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for use with:
Google Earth 6.0 and Excel 2010

Working with Excel Data in Google Earth



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In this exercise you will learn more about formatting geographic data for its use in Google Earth. There are a number of ways to do this. This exercise focuses on a method which is particularly good for working with sensitive data that is contained in an Excel spreadsheet.

Working with Excel Data

Step 1: Geographic data storage in Excel

Step 2: Converting locations from Excel to KML

Step 3: Examining the new KML file in Google Earth

Step 4: Making a more readable map

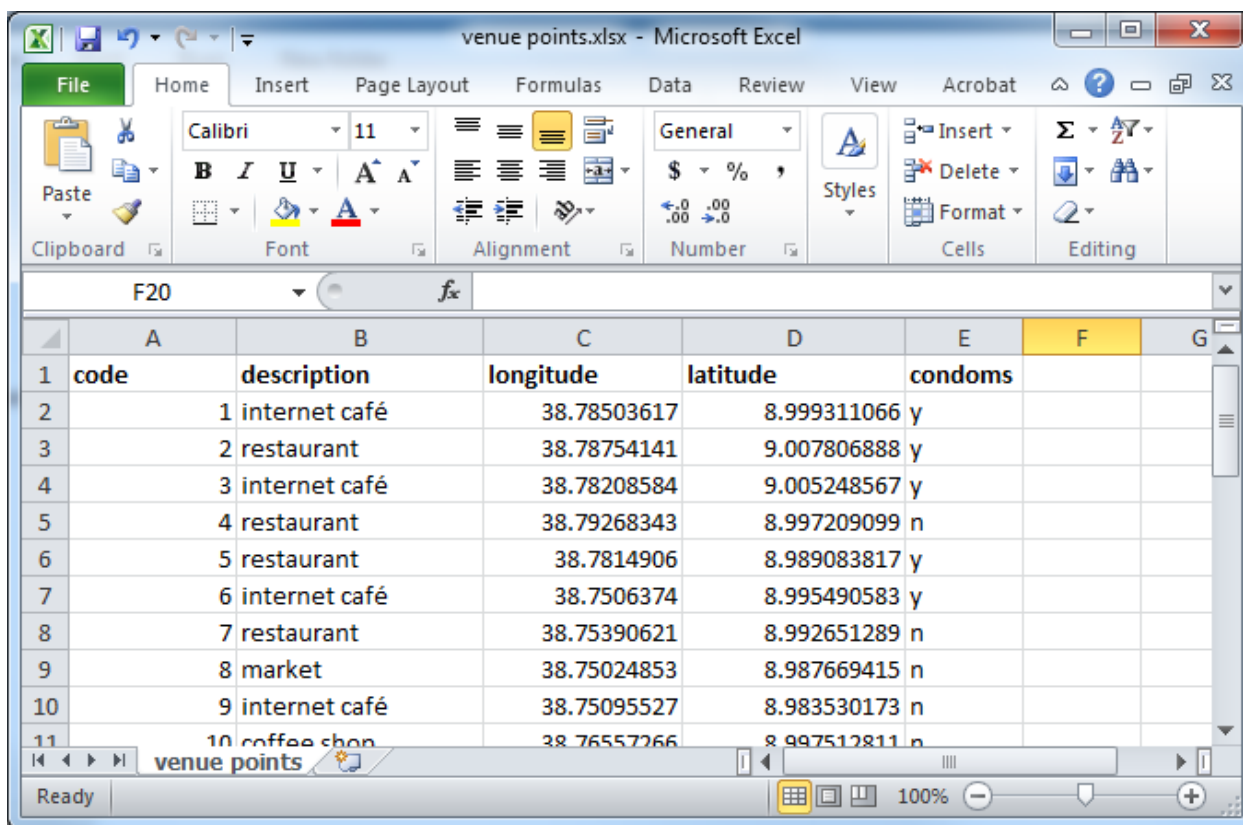
Step 1: Geographic data storage and formatting in Excel.

Excel is perhaps the most commonly used and familiar spreadsheet program. When PLACE data is collected along with coordinate data in a spreadsheet format, it is often stored in Excel. The recording of lat/long coordinates makes the data “geographic” and allows the data to be viewed on a map or virtual globe such as Google Earth.

This tutorial assumes the use of (1) Microsoft Excel, (2) a free Excel macro program called “ExportToGoogleEarth.xlsm”, and (3) the Google Earth software used in the introductory exercise.

Let’s start by examining some data in Excel.

- Locate the file called “venue points.xlsx” and open it. You should see a list of 30 different locations, a description of each location, latitude and longitude coordinates for each, and a column indicating the availability of condoms at each site.

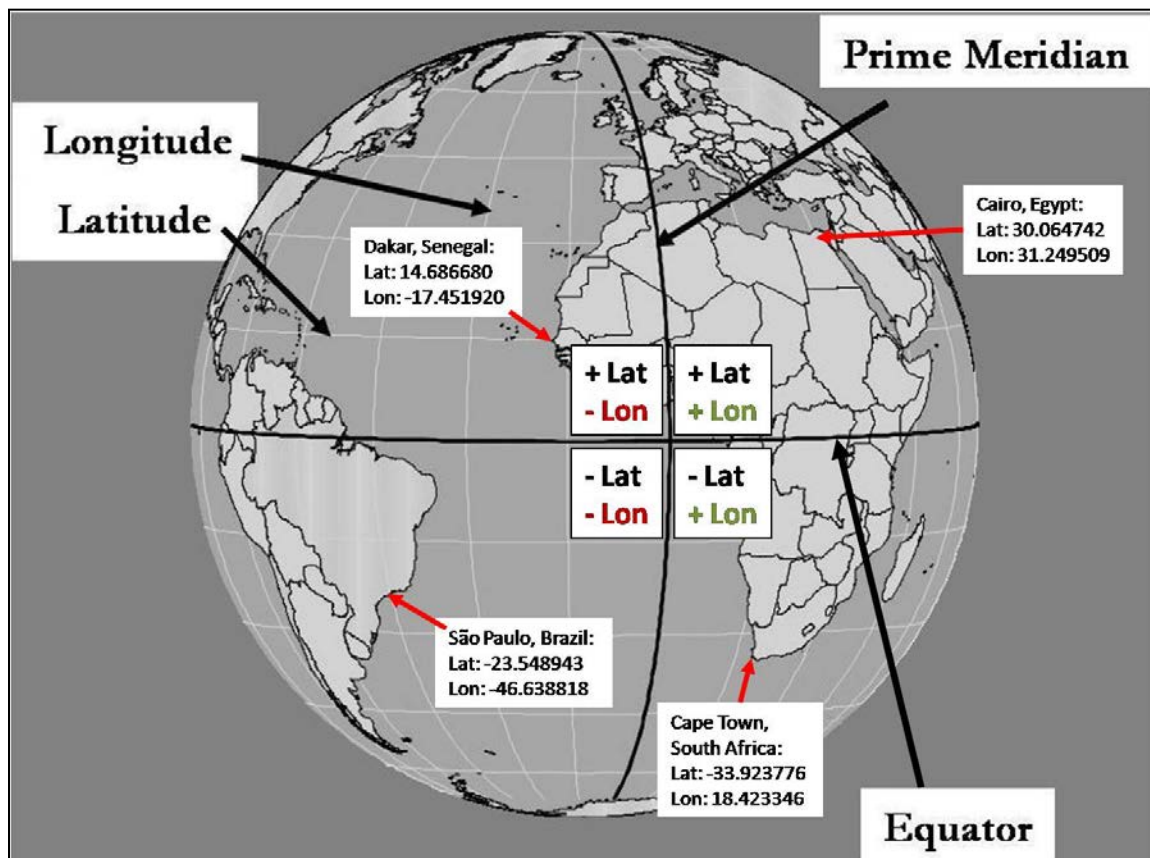


	A	B	C	D	E	F	G
1	code	description	longitude	latitude	condoms		
2	1	internet café	38.78503617	8.999311066	y		
3	2	restaurant	38.78754141	9.007806888	y		
4	3	internet café	38.78208584	9.005248567	y		
5	4	restaurant	38.79268343	8.997209099	n		
6	5	restaurant	38.7814906	8.989083817	y		
7	6	internet café	38.7506374	8.995490583	y		
8	7	restaurant	38.75390621	8.992651289	n		
9	8	market	38.75024853	8.987669415	n		
10	9	internet café	38.75095527	8.983530173	n		
11	10	coffee shop	38.76557266	8.997512811	n		

- Recall that in Google Earth, coordinates can be stored in decimal form or in degrees/minutes/seconds. If using decimal coordinates, as is done here, be sure not to truncate these numbers. A reading of 5 decimal places will have accuracy

of up to approximately 1 meter at the equator. (A common goal is to try for at least 6 decimal places, when recording decimal degrees.)

- Also pay close attention to the signage of these numbers. A negative sign before a latitudinal coordinate would indicate that it is located south of the equator. A positive sign (or no sign) would indicate that it is located north of the equator. (When dealing with longitudinal coordinates, a negative sign indicates position west of the Prime Meridian, which runs through Greenwich, England).



- **QUESTION:** Where will the coordinates in the “venue points” spreadsheet be located? **HINT:** Pay attention to the labels “latitude” and “longitude” and to the signage of the numbers and study the illustration above. (**ANSWER:** East of the Prime Meridian and North of the Equator).

NOTE: these coordinate format settings can also be changed in a hand-held GPS (global positioning system) unit at the time of data collection. The default setting on many GPS units is currently “decimal minutes”, which is a combination of D/M/S and decimal. This coordinate format, and the signage of the numbers

(E/W or N/S), are very important to pay attention to when collecting data in the field.

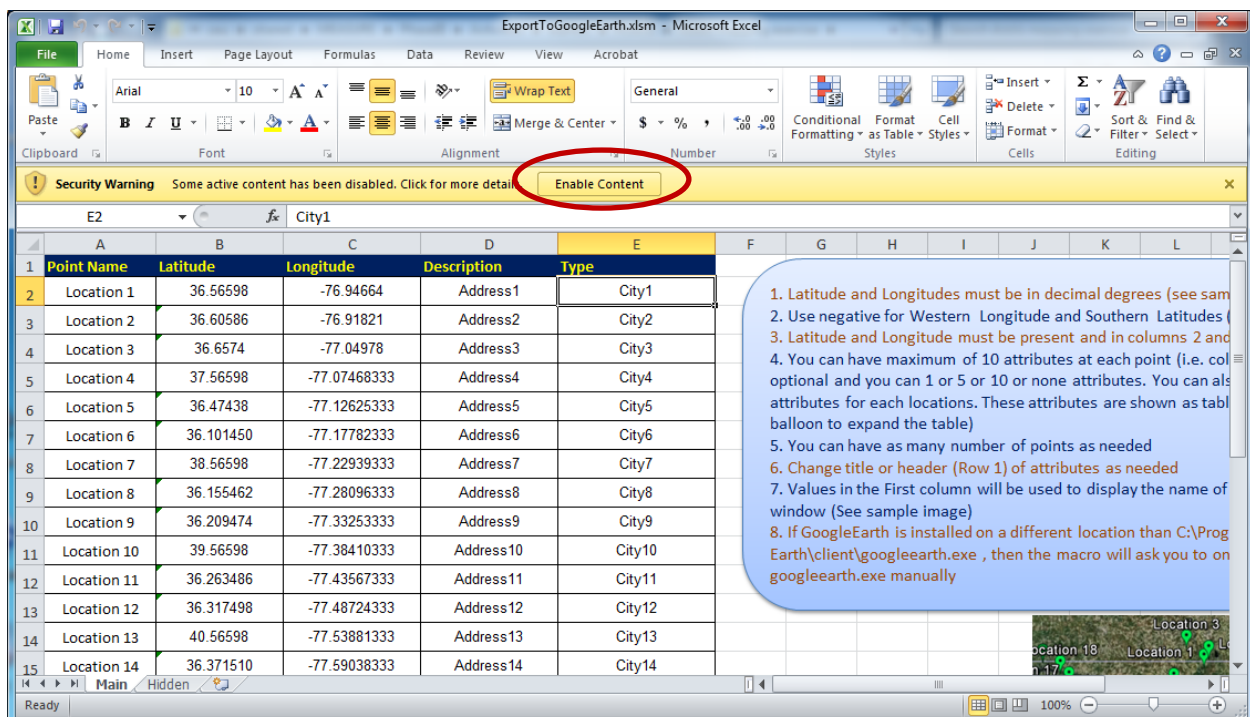
Step 2: Performing the data conversion.

We will be using an Excel macro (a program written in Excel) that will perform the data conversion for us so that we may view these points in Google Earth.

As you may recall, Google Earth reads geographic data in a format called KML (or KMZ, the companion compressed format) and displays the data on top of its virtual globe imagery.

Google and other third party companies allow uploading of a number of types of data for viewing in Google Earth, but **it is not a good idea to upload sensitive data, such as PLACE data, to the internet**. So we need a way to transform our Excel data into a KML file on our own computers and view it without uploading it.*

- ☐ Locate and double-click the “ExportToGoogleEarth.xlsm” file and examine it. You may see a security warning and a button labeled “Enable Content”.



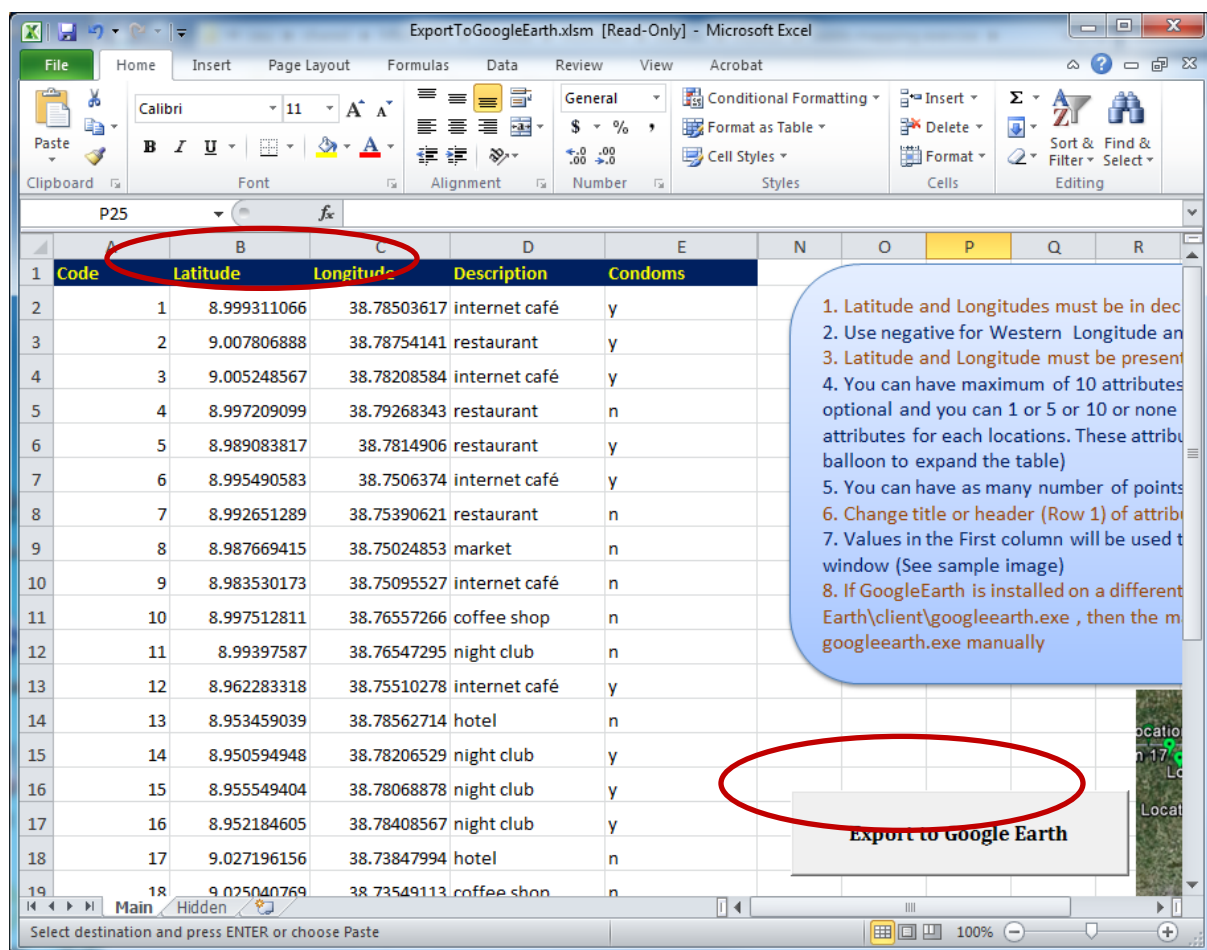
Since a macro is a program written to perform in Excel, and we know that this one is something we trust and that we do want to be able to use, go ahead and click the button. (If no button appears, the spreadsheet is currently ready to use.)

You will notice that the spreadsheet is filled with “dummy” values and contains a set of instructions (to the far right, in a blue box) for the macro’s use.

- With Excel still open, switch to the view of the “venue points” spreadsheet.
(Open the spreadsheet now if you have not done so earlier). You will need to copy these columns into the correct positions in the special Macro spreadsheet.

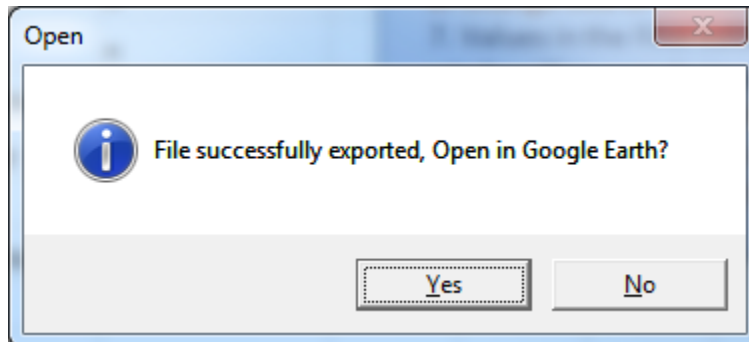
(HINT: Go to the “venue points” spreadsheet, select the data you would like to copy, right-click and choose “copy”, then go to the Macro spreadsheet, select the area you would like to fill, right-click, and choose “paste”. Do this for all 5 of the columns, being sure that the “latitude” values go into column B and that the “longitude” values go into column C. You can rename the columns headings for columns A, D, and E, but leave B & C alone!)

- When you are done, you should see something like the following:



NOTE: Did you get the latitude/longitude values into the proper columns? If you mix them up, your points could end up in Europe instead of Africa!

- ☐ If everything looks correct, press the “Export to Google Earth” button at the lower right of your data, as shown circled in red in the above illustration.
- ☐ You will be asked to save your file as a KML file. Give it a name, such as “Addis venues”, and save it to your working folder.
- ☐ You should see the following message:

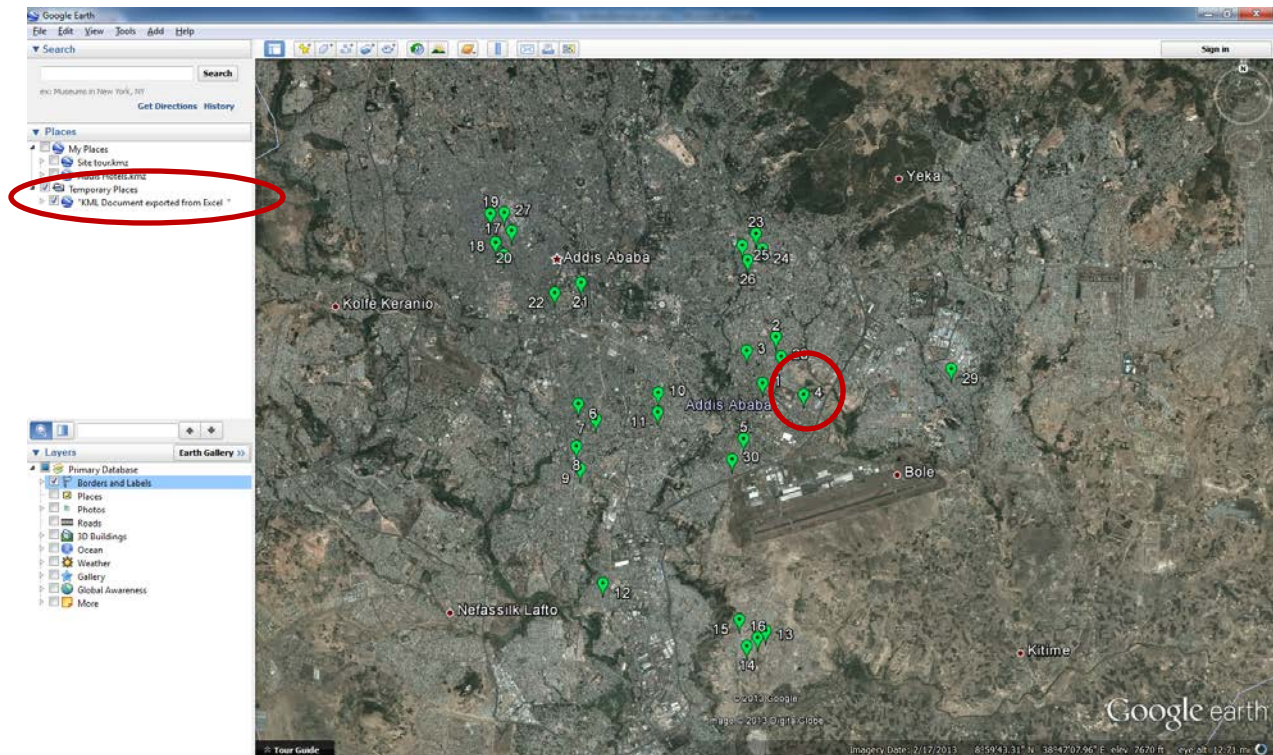


Step 3: Examining your new KML file in Google Earth:

- ☐ If you choose “Yes” in the above dialog, your file should open automatically in Google Earth. (If the program cannot automatically locate both your file and your installation of Google Earth, you will need to locate Google Earth yourself and open the KML file manually.)

HINT: Manual instructions: If the program does not open the file automatically, just double-click on Google Earth to open it, and then click on the *File* menu and choose *Open*, browse to where you saved your new KML file, click on it, and choose *Open* again.

- ☐ You should see your points plotted on top of the imagery of Addis Ababa, similar to the following illustration. (Google Earth should zoom in automatically to this area upon opening the KML file. If not, you can zoom to it yourself.)



- ☐ Try clicking on one of the points to view its attributes:



- ☐ Also note that the file has opened under the “Temporary Places” heading in the “Places” sidebar panel. If you wish to change the properties of any of the points and/or keep them in the “My Places” heading, you will need to re-save your placemarks file under a new name. For now, just take note of this. Your points are still already converted and saved in the KML file the Macro produced.

Step 4: Making a more readable map.

When planning out a map, it is best to think first about what data you would most like to display. The data associated with our points can be displayed on top of virtual globe imagery in a KML file by means of the symbols/colors used to display each point, and by means of text used to label each point. In this case, we might want to differentiate our points by type of venue and also by whether condoms are offered or not.

Unfortunately, we are a bit restricted in that Google Earth has limited cartographic capabilities. In addition to this, our Macro (which we are using to modify our files on our own computers in order to avoid sensitive upload of data) has limited capabilities when it comes to quantifying our data in the KML file it produces. But the steps below will show one way to work within these limitations to nonetheless produce a more readable display of the data.

Let's try re-formatting our data a bit to make a new display with more information.

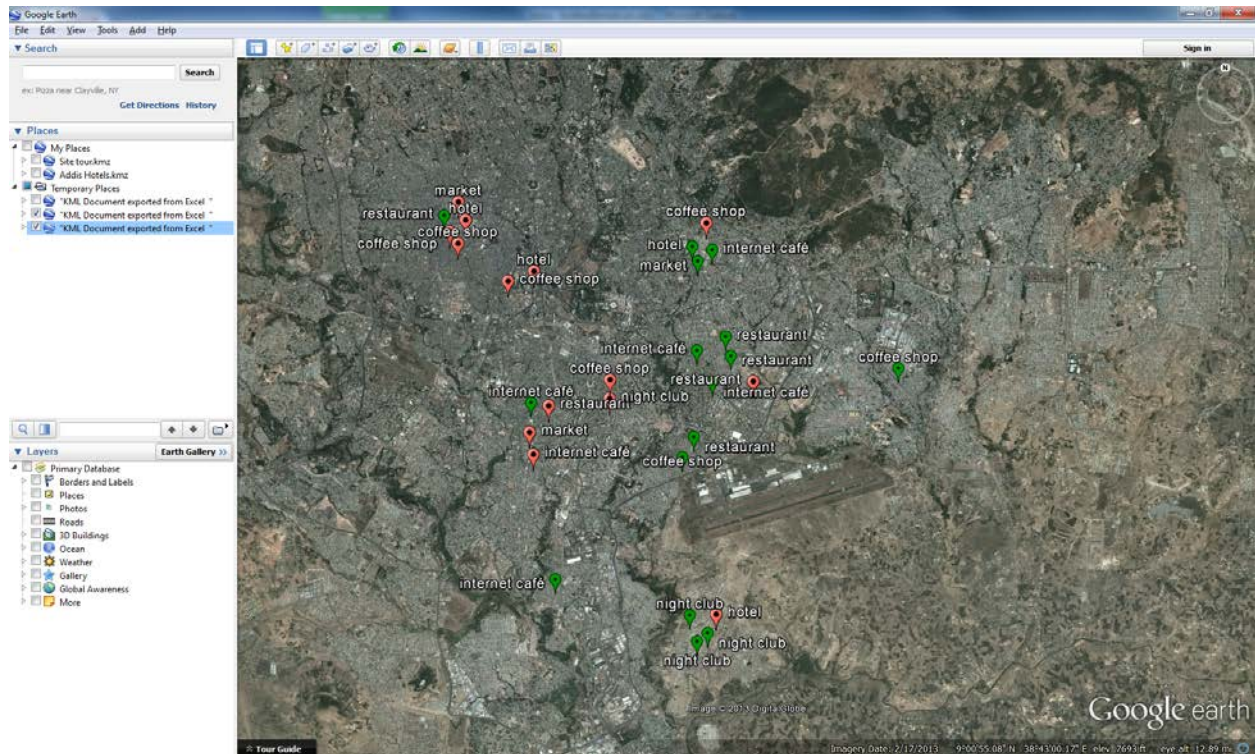
Assignment to try on your own:

- ☐ Create a map which shows condom availability in green and lack of condoms in red. Label each point according to its venue type.

STEPS NEEDED:

- ☐ Create one file (with a new name, such as "venues with condoms.xls") containing venues that have condom access, and another ("venues without condoms.xls") for those that do not.
- ☐ Convert each set of points to a separate KML file, using the Macro converter. To be able to label the points according to the venue type (recorded in the original "description" column), try copying the values into Column A in the Macro sheet.
- ☐ Display *each* set of points in Google Earth in a different color. (HINT: try changing the placemark properties in Google Earth for each group of placemarks at once.)
- ☐ Save each placemarks file as a new KML in "My Places", for future viewing in Google Earth.
- ☐ Go to File>Save Image to save your image as a JPG shot for future use.

Sample Map:



Exercise End

MEASURE Evaluation is funded by the U.S. Agency for International Development (USAID) and works globally with other agencies to promote a cycle of data demand, collection, analysis and utilization to measure progress toward addressing and confronting disease, population issues, and poverty. The information provided in this exercise is not official U.S. government information and does not necessarily represent the views of USAID or the U.S. government.