



SANITab

Manual for conducting Household Level Sanitation Surveys
through Android based Mobile Application

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Introduction

PAS Project's work on Sanitation is rooted in the context of Government of India's National Urban Sanitation Policy' (2008) that aims to transform urban India into a totally sanitized, healthy and liveable environment and recently launched 'Swachh Bharat Mission' with a goal of making country Open Defecation Free by 2019. In partnership with Water Supply and Sanitation Department (WSSD), Government of Maharashtra and Maharashtra Jeevan Pradhikaran (MJP), PAS used its integrated and full value-chain framework to prepare City Sanitation Plans (CSPs) for small towns in Maharashtra. In this context, PAS team is now providing technical support to small cities of Maharashtra in developing and implementing city level sanitation improvement schemes

The absence of actionable information on sanitation systems at household level is a key challenge in planning for, and achieving the objectives of, the broad sanitation objectives set forth in national and state level programmes. An easy-to-use and scalable solution to help establish this information will help cities plan and govern better.

Context

Government of India (GoI) has launched the Swachh Bharat Mission (SBM) and the AMRUT programme, with a renewed emphasis on improving access and coverage of sanitation services in cities. An analysis of the gazetted information on Service Level Benchmarks (SLB) suggests that only five cities in India have 100 percent coverage of sewerage connections. On the other hand, many cities depend fully on onsite sanitation systems. In most cities with sewer network, there is only partial coverage of the network. Properties serviced with onsite sanitation systems are higher than those with sewer network connections in India as shown by the Census of India 2011 results; 40 percent of households with toilets connected to sewer network as compared to 60 percent that depend on onsite sanitation systems, mainly septic tanks. So while toilets are an essential part of overcoming the sanitation challenge, the true objectives of SBM would be met only when coupled with measures to reduce the amount of untreated waste.

Over the 5 years of administering the Performance Assessment System (PAS) in the cities of Maharashtra, it was clear that for an effective action plan to improve service levels of sanitation, a robust baseline information was needed. Even though the cities had deployed e-governance systems, there were specific aspects of sanitation performance that were not being captured. For example, there was inadequate information in the system on the status of toilets and onsite waste disposal systems like septic tanks. The user side of sanitation services (e.g. usage of toilets) were not available either.

There are two broad schemes for sanitation improvement:

- 1) Open Defecation Free (ODF) cities: Though cities could inform about the prevalence of open defecation, accurate information was not available on the number of households or persons resorting to open defecation (OD). Under the Swachh Bharat Mission and the Swachh Maharashtra Abhiyan, ODF mission, to target and provide access to toilets, this info was critical. The only available info on household status came from the census, at city level; household level info was not available. For a successful rollout of toilet construction schemes, it was essential to have accurate info about the number of HHs willing to construct and use toilets.

- 2) **Integrated Faecal Sludge Management (IFSM):** Many cities in India have a high prevalence of onsite sanitation systems like septic tanks. Most of these cities also have inadequate septage treatment facilities, and therefore for meeting the objectives of SBM it was essential to plan and design the treatment facilities and a sustainable faecal sludge management system. However, cities did not have essential information to assess either the volume of septage generated or the emptying cycle.

Within these broad sanitation improvement initiatives, it was essential to have an easy to use, replicable and scalable system for collecting such data and establishing a baseline. Manual surveys would have meant more manpower, manual data entry for analysis and processing, and the possibility of accruing errors. Under the project, hence, it was decided to develop a mobile based surveying application which could be used easily through smartphones or tablets. The application would then enable cities to carry out different surveys, and easily collect relevant information.

SANITab

CEPT partnered with AILSG to develop version 1 of SANITab, a mobile application on Android developed to collect such 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 customised to meet various sanitation objectives. The objective of this application is to help cities assess its sanitation situation, 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. The intention of this survey is to help Cities provide better sanitation and serve citizens in a better way.

The city could use the data collected using SANITab to establish an MIS and use it to monitor the progress of the improvement schemes. The application is coupled with a server to submit data collected on the field by multiple surveyors. In addition to text based questions, the application also allows capture of photos and GPS coordinates for quick and easy spatial mapping. The server also provides an online dashboard for the city administration to have quick analysis of the survey results, and for exploring various relations. The app presents the survey questionnaires in an adaptive way, displaying only the relevant questions depending on the answers of previous questions.

Version1 of SANITab was revised by CEPT (PAS Project) with a standard compliant design to increase its responsiveness. The app is now faster and lightweight. Multiple numbers of surveyors can concurrently use the app with ease.

Features of SANITab

Mobile Interface of SANITab: the tool includes features such as

- Creation of a custom survey form
- Geo-tagging survey forms
- Clicking pictures using on-device camera
- Validation checks for the data entered
- The app enables creation of 'branches' within a form. Branches are logical diversions from the main questionnaire based on the response.

SaniTab Surveys

SANITab by default incorporates an Integrated questionnaire, which can be used to conduct four different types of surveys:

1. ODF: Open Defecation Free (city)
2. FSM: Faecal Sludge Management
3. Integrated i.e. ODF + FSM
4. Basic Information

ODF Survey Questionnaire

The ODF survey is designed to capture information on households that do not have their own toilet and hence resort to defecate in the open. The survey captures the willingness of an individual to build his/her own toilet or a shared toilet, along with a quick assessment of their financial capability to do the same. In case of households that are not interested in constructing a toilet, their reasons to not do so are also captured. Table 1 below lists the questions used in SANITab to capture the ODF related information.

Table 1: ODF 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	How many households are there on this property?		Number ____
10	Name of the respondent/Head of the Household	1	First name _____ Middle name _____ Last name _____
11	Please provide a mobile Contact no. of head of the household/ incharge of the property	1	Number ____
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

Q No	Question	Options	
15	How many persons are there in this household?	1	Children (less than 6 year): ____ Male: ____ Female: ____
16	Approximate numbers of toilet users	1 2 3	Children (less than 6 year): ____ Male: ____ Female: ____
17	Do you have your own toilet on your premises?	1 2	Yes No
18	How many toilets are there in this property?	1 2	Number _____ Don't Know
19	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 2 3 4 5	Use a toilet shared with neighbours Use a community toilet Use a public toilet Open defecation Others, specify _____
20	How much do you spend per month for the use of other toilets?		-----Rs/month
21	Are you willing to construct your own toilet?	1 2	Yes No
22	Can you explain why you are not willing to construct a toilet?	1 2 3 4 5 6 7 8 9	Can't afford No Space Tenant Fear of eviction/demolition Land tenure/ Ownership issues Lack of water connection Community Toilets are good Don't feel the need Others, specify _____
23	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 2	Yes No
24	Do you have space for construction of toilet?	1 2	Yes No
25	Please indicate an amount that you can contribute from your own savings or borrowings from friends/relatives etc. for construction of a toilet (Rs.)	1 2	Rs. ____ Don't know
26	Do any members have a regular salaried job?	1 2	Yes: __ No: ____
27	Please provide details of institutions where any of the household members have accounts?	1 2 3 4	Commercial Banks Urban Cooperative Banks Credit Cooperative Societies Others, specify _____
28	Please provide an estimate of total monthly household income including income of all members Rs/month		
29	Please provide an estimate of total monthly household expenditure Rs/month		
30	Do any women in the house belong to Self Help Group?	1 2 3	Yes No No women in the house
31	Please provide details of who this SHG is registered with.	1 2 3 4	ULB SHGs with Banks MFI Other SHGs with Banks SHG with credit co-operative

Q No	Question	Options
		5 societies Other specify _____
32	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
33	Please provide the Aadhar card no. of the head of the household	1 Number ____ 2 Do not have Aadhar card
34	Do all family members use the toilet regularly?	1 Yes 2 No
35	Who are the non-users? (allow multiple selection)	1 Children under 6 years 2 Male members 3 Female members
36	What are the reasons for not using your own individual toilet regularly?	1 No water to flush 2 Superstructure/seat broken 3 Used for some other purpose e.g. storage, etc. 4 Habitual issues 5 Others, specify _____
37	If the own /individual toilet is not functional, what do you do?	1 Use a toilet shared with neighbours 2 Use the Council community toilet 3 Use a Public toilet 4 Open defecation 5 Others, specify _____
B	GPS Location ID	
C	Photographs	

FSM Survey Questionnaire

The FSM Survey captures information on households having their own toilet, along with information on the system of disposal of the waste from these toilets with special emphasis on Septic Tanks. Detailed information is recorded on the operation and management of the septic tanks like size, frequency and method of cleaning, connection of septic tank outfall etc. Following is the set of questions being used to capture the FSM information. Table 2 below lists the questions used in SANITab to capture the FSM information.

Table 2: FSM Questionnaire

Q No	Question		Options
1	Form id		
2	Locality type	1 2	Slum Non-Slum
3 4	What is the name of the locality? Ward no:	1	Locality Name _____ 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 4	Residential Institutional Commercial Mixed
8	Mark the house typology (only if 7 = 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 7 = 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 7 = Commercial)	1 2 3 4	Industry Shop Hotel / Lodge Others, specify _____
11 12	Name of Apartment/Building: Name of the respondent/ building secretary:	1	First name _____ Middle name _____ Last name _____
13 14	Contact no. of building secretary: How many flats are there in this apartment?	1 1 2	Number _____ Number _____ Don't know
15	Number of flats that are occupied	1 2	Number _____ Don't Know
16	How many households are there on this property?		Number _____
17	Name of the respondent/Head of the Household	1	First name _____ Middle name _____ Last name _____
18	Please provide a mobile Contact no. of head of the	1	Number _____

Q No	Question		Options
	household/ incharge of the property		
19	What is the tenure status of this property?	1 2	1 Owner occupied 2 Tenant occupied
20	Please provide the name of the owner of this property: -	1 2	1 Name _____ 2 Don't Know
21	Please provide a mobile contact no. of owner	1 2	1 Number ____ 2 Don't Know
22	How many persons are there in this household? (for Commercial, approx numbers of toilet users)		children (less than 6 year): ____, Other Male: ____ Other female: ____
23	Do you have your own toilet on your premises?	1 2	1 Yes 2 No
24	How many toilets are there in this property?	1 2	1 Number: ____ 2 Don't Know
25	What is your own toilet connected to for disposal?	1 2 3 4 5 6 7	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 _____
26	No. of septic tanks in the property	1 2 3 4	1 1 2 2 3 3 4 Don't Know
27	Type of septic tank: 1. Individual 2. Shared	1 2	1 Individual 2 Shared
28	This property shares septic tank with: _____ number of properties		
29	What is the shape of your septic tank	1 2 3	1 Rectangular 2 Circular 3 Don't Know
30	Provide dimensions: (<i>"L" relevant only if rectangular</i>) - -	1 2 3 4	1 Don't know 2 Length (ft.) ____ 3 Breadth/Diameter (ft.) ____ 4 Depth (ft.) ____
31	Septic tank outfall is connected to	1 2 3 4 5 6	1 Soak pit 2 Open drain 3 Covered drain 4 Open land 5 Others, specify 6 Don't Know
32	When was the septic tank emptied the last time?	1 2 3 4 5 6 7	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
33	Why was the septic tank emptied?	1 2 3 4 5	1 Blocked toilet 2 Overflow from access hole/manhole 3 Smell 4 Regular emptying as safe practice 5 Never Emptied

Q No	Question		Options
		6	Others, specify
		7	Don't know/remember
34	Were there any problems during emptying of septic tanks?	1	Access or distance for suction truck to house
		2	Break floor tiles to access septic tank
		3	Break concrete manhole to access septic tank
		4	Difficult to locate the septic tank
		5	Smell during emptying
		6	Made a mess
		7	No problem found
		8	Others, specify
		9	Don't know
35	Is the septic tank accessible from road for cleaning by using a suction emptier truck?	1	Yes
		2	No
36	Is there proper access with manholes/covers for any of the chamber of septic tank which can be easily opened	1	Yes
		2	No
B	GPS Location ID		
C	Photographs		

Integrated (ODF + FSM) Survey Questionnaire

Cities can administer a survey targeting aspects of both ODF and FSM using the integrated questionnaire (ODF + FSM) in SANITab. This is the full set of questions currently incorporated in the app. The set of questions in the integrated survey is listed in Table 3 below.

Table 3: Integrated 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 4	Residential Institutional Commercial Mixed
8	Mark the house typology (only if 7 = 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 7 = 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 7 = 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	Number of flats that are occupied	1	
17	How many households are there on this property?		Number _____
18	Name of the respondent/Head of the Household	1	First name _____ Middle name _____ Last name _____
19	Please provide a mobile Contact no. of head of the household/ incharge of the property	1	Number _____
20	What is the tenure status of this property?	1 2	Owner occupied Tenant occupied

Q No	Question		Options
21	Please provide the name of the owner of this property: -	1 2	Name _____ Don't Know
22	Please provide a mobile contact no. of owner	1 2	Number ____ Don't Know
23	How many persons are there in this household? (for Commercial, Approximate numbers of toilet users)		children (less than 6 year): ____, Other Male: ____ Other female: ____
24	Do you have your own toilet on your premises?	1 2	Yes No
25	How many toilets are there in this property?	1 2	Number: ____ Don't Know
26	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 2 3 4 5	Use a toilet shared with neighbours Use a community toilet Use a public toilet Open defecation Others, specify _____
27	How much do you spend per month for the use of other toilets?		-----Rs/month
28	Are you willing to construct your own toilet?	1 2	Yes No
29	Can you explain why you are not willing to construct a toilet?	1 2 3 4 5 6 7 8 9	Can't afford No Space Tenant Fear of eviction/demolition Land tenure/ Ownership issues Lack of water connection Community Toilets are good Don't feel the need 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 2	Yes No
31	Do you have space for construction of toilet?	1 2	Yes No
32	Indicate an amount that you can contribute from your savings or borrowings from friends/relatives etc. for construction of a toilet (Rs.)	1 2	Rs. ____ Don't know
33	Do any members have a regular salaried job?		Yes: __ No: __
34	Please provide details of institutions where any of the household members have accounts?	1 2 3 4	Commercial Banks Urban Cooperative Banks Credit Cooperative Societies Others, specify _____
35	Please provide an estimate of total monthly household income including income of all members Rs/month		
36	Please provide an estimate of total monthly household expenditure Rs/month		
37	Do any women in the house belong to Self Help Group?	1 2 3	Yes No No women in the house
38	Please provide details of who this SHG is registered with.	1 2 3	ULB SHGs with Banks MFI Other SHGs with Banks

Q No	Question		Options
		4	SHG with credit co-operative societies
		5	Other specify _____
39	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
40	Please provide the Aadhar card no. of the head of the household	1	Number _____
		2	Do not have Aadhar card
41	Do all family members use the toilet regularly?	1	Yes
		2	No
42	Who are the non-users? (allow multiple selection)	1	Children under 6 years
		2	Male members
		3	Female members
43	What are the reasons for not using your own individual toilet regularly?	1	No water to flush
		2	Superstructure/seat broken
		3	Used for some other purpose e.g. storage, etc.
		4	Habitual issues
		5	Others, specify _____
44	If the own /individual toilet is not functional, what do you do?	1	Use a toilet shared with neighbours
		2	Use the Council community toilet
		3	Use a Public toilet
		4	Open defecation
		5	Others, specify _____
45	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 _____
46	No. of septic tanks in the property	1	1
		2	2
		3	3
		4	Don't Know
47	Type of septic tank	1	Individual
		2	Shared
48	This property shares septic tank with: _____ number of properties		
49	What is the shape of your septic tank	1	Rectangular
		2	Circular
		3	Don't Know
50	Provide dimensions: (<i>"L" relevant only if rectangular</i>)	1	Don't know
	-	2	Length (ft.) _____
	-	3	Breadth/Diameter (ft.) _____
		4	Depth (ft.) _____
51	Septic tank outfall is connected to	1	Soak pit
		2	Open drain
		3	Covered drain

Q No	Question		Options
		4 5 6	Open land Others, specify Don't Know
52	When was the septic tank emptied the last time?	1 2 3 4 5 6 7	Last 6 months From 6 to 12 months 12-24 months 24-36 months More than 36 months Never emptied Don't know/Remember
53	Why was the septic tank emptied?	1 2 3 4 5	Blocked toilet Overflow from access hole/manhole Smell Others, specify Don't know/remember
54	Were there any problems during emptying of septic tanks?	1 2 3 4 5 6 7 8 9	Access or distance for suction truck to house Break floor tiles to access septic tank Break concrete manhole to access septic tank Difficult to locate the septic tank Smell during emptying Made a mess No problem found Others, specify Don't know
55	Is the septic tank accessible from road for cleaning by using a suction emptier truck?	1 2	Yes No
56	Is there proper access with manholes/covers for any of the chamber of septic tank which can be easily opened	1 2	Yes No
B	GPS Location ID		
C	Photographs		

Basic Info Questionnaire

For cities to get the basic information regarding the existing situation of sanitation, which is essential to assess and plan for improvement, SANITab also includes an option for a minimal questionnaire as listed in Table 4 below.

Table 4: Basic Info 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	Name of the respondent/ building secretary:	1	First name _____ Middle name _____ Last name _____
13	Contact no. of building secretary:	1	Number _____
14	How many flats are there in this apartment?	1 2	Number ____ Don't know
15	Number of flats that are occupied	1 2	Number: ____ Don't know
16	How many households are there on this property?		Number _____
17	Name of the respondent/Head of the Household		First name _____ Middle name _____ Last name _____
18	Please provide a mobile Contact no. of head of the household/incharge of the property.		
19	What is the tenure status of this property?	1 2	Owner Occupied Tenant Occupied
20	Please provide the name of the owner of this property:		Name _____
21	Please provide a mobile contact no. of owner	1	Number: ____

Q No	Question		Options
		2	Don't Know
22	How many persons are there in this household?	1 2 3	Children (less than 6 year): Male: Female:
23	Approximate numbers of toilet users	1 2 3	Children (less than 6 year): Male: Female:
24	Do you have your own toilet on your premises?	1 2	Yes No
25	How many toilets are there in this property?	1 2	Number:____ Don't Know
26	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	1 2 3 4 5	Use a toilet shared with neighbours Use a community toilet Use a public toilet Open defecation Others, specify _____
27	What is your own toilet connected to for disposal?	1 2 3 4 5 6 7	Sewer Network Septic tank with soak pit Septic tank connected to open/closed drain Single Pit Double pit Directly to open/closed drains Others, specify _____
28	No. of septic tanks in the property	1 2 3 4	1 2 3 Don't Know
B	GPS Location ID		
C	Photographs		

Steps to install application in android based mobile/ devices

1. The app is available on Google Play Store. It can be downloaded on phones / tablets that will be used for conducting the survey.
2. After installation of application, an icon will be seen on the tablet/ phone. Click on the icon to start the application. Please see icon below in fig. 1.
3. A click on this icon will take the surveyor to the home screen (fig. 2)



Figure 1: SaniTab icon on tablet/mobile screen



Figure2: SaniTab home screen.

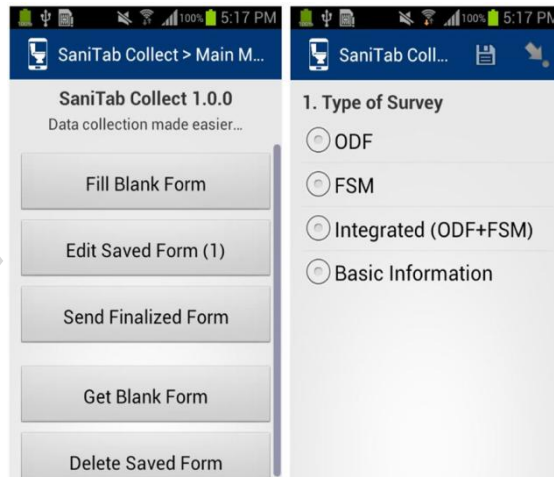


Figure 3: SaniTab screen for selection of the form and survey.

Recommended Device/ Mobile Specifications

1. Touch screen
2. The Android OS version should be 4.1.2 or later. Please note that Android Lollipop 5.0 (or later) devices are NOT supported.
3. Kernel version 3.4.0 or later.
4. Form factor should be greater than 5 inches. 7 inches preferred.
5. Should have 1GB of RAM or more. Recommend 2GB.
6. Should have 1GB of free space in the external SD card. Recommended 4GB.
7. Should support 3G internet sim card or better, in case data is to be uploaded through sim card.
8. Should have Wi-Fi while installing the application. Once the app is installed, application can be run in an offline mode i.e. without internet/ Wi-Fi / data pack.
9. Should have GPS and/or AGPS
10. Should have a back camera with minimum 1.5MP resolution. The Camera resolution should be set to not more than 3MP during surveys.
11. Battery should last for at least 12 hours of continuous non-radio (i.e. no mobile calls) operations and 20-30 GPS captures.
12. Basic Tips:
 - Keep the GPS and GPRS switched off when not used for survey [How to do this will be explained during the training]
 - Do not install any software in the mobile. This may create unexpected problems.
 - Do not store audio and video in the memory card of the mobile phone

Steps to conduct survey on SANITab

1. As shown in fig. 4, select “General Settings” from menu on top right corner.
2. Then the surveyor will have to select ‘Configure platform settings’ (fig. 5).
3. A separate username should be given to each surveyor. Enter the supplied URL.

4. Select “Get blank form” to get a new form to fill (fig. 3). From a list of options, the surveyor will have to choose the relevant survey to be conducted. For e.g. Pathri KMS Survey (fig. 7).
5. The interviewer will interview the respondent, and carry out the adaptive survey with built in skip patterns (by swiping left to move onto the next question).
6. The interview will end with the surveyor taking GPS, photographs.
7. On the successful completion of the interview, the surveyor will save the form and then upload the data to the server using the ‘Send selected’ Tab. (Fig 8&9)

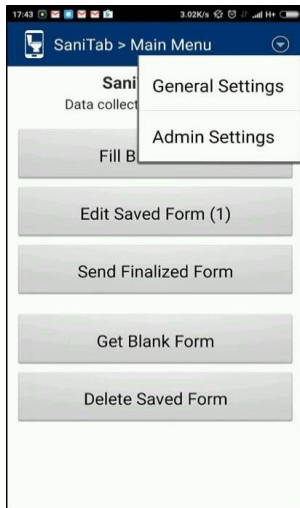


Figure 4: Dropdown menu on the application screen for configuring settings.

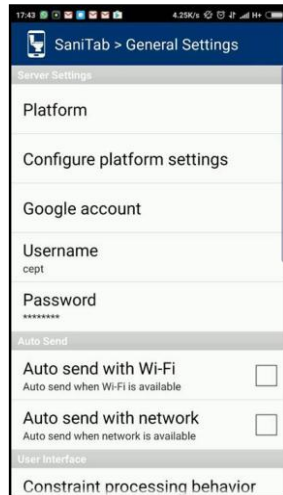


Figure 5: Menu for configuring settings.

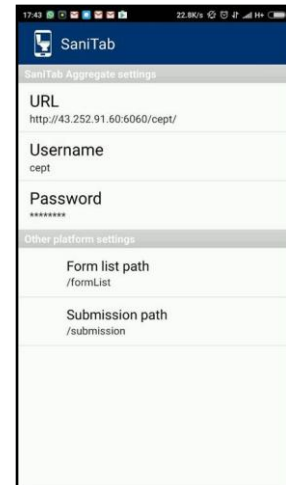


Figure 6: Application screen to upload GPS Location



Figure 7: Application screen to choose the survey to be conducted.

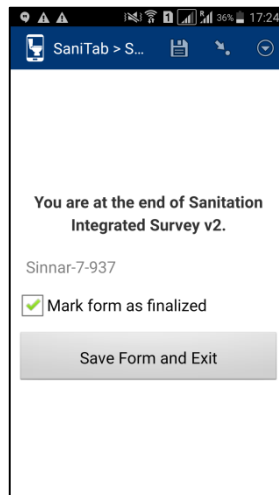
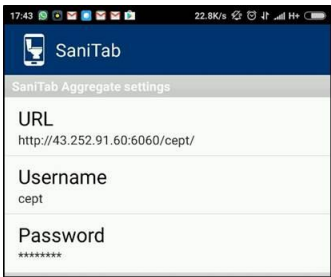
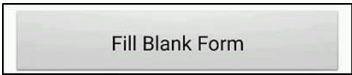
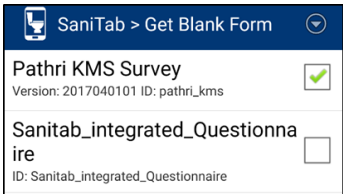
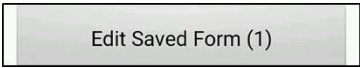
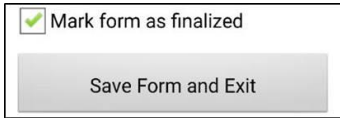
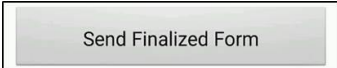



Figure 8: Application screen to save survey forms.



Figure 9: Application screen to upload survey forms.

Key functions

	Allows you to enter Username and password
	Fill Blank Form tab is to be clicked if surveyor is to start with a new survey form
	By checking one of the boxes, surveyor can choose an appropriate survey and can proceed to conduct the survey
	Edit Saved Form tab is to be clicked if surveyor is to conduct a pending survey
	After finishing the survey, surveyor must check the Mark form as finalized box and click on the Save Form and Exit tab.
	By clicking on Send Finalized Form, surveyor can upload the complete survey that has been completed in an offline or online mode.
	To upload multiple forms simultaneously, surveyor can click on Toggle All tab.

General instructions for conducting surveys

This questionnaire is intended for collecting household information. Even though the surveyor may have identified one person in the household as his/her contact point, it is suggested to get response from other household members when the contact point appears to be in doubt or not sure about particular questions. This will enable the surveyor to acquire more accurate information.

Before commencing to ask the questions, the surveyor must make sure that the respondents understand the purpose of the survey. The surveyor, have to ensure that the data collected from the

respondents will be treated quite confidentially and the whole purpose of this exercise is to enable municipality to deliver services better.

Take care to avoid any reference to any individual or political party while soliciting the responses. The focus should be on the services and not on any individual. Remember the respondents may have clear political affiliations which could bias their responses. So, it is very critical that you take time to explain the overall purpose of the study, emphasizing how honest and credible information can prove to be valuable information to identify problems and issues and enable the Corporation to serve the people better.

Please keep in mind the following tips:

Before commencing the survey

1. Mobile devices should be 100% charged.
2. Test the app to ensure that it is running properly.
3. Surveyor should ensure that they do not use other surveyor's login ID and password.
4. Ensure that the device given for survey should not change till the completion of the entire survey.
5. Obtain all the material needed for the survey which includes the list of the property areas, ward maps and print of the surveyor manual.
6. Ensure that the surveyor has been issued a letter and identity card in the prescribed format and duly signed by the competent authority for conducting the survey.
7. Before undertaking the survey work, please establish proper rapport with the people of your assigned wards and explain to them the purpose of the survey/your visit.
8. Ask questions in a language and manner the respondent will be comfortable with. If by any chance you are rephrasing the questions in a manner different from that given in the questionnaire, ensure that the meaning of the question is not altered.

During the survey

1. Explain briefly the objectives of your visit and then proceed with your brief introduction.
2. Do not collect information from a non-household member, children or through a group of persons.
3. Don't rush through the questions. Remember! A little investment in time makes all the difference between an accurate and a distorted message.
4. For questions where some explanation is required, please explain the details and then ask the question.
5. Do not assume any information on your own. Ask the respondent and note down only the information that she/he provides. If the surveyor has any doubts regarding definitions/ concepts or case specific issues, he/she should get clarifications from the project team, rather than making any assumptions or moving on with wrong ideas/ answers. Such answers won't be accepted.
6. The respondent may not know the answers to all the questions. In such cases, the respondent may be encouraged to consult with other knowledgeable members of the family. Surveyor will have to help the households in understanding the question, explain the concepts/ ideas wherever required and encourage them to answer the questions. "Don't know" option should

be selected ONLY in the case where HH is absolutely unable to answer/ have no information to share. "Don't know" option is not acceptable always.

7. Surveyor will have to ensure that he answers the entire questions in one screen of the mobile. If any question is left unanswered, the questionnaire will not move forward.
8. No survey should be kept partially filled. Surveyor should ensure that at the end of the day all the partial surveys are completed.
9. Surveyor should not keep clicking on the options repeatedly as it may cause issues in running the application
10. In case surveyors are not able to contact a particular informant after repeated visits, the supervisor must be informed with the name of head of household and reason for unavailability of informant.
11. While taking GPS locations, ensure that it is taken in open and not in an enclosed room.
12. Sincere efforts must be made to get authentic information from the informant.

After completion of survey

1. All completed forms should be uploaded by the surveyor at the end of the day.
2. If in case there is a problem in uploading the forms, he/ she should report to the supervisor.
3. Surveyor should ensure that there is high speed internet connectivity while uploading the form.
4. The supervisor should ensure that the surveyor uploads completed forms on a daily basis.
5. Supervisor should also ensure that the surveyor does not upload partially filled forms.
6. At the end of the survey, remember to thank the respondent!

Question wise instructions

The table below lists all the questions included in the four default surveys described in the previous sections, with specific guidance for each.

Frame No.	Question type	Q No	question	Opt No.	options	Explanation / Remarks
1	Select one	1	Type of Survey	1	ODF	ODF- Open defecation free survey: this survey would capture households without toilet and their willingness to build one.
				2	FSM	FSM- Faecal Sludge Management survey: this survey would capture households with toilet and Septic tank.
				3	Integrated (ODF+FSM)	Integrated Survey would capture the information for both ODF and FSM.
				4	Basic Information	Basic information captures the existing situation of sanitation in the city
2	Auto generated	A	Form id			Form ID will be generated automatically.
	Select one	1	Locality type	1 2	Slum Non-Slum	Select option from radio buttons.
3	Data entry	2	What is the name of the locality?		Locality Name _____	Surveyor will have to manually enter the name for the property location/area
	Select one	3	Ward no:	1	Number _____	Surveyor will have to select ward no. from the drop down list. If the number is not available in the drop down list, surveyor should select Option 2: couldn't find in the list.
				2	Couldn't find from the list	
	Data entry	4	Property number as per Council property tax records:	1	Number _____	Surveyor will have to manually enter the property tax no. and may even cross check the same with respondents property tax bill if available.
	Select one	5	Status of property during the survey	1	Open	Property where respondent is available and survey can be conducted.

				2	Locked	Property where no respondent is currently available to conduct the survey.
				3	Vacant	Property exists, but currently nobody is residing.
4	Select one	6	Type of Property	1	Residential	Property designed for people to live in.
				2	Institutional	Property devoted to religious, educational, professional, or social purposes.
				3	Commercial	Properties concerned with or engaged in commerce.
				4	Mixed	Property which is a combination of any 2 or all 3 type i.e. residential, institutional and commercial.
5	Select one	6.1	Mark the house typology	Surveyor will have to identify and select the Residential property type option based on the respondents answer.		
				1	Bungalow	A house in a non slum area which is not attached to any other houses in a row or a part of any building
				2	Apartment building	An apartment building: a row of high-rise apartments.
				3	Row House	A house attached to other houses in a row.
				4	Wada	A typical old type of houses in western part of India, with more than one houses/ rooms grouped to form a cluster
				5	Chawl	A large building divided into many separate tenements, offering cheap, basic accommodation
				6	Hut	A single house in a slum
				7	Others, specify _____	
6	Select one	6.2	Select the type of Institution	1	Hospital	Surveyor will have to identify and select the institutional property type option based on the respondents answer.
				2	Dispensary	
				3	School/College	
				4	Religious Institutions	
				5	Government Office	

				6	Others, specify _____	
7	Select one	6.3	Select the type of commercial	1	Industry	Surveyor will have to identify and select the commercial property type option based on the respondents answer.
				2	Shop	
				3	Hotel / Lodge	
				4	Others, specify _____	
8	Data entry	7	Name of Apartment/Building:			Surveyor will have to manually enter the name of respective apartment or building.
	Data entry	8	Name of the respondent/ building secretary:	1	First name _____ Middle name _____ Last name _____	Surveyor will have to manually enter name of the Building secretary/respondent in the format of First name: Middle name: Last name:
	Data entry	9	Contact no. of building secretary:	1	Number _____	Write mobile number of the building secretary/respondent. In case the respondent does not have a phone, surveyor will have to ask for an alternate no. on which the respondent can be contacted. Make sure that it is not less or more than 10 digits.
9	Select one and data entry	10	How many flats are there in this apartment?	1	Number ____	Surveyor will have to manually enter the no. of apartment after selecting number radio button.
				2	Don't know	
	Select one and data entry	11	Number of flats that are occupied	1	Number _____	Surveyor will have to manually enter the no. of apartment after selecting number radio button. This no. should no. be more than the number entered in Q 10
				2	Don't Know	
10	Data entry	12	How many households are there on this property?		Number ____	Surveyor will have to enter manually the number of households/families living in a property. One ration card refers to one household.

	Data entry	13	Name of the respondent/Head of the Household	1	First name _____ Middle name _____ Last name _____	Surveyor will have to manually enter name of the respondent in the format of First name: Middle name: Last name:
	Data entry	14	Please provide a mobile Contact no. of head of the household/in charge of the property.	1	Number _____	Write mobile number of the respondent. In case the respondent does not have a phone, surveyor will have to ask for an alternate no. on which the respondent can be contacted. Make sure that it is not less or more than 10 digits.
	Select one	15	What is the tenure status of this property?	1	Owner occupied	Owner of the property refers to the person who has the property entitled to his name.
				2	Tenant occupied	Tenant is the person who occupies the property and pays a rent to the owner
11	Select one and data entry	16	Please provide the name of the owner of this property:	1	Name _____	Surveyor will have to manually enter name of the owner of the property. After selecting radio button Name as the option.
				2	Don't Know	
	Select one and data entry	17	Please provide a mobile contact no. of owner	1	Number _____	Surveyor will have to manually enter contact no. of the owner of the property. After selecting radio button Number as the option.
				2	Don't Know	
12	Data entry	18	How many persons are there in this household?	1	children (less than 6 year):____, Other Male: ____ Other female: ____	Surveyor will have to manually enter the number of household members in three categories respectively.
13	Data entry	19	Approximate numbers of toilet users	1	children (less than 6 year):____, Other Male: ____ Other female: ____	Surveyor will have to manually enter the number of household members using toilet in three categories respectively. These numbers should not be more than the number entered in Q.no. 18 w.r.t. each category.
	Select one	20	Do you have your own toilet on your premises?	1	Yes	Select suitable option from the radio buttons based on the respondents answer.
2				No		
14	Select one and data	21	How many toilets are there in this property?	1	Number _____	Surveyor will have to manually enter no. of toilets on the property, after selecting radio button Number.

	entry		2	Don't Know		
15	Multi select check box	22	If you don't have your own toilet on your premises, what do you and other family members do for defecation?	Surveyor will have to select suitable option based on the respondents answer. More than 1 option can be selected, if required.		
				1	Use a toilet shared with neighbours	toilet is shared between 2-4 households
				2	Use a community toilet	Toilets that have been constructed by Municipal Council at various locations for specific communities. They are found mainly in residential areas.
				3	Use a public toilet	Toilets that are ULB or privately owned. They are mainly found in public spaces like bus stands, markets, etc. User group is not defined. User will have to pay a certain amount for its use if it is a pay and use type of toilet.
				4	Open defecation	If the respondent do not use any kind of toilet and go in open for defecation
				5	Others, specify _____	
	Data entry	23	How much do you spend per month for the use of other toilets?		-----Rs/month	Surveyor will have to manually enter the total amount spent by the respondents family ina month.
Select one	24	Are you willing to construct your own toilet?	1	Yes	Select suitable option from the radio buttons based on the respondents answer.	
			2	No		
16	Multi select check box	25	Can you explain why you are not willing to construct a toilet?	Surveyor will have to select suitable option based on the respondents answer. More than 1 option can be selected, if required.		
				1	Can't afford	If the respondent can't afford to construct a toilet financially
				2	No Space	There is no space in the property of the respondent where he can construct a toilet

			3	Tenant	Tenant is the person who occupies the property and pays a rent to the owner
			4	Fear of eviction/demolition	If the property of the respondent is on encroached land and can be demolished or evicted anytime by the ULB due to land tenure issues
			5	Land tenure/ Ownership issues	The property/ land is not in the name of the respondent and does not have clear documents proving the ownership of land/ property.
			6	Lack of water connection	When no water connection is available in the house.
			7	Community Toilets are good	
			8	Don't feel the need	
			9	Others, specify _____	
	Select one	26	Are you willing to/ can you construct a common /group toilet or a common septic tank to be shared between you and your neighbours?		Select suitable option from the radio buttons based on the respondents answer.
			1	Yes	
			2	No	
	Select one	27	Do you have space for construction of toilet?		Select suitable option from the radio buttons based on the respondents answer.
			1	Yes	
			2	No	
17	Select one and data entry	28	Please indicate an amount that you can contribute from your own savings or borrowings from friends/relatives etc. for construction of a toilet (Rs.)		Surveyor will have to manually enter sum of money the respondent is willing or would be able to contribute for construction of toilet, after selecting radio button Rs.
			1	Rs. _____	
			2	Don't know	
	Select one	29	Do any members have a regular salaried job?		Select suitable option from the radio buttons based on the respondents answer.
		1	Yes		
			2	No	
	Select one	30	Please provide details of institutions where any of the		Surveyor will have to select suitable option based on the respondents answer. More than 1 option can be selected, if required.

		household members have accounts?	1	Commercial Banks	A financial institution that provides services, such as accepting deposits, giving business loans and auto loans, mortgage lending, and basic investment products like savings accounts and certificates of deposit.
			2	Urban Cooperative Banks	small-sized co-operatively organised banking units which operate in metropolitan, urban and semi-urban centres to cater mainly to the needs of small borrowers, viz., owners of small scale industrial units, retail traders, professionals and salaried classes.
			3	Credit Cooperative Societies	Credit cooperative are financial institutions that are owned and controlled by their members. Credit cooperatives provide the same financial services as banks to their members but are considered not-for-profit organizations and adhere to cooperative principles.
			4	Others, specify _____	
18	Data entry	31	1	Rs. ____/Month	Surveyor will have to manually enter the sum of monthly income of all the earning members of the family.
	Data entry	32	1	Rs. ____/Month	Surveyor will have to manually enter the total amount (should ideally be an average of past 3months) the family spends in a month.
	Select one	33	1 2 3	Yes No No women in the house	Self-Help Group is a group of 5 to 20 women from different families. The group perform regular savings, disburse internal loan from savings and sometimes take loan from commercial banks for income generating activity under government schemes. Select suitable option based on respondents reply.
19	Select one	34	1	ULB SHGs with Banks	SHGs formed under ULB that are registered with banks.

			SHG is registered with.	2	MFI	A Microfinance institution is an organization which provides hard-to-find financial services to local individuals and groups to promote economic activity among low-income earners who do not or rarely have access to formal banking services.
				3	Other SHGs with Banks	SHGs (not formed under ULB) that are registered with banks.
				4	SHG with credit co-operative societies	SHG registered with credit co-operative societies
				5	Other specify _____	
	Select one	35	Do you think you can get a loan for building your toilet?	1	Yes	Select suitable option from the radio buttons based on the respondents answer.
				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	
	Select one and data entry	36	Please provide the Aadhar card no. of the head of the household	1	Number ____	Surveyor will have to manually enter the Adhar card no. of the respondent after selecting number radio button.
				2	Do not have Adhar card	
20	Select one	37	Do all family members use the toilet regularly?	1	Yes	Select suitable option from the radio buttons based on the respondents answer.
				2	No	
21	Multi select check box	38	Who are the non-users?	1	Children under 6 years	Select suitable option from the radio buttons based on the respondents answer.
				2	Male members	
				3	Female members	
22	Multi select check box	39	What are the reasons for not using your own individual toilet regularly?	1	No water to flush	Select suitable option from the radio buttons based on the respondents answer.
				2	Superstructure/seat broken	

				3	Used for some other purpose e.g. storage, etc.	
				4	Habitual issues	
				5	Others, specify _____	
	Multi select check box	40	If the own /individual toilet is not functional, what do you do?	1	Use a toilet shared with neighbours	Select suitable option from the radio buttons based on the respondents answer. Refer the definition provided for Q.no. 22
				2	Use the Council community toilet	
				3	Use a Public toilet	
				4	Open defecation	
				5	Others, specify _____	
23	Select one	41	What is your own toilet connected to for disposal?	1	Sewer Network	Sewer system is an underground piped network. Septic tank refers to a tank normally located underground, away from the house and near the toilet. A soak pit is a pit into which the liquid effluents from the septic tank flow to be filtered into the ground. The pit may be filled with stones or broken bricks, in which case no lining is needed, or lined with pre-cast reinforced, cement concrete rings.
				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 _____	
24	Select one	42	No. of septic tanks in the property (1.One 2. Two 3. Three 4. Don't know)	1	1	Select suitable option from the radio buttons based on the respondents answer. If there is more than one septic tank, information for each septic tank will have to be captured.
				2	2	
				3	3	

				4	Don't Know	
25	Select one	43	Type of septic tank:	1	Individual	Owned and used by a single property.
				2	Shared	Shared between 2 or more properties
26	Data entry	44	This property shares septic tank with _____ number of properties	1	Number_____	in case of shared septic tank, surveyor will have to manually enter no. of properties sharing the same septic tank.
27	Select one	45	What is the shape of your septic tank	1	Rectangular	Select suitable option from the radio buttons based on the respondents answer.
				2	Circular	
				3	Don't Know	
	Data entry	46	Provide dimensions("L" relevant only if rectangular):	1	Don't know	Surveyor will have to manually enter the dimensions of septic tank. If the septic tank is accessible, dimensions will have to be cross- checked by the surveyor. All measurements should be in feet. The value for Length will be entered if the septic tank is rectangular in shape, otherwise it is to be considered "0".
2	Length (ft.) _____ Breadth/Diameter (ft.) _____ Depth (ft.) _____					
28	Select one	47	Septic tank outfall is connected to	1	Soak pit	Description for these will be provided with photographs
				2	Open drain	
				3	Covered drain	
				4	Open land	
				5	Others, specify	
				6	Don't Know	
	Select one	48	When was the septic tank emptied the last time?	1	Last 6 months	Select suitable option from the radio buttons based on the respondents answer.
				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	
29	Select one	49	Why was the septic tank emptied?	1	Blocked toilet	Select suitable option from the radio buttons based on the respondents answer.
				2	Overflow from access	

				hole/manhole	
				3 Smell	
				4 Others, specify	
				5 Don't know/remember	
	Multi select check box	50	Were there any problems during emptying of septic tanks?	1 Access or distance for suction truck to house	Select suitable option from the radio buttons based on the respondents answer. Multiple options can be selected if required.
				2 Break floor tiles to access septic tank	
				3 Break concrete manhole to access septic tank	
				4 Difficult to locate the septic tank	
				5 Smell during emptying	
				6 Made a mess	
				7 No problem found	
				8 Others, specify	
				9 Don't know	
30	Select one	51	Is the septic tank accessible from road for cleaning by using a suction emptier truck ?	1 Yes	Surveyor will have to check on his own if the septic tank is accessible by the suction emptier truck or not.
				2 No	
	Select one	52	Is there proper access with manholes/covers for any of the chamber of septic tank which can be easily opened	1 Yes	Select option from radio buttons. "Yes" should be selected even if one chamber has a cover. Surveyor may need to cross check
				2 No	
31		B	GPS Location ID	After completing the questionnaire click on Capture GPS.	
32		C	Photographs	Click on photos to take multiple photos of the house (from 3 angles at least), respondent, septic tank (if available), toilet (if available), ration card (if possible and available).	

About C-WAS and PAS Programme

Center for Water and Sanitation (C-WAS) at CEPT University carries out various activities – action research, training, advocacy to enable state and local governments to improve delivery of services. In recent years C-WAS has focused our work on urban sanitation. Indicators are developed for measuring on-site sanitation and a framework for citywide sanitation planning. C-WAS also supports cities in implementing city sanitation plans that focus on making cities open defecation free (ODF). In support of these efforts, the team is also working on developing innovative sanitation financing mechanisms.

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