

## Step 5

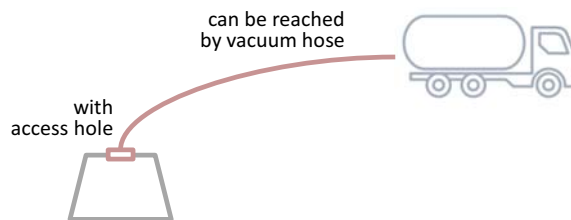
# Assess targets



Once the city government has agreed the scheduled desludging scheme can be prepared in the city, the team can enter the real planning process. Actual data must be used, specifically data on the number, condition and accessibility of septic tanks. Perform an extensive survey of most or all households and buildings in the city. Use a smartphone application to log the information and determine the targeted households and buildings to be served by scheduled desludging services.

### 5.1 USE CURRENT INFORMATION

The team can use secondary information in making the initial concept of the scheduled desludging scheme (see **Step 3: Make initial concept**). However, in the advance planning of the scheduled desludging, it is strongly recommended to use actual information of the households (and other buildings) and their septic tanks. Scheduled desludging operation requires clear and accurate information of every service target by name and by address.



**Figure 5.1** A septic tank is considered viable for desludging if it has an access hole with a lid that can be opened and can be reached by the vacuum hose of desludging truck.

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Information required in the planning of a scheduled desludging scheme includes:

- The number and distribution of buildings using septic tanks.
- The number and distribution of buildings using septic tanks that can be desludged (see [Figure 5.1](#)).
- Average septic tank volume, for each type of building.

All the information above should be provided as a total and as classified by types of buildings (residential or households, public offices, commercial buildings, and social buildings).

## 5.2 PERFORM SURVEY

The most effective way to identify potential scheduled desludging targets in a city is by conducting a survey of all households and buildings, or more commonly referred to as a census. This means that the team needs to go to and collect data directly from each building in the city. It certainly requires a lot of energy, time and funds since a city might have tens of thousands or even hundreds of thousands of buildings.

Alternatively, the team survey only some of the buildings which may represent the availability and condition of all septic tanks in the city. The number of buildings to be surveyed is determined by considering the time and funds available, of course without compromising statistical principle and validity. From the results of the survey, data can be interpolated to obtain information that describes the general condition of scheduled desludging targets in all areas of the city.

It is best to conduct a survey directly by visiting the buildings. In this way, an enumerator is able to interview the building owner or resident in person. The enumerator can explain the purpose of the question, record the respondent's non-verbal behavior and verify the answer visually. By visiting the location, the enumerator can obtain the GPS (global positioning system) coordinates of the septic tanks. The disadvantage is the team must have large funds and a longer period of time. There is also the possibility that the enumerator can influence the respondent's answers during the face-to-face interview ([Figure 5.2](#)).



**Figure 5.2** The best way is to perform face-to-face interviews with the owners or the residents of the buildings. If it is not possible, telephone interviews or mail questionnaires are also options.

Surveys can also be carried out indirectly, for example, through telephone interviews and mail questionnaires. Both of these ways are certainly more efficient in terms of energy, time, and funds. However, both have the same limitations, that is, the enumerator cannot clarify answers visually or capture non-verbal behavior of respondents. A telephone interview will get a higher response rate than a survey by mail.

### 5.3 COLLECT DATA

The team needs to get the following data when conducting a survey of the targeted buildings:

- Regarding the building: (a) availability of septic tank, (b) type of building (household, government, social, commercial), (c) accessibility of the building, (d) subscription to electricity and water supply services.
- Regarding the septic tank: (a) sources of wastewater that go to the septic tank, (b) septic tank location and accessibility, (c) size or dimensions, (d) tank material, (e) condition of the lid, (f) condition of the ventilation, (g) outlet system, (h) last desludging.

Use questionnaire to help the enumerator in collecting data during the survey or census (see [Figure 5.3](#) and [Annex B](#) for the questionnaire).

**QUESTIONNAIRE FOR BUILDINGS OF SCHEDULED DESLUDGING SCHEME**

NO: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

**BUILDING INFORMATION**

1. Name: \_\_\_\_\_

2. Address: Street \_\_\_\_\_ RT/No \_\_\_\_\_ County/Village \_\_\_\_\_ Sub-district \_\_\_\_\_

3. Types of Building:  Residential  Educational  Institutional  Hotel  Business  Social  Home Industry  Others: \_\_\_\_\_

4. Number of users: \_\_\_\_\_ Persons \_\_\_\_\_ Official \_\_\_\_\_

5. Status of building:  Private  Rental  Others: \_\_\_\_\_

6. Number of toilet: \_\_\_\_\_

7. Number of septic tanks: \_\_\_\_\_

8. Road access:  Accessible by a truck  Accessible by a small car  Accessible by a motorcycle  No access

9. Water supply and sanitation service:  Water Supply, Customer ID: \_\_\_\_\_  Piped Wastewater, Customer ID: \_\_\_\_\_

Submitter	Verification	Data Entry
Name: _____	_____	_____
Date: _____	_____	_____
Signature: _____	_____	_____

**SEPTIC TANK FACILITY**

**GENERAL INFORMATION**

1. Location:  Off site  On site

2. Coordinate Point (GPS)  Others: \_\_\_\_\_

3. Built in year: \_\_\_\_\_

4. Last desludging date: \_\_\_\_\_

5. Distance to closest well: \_\_\_\_\_

6. Connection:  Meter  Latrine  Bathroom  Rainwater drain  Others: \_\_\_\_\_

**ACCESSIBILITY**

7. Distance to access road: \_\_\_\_\_

8. Length of hose: \_\_\_\_\_ Meter

9. Dimension: \_\_\_\_\_ Meter

10. Type: \_\_\_\_\_

11. Septic tank material: \_\_\_\_\_ m<sup>3</sup> (length ... m; width ... m; depth ... m)

Fabrication  Non-fabrication  Stone pair  Reinforced concrete  Concrete bulb  Plastic or fiberglass

Others: \_\_\_\_\_

Compartment: \_\_\_\_\_

Cover hole:  Yes  No (explain) \_\_\_\_\_

Ventilation field:  Yes  No (explain) \_\_\_\_\_

Bottom pipe:  Yes  No (explain) \_\_\_\_\_

**Figure 5.3** The questionnaires will guide enumerators to obtain complete data in the survey. The structure of the questionnaire must be relevant, logical and concise. Use communicative terms, for example septic tanks rather than onsite units, toilet water rather than black water. Ask for the identity of the building owner or resident because the data will later be entered into the scheduled desludging operational database.

Digital applications are now available to assist enumerators in collecting data from respondents or potential customers (see the following box). Data obtained by the enumerator will be sent directly to the data management center via internet network.

## 5.4 ANALYZE FOR INFORMATION

The data collected needs to be analyzed in order to obtain the necessary information. start from the information on the percentage of buildings using a septic tank to the average septic tank volume and then move on to the technical parameter information. It is difficult to obtain a single number for an average septic tank volume, especially in a city where septic tank sizes vary widely. In such a condition, we can create average volume across several size classifications. For example, an average volume for small septic tanks, for medium-sized septic tanks and for large septic tanks. Use statistical programs, such as SPSS (Statistical Package for the Social Sciences) or Microsoft Excel, to accelerate the work. The results are displayed then presented in the form of tables, diagrams and narratives that are easy to understand.

There are thousands or even millions of data to be entered into a computer so there will always be a possibility of data reading or typing errors. There will always be questionable data due to misunderstanding in questioning and answering or the lack of thoroughness of the enumerator in recording the answer. Such data is better to be reconfirmed before entering into the statistic program.

### Android application for septic tank survey

Everyone with household-level survey experience may agree that the work of recording, entering, and processing data is very tiring. Especially if the survey is conducted on tens of thousands of respondents as in the survey of septic tanks for the planning of scheduled desludging in a city. In order to ease the task of the enumerator, while increasing the accuracy of data management, IUWASH has developed the Septic Tank Survey Application for Android-based smartphones.

The screenshot shows the 'Survei' application interface. At the top, there is a header with 'Survei' and a location indicator 'Lokasi GPS Akurasi: 30.0 m'. Below the header are tabs for 'Responden', 'Sambatan', 'Media', and 'Foto'. The main form contains the following fields: 'Nama', 'Nama Jalan', 'No Rumah', 'RT', 'RW', 'Kelurahan', 'Kecamatan', 'Kabupaten/Kota', 'Provinsi', 'Kode Pos', and 'ID Pelanggan'.

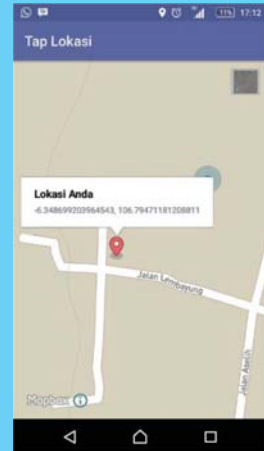
This application contains a series of questions relating to the characteristics of the septic tank and the building where the septic tank is located. Survey answers are directly filled in the application and then sent via the internet to the host computer. The Survey Portal application on the host computer will allow us to view survey results collectively.

The use of smartphones makes the survey faster and enjoyable. Filling out the questionnaire, taking photos, and taking coordinates of the septic tank location can be done with one device. Immediately we can see the data in real-time, get a map overview of the situation of the area and the conditions of the septic tank on one smartphone.



In a flash, we can get the information needed to plan scheduled desludging operations, namely the number and distribution of buildings using septic tanks. The recording of the coordinates of the septic tank in the smartphone application allows us to find out the distribution of septic tanks in a city.

This smartphone app can also help us to monitor the progress of the survey implementation of each enumerator. If needed, the results of this application can be connected to the Management Information System (MIS) application that is used by scheduled desludging service provider. This integration is expected to simplify the process of receiving and managing scheduled desludging targets.



If the data has entered the statistic program in the computer, it can be analyzed to come to more actionable conclusions. For example, ‘the percentage of septic tanks in government buildings that have not been desludged in the last three years’ and ‘the percentage of septic tanks with impermeable walls’.

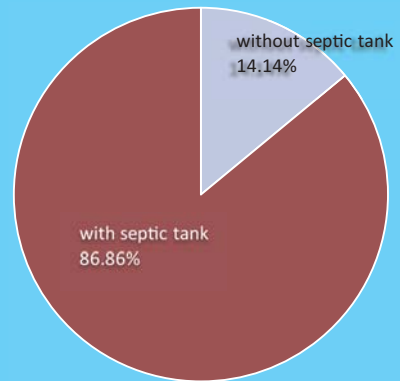
### **Census of scheduled desludging potential customers in the city of Solo**

The census for a scheduled desludging scheme is conducted for all water supply customers of the city of Solo who are not connected to the sewerage system. Around 48 thousand water supply customers were surveyed and the data that were successfully analyzed reached more than 41 thousand customers. The census was conducted at the end of 2014 and it took approximately 6 months to complete. Eighty enumerators were involved, half of whom were water supply meter readers.

The most important information generated from the census is the percentage of buildings that use septic tanks, both in total and only for those considered viable for desludging. That number will be the basis for estimating service coverage at the beginning of scheduled desludging operation. The census results show that nearly 35 500 customers (86%) have septic tanks. Further analysis concluded that around 26 400 customers (64%) are viable for desludging. This information will be more easily understood if it is presented in a pie diagram.



Before the census started, all enumerators took part in a training to understand the objectives, coverage, and procedures of the census. Topics in the training included (1) specification of septic tanks, (2) interview and observation techniques, (3) the use of questionnaires and (4) taking coordinates with GPS, specifically for the head of the enumerator group. During the census, the head of the enumerator group periodically cross-checks the 5% of all respondents who have been previously entered in the census.



FORMA KUESIONER  
SENSUS KONDISI SEPTIK TANK

No	Deskripsi	1	2	3	4	5
1.	Apakah terdapat tanggapan pemukiman di lokasi ini?					
2.	Apakah ada tanggapan mengenai kondisi lingkungan di lokasi ini?					
3.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
4.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
5.	Apakah terdapat tanggapan mengenai kondisi sosial masyarakat di lokasi ini?					
6.	Apakah terdapat tanggapan mengenai kondisi budaya masyarakat di lokasi ini?					
7.	Apakah terdapat tanggapan mengenai kondisi politik masyarakat di lokasi ini?					
8.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
9.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
10.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
11.	Apakah terdapat tanggapan mengenai kondisi sosial masyarakat di lokasi ini?					
12.	Apakah terdapat tanggapan mengenai kondisi budaya masyarakat di lokasi ini?					
13.	Apakah terdapat tanggapan mengenai kondisi politik masyarakat di lokasi ini?					
14.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
15.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
16.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
17.	Apakah terdapat tanggapan mengenai kondisi sosial masyarakat di lokasi ini?					
18.	Apakah terdapat tanggapan mengenai kondisi budaya masyarakat di lokasi ini?					
19.	Apakah terdapat tanggapan mengenai kondisi politik masyarakat di lokasi ini?					
20.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
21.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
22.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
23.	Apakah terdapat tanggapan mengenai kondisi sosial masyarakat di lokasi ini?					
24.	Apakah terdapat tanggapan mengenai kondisi budaya masyarakat di lokasi ini?					
25.	Apakah terdapat tanggapan mengenai kondisi politik masyarakat di lokasi ini?					
26.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
27.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
28.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
29.	Apakah terdapat tanggapan mengenai kondisi sosial masyarakat di lokasi ini?					
30.	Apakah terdapat tanggapan mengenai kondisi budaya masyarakat di lokasi ini?					
31.	Apakah terdapat tanggapan mengenai kondisi politik masyarakat di lokasi ini?					
32.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
33.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
34.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					
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98.	Apakah terdapat tanggapan mengenai kondisi agama masyarakat di lokasi ini?					
99.	Apakah terdapat tanggapan mengenai kondisi kesehatan masyarakat di lokasi ini?					
100.	Apakah terdapat tanggapan mengenai kondisi ekonomi masyarakat di lokasi ini?					

The survey also produced information to determine the function of the building, the condition and location of the septic tank, the volume of the septic tank and the coordinates of the location of the septic tank. It was concluded at the end that 66% of the septic tanks in the city of Surakarta had a volume above 3 meters. The results of the survey of prospective customers conclude with a workshop to discuss the results of the survey with various stakeholders in the city of Surakarta.



**Figure 5.4** Enumerators can carry out more than just collecting data from homeowners. They can also play a role in increasing the homeowner's knowledge of the correct use of septic tanks. The opportunity to meet directly with the owner or occupant of the house is a rare opportunity. Make the most of the opportunity.

## 5.5 USE FOR OTHER PURPOSES

The survey provides an opportunity to convey various information to prospective scheduled desludging customers, for example information about sanitation conditions in the area, proper septic tank specifications, scheduled desludging plans and others. Take advantage of this opportunity. Provide the enumerator with the information you want to convey. Create leaflets to help convey the information (Figure 5.4).

Take advantage of the survey data later as data for the scheduled desludging operation database. We already have information regarding the building and septic tank. Also use these data to develop scheduled desludging promotion strategies in the future. The government can also use these data to develop a septic tank control program or a program to subsidize the community in repairing or procuring septic tanks.