



# Knowledge Management Tool - User Manual

Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam



September 2016

All photographs are by UMC unless otherwise mentioned. Data from this document may be used and quoted with due acknowledgement to the organization.

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This Knowledge Management Tool user manual was prepared under the contract for Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam awarded to Urban Management Centre (UMC) by Water and Sanitation for the Urban Poor Advisory (WSUP-A). Greater Visakhapatnam Municipal Corporation (GVMC) is the local government partner for Sanitation Mapping Visakhapatnam. GVMC is supporting the project team for all tasks under this project. The report forms the Appendix IV submitted along with the Data Analysis Report,



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# Knowledge Management User Manual

Capacity Building for Swachh Bharat Mission (Urban) – Sanitation Mapping Visakhapatnam

September 2016



Water & Sanitation for the Urban Poor Advisory



Urban Management Centre

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## Disclaimer

This document is a user manual to assist users in navigating and operating the KM Database Tool. The tool consists of primary and secondary data on components of Swachh Bharat Mission for Greater Visakhapatnam Municipal Corporation (GVMC). The data has been collected/compiled by Urban Management Centre (UMC) and Water and Sanitation for the Urban Poor-Advisory (WSUP-A).

This manual refers information collected during site visits, secondary information provided by the staff of various departments of the GVMC. During the course of the assignment and this manual preparation, we were provided with both written and verbal information. We also supplemented the study with hand drawn sketches and digital drawings. Nothing has come to our attention to cause us to believe that the data or maps provided by various sources are not true or not correct. We believe this information to be authentic. No investigation of the title of the tangible and intangible assets has been made and matters of a legal nature relating to the title of the assets have not been considered.

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# 1. About the tool

Devised for the purpose for the sanitation mapping project in Visakhapatnam, the Knowledge Database Management (KM) Tool, developed by the Urban Management Centre (UMC), is an excel-based tool. The tool is prepared on Microsoft Excel 2013, and is compatible with lower versions of the MS Excel software.

In order to achieve the ODF objectives of SBM, GVMC would have to view, analyse, update and monitor data from various sources and departments. The KM tool will facilitate better data management for the same.

The tool incorporates features such as bringing data from multiple sources and departments as a single repository. Here, the data is compiled by filtering relevant information and is presented for assessment. The tool is dynamic in nature and data can be updated regularly. All data is presented in a print-friendly manner for reporting. The tool is a precursor to the development of a full-scale tool for management of ODF activities in the city.

This tool brings together relevant data from the following departments of GVMC:

<b>Departments</b>	<b>Types of data</b>
General Administration	Administrative
City Planning	Demography
Public Health	Slums
Education	Land Use
Water Supply	OD spots
Underground Drainage	Individual household toilets
	Public and Community toilets
	Water Supply
	Waste Water disposal
	Solid Waste disposal
	Storm Water disposal
	Schools
	Health and morbidity

Apart from these departments, the tool also includes data collected by UMC from other sources.

There are 67 worksheets in the tool; one for the Main page and Data updation page each, nine worksheets as option pages and 56 worksheets as data-sheets. The list of data contained in the tool is given in annexure, and it contains both statistical data as well as maps.

The subsequent sections talk about the features of the tool, and provides a guide for using the tool, and describes possible enhancement of the tool.

## 2. Components of the Tool

The KM tool organizes a large set of data from various departments sector-wise. The homepage carries buttons which lead the user into different sheets. This section describes the features and components of the tool.

All the worksheets that are present in the tool can be categorized into four types; so sheets are referred to with either of these four names- Main Page, Options Page, Data Updation page, and Data sheet. These are described below:

### 2.1. Main-page

This is the worksheet that the user sees on first opening the tool. It displays all major data-heads. On clicking each of these buttons, the user shall be led to the respective options page that gives him the further list of data available in each data-head.

It also has two other buttons at the bottom- 'Additional Data', and the other, 'Data Updation'. On clicking the 'Additional Data', the viewer is taken to the options-page wherein they can click on the 'Survey of OD spots', 'Survey of Public Conveniences', or 'IHHT construction status' button.

### 2.2. Options-page

It opens on clicking any of the data-head button on the Main-page. Each option page displays both the data-head as well as the data sub-heads as buttons (Image 2).

Each of buttons in the data sub-head portion of the page, on being clicked, leads the viewer to the respective data-sheet.

Also, on the options-page itself, there is a button of the page- 'GO BACK' to go back to the Main-page, if desired.

### 2.3. Data-sheet

The KM-tool comprises of 42 different data-sheets including both numeric data as well as maps. Each data-sheet has two buttons in the title head- one, 'Back to the options', to go back to the Options-page, and other, 'Back to Main-page', to go back to the Main-page.

Image 2 One of the options page in the KM tool

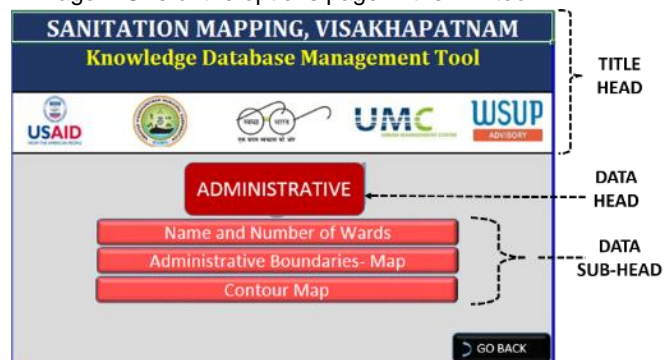


Image 1 Main-page of the KM tool

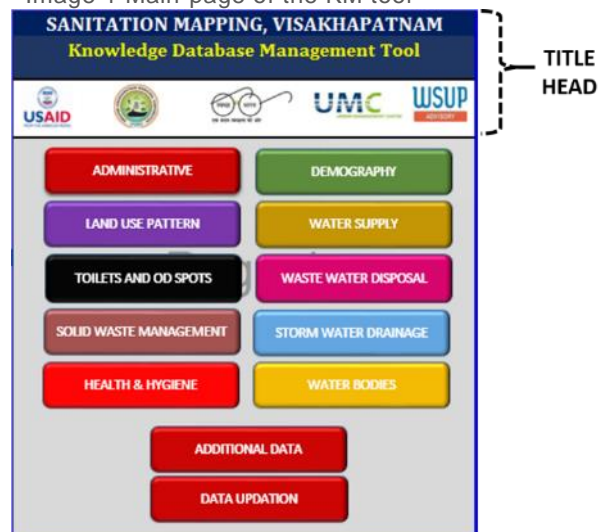


Image 3 Data sheet page

**SANITATION MAPPING, VISAKHAPATNAM**  
**Knowledge Database Management Tool**

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Back to Options | Back to Main Page

**GREATER VISAKHAPATNAM MUNICIPAL CORPORATION**  
Statement showing the details of ward wise localities, area and population of GVMC-72 Wards

Zone	Area in sqkm	Population as per Census 2011
<a href="#">GVMC-72 Wards</a>	533.00	1,704,439
<a href="#">Anakapalle</a>	23.26	86,612
<a href="#">Bheemunipatnam</a>	15.75	52,110
<a href="#">5 Gram Panchayats</a>	13.82	11,388
<b>TOTAL</b>	<b>585.83</b>	<b>1,854,549</b>

**GREATER VISAKHAPATNAM MUNICIPAL CORPORATION**  
Statement showing the details of ward wise localities, area and population of GVMC-72 Wards

Zone	Ward No.	Area	Area in sqkm	Population as per Census 2011
	1	Arilova Sector-III, IV, V, Chinagadili, Santhapalem, Deenadayalapuram, Srikrishana Puram, RamaKrishnapuram, Pineapple Colony, Darapalem, Siddartha, BC Colony, RamaKrishnapuram	25.74	25,017
	2	Arilova Sector-I, Sector-II, Sector-III(F), Peddagadili, Suryatheja Nagar, Thotagaruvu, Salipeta	4.65	21,319

## 2.4. Data Updation Page

This sheet opens up on clicking 'Data Updation' from the Main-Page (see Image 4). It gives options to select data-heads that the user can update. Updation of primary survey data- data on OD spots and on Public Conveniences just has a button to the survey data sheet

whereas, for updating data on individual household toilets, there is a drop-down for the user to choose from. Selection of any option from the drop-down leads the user to a page which has a table to be filled-in with information regarding the chosen year.

Image 4 Data updation page

**SANITATION MAPPING, VISAKHAPATNAM**  
**Knowledge Database Management Tool**

USAID FROM THE AMERICAN PEOPLE | VISAKHAPATNAM MUNICIPAL CORPORATION | UMC URBAN MANAGEMENT CENTRE | WSUP ADVISORY

**SELECT SBM DATA-YEAR TO BE UPDATED (Column E)**

1	<b>Public Conveniences</b>	Go to PT-CT base sheet
2	<b>Open Defecation Spots</b>	Go to OD base sheet
3	<b>Individual Household Toilets</b>	IHHT_2017 <a href="#">GO</a>

[GO BACK](#)

With the KM tool has a large amount of data, and each of them is linked through buttons. This feature allows the user to flit and parse through the data easily. Before we see how to use the tool, we shall first understand the different types of work-sheets that the tool consists of.

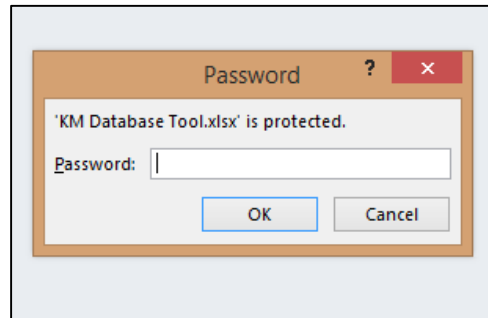


## 2.5. Using the tool

### a. Opening the tool

You can open the KM tool by just double-clicking on file. You will see a dialog box as shown in Image 5. Enter the password.

Image 5 Password prompt in the tool



The tool starts with the Main-Page display (see Image 1) which displays the ten major sectors that all the data collected is organized into<sup>1</sup>.

### b. Navigating across sheets and viewing data

You can navigate through the tool by following these steps:

1. Click on any of the data button on the Main-page. You will then reach the options page.
2. On the Options page, click any of the data sub-head buttons. You will reach the chosen data-sheet.
3. On the data-sheet, you can view the data as explained in step 4, or print it entirely, as explained in step 5.
4. On the data-sheet; to directly go to the ward-wise information on GVMC (72 wards), Anakapalle or Bheemunipatnam, you can directly click on GVMC, Anakapalle, or Bheemunipatnam in blue text, just below the title frame. (See Image 3)
5. To print the page, press Ctrl+P.
6. To go back to the main-page, click 'GO-BACK', else to go to any data-sheet, click on any of the given data-sheet buttons.
7. On the data-sheet page, to go back to the Options-page, click 'Back to options' button placed on top left of the page; to go back to the Main-page, click 'Back to the Main Page' button placed on the top right of the page.

### c. Updating data

Updating the tool with additional data can be done easily as explained here.

#### i. Individual household toilets

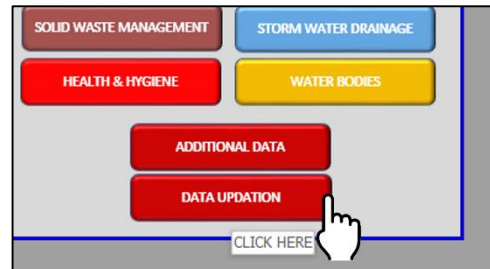
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<sup>1</sup> The tool will display the 'Main Page' only if it is the page last viewed just before closing the file. Hence, the user will have to make sure he/she goes to the Main Page view before closing the file.

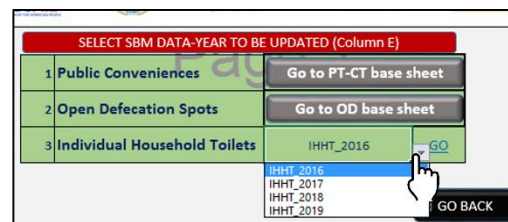
The KM tool has data on individual household toilets from two sources: one from the Census of India, for the year 2011, and other from GVMC's Public Health Department. Only the latter can be updated, since the former is updated by the Census of India every ten years.

### Updating the information:

Step 1 Click 'Data Updation' on the Main Page,



Step 2 Click on the cell next to 'Individual Household Toilets' written on the Data Updation page. On clicking the cell beside the IHHT cell, the user is given options to choose from a drop-down which represents year for which the selection has to be made.



Click the desired year and click outside on 'GO'

Step 3 On clicking 'GO' button beside this drop-down, the user will be led to the sheet where he/she will have to manually enter the updated data for GVMC, Anakapalle and Bheemli as shown in image below.

Image 6 Screenshot where data for IHHT will be updated

A screenshot of an Excel spreadsheet with a red 'BACK TO THE UPDATER LIST' button at the top. The spreadsheet is organized into three columns for 'GVMC', 'Anakapalle', and 'Bheemunipatnam'. Each column has a header row and a data row for each ward. The data rows contain columns for 'Ward No.', 'No. of households without toilets\*', and 'No. of IHHTs constructed\*\* (in this year)'. The spreadsheet is currently showing the 'IHHT\_2017' sheet.

GVMC			Anakapalle			Bheemunipatnam		
Ward No.	No. of households without toilets*	No. of IHHTs constructed** (in this year)	Ward No.	No. of households without toilets*	No. of IHHTs constructed (in this year)	Ward No.	No. of households without toilets*	No. of IHHTs constructed (in this year)
1			1A			1B		
2			2A			2B		
3			3A			3B		
4			4A			4B		
5			5A			5B		
6			6A			6B		
7			7A			7B		
8			8A			8B		
9			9A			9B		
10			10A			10B		
11			11A			11B		
12			12A			12B		
13			13A			13B		
14			14A			14B		

Step 4 Press Ctrl+S to save the changes you made.

Step 5 To go back to the data updation page, click the red-colored 'Back to the updater list' button on the top.

### Viewing the information:

Updation of data for a new year by following the above mentioned steps will have automatically updated information in the entire sheet 'IHHT SAC Status' (Image 6).

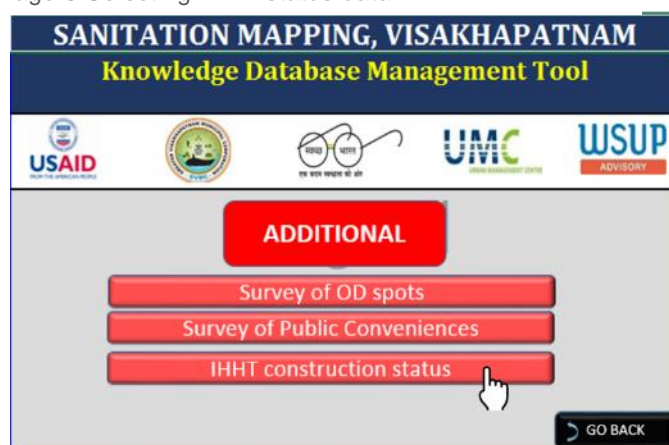
Image 7 Screenshot showing IHHT status data page

Source: Public Health Department, GVMC				Back to Main Page
CHOOSE IHHT_2016				
Statement showing status of individual household toilet construction				
<b>A. City-Wide</b>				
	No. of households (Census 2011)	No. of households without toilets*	No. of IHHTs constructed** (in this year)	Target completion (%)
GVMC	439335	13072	5536	42%
Ashtmulla	73188	2614	658	34%

To view this information from the Main-Page, the user will have to follow these steps:

- Step 1 Click on the 'Additional Data' on the Main-page
- Step 2 Click on the Individual Household Toilets from the options page to go to the page where data on IHHT construction status lies in the tool.

Image 8 Selecting IHHT status data



- Step 3 There is a 'CHOOSE' cell in cell Number of A10 of the sheet that opens. Click on the cell beside CHOOSE. This gives the users a drop-down with options to choose the data-year he/she wants to see (Image 7). Click any year and you will see data pertaining to that year.

ii. Survey data- OD spots and Public conveniences

The KM tool maintains cleaned<sup>2</sup> survey data on OD spots and public conveniences. For OD spots, this data lies in the sheet named 'Add\_1\_OD survey data', and for public conveniences, it is in 'Add\_2\_Public conveniences'.

<sup>2</sup> Once the survey is conducted, while making entries in the survey sheet, each cell has to be verified objectively so as to ensure that it is technically and grammatically free of errors. This also ensure that all the formulae in the sheet work properly. This quality-check process done on raw survey data is referred to as 'cleaned data' in this user manual.

Before learning how to update the survey data, it would be important for the user to know the following things:

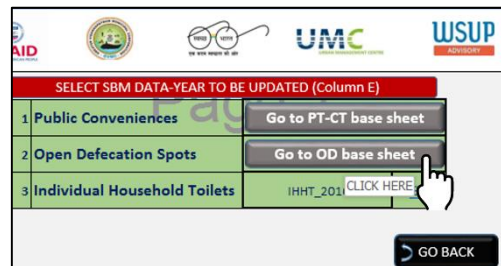
- i. The survey of additional OD spots and public conveniences will have to be carried out using the same survey-tool as given in the annexure<sup>3</sup>.
- ii. Both the base data sheets have certain columns in blue fill (see Image 9). These columns contain formula and are not to be filled manually by the user.

Here, we shall see how to update data for OD spots. The same steps will be undertaken to update data on public conveniences.

Step 1 On the Main Page, click on the ‘Data updation’ button.



Step 2 On the data updation page, click on ‘Go to OD base sheet’.



Step 3 You will now be led to the ‘Add\_1\_OD survey data’ sheet as shown below

Image 9 View of the OD survey data sheet

SANITATION MAPPING, VISAKHAPATNAM										
Knowledge Database Management Tool										
Source: Primary Survey, Urban Management Centre, 2016										
Date of survey	New_Unique_ID	Zone	Ward Number	Location	Address	Along Railway Track	Along Streets/ Roads	Within the premises of Public Toilet/CT	On Vacant Plot	Along the Beach or Port Area
Monday, April 25, 2016	OD82001	8	20B	Along the Beach or Port Area	Beach Road, Bheemunipatnam	0	0	0	0	1
Monday, April 25, 2016	OD82201	8	22B	Along the Beach or Port Area	Beach Road, Aguvapeta, Bheemunipatnam	0	0	0	0	1
Monday, April 25, 2016	OD82801	8	28B	Along Streets/ Roads, On Vacant Plot	Opposite Surya Nursing Home, Balaji Nagar Bypass Road,	0	1	0	1	0

<sup>3</sup> For information on how to exactly use the survey-tool, refer the ‘Interviewers’ training manual for surveys of open defecation spots in Visakhapatnam’.

Step 2 Make the required number of additional entries into the 'Add\_1\_OD survey data' sheet. Right-click on the row-head (numbered '203' – see Image 10) and click on 'insert'. This adds one row above the last entry.

Add as many rows as you require by repeating the insert step explained above.

On trying to make entry, you will be prompted for a password (see Image 11). Click on 'OK'.

Image 10 Inserting rows to add new data

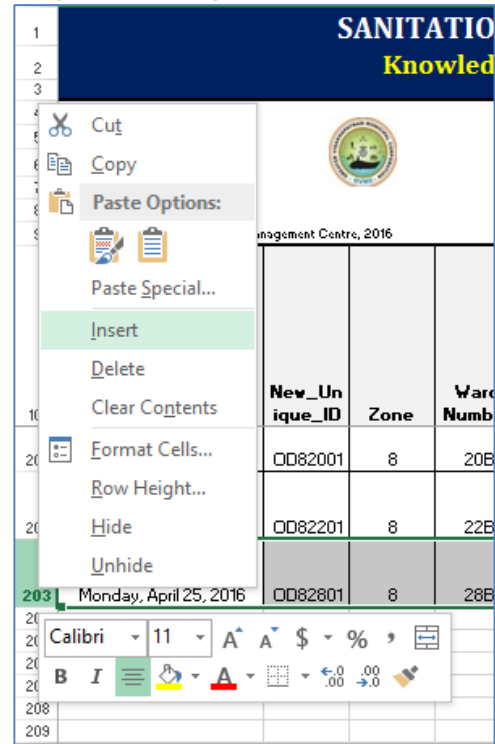
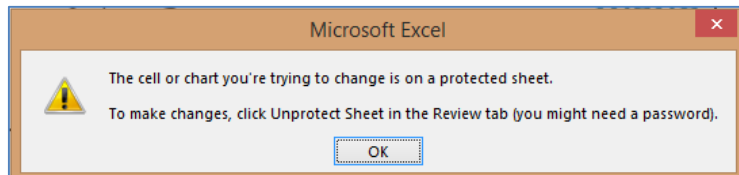
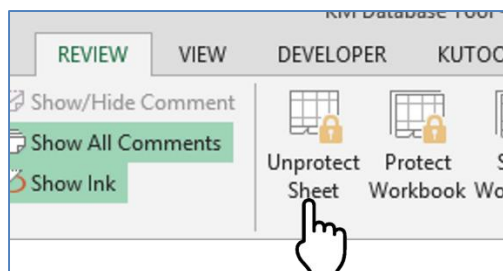


Image 11 Password prompt to edit cells



Click on 'Review' in the menu-bar and click on Unprotect Sheet and enter the password (See image below)



Make sure that all the cells in blue (as described in (ii) above) contain data. If they are empty then, drag down the cell above it which has values, over the empty cells to fill them up.

Step 3 After you have made your necessary entries, Click on 'Review' and Click on 'Protect Sheet'. Enter the same password.

You will be asked to re-enter the password. Enter it.

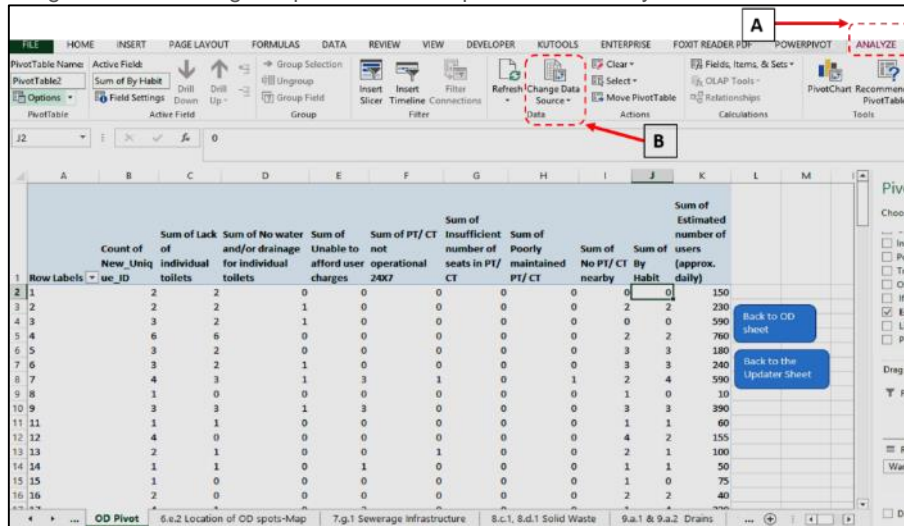
The worksheet is locked again.

Step 4 Now you need to refresh your entire sheet so that the new information you added will be transferred to sheets linked to this survey data sheet. To do this, at the top of your survey data sheet, click on the 'Go to OD pivot' button

Step 5 Once you are on the pivot sheet, click on any cell on the table you see in the 'OD pivot' sheet. On doing this you can see 'Analyse' in the menu bar appear (See 'A' in Image 12 below). Click on it and click on 'Refresh' in the ribbon showing up (see 'B' in Image 12 below).

Once this is done, the user can either choose to go back to the survey data sheet by clicking 'Back to OD sheet' or he/she can go back to the data updation sheet by clicking 'Back to the Updater sheet'.

Image 12 Refreshing the pivot table to update OD survey data



### Viewing the information:

The KM-tool has now updated itself with the added information and it can be viewed in the data-sheet containing the information. From the Main-page, go to 'Toilets and OD spots', and the click on the appropriate button.

You can start the KM tool by just double-clicking on file. The tool starts with the Main-Page display (see **Error! Reference source not found.**) which displays the ten major sectors that all the data collected is organized into<sup>4</sup>. These ten sectors are:

Administrative	Demography
Land Use Pattern	Water Supply
Toilets and OD spots	Waste water disposal
Solid Waste Management	Storm water drainage
Health and Hygiene	Water bodies

<sup>4</sup> The tool will display the 'Main Page' only if it is the page last viewed just before closing the file. Hence, the user will have to make sure he/she goes to the Main Page view before closing the file.

On clicking any of these buttons, the user shall be led to the sub-menu which lead to the data-sheet. This will become clear as you read further.

Each worksheet in the tool can be printed on a page. To do this, the user just has to press 'Ctrl+P'. All the worksheets are kept in the page-break view mode (see Image 14), with pages being set to appropriate page size and orientation.

### 3. Features of the tool

The tool has the following features to make it user-friendly and to allow the user appropriate control over it.

#### 3.1. Privacy:

Since the tool contains a lot of important information that will have to be stored and also updated, the user rights to the tool are given selectively. The tool is designed to be used for two kinds of users depending upon the user rights:

**Advanced user-** These users will have passwords to the open the sheet as well as to modify or add data to certain data that will be updated.

**Normal user-** These users can only view and print the data. They can also filter the data, if required.

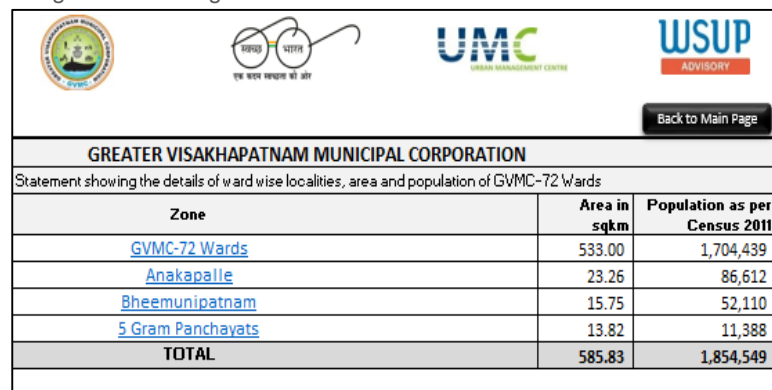
UMC has submitted the tool to WSUP-A along with the passwords.

#### 3.2. Quick access within sheets:

The data contained in the tool is extensive covering over 56 datasheets. At the same time, most of the data-sheets are long and need quite of a scrolling down. Most of the data-sheets have organized data into both city-wide status (into GVMC, Anakapalle, and Bheemunipatnam) and ward-

wise. To make these sheets user-friendly, the tool has quick links to appropriate places within the sheet or across sheets. This will be clear once you the user goes through navigation.

Image 13 Scrolling down in a sheet



GREATER VISAKHAPATNAM MUNICIPAL CORPORATION		
Statement showing the details of ward wise localities, area and population of GVMC-72 Wards		
Zone	Area in sqkm	Population as per Census 2011
<a href="#">GVMC-72 Wards</a>	533.00	1,704,439
<a href="#">Anakapalle</a>	23.26	86,612
<a href="#">Bheemunipatnam</a>	15.75	52,110
<a href="#">5 Gram Panchayats</a>	13.82	11,388
<b>TOTAL</b>	<b>585.83</b>	<b>1,854,549</b>

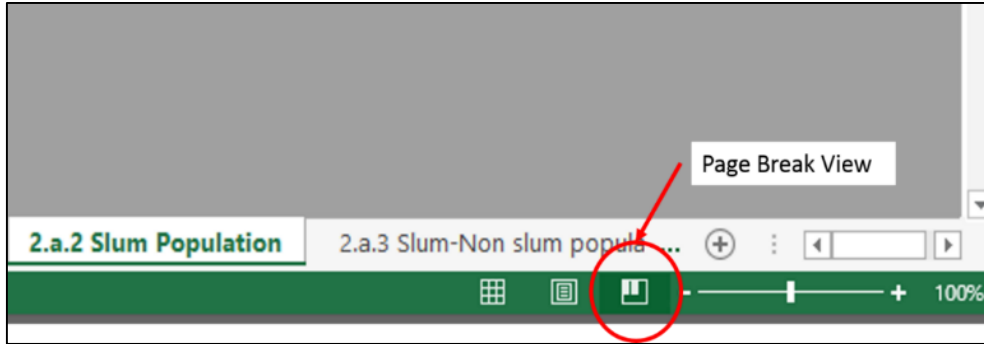
Source: Urban Management Centre

#### 3.3. Easy printing

All the worksheets are kept in the page-break view mode (see Image 14), with pages being set to appropriate page size and orientation. This saves time for the user to set the print area for printing. This also ensures that the print-outs are not broken across pages. It is recommended that users do not change from this view mode to other mode.



Image 14 Screenshot showing page-break view button in excel



Source: Urban Management Centre

## 4. Potential for further enhancement of the tool

In the next phase of development, the tool should be available online, on a web-page and on a mobile app/mobile-compatible interface. This would enable anybody to view data from anywhere. This system should also necessitate user IDs for municipal commissioner and other selected officials to access the tool individually on a computer/mobile, with special editing rights allowing them to manage relevant data for their respective departments. The online tool should allow the user to view the data over Google Maps, Bling, ESRI or other popular easy to use open source maps. The tool should enable running queries and generation of reports.

## Annexure

List of data contained under each data-heads in the cover page

<b>Data head</b>	<b>Data sub-head</b>
<b>ADMINISTRATIVE</b>	Name and number of wards
	Map depicting administrative boundaries, roads and railways, water bodies, important landmarks etc.
	Contour Map- showing all the natural features, as well as contours
<b>DEMOGRAPHY</b>	Census data - 2001 and 2011
	Slum population- Numbers, households, and estimated population (Census 2011)
	Floating population
	Slum/Non-slum population (Census 2011)
	Floating population
	Decadal Population growth rate (between 2001 and 2011)
	Gender composition of population – Male, Female (Census 2011)
	Map depicting the population density
<b>LAND USE</b>	Map depicting schools and government institutions
	Map depicting Bus stations, Railway station and Airport
	Slum information-category, no. of households and estimated population (PMAY)
	Growth direction of the city
	Map with existing land use - residential, commercial, Institutional, slums, green cover, open land etc.
<b>WATER SUPPLY</b>	Sources of City's water supply
	Source of household water supply (GVMC)
	Access to piped water supply connections (Census)
	Coverage of piped water supply (Water Supply and Property tax departments)
	Proposed and Ongoing projects
	Map depicting the existing water source
<b>TOILETS AND OD SPOTS</b>	Individual Household toilets- Type of toilets (single pit, twin pit, dry, pour flush), Disposal arrangements (bahao, sewerred, septic tank with soak away)
	Community toilets- functionality, number of households dependent, no. of seats, privacy, waste water disposal arrangements
	Public toilets- functionality, number of users, no. of seats, waste water disposal arrangements
	School sanitation-number of schools, number of boys and girls, and number of toilets for each
	Health and hygiene in low income groups - Awareness level (Reports if any)
	Open Defecation Spots- numbers, estimated number of users, reported reasons for open defecation
	Operation and Maintenance of toilets (user charges)- Number of free-to-use and pay-and-use toilets overall and by types (public and community), user charges at both types of toilets
	Operation and Maintenance of toilets (management responsibility)- No. of toilets, total functional toilets; private, community and municipality managed toilets

<b>Data head</b>	<b>Data sub-head</b>
	Operation and Maintenance of toilets (Present condition of toilets)- No. of toilets, total functional toilets; overall condition of building and overall cleanliness of toilets according to type (public and community)
	Operation and Maintenance of toilets (Facilities provided)- No. of toilets, total functional toilets; toilets with municipal water supply, sewer connections and electricity by type (public and community).
	Map depicting the location of public conveniences (public and community)
	Map depicting the location of open defecation spots
<b>WASTE WATER DISPOSAL</b>	Maps depicting coverage of household disposal mechanism (closed drain, open drain, and no drainage) (Census 2011)
	Map depicting Waste water management system- sewerage zones, location of STPs,
<b>SOLID WASTE MANAGEMENT</b>	Details on Solid Waste Management- Quantity of waste, secondary collection bins, conveyance system and disposal.
	Map depicting waste dumping site
<b>STORM WATER</b>	Details of storm water drains- zones, length of drains and areas covered
	Map depicting storm water drainage system
	Map depicting water-logging/flooding locations
<b>WATER BODIES</b>	Number of water bodies
	Water quality status (according to CPCB standards)
	Map depicting water bodies in the city and location of wastewater and solid waste disposed
<b>KNOWLEDGE MANAGEMENT</b>	Existing Knowledge Management Platforms
	Case studies and Best Practices
<b>HEALTH</b>	Diseases prevailing- 5 years data (at-least) - Ward wise; Previous epidemic details