Google Earth

Using Google Earth for infrastructure planning

Google Earth – Mapping Tool

Introduction

This document focuses on the use of Google Earth, showcasing its features and their possible applications. It is a practical guide with examples relevant to sanitation planning.

Why Google Earth?

Google Earth is a three-dimensional software model of the earth. It is a commonly used tool to explore the geography of the world and displays satellite images of varying resolution of the earth's surface. By using Google Earth, one is able to:

- Search for cities, areas, etc., by name or coordinates
- Add additional information (e.g., photos) to a map
- Track the development of an area over time
- Add geographic information (e.g., GPS, GIS)
- Measure distances and areas
- Export and share information integrated in a map

These features make Google Earth a useful tool for sanitation planning, as one can:

- Gain an overview of a location and spot possible difficulties
- Assess accessibility and display existing infrastructure
- Check the expansion of settlements over time
- Assess spatial conditions (e.g., available space, slope, etc.)
- Create a first draft of a sanitation system
- Share sanitation plan with other project members

Limitations of Google Earth

Keep in mind that the accuracy of the data depends on many factors, such as spatial resolution, georeferencing, etc. Thus, the data quality and quantity can vary from region to region. Between the measured data points interpolation is used to fill in the information gaps. The data displayed in Google Earth will never be 100% accurate and one should be aware of this limitation while using it. Therefore, one has to evaluate, if the provided data accuracy is sufficient for the proposed application for each case.

General Information

This guide does not cover every single feature of Google Earth or all the possible ways of doing something with it. It also may not explain all topics as thoroughly as some readers might find necessary. However, a web link leading to more information on particular subjects is often supplied. All the referred web links were up-to-date as of July 2015.

Google Earth Pro Compared to Google Earth

There are two versions of Google Earth available. In additional to Google Earth, there is Google Earth Pro. The licensing of Google Earth Pro used to cost money, but it has been free since January 2015. In

comparison to the basic version, the Pro version offers several additional useful features, as listed in Table 1.

Features	Google Earth	Google Earth Pro
Print resolution	1000 pixels	4800 pixels
Import GIS data	-	ESRI .shp, MapInfo .tab
Import addresses in bulk	Manually Geo-locate each address	Automatically Geo-locate up to 2500 at a time
Import large image files	limited to texture size	Super Image Overlays
Supplemental Layers	-	Demographics, Parcels, Traffic Counts
Create premium movies for export	-	HD 1920x1080
Measurement tools	Line, Path	Line, Path, Polygon, Circle, 3D Path, 3D Polygon

Table 1 Basics differences between Google Earth and Google Earth Pro (source: https://support.google.com/earth)

Note: For simplification – whenever this document refers to the shared features of Google Earth and Google Earth Pro, the term used for referencing the software program is 'Google Earth'. Google Earth Pro's additional features will be labelled as 'only available in Google Earth Pro' or similarly.

Download

Generally, it is advisable to get the Pro Version of Google Earth because it offers additional features (Table 1) and is available for free. One can download Google Earth Pro for PC at: http://dl.google.com/dl/earth/client/advanced/current/googleearthprowin.exe or for Mac at: http://dl.google.com/dl/earth/client/advanced/current/googleearthpromac-intel.dmg. To have access, use your email address and the key **GEPFREE**. For more information concerning downloading, licensing or installation of Google Earth Pro, please refer to: https://support.google.com/earth/answer/189188?hl=en&ref_topic=2376762&rd=1.

If for whatever reason one wants to have the basic version of Google Earth, one can download it for PC at: http://dl.google.com/earth/client/current/GoogleEarthWin.exe or for Mac at: http://dl.google.com/earth/client/current/GoogleEarthMac.dmg. For help with the installation of Google Earth, check: https://support.google.com/earth/answer/21955?hl=en.

Help

Commonly, if one is confronted with problems or has questions about Google Earth, one should check the Google Earth Help Center: https://support.google.com/earth/ or look for an available tutorial at: https://www.google.com/earth/outreach/tutorials/index.html.

Google Earth Offline

Google Earth works best with a live Internet connection. However, it is possible to save a small amount of data in advance, and this permits you to use it while having no Internet access. For instructions, see: https://support.google.com/earth/answer/21423?hl=en or read about the possible use of the cache (see 'Cache' on page 5).

Start

To start Google Earth or Google Earth Pro, double click on the corresponding icon on your desktop (Figure 1) or open it via program list.

Figure 1 Google Earth Icon next to Google Earth Pro Icon

After starting either version of Google Earth, the interface displayed in Figure 2 appears.
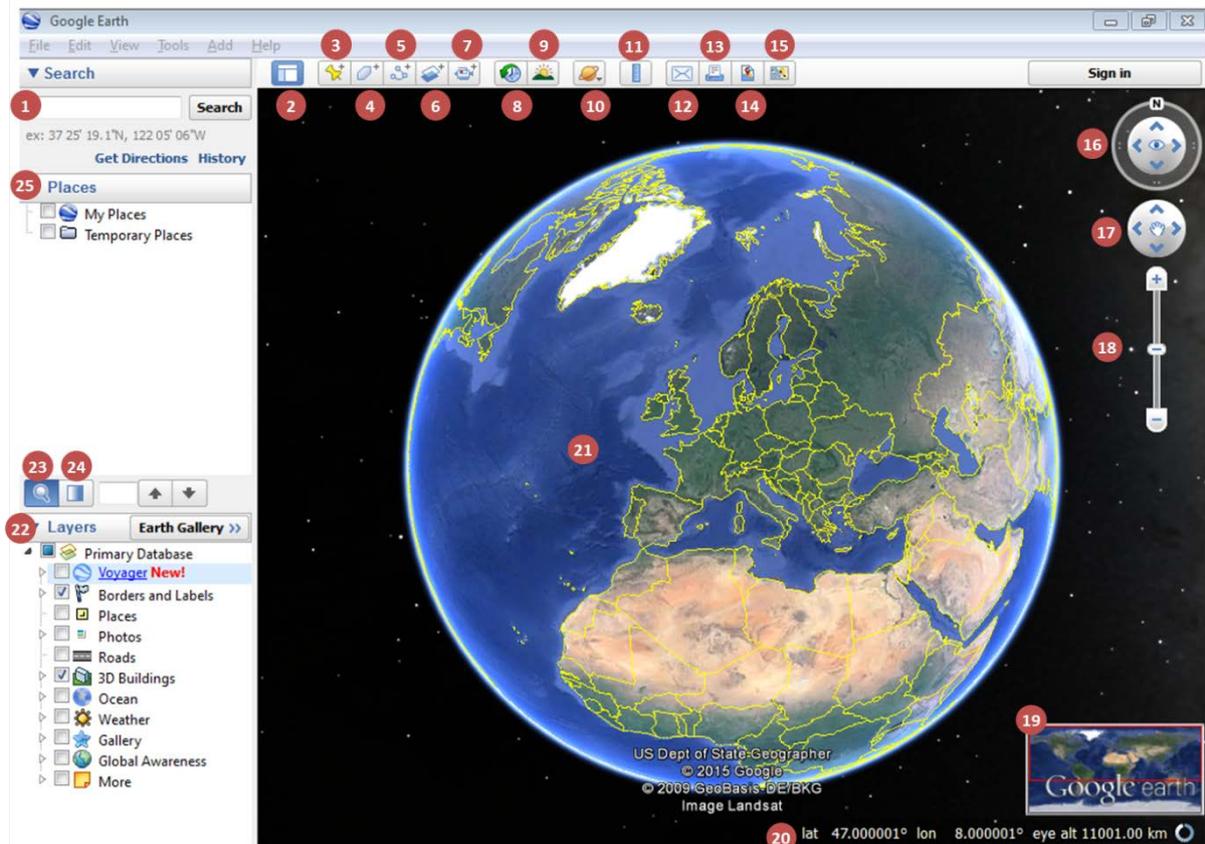
Figure 2 Google Earth's start interface

1	search panel	13	print
2	hide/show sidebar	14	save image
3	add placemark	15	view in google maps
4	add polygon	16	click to look around
5	add path	17	click to move around
6	add image overlay	18	click to zoom in or out
7	record a tour	19	overview map
8	show historical imagery	20	coordinates
9	show sunlight across landscape	21	virtual globe
10	switch between earth, sky and other planets	22	layers panel
		23	find in My Places
11	show ruler	24	adjust opacity of layer
12	email	25	places panel

3

Google Earth Options

To access all the settings of Google Earth, click **Tools > Options**. The setting options of Google Earth are divided in five different tabs – '3D View', 'Cache', 'Touring', 'Navigation' and 'General'.

3D View Options

To adjust the 3D View settings, (Figure 3) click **Tools > Options**, then click the '3D View' tab. This brings you to the most relevant options. For additional information, check the following web link: https://support.google.com/earth/answer/148070?hl=en.
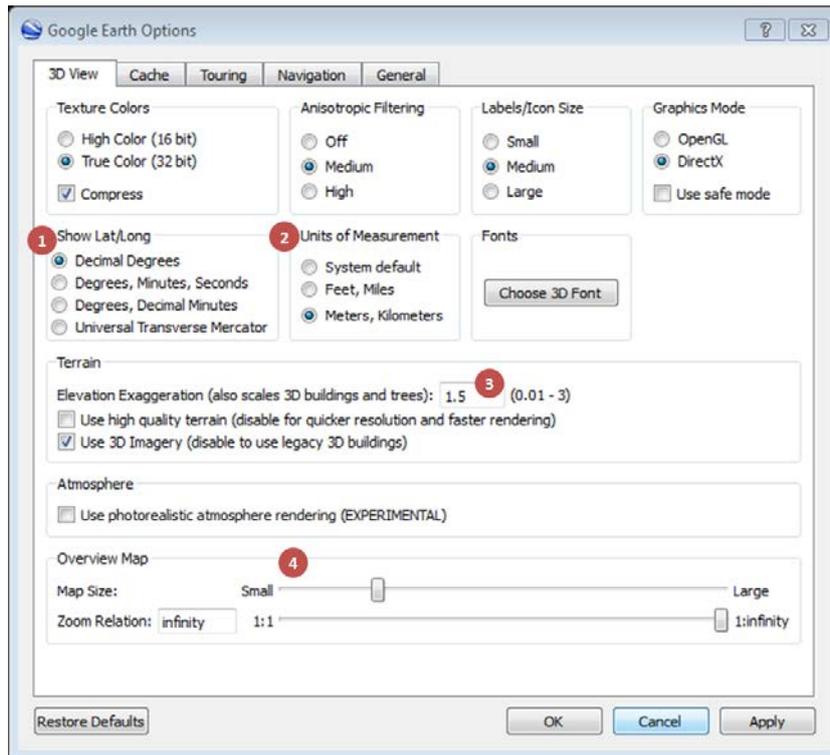
Figure 3 3D View settings

1	Select preference for showing latitude and longitude
2	Select preference for showing elevation and altitude
3	Set preference of elevation exaggeration
4	Adjust size overview map

The specification of latitude/longitude (1) and units of measurement (2) can be individually set. Yet, it is important that all project members use the same selections for any project on which they are working together.

The value of the elevation exaggeration (3) is the ratio of vertical to horizontal scale; thus, it influences the 3D effect of elevation in the map. With the default value of 1, it shows the horizontal and the vertical with the same scale. A common useful setting is 1.5 as it resolves in a distinct, yet natural elevation appearance. Depending on the variability of an area's elevation, the value needs to be adjusted to achieve the best option.

The overview map displays the current location in the global context. To show or hide the overview map, click **View > Overview Map** or **Ctrl + M**. The map size (4) can be adjusted.

Cache

A cache is storage of data by a program that makes the data more quickly accessible and, therefore, speeds up the computing. To access the settings of the cache used for Google Earth, click **Tools > Options**, then click the 'Cache' tab.

In the 'Cache' settings, one can improve the performance of Google Earth by increasing the size of the memory and disk cache, although these adjustments can slow down other applications open on the computer. Also, it is possible to clear the existing cache. For more information and instructions, check: https://support.google.com/earth/answer/148071?hl=en.

By saving caches of loaded areas in advance, it is possible to use Google Earth while being offline. This procedure is helpful in areas with slow Internet connections. The cache can be created by manually or by using additional software. For more information and instructions, check the following web link: http://freegeographytools.com/2009/manually-caching-google-earth-data and its related posts.

General

To access the general settings of Google Earth (Figure 4), click **Tools > Options**, then click the 'General' tab.
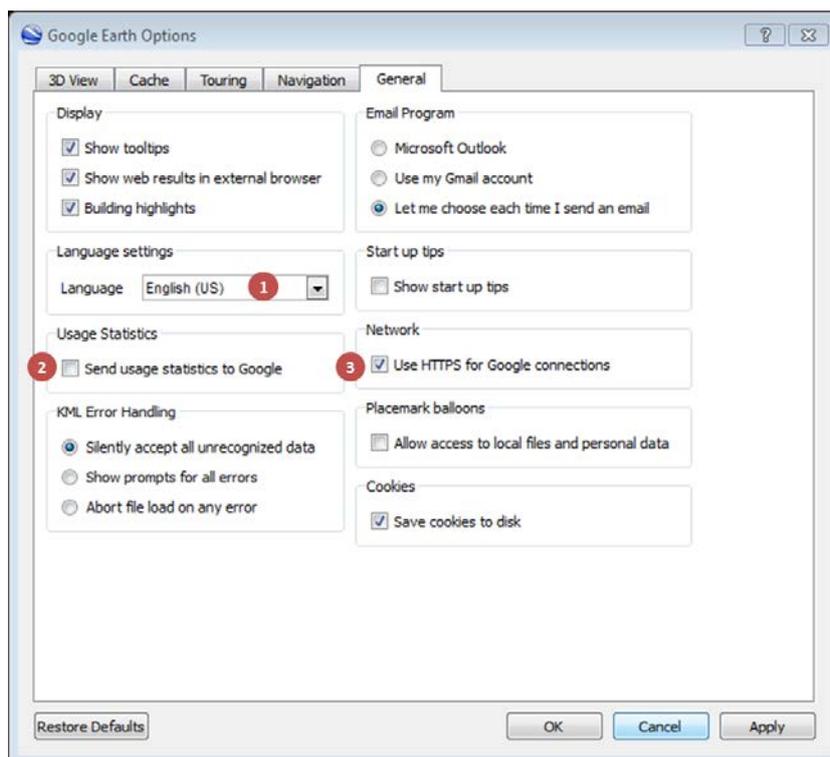
Figure 4 General settings

1	Select language preference
2	Turn on/off the sending of usage statistics to Google
3	Turn on/off the use of HTTPS connection for Google

Setting the preference language (1) is done by selecting one of the available languages from the drop list. For more details regarding changing the language, see: https://support.google.com/earth/answer/148181?hl=en.

Usage statistics (2) is information automatically sent to Google to monitor the functioning of Google Earth. If one desires not to do this, simply uncheck the checkbox. For further information, check: https://support.google.com/earth/answer/40936?hl=en.

It is advisable to use a HTTPS connection (3) as the information is encrypted and transmitted over a secure network. This maintains the privacy and integrity of the exchanged data.

Basics

If you are a beginner at using Google Earth, it might be helpful to have a look at 'Getting to know Google Earth': https://support.google.com/earth/answer/148176?hl=en&rd=1.

Navigation

There are many different ways of navigating in Google Earth. If one is unfamiliar with Google Earth or would like to gain a quick overview of the different navigation possibilities, check the information available at: https://support.google.com/earth/answer/148186?hl=en.

Saving Data

My Places

Drag and drop items into the 'My Places' folder to obtain them for a future Google Earth session. Or right click **> Save to My Places**. All items located in the folder 'Temporary Files' will be lost after closing the current Google Earth session.

Having too many files in 'My Places' can delay the start up of Google Earth, depending on the computer's performance. However, saving files to a hard drive (see chapter 'Hard drive') and afterwards deleting them from 'My Places' (right click on item **> Delete**) solves this problem. To empty all information saved in 'My Places' at once, right click **> Delete Contents**.

Hard drive

Saving data to the hard drive has the advantage of creating a backup, makes it possible to share the files with others, improves the Google Earth start up performance and allows you to delete files from 'My Places'. Click **File > Save > Save Places As…** or right click **> Save Place As…** or use the shortcut **Ctrl + S**. The file type is either KML or its compressed version, KMZ. For more information, visit: https://support.google.com/earth/answer/148150?hl=en.

Download of Public Data

Google Earth is one of the most commonly used map tools and, therefore, has a big online community. Some of the many Google Earth users upload files to share their work and knowledge with the public, and these can have relevant information for your project and can be downloaded. The downloaded files can be imported into Google Earth (see 'Importing data' on page 7), although the accuracy and integrity of the displayed data are not guaranteed. Effort is required to validate any downloaded data, although this might not always be possible.

To search for a specific file type (e.g., KMZ), use the following format '*search term* **filetype:***KMZ*', when entering a search request into the Google search bar.

Importing data

KML and KMZ

Keyhole Markup Language (KML) was developed for use in Google Earth, and importing KML files and its zipped version, KMZ, into Google Earth is very easy. Click **File > Open** or use the shortcut **Ctrl + O** to import KML or KMZ files. Check this web link for more information on the topic: https://www.youtube.com/watch?v=gaH993pN4cg.

GPS

The import of Global Positioning Systems (GPS) data is possible. To import data directly from a GPS device supported by Google Earth, click **Tool > GPS** and select the import options. To import GPS data from a GPS device that is not supported or a GPX or other file types, click **File > Open**. The time stamps of the imported GPS data enable the animation of the tracks using the 'Time Controls'. For detailed instructions, see the tutorial at: https://www.google.com/intl/en/earth/outreach/tutorials/importgps.html.

GIS

Importing Geographic Information Systems (GIS) data is only possible with Google Earth Pro. To import vector or raster data, click **File > Impor**t and choose the correct file type. Afterwards, select the file and open it. For detailed instructions, see the tutorial at: https://www.google.com/intl/en/earth/outreach/tutorials/importgis.html.

Folders

Creating Folders

While working with Google Earth, adding folders is useful in order to organize the generated data. Click **Add > Folder** or use the shortcut **Ctrl + Shift + N**. Simply drag and drop the placemarks, polygons and other items to their destination folder.

Share Style

To reduce the amount of work, the style of all items placed in one folder can be edited at once by right clicking on the selected folder **> Properties**. Click 'Style, Color' tab, then click the 'Share Style' button as shown in Figure 5. It is recommended to first apply the shared settings and to modify the individual items afterwards. For further information on modyifing folder settings, see: https://support.google.com/earth/answer/148079?hl=en.
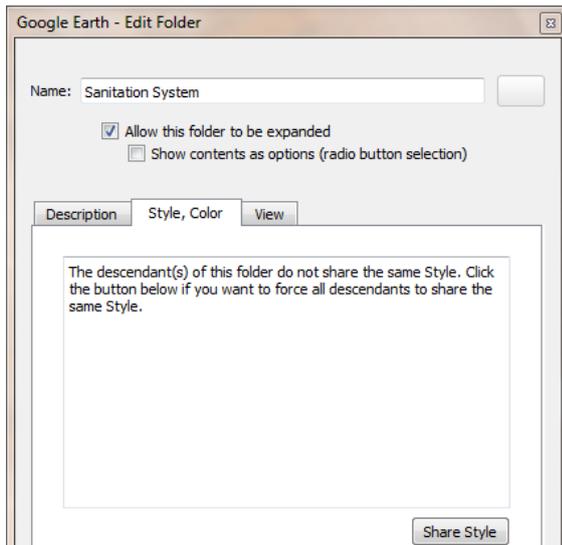
Figure 5 Folder settings that can be applied to all items by using 'Share Style'.

Description

The description of any item appears after clicking on it. One can add text, a web link or a picture and can choose between different ways of formatting. For instructions and more information, visit: https://support.google.com/earth/answer/148075?hl=en.

Tools

There is a wide range of tools offered by Google Earth. One can add layers and other features, mark points of interest or measure a certain path or area.

Layers

There are many layers available in Google Earth and each one visualizes different information. For additional data, one can download one of the publicly accessible layers created by other Google Earth users (see 'Download of Public ' on page 6). Depending on the points of interest and the purpose for using Google Earth, different layers are relevant. Too many activated layers, however, can cause confusion, add unnecessary complexity, and non-relevant layers should be deactivated.
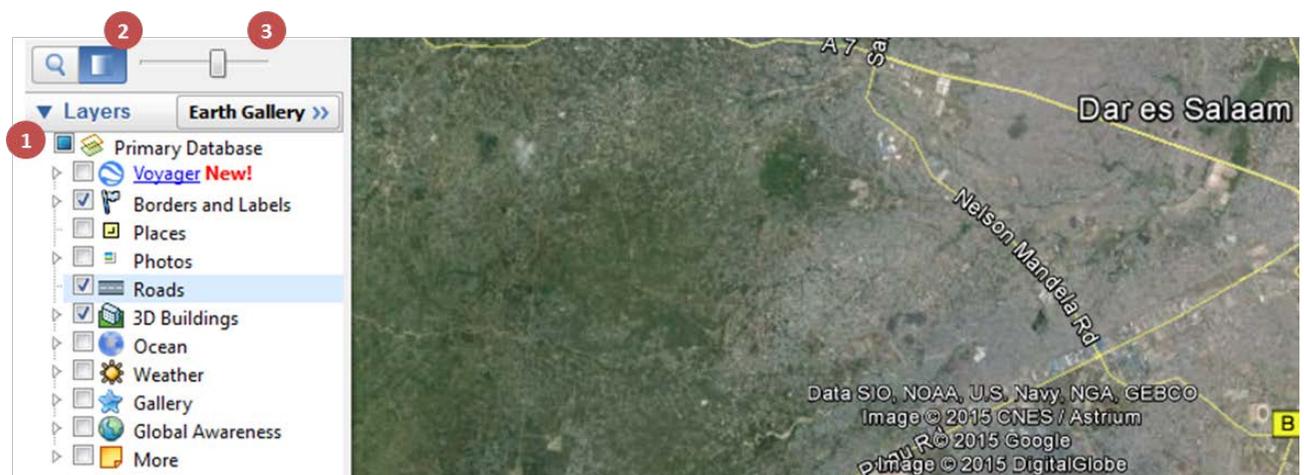
Figure 6 Layers

A range of available layers is displayed in Figure 6. De-activating or activating a layer is done via its checkbox (1). Additionally, the opacity (2) of the currently selected layer can be adapted by using the slider bar (3).

Adding features

By adding features, such as placemarks, polygons or paths, one can record specific information on a certain area of a map. Added features can either be listed under 'My Places' (see 'My Places' on page 6) or 'Temporary Places'. In contrast to the items listed in the folder 'Temporary Places', the items listed in 'My Places' are still available after a new start of Google Earth. Creating folders (see 'Folders' on page 7) is an efficient way of structuring added items. Moving items from one folder to another is simply done by drag and drop.

The settings of all added items, such as description, style, colour, view and altitude, can be modified. To do so, right click on the item **> Properties**. Google Earth Pro users are able to look up the added item's measurement.

Image and photo overlay

One can overlay the Google Earth's map with another image or can add photographs to a specific point on the map. For an image overlay, click **Add > Image overlay** or use the icon (6) in Figure 2 or the shortcut **Ctrl + Shift + O**. Browse for a picture and adapt it to the map using the available settings. To overlay a photo, click **Add > Photo**. For detailed instructions on both features, see the tutorial at: http://www.google.com/earth/outreach/tutorials/earthoverlays.html.

Placemark

A placemark highlights a spot of interest on the map. To add a placemark, click on the 'Add placemark' icon (3) in Figure 2 or click **Add > Placemark** or use the shortcut **Ctrl + Shift + P**. The settings of each placemark (Figure 7) can be individually set. One can also assign a particular view that appears each time when opening a placemark. Adjust this until optimal view is reached, then right click **> Snapshot view** to fix it. Watch a demo video at: https://www.youtube.com/watch?v=WqDQec1itqg.

To set a specific icon for a placemark, click on (1) in Figure 7 and select one of the available icons. Follow this link: https://support.google.com/earth/answer/148077?hl=en for further information about setting icons. You can create your own custom icons or use publicly available icons, such as the ones from UN-OCHA, which can be found at: http://mw1.google.com/crisisresponse/icons/un-ocha/index.html.
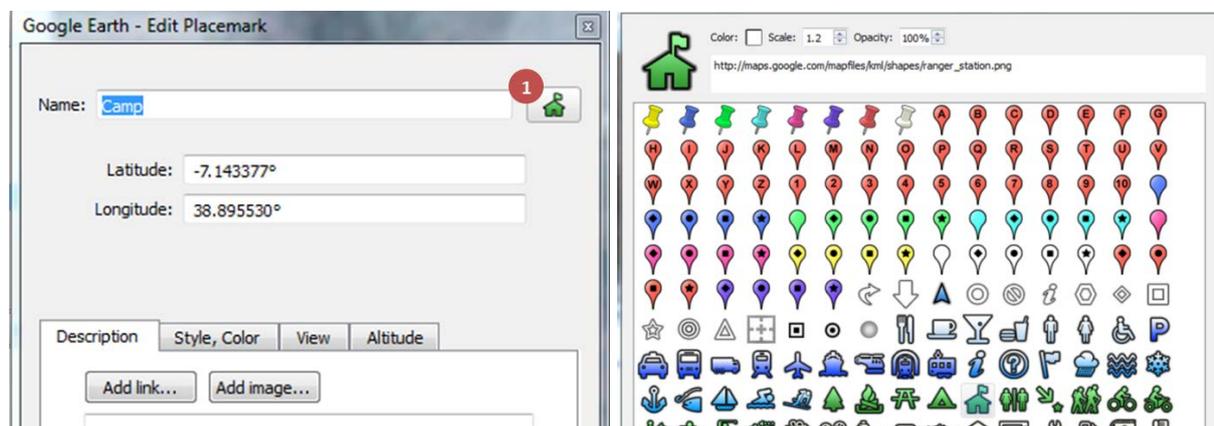
Figure 7 Settings of placemark and selection of icons

By using a placemark, it is possible to obtain the coordinates of a place because latitude and longitude are displayed below the placemark's name (Figure 7). For instructions, watch the following video at: https://www.youtube.com/watch?v=sEpqGlIY04s.

Polygon

To add a polygon, click on the 'Add Polygon' icon ((4) in Figure 2) or click **Add > Polygon** or use the shortcut **Ctrl + Shift + G**. Create a polygon by navigating the mouse.

Adjusting the altitude settings enables one to modify the existing polygon (Figure 8, left) to a 3D polygon (Figure 8, right). To do so, open the polygon properties (right click **> Properties**) and click on 'Altitude' tab. There, change 'Clamped to the ground' to 'Relative to the ground' and enter the corresponding height. To finish, check the 'Extend sides to ground' box.
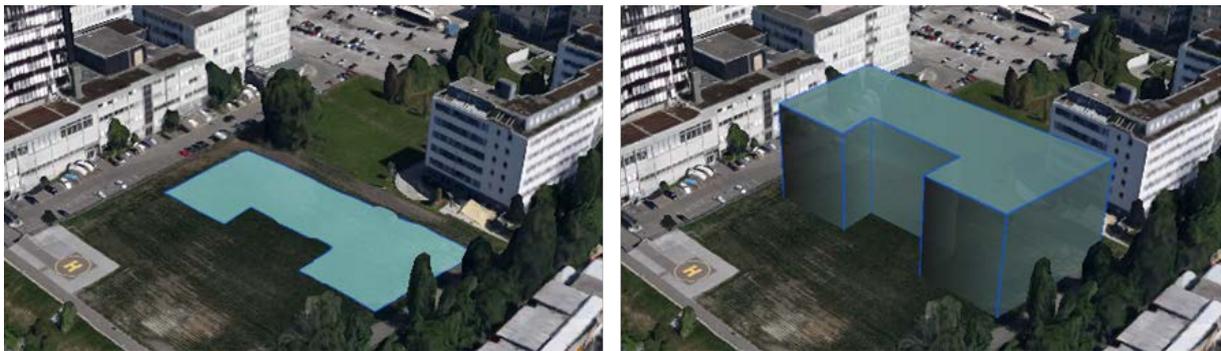
Figure 8 left: Polygon clamped to the ground (default); right: 3D polygon

Path

To add a path, click on the 'Add Path' icon ((5) in Figure 2) or click **Add > Path** or use the shortcut **Ctrl + Shift + T**. Create a path by navigating the mouse.
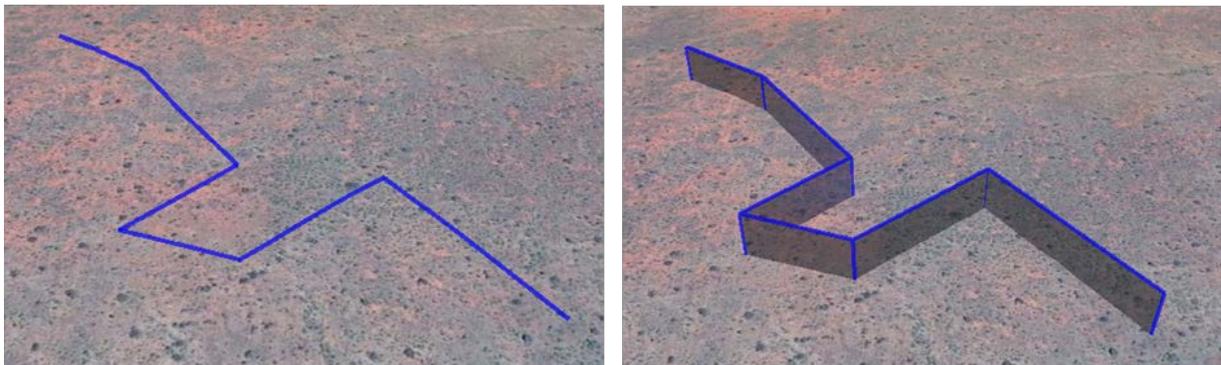
Figure 9 left: Path clamped to ground (default); right: 3D path

Identical to modifying a polygon into a 3D polygon, it is possible to modify a path (Figure 9, left) into a 3D path (Figure 9, right). To do so, open the path properties (right click **> Properties**) and click on the 'Altitude' tab. There, change 'Clamped to the ground' to 'Relative to the ground' and enter the corresponding height. To finish, check the 'Extend path to ground' box.

Elevation profile

To view the elevation profile of the currently selected path, right click **> Show Elevation Profile**. In Figure 10, the elevation profile of the corresponding path is displayed. The x-axis is specified as the ground length, while the y-axis equals the elevation above sea level. In addition, the average slope,

the maximum slope and the total vertical gain, as well as loss, are listed. For further information and instructions, check the following web link: https://support.google.com/earth/answer/181393?hl=en.

Draft of a sanitation system

To develop a draft of a sanitation system (Figure 10), it is useful to sketch scenarios in their spatial surroundings. This is possible in Google Earth by using the 'Add Path' and 'Add Polygon' functions. Even 3D models can be sketched. A draft in Google Earth allows one to gain a quick overview of the area, to experiment with different spatial placements of sanitation technologies in an area, to look at an elevation profile of a sewer pipe and makes it easy to share ideas with other project members.

Figure 10 Rough draft of a sanitation system with an elevation profile of a selected sewer pipe.

Measurement

Google Earth can be used for remote sensing analysis as it makes it possible to measure the distances of lines and paths. Furthermore, Google Earth Pro users can determine the area and perimeter of polygons, circles and three-dimensional objects. This information can be useful for the sanitation planning process, but one has to be aware of the data's accuracy level and, therefore, consider the application's limitations.

See all the measuring tools at: https://support.google.com/earth/answer/148134?hl=en and their options and features at: https://support.google.com/earth/answer/148135?hl=en. Watch the following video for a short demonstration: https://www.youtube.com/watch?v=1cmhWMCeWPc.

Saving measurement

Each measurement can be saved by clicking on its 'Save' button. Saving a measurement generates a corresponding item. This allows calling it up whenever needed to adjust its properties, i.e., style, colour, etc.

Distance

To measure a distance in Google Earth, there are two available options, line or path. One can determine the distance between two points via the length of a straight line (Figure 11). Click **Ruler** (icon

(11) Figure 2) and select the 'Line' tab. Choose a start and an end point of the line by clicking on the map. 'Map Length' represents "as the crow flies" and does not take elevation into account. Instead, 'Ground Length' does and this measures the length along the surface of the earth.
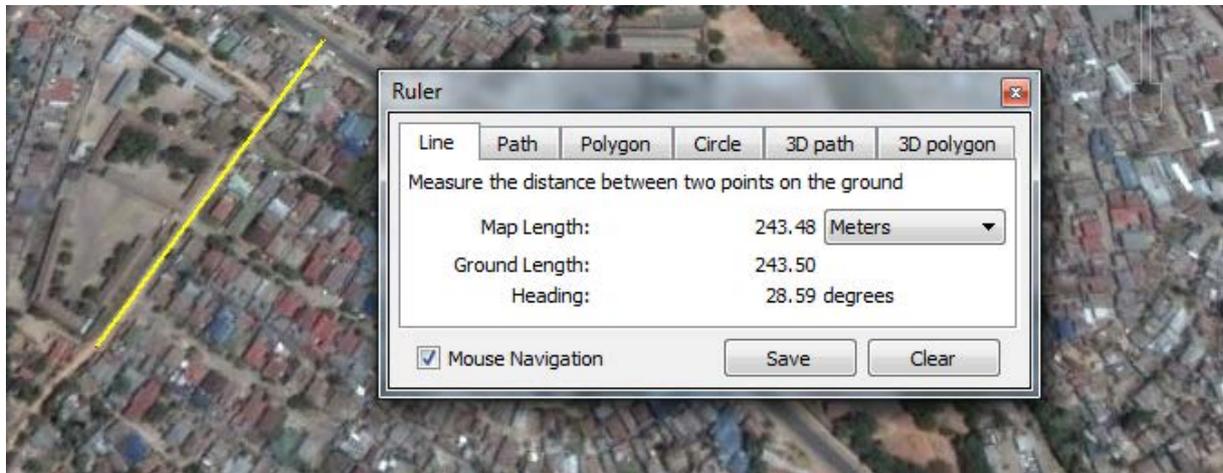
Figure 11 Measurement of line characterized by length and heading

A path consists of two or more connected points. One can determine the length of a path (Figure 12) by summing up the distances between the connected points. Click **Ruler** and select the 'Path' tab. Create a path by adding points by clicking on the map; this specifies the 'Map Length'. By clicking on 'Show Elevation Profile', one can display the elevation profile of the current path. Be aware that the x-axis is defined as 'Ground Length', rather than 'Map Length'.
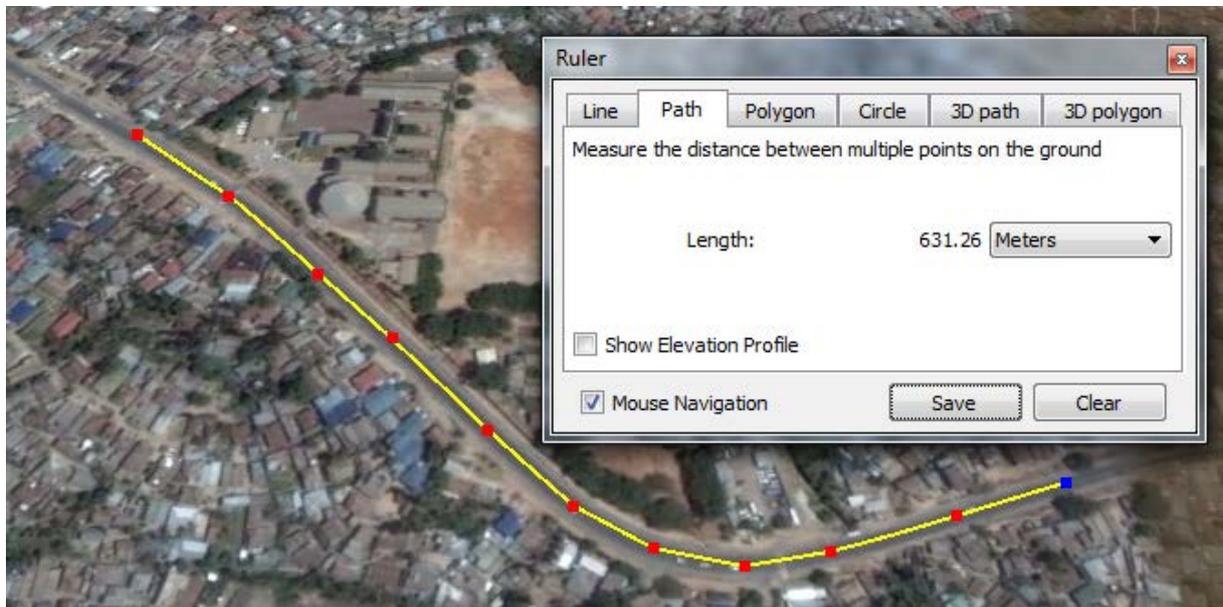
Figure 12 Measurement of path length

In addition to the mentioned planar measuring methods, a '3D path' (Figure 13) for Google Earth Pro users is also available. As its name implies, '3D path' enables measuring the height of three-dimensional objects or the length of three-dimensional distances. Click **Ruler**, then click the '3D path' tab. Adjust the sight to achieve an optimal view of the three-dimensional object of interest. Create a path by adding points by clicking on the map.
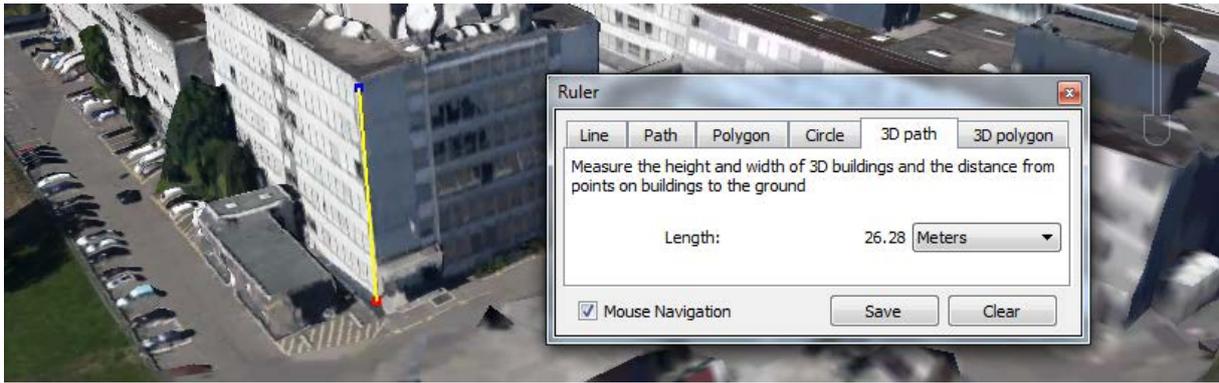
Figure 13 Measurement of the length of a 3D path

Area

Measuring an area and its perimeter (Figure 14) is only possible in Google Earth Pro. To do so, click **Ruler**, then click the 'Polygon' tab. Select the area of interest by navigating the mouse.
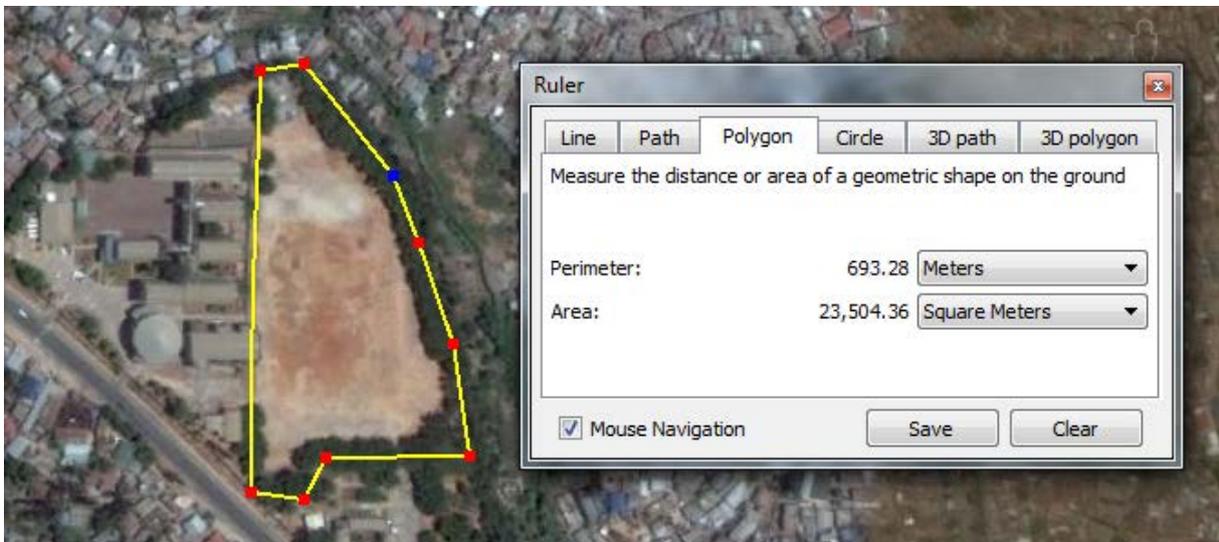
Figure 14 Measurement of a polygon characterized by area and perimeter

The same feature is also available for three-dimensional spaces and is called '3D polygon' (Figure 15). Click **Ruler**, then click the '3D polygon' tab. Achieve an optimal view of the three-dimensional object, then define the polygon by clicking on the map.
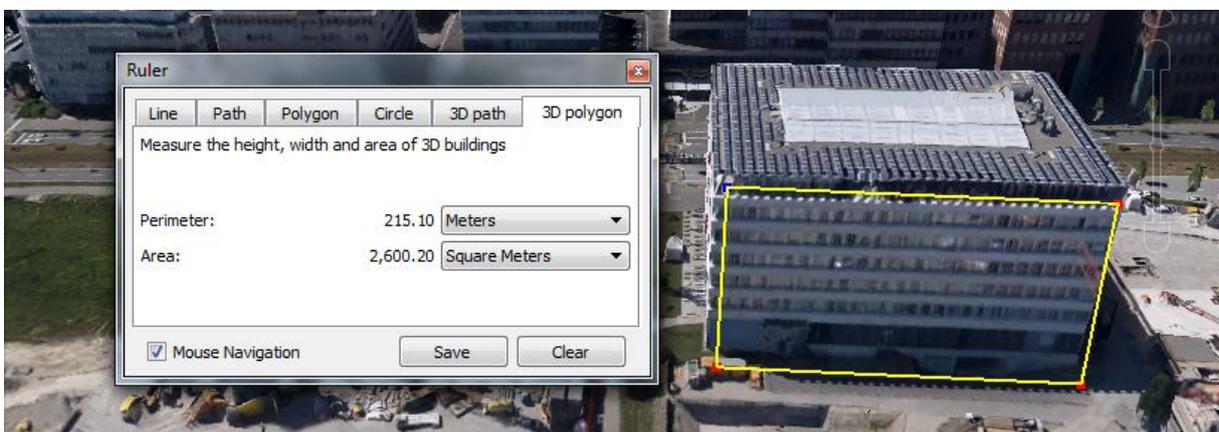
Figure 15 Measurement of a three-dimensional polygon characterized by area and perimeter

13

Circle

The measurement of a circle (Figure 16) is only possible in Google Earth Pro. Click **Ruler**, then click the 'Circle' tab. The first click on the map selects the centre of the circle, and the second click sets its radius.
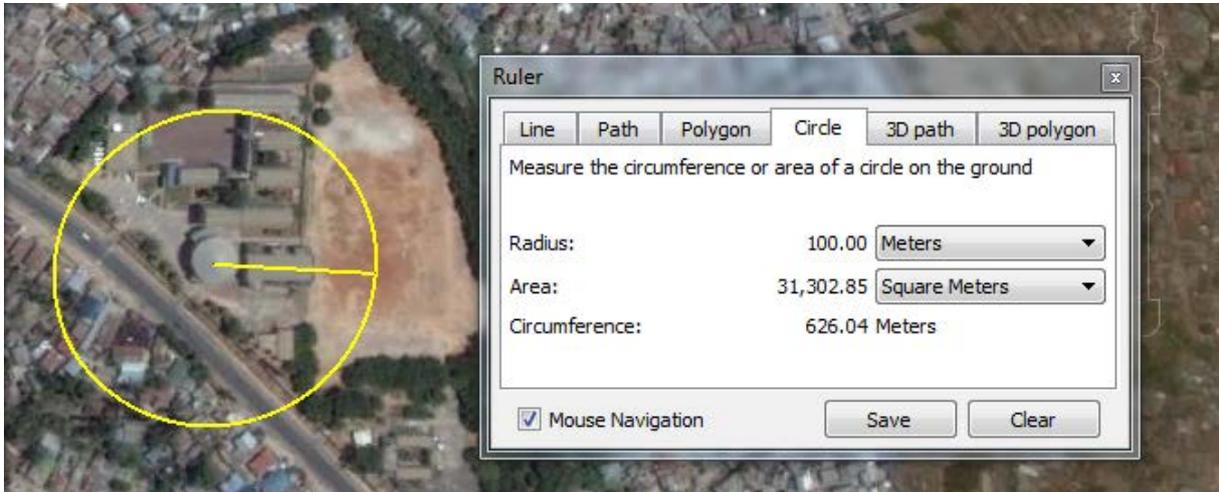
Figure 16 Measurement of a circle characterized by radius, area and circumference

Google Maps Terrain

A contour line consist of joint points with the same elevation. Viewing a contour map enables one to easily spot hills and valleys or to estimate the steepness of slopes.

For a simple way to look at the contour lines of an area, switch from Google Earth to Google Maps. Do so by using the 'View in Google Maps' icon (15) in Figure 2 or **Ctrl + Alt + M**. Google Maps automatically displays the view 'Earth' as pictured on the left side of Figure 17. The image in the middle of Figure 17 shows the view after choosing 'Map'. In 'Map' View, one is able to select the option 'Terrain', which showcases the contour lines of the area as demonstrated on the right side of Figure 17.
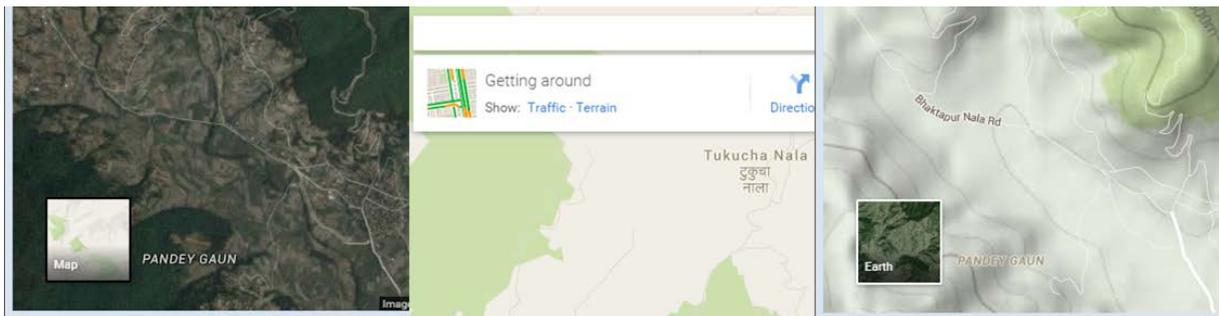
Figure 17 left: 'Earth'; middle: 'Map'; right: 'Terrain'

There are ways to generate a contour map based on Google Earth extracted data, although additional software and knowledge is required.

Viewing historical imagery

Google Earth always displays the newest picture available of an area as the default. However, it is possible to look at earlier pictures of an area. To view historical imagery, click on the icon (8) in Figure 2 or click **View > Historical Imagery**. By sliding the bar, one can shift between different acquisition dates of the pictures. For further information, check the web link:

https://support.google.com/earth/answer/148094?hl=en or watch an instructional video at: https://www.youtube.com/watch?v=vwHGG1dgujc.

Viewing historical imagery can give a rough idea of the expansion and development of an area over time. In the case of the earthquake in Haiti in January 2010 (Figure 18), Google Earth captured the rapid changes in an emergency settlement that took place over several months.

Figure 18 Development and expansion of an emergency settlement in Port-au-Prince, Haiti, over several months. Top left: 13 January 2010 (one day after earthquake), top right: 25 January 2010, bottom left: 23 February 2010, bottom right: 18 August 2010

File Export and Sharing

Print

For printing the current view in Google Earth, click **File > Print** or click on the print icon (11) in Figure 2 or use the shortcut **Ctrl + P**. By doing so, the following printing interface (Figure 19) appears. Using this interface, one can set various map options, such as the visibility of the title, legend, scale, etc. The page setup can also be adjusted; afterwards, one can print the map or save it as a PDF file. For further information on printing, check: https://support.google.com/earth/answer/148147?hl=en.
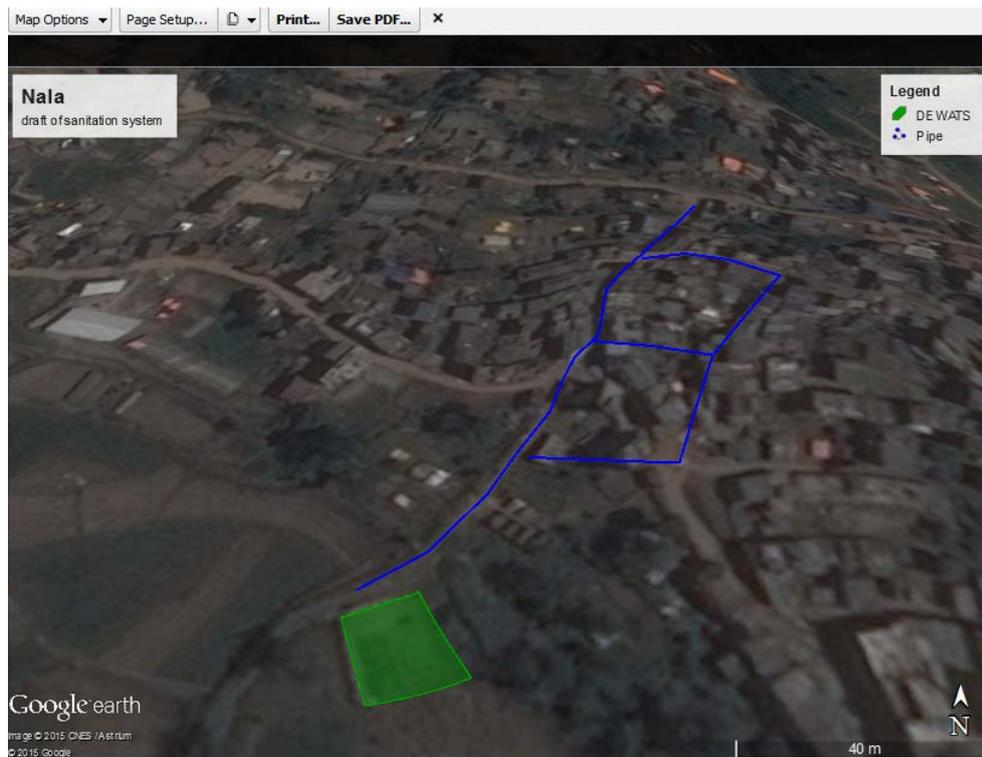
Figure 19 Printing interface in Google Earth

Email

There are two options for sharing Google Earth content via email. One can either send an image file (e.g., a JPEG) taken of the actual view, or one can select the relevant places data and attach it as a KMZ file for other users to open. The former is especially helpful to reach people who do not have Google Earth.

Taking an image or generating a KMZ file and attaching it to an email can be done in various ways. One way to do this, is to select the appropriate view or file and then to click on the email icon (12) in Figure 2. This starts the email interface, where one can choose between the attachment options of screenshot, current view or folder. Depending on this selection, a JPEG or KMZ file is automatically generated and attached to an outbound email message, using the email program of your choice. See the following web links for more information on attaching images: https://support.google.com/earth/answer/148159?hl=en or KMZ files: https://support.google.com/earth/answer/148160?hl=en. Of course, one can also manually attach already extracted files (see 'Hard drive' on page 6 or 'Print' on page 15) to an email message using the email program.

Hosting Place Data

Hosting place data via a web server is rather complex, but offers several advantages. It allows for improved accessibility as everyone who has access to the server and is a Google Earth user can download and use the data. This simplifies the distribution of files and guarantees automatically up-dated versions of it. Furthermore, it can work as a backup in case of lost data. For instructions on how to host a KML file, see: https://support.google.com/earth/answer/173934?hl=en

Keep in mind that even though access to the server might be restricted, its safety is limited. Depending on the sensitivity of the data, one should consider not uploading data to a web server.

Prospective

The following tools are listed to showcase the possibility of combining Google Earth with other software and, therefore, expand its applications.

Spreadsheet Mapper

Spreadsheet Mapper 3 (http://www.google.com/earth/outreach/tutorials/spreadsheet3.html) enables the entering of data into an online spreadsheet to generate a set of placemarks. This offers a way of managing placemarks and of working simultaneously with other project members.

Google Fusion Tables

Fusion Tables is a tool developed by Google to gather, visualize and share data. One can use already collected public data sets, import one's own data or use a combination of both. The relevant data can be displayed in charts and on maps, and filters are available for selective visualization. Hosting data in Fusion Tables enables simple data management, and viewers will always see the up-to-date version. By sending a web link or integrating it in a website, the visualized data can be easily shared. For more information, visit: https://support.google.com/fusiontables or watch an example at: https://www.youtube.com/watch?v=0HdQYl8EBW8.

Open Data Kit

Open Data Kit (ODK) is a free and open-source tool that helps users manage their mobile data collection. General information and the software is found at: https://opendatakit.org/. The process consists of three steps: creating a survey, collecting data on a mobile device and aggregating the collected data on a server. From the server, the collected data can be exported to various tools, including Google Fusion Tables, Google Earth or Google Maps. Watch the following video to get a brief introduction on ODK: https://www.youtube.com/watch?v=HqqUdfz9Uyc or do a tutorial to learn more about it: http://www.google.com/intl/en/earth/outreach/tutorials/odk_gettingstarted.html.

References

Google Earth Help: http://www.google.com/earth/help/index.html
Google Earth Help Center: https://support.google.com/earth/?hl=en
Google Earth Outreach: https://www.google.com/intl/en/earth/outreach/
Google Fusion Tables : https://support.google.com/fusiontables
International Committee of the Red Cross. 2010. Google Earth Training for FO'S. (pdf)
International Committee of the Red Cross. 2014. Quick Introduction to Google Earth for Rapid Deployment Staff. (pdf)
Open Data Kit: https://opendatakit.org/

Further Readings

Tilley E., and Guenther I. 2014. Mobile phones for collecting WASH data in low-income countries. 37th WEDC International Conference Refereed Paper, Hanoi, Vietnam.
http://www.eawag.ch/fileadmin/Domain1/Abteilungen/eng/projekte/vuna/papers/Tilley2014_Mobile_WEDC.pdf

Shortcuts

General	
Action	**Keyboard**
Open File menu	Alt + F
Open Edit menu	Alt + E
Open View menu	Alt + V
Open Add menu	Alt +A
Open Tools menu	Alt + T
Open Help menu	Alt + H
Open file	Ctrl + O
Save image	Ctrl + Alt + S
View in Google Maps	Ctrl + Alt + M
Print	Ctrl + P
Email view	Ctrl + Alt + E
Copy current selection	Ctrl + C
Cut placemark	Ctrl + X
Paste placemark	Ctrl + V
Open Find Field	Ctrl + F
Delete item	Del
Rename item	Ctrl + Alt + R
Full screen mode	F11
Show / hide sidebar	Ctrl + Alt + B
New placemark	Ctrl + Shift + P
New folder	Ctrl + Shift + N
New image overlay	Ctrl + Shift + O
New model	Ctrl + Shift + M
New path	Ctrl + Shift + T
New polygon	Ctrl + Shift + G

3D Viewer	
Action	**Keyboard**
Move viewer left	Left arrow
Move viewer right	Right arrow
Move viewer up	Up arrow
Move viewer down	Down arrow
Rotate view clockwise	Shift + Right arrow
Rotate view counter-clockwise	Shift + Left arrow
Tilt view up ('top-down' view)	Shift + Up arrow
Tilt view down ('horizon' view)	Shift + Down arrow
Zoom in	Ctrl + Shift + Up arrow
Zoom out	Ctrl + Shift + Down arrow
Stop viewer movement	Spacebar
Reset view so North is up (default)	N
Reset tilt to top-down mode (default)	U
Reset both view and tilt to default	R
Latitude / longitude grid	Ctrl + L
Change navigation to G-Force mode	Ctrl + G
Change navigation to Trackball mode	Ctrl + T