



CEPT partnered with AILSG and Etamine PGG to develop SANITab, a mobile application on Android developed to collect data, eminently customisable, easy to administer, and that provides quick analyses of surveyed data. This application is easy to replicate across cities, and can be customized to meet various sanitation objectives.



SaniTab: Dashboard (Snapshot – 1)

[HOME](#)[SURVEY TEMPLATES](#)[REPORTS](#)[SURVEY GIS](#)

Home » Home

[Demographics](#)[Toilets Availability](#)[Septic Tank](#)[Credits Options](#)[Strategy](#)[Mapping](#)

Total Number of
Properties



6044

Total Surveyed
Properties



1295

District
Population



36025

[HOME](#)[SURVEY TEMPLATES](#)[REPORTS](#)[SURVEY GIS](#)

Home » Surveys Conducted Per Template

[Custom Report](#)[Generate Full Report](#)[Generate Upload Time Report](#)[Generate Surveyor Report](#)[Unsurveyed Property List](#)[Full Report For Editing](#)[Upload Edited Data](#)[Recover Survey Data](#)

Survey Template	Description	No. of Surveys
ODF-Marathi-HH	ODF M-02 version 01.04	1
Waicity-English-Appt	Waicity-90.01.01	55
Waicity-English-Res-Com	Waicity English survey template 479.591.403	8
Waicity-Marathi-Apt	Waicity M-02	483
Waicity-Marathi-Res-Comm	Waicity M-08	7635

SaniTab: Dashboard (Snapshot – 2)

- HOME
- SURVEY TEMPLATES
- REPORTS
- SURVEY GIS

Home » Home

- Demographics
- Toilets Availability
- Septic Tank
- Credits Options
- Strategy
- Mapping

Wai



Population

36025

Class

C

District

Satara

Sanitation Profile- Census 2011

Total No. Households

7,580

Toilets

5,145

Households - Open Defecation

135

Households - Community Toilets

2,300

Toilets With Septic Tanks

4,429

Total Number of Properties



6044

Total Surveyed Properties



1295

District Population



36025

Ward 1

568

Ward 2

610

Ward 3

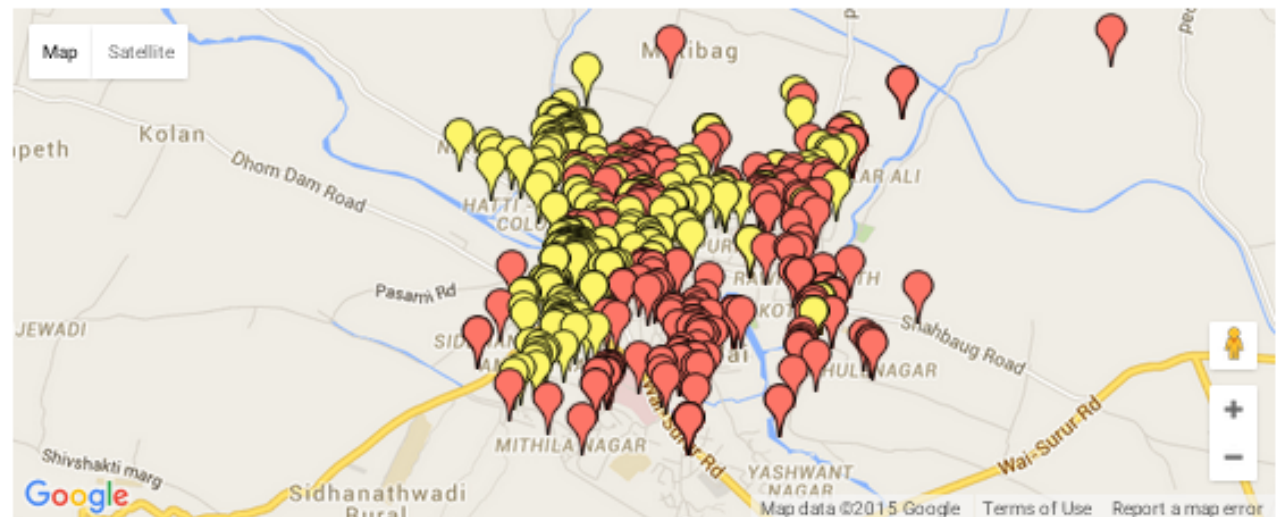
0

Ward 4

0

Ward 5

0



SaniTab: Dashboard (Snapshot - 3)

HOME

SURVEY TEMPLATES

REPORTS

SURVEY GIS

Home » Home

Demographics

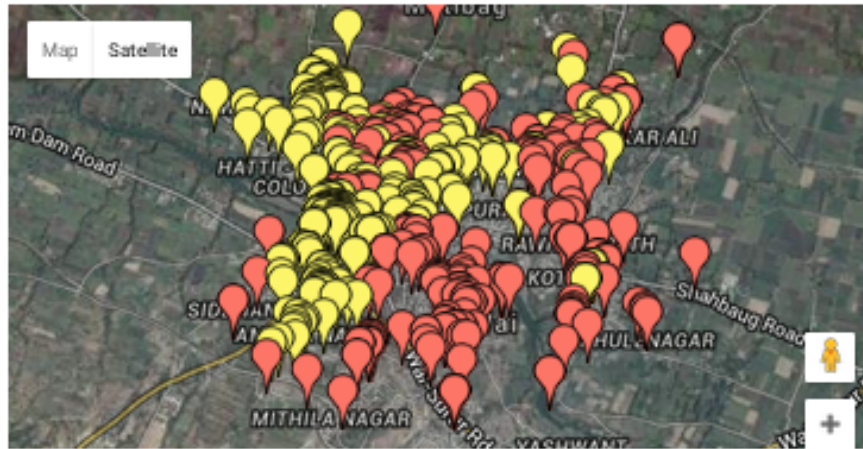
Toilets Availability

Septic Tank

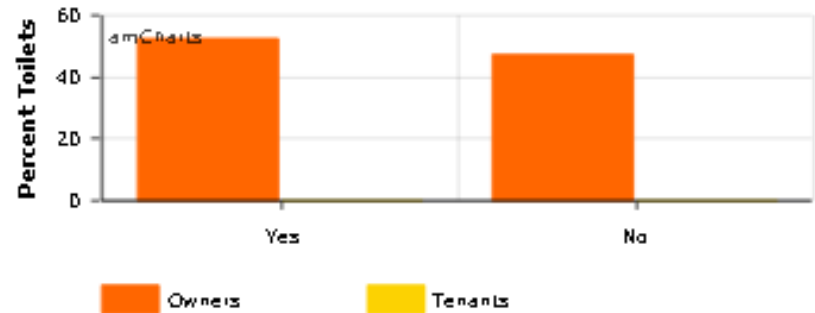
Credits Options

Strategy

Mapping



undefined
% of Owners having latrine facility within premise

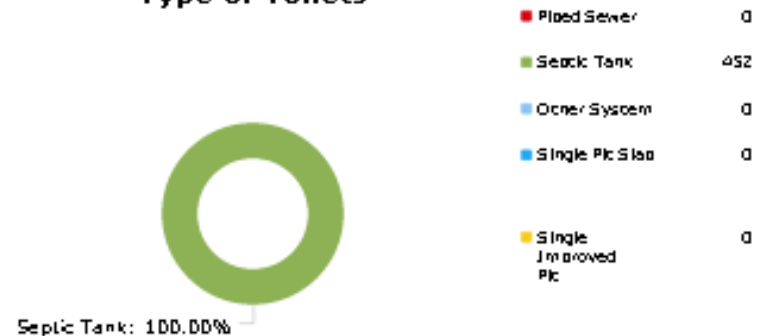


Click Next to See - Further Details

amCharts
Households Having Latrine Within Premises



Type of Toilets



SaniTab: Dashboard (Snapshot - 4)

HOME

SURVEY TEMPLATES

REPORTS

SURVEY GIS

Home » Home

Demographics

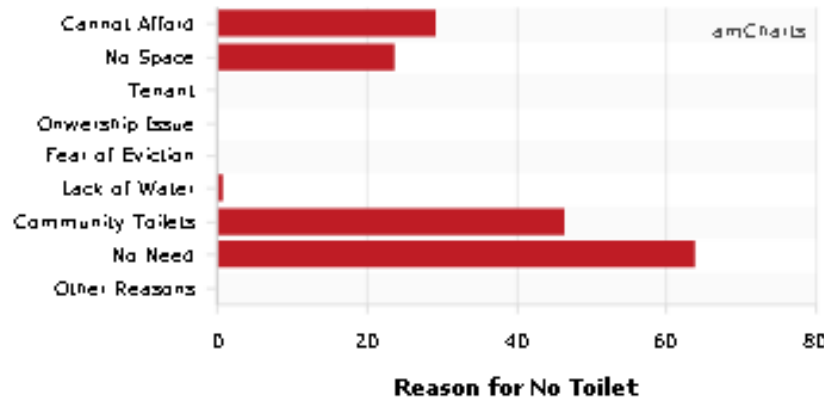
Toilets Availability

Septic Tank

Credits Options

Strategy

Mapping



Click Back to Go Back to Previous

Reason for Lack of Willingness to Construct Own Toilets



Reason	Count
Cannot Afford	25
No Space	25
Tenant	1
Ownership Issue	2
Fear of Eviction	1
Lack of Water	1
Community Toilets	85
No Need	153
Other Reasons	0

Households Willing to Construct Toilet	243
Households NOT Willing to Construct Toilet	168
Households Willing to Share & Construct Toilet	80
Households Having Space to Construct Septic Tank	80
Households Having Space to Construct Toilet	84

SaniTab: Dashboard (Snapshot - 5)

HOME

SURVEY TEMPLATES

REPORTS

SURVEY GIS

Home » Home

Demographics

Toilets Availability

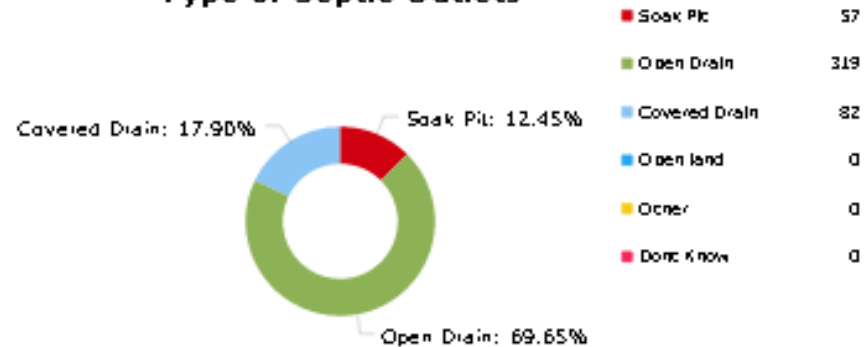
Septic Tank

Credits Options

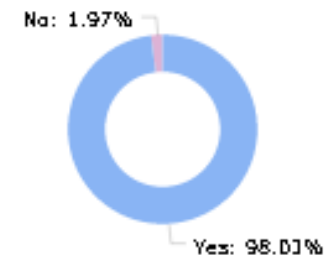
Strategy

Mapping

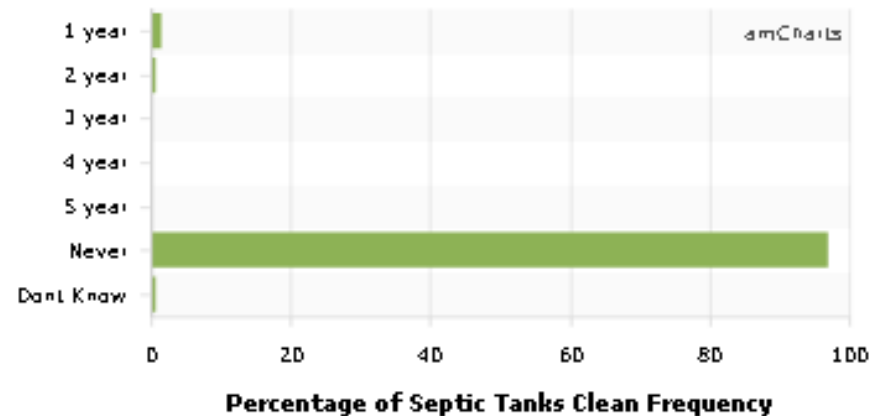
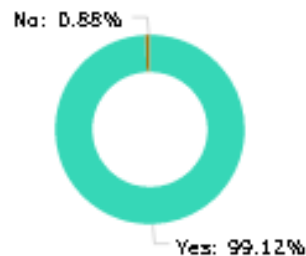
Type of Septic Outlets



% of Septic Tanks with Proper Cover or Manholes



Septic Tanks accessible to Suction Emptyer Trucks



SaniTab: Dashboard (Snapshot - 6)

HOME

SURVEY TEMPLATES

REPORTS

SURVEY GIS

Home » Home

Demographics

Toilets Availability

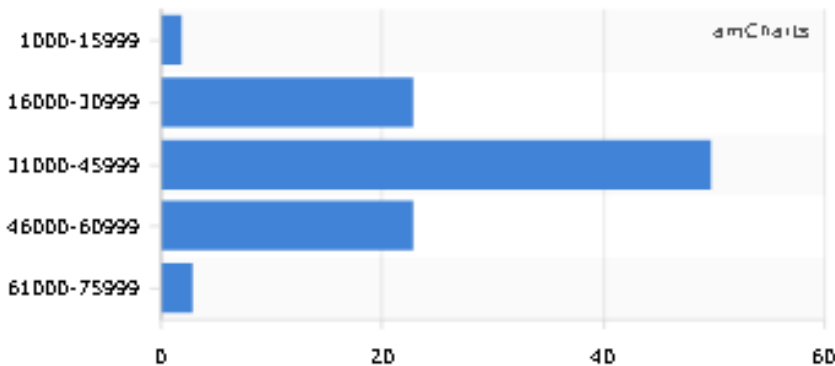
Septic Tank

Credits Options

Strategy

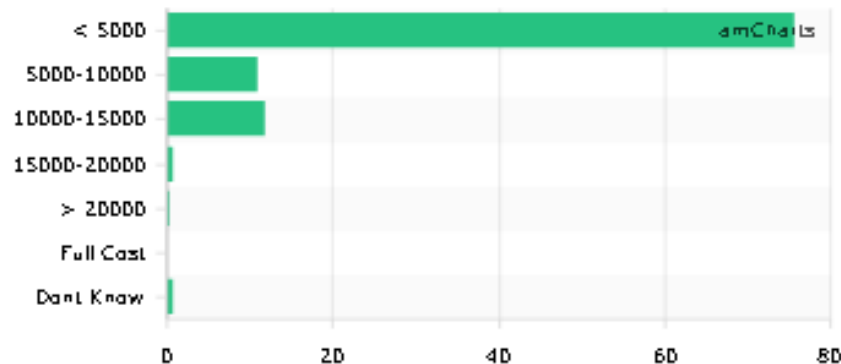
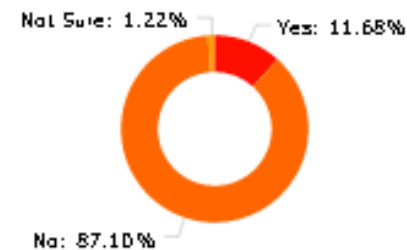
Mapping

amCharts

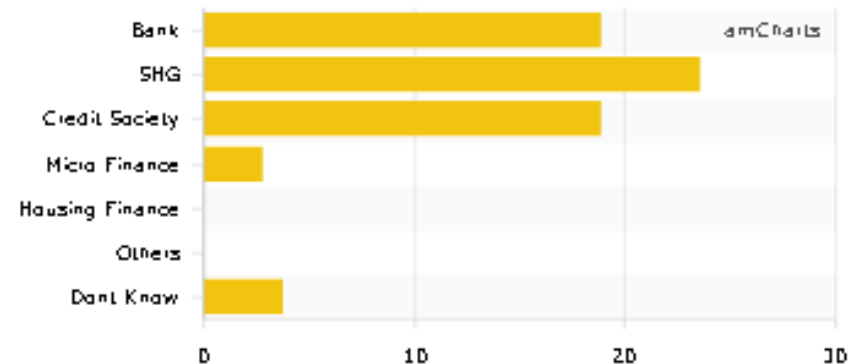


Perceived cost of Toilet in %

Willing to Take Loan (%)



Contribution towards Toilet Construction %



Option Chosen for Toilet Loans %

SaniTab – Screenshots . . .

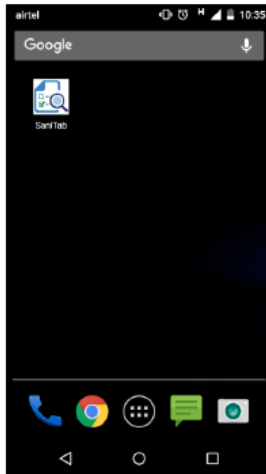


Figure 1: SaniTab icon on tablet/mobile screen

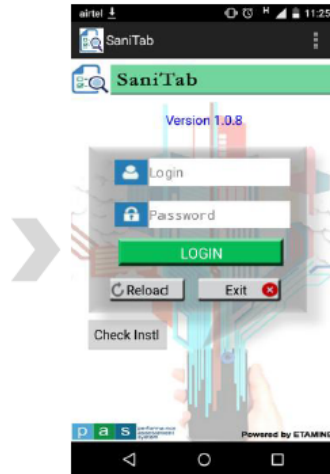


Figure 2: SaniTab home screen.

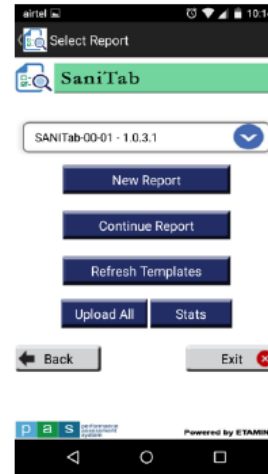


Figure 3: SaniTab screen for selection of the survey.



Figure 4: Dropdown menu on the application screen for selection of the survey to be conducted.

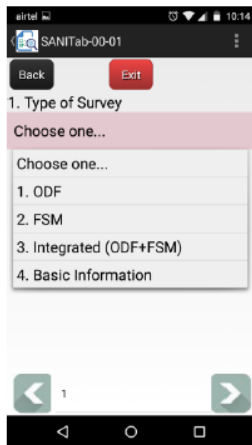


Figure 5: Dropdown menu for type of survey to be conducted.

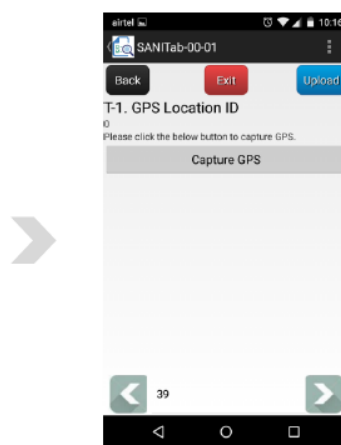


Figure 6: Application screen to upload GPS Location

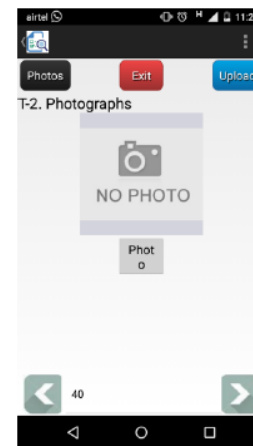


Figure 7: Application screen to upload Photographs

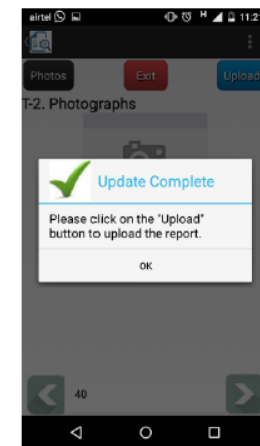


Figure 8: Application screen to upload the survey on completion

Video on how to use the App . . .



Thank you

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